Appendix NOP
NOP and Public Comments

Native American Heritage Commission

Southern California Association of Governments

Meridian Park, LLC

City of Riverside

Metropolitan Water District of Southern California

NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT / NOTICE OF SCOPING MEETING

DATE: April 14, 2022

TO: Responsible Agencies, Trustee Agencies, Interested Parties

LEAD AGENCY: Western Municipal Water District

PROJECT TITLE: Riverside Facilities Master Plan

PUBLIC REVIEW PERIOD: April 14, 2022 through May 16, 2022

PROJECT DESCRIPTION: This Notice of Preparation (NOP) has been prepared to notify agencies and interested parties that Western Municipal Water District (WMWD), as the lead agency pursuant to the California Environmental Quality Act (CEQA), is preparing a Program Environmental Impact Report (PEIR) for the Riverside Facilities Master Plan (FMP; proposed project). The FMP is an integrated master plan that evaluates the performance and capacity of WMWD's potable water, recycled/non-potable water, and wastewater systems within the Riverside Retail Service Area. The FMP provides a list of recommended capital improvement projects to guide WMWD with implementation of the recommended improvements to support future growth and development of the Riverside Retail Service Area. The FMP presents existing system deficiencies that need to be corrected as well as future improvements and facility upgrades to be implemented in the short-term (by 2030) and under buildout conditions (after 2030). The projects include upsizing of existing pipelines as well as new pipelines; new storage tanks; new booster pump stations; new pumps at existing pump stations; capacity upgrades at existing lift stations; and potential expansion of the Western Water Recycling Facility (WWRF).

The PEIR will include a programmatic assessment of the entire FMP, as well as site-specific assessments where sufficient information is available. Projects are categorized into two planning stages: those to be implemented by 2030 (priority facility and near-term projects) and after 2030 (future projects). Projects that may be considered by the Board for potential approval by 2030 will be evaluated at a project level in the PEIR, while projects that are anticipated to be considered after 2030 are considered long-term projects and will be evaluated at a programmatic level in the PEIR. A brief, initial discussion of potential environmental impacts is included in **Attachment A** to this NOP. To fulfill the requirement of potential federal funding partners, the PEIR may be prepared to comply with the National Environmental Policy Act (NEPA) through CEQA-Plus requirements of the U.S. Environmental Protection Agency.

PROJECT LOCATION: WMWD's service area is located in western Riverside County, approximately 50 miles east of Los Angeles and covers 527 square miles. The proposed project would be located within WMWD's Riverside Retail Service Area, which covers 104 square miles and is generally bounded by the City of Riverside to the north, the City of Moreno Valley to the east, the City of Lake Elsinore to the south, and the City of Corona to the west, which is shown on **Figure 1**. Proposed projects are included on **Figure 2** and are located in the City of Riverside and unincorporated portions of Riverside County.

F I L E D / P O S T E D
County of Riverside
Peter Aldana
Assessor-County Clerk-Recorder
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Page 1 of 8
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PUBLIC REVIEW AND COMMENTS: WMWD is soliciting comments from responsible and trustee agencies as well as interested parties as to the scope and content of the environmental information to be included in the PEIR. In accordance with CEQA, agencies are requested to review the project description provided in this NOP and provide comments on environmental issues related to the statutory responsibilities of the agency. The PEIR will be used by WMWD when considering approval of the proposed project as well as any related discretionary approvals. All comments to the NOP are due no later than **4:00 p.m.** on **May 16**. Please send your comments to the mailing address or email address shown below. Include a return address or email address and a contact name for your agency or party with your comments.

CONTACT PERSON:

Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518
Attn: Jason Pivovaroff, P.E., Deputy Director of Water Resources
JPivovaroff@wmwd.com
Phone: 562-665-8352

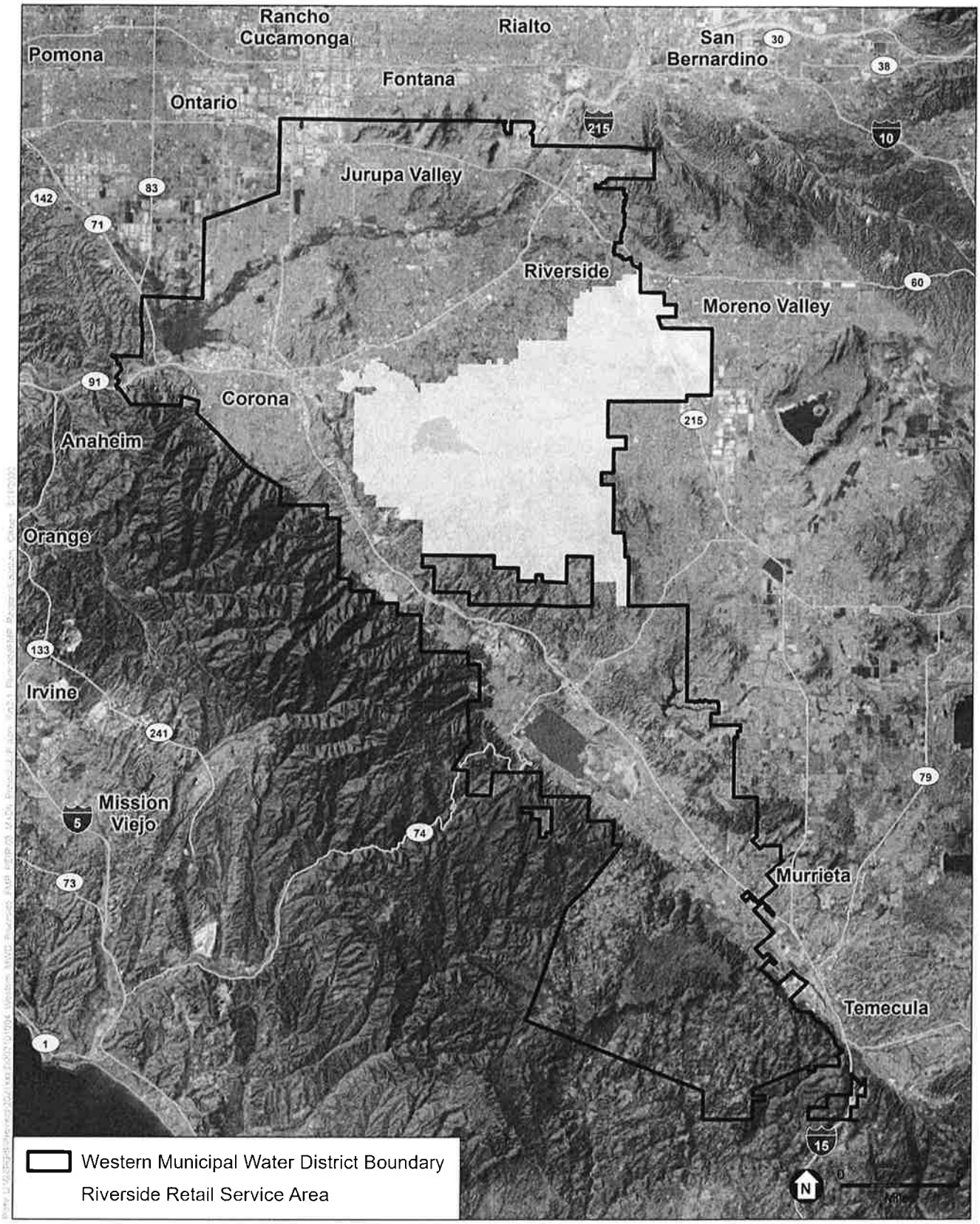
DOCUMENT AVAILABILITY: Copies of the NOP are available at WMWD's office, located at 14205 Meridian Parkway, Riverside, CA 92518, as well as at the following libraries: Orange Terrace Branch Library, located at 20010-B Orange Terrace Pkwy, Riverside, CA 92508; Mead Valley Library, located at 21580 Oakwood St, Perris, CA 92570; and Woodcrest Library, located at 16625 Krameria Ave, Riverside, CA 92504. The NOP is be available online at the WMWD Web Site (https://www.wmwd.com/135/Planning).

SCOPING MEETING: WMWD will hold one virtual public scoping meeting to receive comments and suggestions about the issues to be included in the PEIR. The virtual public scoping meeting will include a brief presentation providing an overview of the proposed project. After the presentation, public comments will be accepted. The virtual scoping meeting will be held as follows:

Virtual Public Scoping Meeting Details

Date:	April 26, 2022
Time:	6:00 PM
Zoom Link:	https://bit.ly/riversidefmpscopingmtg
Telephone Dial-in:	(888) 788-0099
Meeting ID:	854 7046 3556

If participating online, please register for the meeting by registering at the meeting link (https://bit.ly/riversidefmpscopingmtg) prior to joining. For the best experience it is recommended that the public download and install Zoom on your computer before the meeting begins. The free Zoom software can be downloaded in advance, or at the moment you join the meeting at: https://zoom.us/download; however, it is not required to install the Zoom software on your computer to participate and provide comments. If participating by phone, you will not be able to see the visual content presented, but you can listen and participate. When instructed to do so, please press *9 to raise your hand and press *6 to mute and unmute yourself.

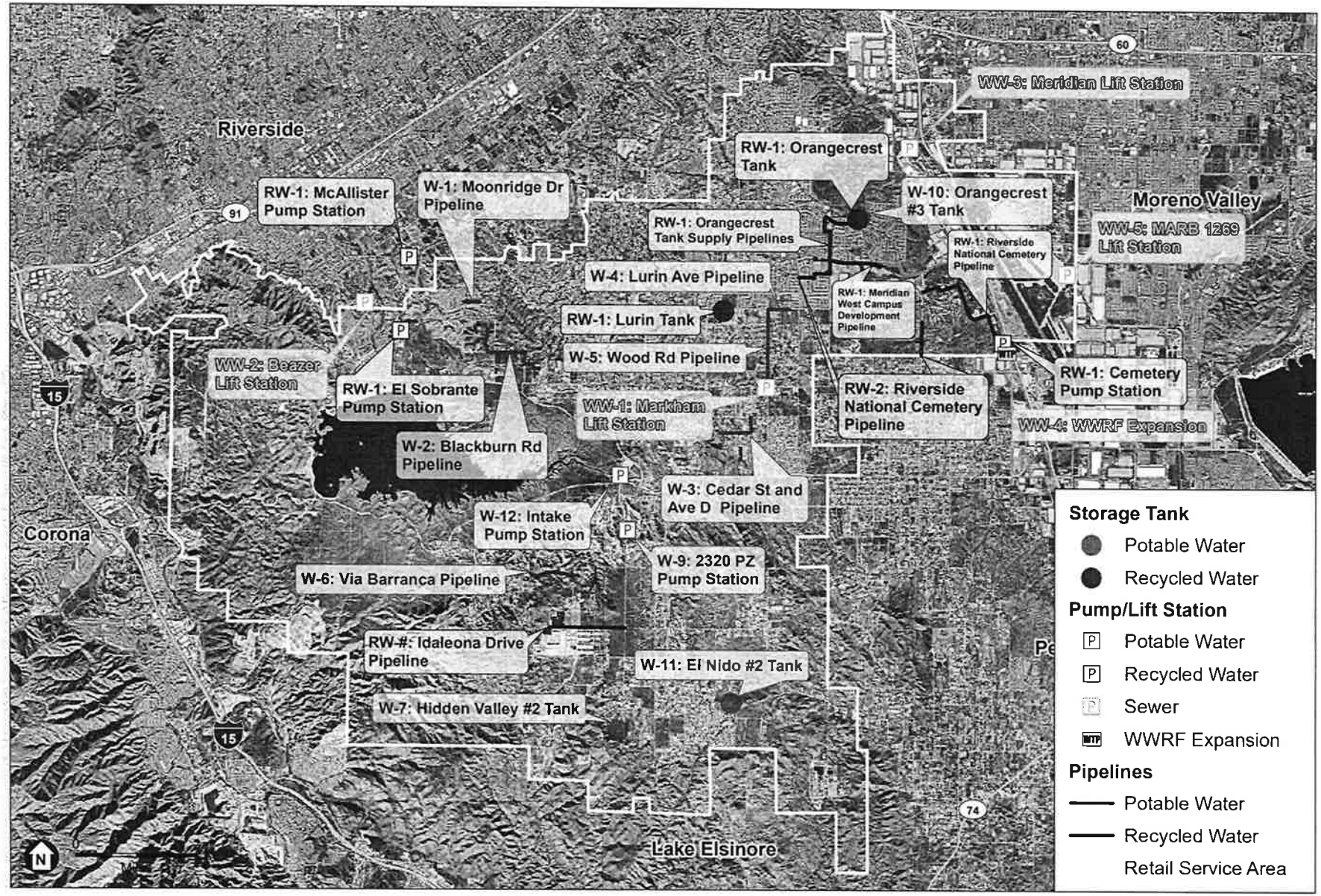


SOURCE: ESRI, 2022; WMWD, 2022; ESA, 2022.

Riverside Facilities Master Plan

Figure 1
Regional Location

ESA



SOURCE: Nearmap, 2022; WMWD, 2022; ESA, 2022.

Riverside Facilities Master Plan

Figure 2
Riverside FMP Projects

ESA

ATTACHMENT A

Potential Environmental Impacts

The PEIR will assess and disclose the reasonably foreseeable direct, indirect, and cumulative impacts that would likely result from the construction and operation of the proposed project. Potential impacts to resources listed in Appendix G of the CEQA Guidelines, as amended on December 28, 2018, are summarized below. The PEIR will identify mitigation measures if necessary to avoid, minimize, and offset potentially significant impacts of the project. The PEIR also will evaluate alternatives to the proposed project that would avoid, minimize, and offset potentially significant impacts of the project while attempting to meet the objectives of the proposed project.

Aesthetics

Views in the project area consist mainly of residential and agricultural land uses, public facilities, open space and distant mountains vistas. Although there are no officially designated California State Scenic Highways within WMWD's Riverside Retail Service Area, Route 15 to the west of Lake Mathews is eligible for California State Scenic Highway status and some roadways may be considered scenic. Implementation of the proposed project would require construction of aboveground facilities such as storage tanks, pump stations, and treatment facility expansions. The PEIR will evaluate the potential for construction and operation of the proposed project to affect aesthetic resources, including potential impacts to scenic vistas and views, impacts to the visual character of sites that would support aboveground facilities, and the potential for new light or glare.

Agriculture and Forestry Resources

The proposed project area includes lands that are classified by the Farmland Mapping and Monitoring Program as Prime Farmland, Unique Farmland, and Farmland of Local Importance. The northern portion of the of the service, north of Lake Mathews, contains Williamson Act Prime Agriculture Land. There does not appear to be any forestland within the project area. The PEIR will evaluate whether the proposed project would impact FMMP-designated farmland, or whether any agricultural or forestry land would be converted to non-agricultural or non-forestry uses.

Air Quality

Construction and operation of the proposed project could cause air emissions that would result from construction equipment exhaust, ground disturbance during construction, material hauling, construction employee-commute travel, vehicle operational maintenance trips, and vehicle trips associated with any increases in employment. The PEIR will estimate pollutant emissions from construction and operational activities.

Biological Resources

The proposed project could result in changes to wildlife habitat and disturbance of sensitive species during construction or operation. Site grading and introduction of new aboveground storage facilities could impact existing floral and faunal species or their habitats. The PEIR will discuss local ordinances and state and federal regulations governing biological resources, and will evaluate the potential for construction and operation of the proposed project to affect special-status species, sensitive natural communities, wetlands, wildlife movement corridors, and conservation plans.

Cultural Resources

The proposed project would require ground disturbing activities during construction that could disturb known or unknown archeological and historic sites, as well as human remains. Additionally, operation of project facilities could affect the integrity of historical or archaeological resources. The PEIR will assess the potential effects of the proposed project on cultural resources during construction and operation.

Energy

The proposed project could require significant amounts of energy during construction and operation of the proposed project facilities. The PEIR will quantitatively evaluate energy demand from construction equipment, haul trucks, vendor trucks, and construction workers. The PEIR will also quantify the Project's anticipated operational energy needs, including direct consumption of electricity to pump water, recycled water, and wastewater, and fuel needed for maintenance operations. Any construction of new or expanded energy related facilities could result in environmental effects.

Geology and Soils

The proposed project is located in western Riverside County, which is a seismically active region in California. The construction of new facilities could be subject to potential seismic hazards including ground shaking. In addition, construction activities could expose soils to storm water erosion. The PEIR will evaluate geologic hazards in the region and in WMWD's Riverside Retail Service Area, such as the potential for ground shaking, liquefaction, expansive soils, soil erosion and landslides.

Greenhouse Gas Emissions

Implementation of the proposed project would result in the generation of greenhouse gas (GHG) emissions associated with construction and operations. The PEIR will estimate construction-related emissions and long-term operational emissions, including total CO2-equivalent emissions for evaluating the effects of GHGs. The PEIR will examine the project's effects on global climate change and evaluate consistency of the project with the State's GHG emissions reduction goals.

Hazards and Hazardous Materials

Excavation activities during construction of pipelines, pump stations, storage tanks, and treatment facilities could uncover contaminated soils or hazardous substances that pose a substantial hazard to human health or the environment. Operation of some projects may require transport, use, and disposal of regulated materials. The PEIR will assess the potential for the public or the environment to be affected by accidental release of hazardous materials due to project construction and operation.

Hydrology and Water Quality

Construction and operation of the proposed project could affect water quality and drainage patterns, particularly if excavation activities result in sediment or spills runoff. The PEIR will identify all impacts to water quality, water volume, surface runoff, groundwater resources, and seiche and dam inundation hazard zone impacts as a result of project implementation.

Land Use and Recreation

The proposed project would construct facilities within WMWD's Riverside Retail Service Area, primarily within rural residential areas. Much of the proposed infrastructure would be installed within public rights-

of-way or on property owned by WMWD, although some new parcels will be developed. The PEIR will evaluate the compatibility of the proposed projects with surrounding land use and recreational facilities, and will assess whether the proposed project will divide an established community.

Mineral Resources

The proposed project would involve ground-disturbing activities that could impact the availability of known mineral resources. A majority of WMWD's Riverside Retail Service Area is within Mineral Resources Zone 3, a zone where the significance of the mineral deposits is undetermined. To the west of Lake Mathews is an area within Mineral Resource Zone 2, a zone where there are known/inferred significant mineral resource deposits, including clay and concrete aggregate. The PEIR will identify if impacts to mineral resources would result from implementation of the proposed project.

Noise

Implementation of the proposed project would require construction and operation of project elements that would generate noise and vibration. Construction activities that could be a significant source of noise and vibration include trucking operations, use of heavy construction equipment (e.g., graders, cranes, and frontend loaders, pile driving equipment). During project operations, aboveground facilities such as pump and lift stations could generate permanent noise. The PEIR will describe the City of Riverside, City of Moreno Valley, City of Corona, and County of Riverside noise policies and ordinances, and assess potential noise impacts based on these thresholds.

Population and Housing/Growth Inducement

Implementation of the proposed project would improve the potable, recycled water, and wastewater systems within WMWD's Riverside Retail Service Area, and would support projected population growth in the service area. The proposed project would not build new housing or otherwise have a direct impact on population growth in the project area, nor would it require displacement of existing residents. The PEIR will evaluate the potential for the proposed project to indirectly induce growth and result in secondary environmental effects associated with growth.

Public Services

Implementation of the proposed project is unlikely to affect demand for public services, or require new or expanded facilities for public service providers. The PEIR will include an assessment of the project's potential to affect existing police and fire protection services, schools, or parks, during construction and operational activities.

Traffic and Transportation

Construction of the proposed project could affect traffic on local roadways as a result of hauling of material and equipment, road closures and detours, and increase in traffic hazards caused by construction activities. Additionally, the construction of pipelines would occur primarily in established rights-of-ways, which would impact circulation patterns in the City of Riverside, City of Moreno Valley, City of Corona, and parts of unincorporated Riverside County. The PEIR will evaluate the potential for construction vehicles, lane closures, or road closures to impact traffic and circulation in the project area.

Tribal Cultural Resources

WMWD is conducting AB 52 tribal consultation with the following seven Native American Tribes who have requested to be informed of activities initiated by WMWD: Torres Martinez Desert Cahuilla Indians, Agua Caliente Band of Cahuilla Indians, Temecula Band of Luiseño Mission Indians, Morongo Band of Mission Indians, Soboba Band of Luiseño Mission Indians, San Manuel Band of Mission Indians, and the Rincon Band of Luiseño Indians. There is a potential for the proposed project to affect tribal cultural resources during ground-disturbing activities associated with construction of the proposed project. The PEIR will evaluate potential impacts to tribal cultural resources and incorporate the results of AB 52 consultations into the analysis.

Utilities and Service Systems

The proposed project could result in the temporary disruption of services to adjacent land uses. The PEIR will describe the existing water, electricity, telecommunications, and gas utilities serving the project's local communities. Existing and projected regional utility supplies, demands, and facilities will be described along with any constraints or service deficiencies in the region. The PEIR will evaluate the project's potential to affect utilities and service systems.

Wildfire

The project site is located within rural residential communities in western Riverside County. The project site area is located within a State/Federal Responsibility Area. The severity zones include Very High, High, and Moderate Fire Hazard Severity Zones. The project site includes steeper slopes to the southeast of Lake Mathews. During construction, equipment and on-site diesel fuel could pose a risk to wildfire with possible ignition sources such as internal combustion engines, gasoline-powered tools, and equipment that could produce a spark, fire, or flame. The use of spark-producing construction machinery within fire risk areas such as the project area could expose temporary project workers and contractors to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire. The PEIR will evaluate potential impacts of wildfires due to implementation of the proposed project.

STATE OF CALIFORNIA Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

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April 15, 2022

Jason Pivovaroff
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518

Re: 2022040268, Riverside Facilities Master Plan Project, Riverside County

Dear Mr. Pivovaroff:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

- **a.** A brief description of the project.
- **b.** The lead agency contact information.
- **c.** Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).
- **d.** A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

- **a.** For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

- **a.** Alternatives to the project.
- **b.** Recommended mitigation measures.
- **c.** Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

- **a.** Type of environmental review necessary.
- **b.** Significance of the tribal cultural resources.
- **c.** Significance of the project's impacts on tribal cultural resources.
- **d.** If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

- **a.** Whether the proposed project has a significant impact on an identified tribal cultural resource.
- **b.** Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. 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:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. 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.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

cc: State Clearinghouse

SCAG
INNOVATING FOR A BETTER TOMORROW

SOUTHERN CALIFORNIA
ASSOCIATION OF GOVERNMENTS
900 Wilshire Blvd., Ste. 1700
Los Angeles, CA 90017
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May 12, 2022

Mr. Jason Pivovaroff, Deputy Director of Water Resources
Western Municipal Water District
14205 Meridian Parkway
Riverside, California 92518
Phone: (562) 665-8352
E-mail: JPivovaroff@wmwd.com

RE: SCAG Comments on the Notice of Preparation of a Draft Environmental Impact Report for the Riverside Facilities Master Plan [SCAG NO. IGR10615]

Dear Mr. Pivovaroff,

Thank you for submitting the Notice of Preparation of a Draft Environmental Impact Report for the Riverside Facilities Master Plan ("proposed project") to the Southern California Association of Governments (SCAG) for review and comment. SCAG is responsible for providing informational resources to regionally significant plans, projects, and programs per the California Environmental Quality Act (CEQA) to facilitate the consistency of these projects with SCAG's adopted regional plans, to be determined by the lead agencies.[1]

Pursuant to Senate Bill (SB) 375, SCAG is the designated Regional Transportation Planning Agency under state law and is responsible for preparation of the Regional Transportation Plan (RTP) including the Sustainable Communities Strategy (SCS). SCAG's feedback is intended to assist local jurisdictions and project proponents to implement projects that have the potential to contribute to attainment of Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) goals and align with RTP/SCS policies. Finally, SCAG is the authorized regional agency for Intergovernmental Review (IGR) of programs proposed for Federal financial assistance and direct Federal development activities, pursuant to Presidential Executive Order 12372.

SCAG staff has reviewed the Notice of Preparation of a Draft Environmental Impact Report for the Riverside Facilities Master Plan in Riverside County. The proposed project includes the upsizing of existing pipelines as well as new pipelines, new storage tanks, new booster pump stations, new pumps at existing pump stations, capacity upgrades at existing lift stations, and potential expansion of the Wester Water Recycling Facility.

When available, please email environmental documentation to IGR@scag.ca.gov providing, at a minimum, the full public comment period for review.

If you have any questions regarding the attached comments, please contact the Intergovernmental Review (IGR) Program, attn.: Anita Au, Senior Regional Planner, at (213) 236-1874 or IGR@scag.ca.gov. Thank you.

Sincerely,

Frank Wen, Ph.D.
Manager, Planning Strategy Department

[1] Lead agencies such as local jurisdictions have the sole discretion in determining a local project's consistency with the 2020 RTP/SCS (Connect SoCal) for the purpose of determining consistency for CEQA.

COMMENTS ON THE NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE RIVERSIDE FACILITIES MASTER PLAN [SCAG NO. IGR10615]

CONSISTENCY WITH CONNECT SOCAL

SCAG provides informational resources to facilitate the consistency of the proposed project with the adopted 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS or Connect SoCal). For the purpose of determining consistency with CEQA, lead agencies such as local jurisdictions have the sole discretion in determining a local project's consistency with Connect SoCal.

CONNECT SOCAL GOALS

The SCAG Regional Council fully adopted Connect SoCal in September 2020. Connect SoCal, also known as the 2020 – 2045 RTP/SCS, builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. The long-range visioning plan balances future mobility and housing needs with goals for the environment, the regional economy, social equity and environmental justice, and public health. The goals included in Connect SoCal may be pertinent to the proposed project. These goals are meant to provide guidance for considering the proposed project. Among the relevant goals of Connect SoCal are the following:

SCAG CONNECT SOCAL GOALS	
Goal #1:	*Encourage regional economic prosperity and global competitiveness*
Goal #2:	*Improve mobility, accessibility, reliability and travel safety for people and goods*
Goal #3:	*Enhance the preservation, security, and resilience of the regional transportation system*
Goal #4:	*Increase person and goods movement and travel choices within the transportation system*
Goal #5:	*Reduce greenhouse gas emissions and improve air quality*
Goal #6:	*Support healthy and equitable communities*
Goal #7:	*Adapt to a changing climate and support an integrated regional development pattern and transportation network*
Goal #8:	*Leverage new transportation technologies and data-driven solutions that result in more efficient travel*
Goal #9:	*Encourage development of diverse housing types in areas that are supported by multiple transportation options*
Goal #10:	*Promote conservation of natural and agricultural lands and restoration of habitats*

For ease of review, we encourage the use of a side-by-side comparison of SCAG goals with discussions of the consistency, non-consistency or non-applicability of the goals and supportive analysis in a table format. Suggested format is as follows:

SCAG CONNECT SOCAL GOALS		
	Goal	Analysis
Goal #1:	*Encourage regional economic prosperity and global competitiveness*	*Consistent: Statement as to why;* *Not-Consistent: Statement as to why;* *Or* *Not Applicable: Statement as to why;* *DEIR page number reference*
Goal #2:	*Improve mobility, accessibility, reliability and travel safety for people and goods*	*Consistent: Statement as to why;* *Not-Consistent: Statement as to why;* *Or* *Not Applicable: Statement as to why;* *DEIR page number reference*
etc.		etc.

Connect SoCal Strategies

To achieve the goals of Connect SoCal, a wide range of land use and transportation strategies are included in the accompanying twenty (20) technical reports. Of particular note are multiple strategies included in Chapter 3 of Connect SoCal intended to support implementation of the regional Sustainable Communities Strategy (SCS) framed within the context of focusing growth near destinations and mobility options; promoting diverse housing choices; leveraging technology innovations; supporting implementation of sustainability policies; and promoting a Green Region. To view Connect SoCal and the accompanying technical reports, please visit the Connect SoCal webpage. Connect SoCal builds upon the progress from previous RTP/SCS cycles and continues to focus on integrated, coordinated, and balanced planning for land use and transportation that helps the SCAG region strive towards a more sustainable region, while meeting statutory requirements pertinent to RTP/SCSs. These strategies within the regional context are provided as guidance for lead agencies such as local jurisdictions when the proposed project is under consideration.

DEMOGRAPHICS AND GROWTH FORECASTS

A key, formative step in projecting future population, households, and employment through 2045 for Connect SoCal was the generation of a forecast of regional and county level growth in collaboration with expert demographers and economists on Southern California. From there, jurisdictional level forecasts were ground-truthed by subregions and local agencies, which helped SCAG identify opportunities and barriers to future development. This forecast helps the region understand, in a very general sense, where we are expected to grow, and allows SCAG to focus attention on areas that are experiencing change and may have increased transportation needs. After a year-long engagement effort with all 197 jurisdictions one-on-one, 82 percent of SCAG's 197 jurisdictions provided feedback on the forecast of future growth for Connect SoCal. SCAG also sought feedback on potential sustainable growth strategies from a broad range of stakeholder groups – including local jurisdictions, county transportation commissions, other partner agencies, industry groups, community-based organizations, and the general public. Connect SoCal utilizes a bottom-up approach in that total projected growth for each jurisdiction reflects feedback received from jurisdiction staff, including city managers, community development/planning directors, and local staff. Growth at the neighborhood level (i.e., transportation analysis zone (TAZ) reflects entitled projects and adheres to current general and specific plan maximum densities as conveyed by jurisdictions (except in cases where entitled projects and development agreements exceed these capacities as calculated by SCAG). Neighborhood level growth projections also feature strategies that help to reduce greenhouse gas emissions (GHG) from automobiles and light trucks to achieve Southern California's GHG reduction target, approved by the California Air Resources Board (CARB) in accordance with state planning law. Connect SoCal's Forecasted Development Pattern is utilized for long range modeling purposes and does not supersede actions taken by elected bodies on future development, including entitlements and development agreements. SCAG does not have the authority to implement the plan -- neither through decisions about what type of development is built where, nor what transportation projects are ultimately built, as Connect

SoCal is adopted at the jurisdictional level. Achieving a sustained regional outcome depends upon informed and intentional local action. To access jurisdictional level growth estimates and forecasts for years 2016 and 2045, please refer to the Connect SoCal Demographics and Growth Forecast Technical Report. The growth forecasts for the region and applicable jurisdictions are below.

	Adopted SCAG Region Wide Forecasts				Adopted County of Riverside Forecasts			
	Year 2020	**Year 2030**	**Year 2035**	**Year 2045**	**Year 2020**	**Year 2030**	**Year 2035**	**Year 2045**
Population	19,517,731	20,821,171	21,443,006	22,503,899	2,492,601	2,852,599	2,995,509	3,251,705
Households	6,333,458	6,902,821	7,170,110	7,633,451	784,783	930,216	987,738	1,086,113
Employment	8,695,427	9,303,627	9,566,384	10,048,822	822,826	961,268	1,008,943	1,102,721

MITIGATION MEASURES

SCAG staff recommends that you review the Final Program Environmental Impact Report (Final PEIR) for Connect SoCal for guidance, as appropriate. SCAG's Regional Council certified the PEIR and adopted the associated Findings of Fact and a Statement of Overriding Considerations (FOF/SOC) and Mitigation Monitoring and Reporting Program (MMRP) on May 7, 2020 and also adopted a PEIR Addendum and amended the MMRP on September 3, 2020 (please see the PEIR webpage and scroll to the bottom of the page for the PEIR Addendum). The PEIR includes a list of project-level performance standards-based mitigation measures that may be considered for adoption and implementation by lead, responsible, or trustee agencies in the region, as applicable and feasible. Project-level mitigation measures are within responsibility, authority, and/or jurisdiction of project-implementing agency or other public agency serving as lead agency under CEQA in subsequent project- and site- specific design, CEQA review, and decision-making processes, to meet the performance standards for each of the CEQA resource categories.

Meridian Park, LLC
1156 N. Mountain Ave, Upland, CA 91786

May 13, 2022

Jay Pivovaroff, PE
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518

SUBJECT: Notice of Preparation – Riverside Facilities Master Plan

Dear Mr. Pivovaroff,

Meridian Park, LLC appreciates the opportunity to respond and comment on the Notice of Preparation related to WMWD's proposed updates to their Riverside Facilities Master Plan. As you are aware, Meridian Park, LLC has applied for entitlements with the March Joint Powers Authority for the West Campus Upper Plateau project (hereinafter "Project"), and previously circulated a Notice of Preparation of the EIR on November 18, 2021. Meridian Park, LLC is in the process of finalizing the Draft Environmental Impact Report for public review.

Meridian Park, LLC is actively coordinating with WMWD on the required domestic, recycled, and sanitary sewer facilities to serve the project, and received approval of a Water Supply Assessment on February 16, 2022. We continue to work with WMWD staff to finalize the infrastructure sizing and alignments, as these components are required to be evaluated as part of our Environmental Impact Report.

We respectfully request that WMWD continues to engage our team to finalize the required facilities needed to serve the Project to ensure there is no delay in the release of our Public Review Draft EIR.

Sincerely,

Adam Collier

Adam Collier
Vice President

Cc: Dr. Grace Martin, March Joint Powers Authority

Community Development
Department
Planning Division

City of Arts & Innovation

May 16, 2022

Jason Pivovaroff
Deputy Director of Water Resources
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518

Subject: City of Riverside's Review of a Notice of Preparation of an Environmental Impact Report for Riverside Facilities Master Plan

Dear Mr. Pivovaroff:

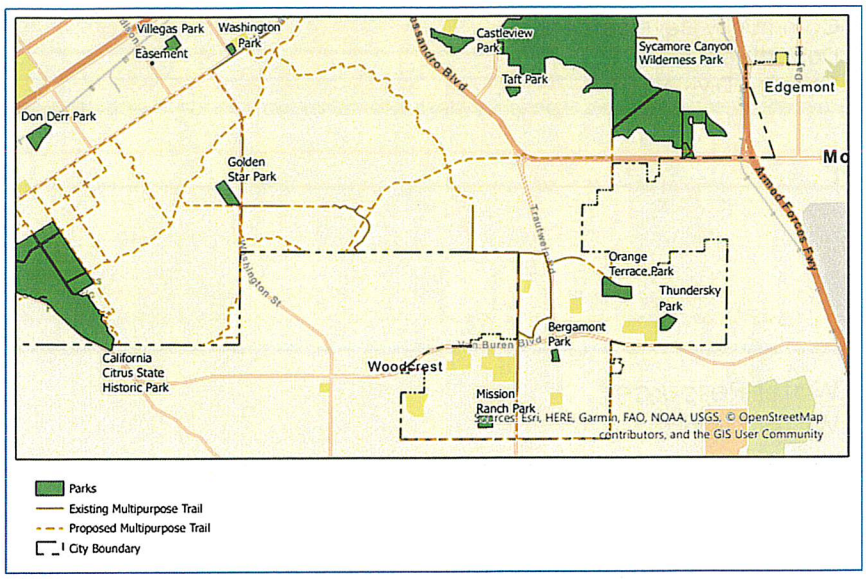
Thank you for the opportunity to comment on the Notice of Preparation of an Environmental Impact Report (EIR) for the Riverside Facilities Master Plan (FMP).

The City of Riverside (City) understands that the proposed FMP project is an integrated master plan that evaluates the performance, deficiencies, and capacity of WMWD's potable water, recycled/non-potable water, and wastewater systems within the Riverside Retail Service Area (RSA). We also understand that the project consists of a list of recommended capital improvement projects with implementation to guide future development in the RSA.

The City has reviewed the project scope, and we wish to provide the following comments:

Parks, Recreation, and Community Services Department (PRCSD):

- The Initial Study and/or EIR should discuss any impacts of the proposed capital projects on the City's recreation and community services facilities including parks, trails, and community centers, including anticipated water service disruptions and any mitigation and coordination needs to eliminate or minimize impacts to the community.
- The scale and resolution of the map for Figure 2, showing proposed capital projects, is not detailed or clear enough to be able to locate specific park and recreation resources in relation to project sites to review for potential impacts. For the Initial Study and/or EIR, please provide exhibits zoomed into the project areas with labels of street names and landmarks, such as parks. Parks within the service area include Bergamont, Orange Terrace, Thundersky, Taft, Barton Avenue Trailhead at Sycamore Canyon Park (future) and Mission Ranch (future park). Please see below for your reference.



Public Works Department – Traffic Engineering Division:

- The Public Works Traffic Engineering Division requests the opportunity to review the scope and the traffic analysis of the FMP.
- Requests the opportunity to review the proposed traffic evaluation/traffic control plans for the project's construction activities.

The City of Riverside appreciates your consideration of the comments provided in this letter. Please forward the pending Draft EIR for the FMP to the City of Riverside Planning Division. Should you have any questions regarding this letter, please contact Scott Watson, Historic Preservation Officer, at (951) 826-5507, or by e-mail at swatson@riversideca.gov.

We thank you again for the opportunity to provide comments on this proposal and look forward to working with you in the future.

Sincerely,

FOR

David Murray
Principal Planner

cc: Patricia Lock Dawson, Mayor
Riverside City Council Members
Al Zelinka, FAICP, CMSM, City Manager
Rafael Guzman, Assistant City Manager
Chris Christopoulos, Acting Community & Economic Development Director
Mary Kopaskie-Brown, City Planner
Gilbert Hernandez, Public Works Director
Todd Corbin, Public Utilities General Manager
Pamela Galera, Parks, Recreation and Community Services Director
Phaedra Norton, City Attorney

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

May 16, 2022 **Via Electronic Mail**

Jason Pivovaroff, P.E.,
Deputy Director of Water Resources
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518

Notice of Preparation of a
Program Environmental Impact Report for the Riverside Facilities Master Plan

Dear Mr. Pivovaroff:

The Metropolitan Water District of Southern California (Metropolitan) reviewed the Notice of Preparation of a Program Environmental Impact Report for the Riverside Facilities Master Plan (FMP; proposed Project). The Western Municipal Water District (WMWD) is acting as the Lead Agency under the California Environmental Quality Act (CEQA). The FMP evaluates the performance and capacity of WMWD's potable water, recycled/non-potable water, and wastewater systems within the Riverside Retail Service Area. The FMP recommends future capital improvement projects to be implemented in the short-term (by 2030) and under buildout conditions (after 2030), including: upsizing of existing pipelines as well as new pipelines; new storage tanks; new booster pump stations; new pumps at existing pump stations; capacity upgrades at existing lift stations; and potential expansion of the Western Water Recycling Facility. This letter contains Metropolitan's response to the public notice as a potentially affected public agency.

Metropolitan is a public agency and regional water wholesaler. It is comprised of 26 member public agencies, serving approximately 19 million people in portions of six counties in Southern California. Metropolitan's mission is to provide its 5,200 square mile service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.

Our review of the notice indicates that Metropolitan owns and operates the following pipelines, water treatment plants, reservoirs and appurtenant facilities within the Project's boundary: Colorado River Aqueduct, Upper Feeder, Lower Feeder, Box Springs Feeder, Santa Ana Valley Pipeline, Perris Valley Pipeline, Lake Mathews, and Henry J. Mills Water Treatment Plant. The

aforementioned facilities distribute water from the Colorado River to Metropolitan reservoirs and water treatment plants, as well as to member agencies for treatment and distribution to rate-payers. Metropolitan is concerned with potential impacts to the prior listed facilities that may result from the implementation of the proposed Project. It will be necessary for WMWD to consider these facilities in its project planning.

Metropolitan must be allowed to maintain its rights-of-way and requires unobstructed access to its facilities in order to maintain and repair its system. In order to avoid potential conflicts with Metropolitan's facilities and rights-of-way, we require that any design plans for any activity in the area of Metropolitan's pipelines or facilities be submitted for our review and written approval. Metropolitan will not permit procedures that could subject the pipeline to excessive vehicle, impact or vibratory loads. Any future design plans associated with this project should be submitted to Metropolitan's Substructures Team. Approval of the project should be contingent on Metropolitan's approval of design plans for portions of the proposed project that could impact its facilities.

Detailed prints of drawings of Metropolitan's pipelines and rights-of-way may be obtained by calling Metropolitan's Substructures Information Line at (213) 217-7663 or via email at EngineeringSubstructures@mwdh2o.com. To assist the applicant in preparing plans that are compatible with Metropolitan's facilities and easements, attached are the "Guidelines for Improvements and Construction Projects Proposed in the Area of Metropolitan's Facilities and Rights-of-Way." Please note that all submitted designs or plans must clearly identify Metropolitan's facilities and rights-of-way.

Additionally, Metropolitan encourages projects within its service area to include water conservation measures. Water conservation, reclaimed water use, and groundwater recharge programs are integral components to regional water supply planning. Metropolitan supports mitigation measures such as using water efficient fixtures, drought-tolerant landscaping, and reclaimed water to offset any increase in water use associated with the proposed project.

We appreciate the opportunity to provide input to your planning process and we look forward to receiving future documentation and plans for this project. For further assistance, please contact Ms. Jolene Ditmar at (213) 217-6184 or jditmar@mwdh2o.com.

Very truly yours,

Diane Doesserich

Diane Doesserich
Team Manager, Environmental Planning Section

JD:rdl
Sharepoint\WMWD\ Riverside Facilities Master Plan

Enclosures:

(1) Planning Guidelines for Improvements and Construction Projects Proposed in the Area of Metropolitan's Facilities and Rights-of-Way

Guidelines for Improvements and Construction Projects Proposed in the Area of Metropolitan's Facilities and Rights-of-Way

July 2018

Prepared By:
The Metropolitan Water District of Southern California
Substructures Team, Engineering Services
700 North Alameda Street
Los Angeles, California 90012

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Additional Copies: To obtain a copy of this document, please contact the Engineering Services Group, Substructures Team.

Disclaimer

Metropolitan assumes no responsibility for the accuracy of the substructure information herein provided. The user assumes responsibility for verifying substructure locations before excavating and assumes all liability for damage to Metropolitan's facilities as a result of such excavation. Additionally, the user is cautioned to conduct surveys and other field investigations as deemed prudent, to assure that project plans are correct. The appropriate representative from Metropolitan must be contacted at least two working days, before any work activity in proximity to Metropolitan's facilities.

It generally takes 30 days to review project plans and provide written responses. Metropolitan reserves the right to modify requirements based on case-specific issues and regulatory developments.

PUBLICATION HISTORY:

Initial Release	*July 2018*

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1.0 GENERAL INFORMATION

Note: Underground Service Alert at 811 must be notified at least two working days before excavating in proximity to Metropolitan's facilities.

1.1 Introduction

These guidelines provide minimum design and construction requirements for any utilities, facilities, developments, and improvements, or any other projects or activities, proposed in or near Metropolitan Water District of Southern California (Metropolitan) facilities and rights-of-way. Additional conditions and stipulations may also be required depending on project and site specific conditions. Any adverse impacts to Metropolitan's conveyance system, as determined by Metropolitan, will need to be mitigated to its satisfaction.

All improvements and activities must be designed so as to allow for removal or relocation at builder or developer expense, as set forth in the paramount rights provisions of Section 20.0. Metropolitan shall not be responsible for repair or replacement of improvements, landscaping or vegetation in the event Metropolitan exercises its paramount rights powers.

1.2 Submittal and Review of Project Plans/Utilities and Maps

Metropolitan requires project plans/utilities be submitted for all proposed activities that may impact Metropolitan's facilities or rights-of-way. Project plans shall include copies of all pertinent utilities, sewer line, storm drain, street improvement, grading, site development, landscaping, irrigation and other plans, all tract and parcel maps, and all necessary state and federal environmental documentation. Metropolitan will review the project plans and provide written approval, as it pertains to Metropolitan's facilities and rights-of-way. Written approval from Metropolitan must be obtained, prior to the start of any activity or construction in the area of Metropolitan's facilities or rights-of-way. Once complete project plans and supporting documents are submitted to Metropolitan, it generally takes 30 days to review and to prepare a detailed written response. Complex engineering plans that have the potential for significant impacts on Metropolitan's facilities or rights-of-way may require a longer review time.

Project plans, maps, or any other information should be submitted to Metropolitan's Substructures Team at the following mailing address:

Attn: Substructures Team
The Metropolitan Water District of Southern California
700 North Alameda St.
Los Angeles, CA 90012

General Mailing Address: **P.O. Box 54153**
Los Angeles, CA 90054-0153

Email: EngineeringSubstructures@mwdh2o.com

For additional information, or to request prints of detailed drawings for Metropolitan's facilities and rights-of-way, please contact Metropolitan's Substructures Team at 213-217-7663 or EngineeringSubstructures@mwdh2o.com.

1.3 Identification of Metropolitan's Facilities and Rights-of-Way

Metropolitan's facilities and rights-of-way must be fully shown and identified as Metropolitan's, with official recording data, on the following:

A. All applicable plans

B. All applicable tract and parcel maps

Metropolitan's rights-of-ways and existing survey monuments must be tied dimensionally to the tract or parcel boundaries. Metropolitan's Records of Survey must be referenced on the tract and parcel maps with the appropriate Book and Page.

2.0 General Requirements

2.1 Vehicular Access

Metropolitan must have vehicular access along its rights-of-way at all times for routine inspection, patrolling, operations, and maintenance of its facilities and construction activities. All proposed improvements and activities must be designed so as to accommodate such vehicular access.

2.2 Fences

Fences installed across Metropolitan's rights-of-way must include a 16-foot-wide gate to accommodate vehicular access by Metropolitan. Additionally, gates may be required at other specified locations to prevent unauthorized entry into Metropolitan's rights-of-way.

All gates must accommodate a Metropolitan lock or Knox-Box with override switch to allow Metropolitan unrestricted access. There should be a minimum 20-foot setback for gates from the street at the driveway approach. The setback is necessary to allow Metropolitan vehicles to safely pull off the road prior to opening the gate.

2.3 Driveways and Ramps

Construction of 16-foot-wide commercial-type driveway approaches is required on both sides of all streets that cross Metropolitan's rights-of-way. Access ramps, if necessary, must be a minimum of 16 feet wide.

There should be a minimum 20-foot setback for gates from the street at the driveway approach. Grades of ramps and access roads must not exceed 10 percent; if the slope of an access ramp or road must exceed 10 percent due to topography, then the ramp or road must be paved.

2.4 Walks, Bike Paths, and Trails

All walkways, bike paths, and trails along Metropolitan's rights-of-way must be a minimum 12-foot wide and have a 50-foot or greater radius on all horizontal curves if also used as Metropolitan's access roads. Metropolitan's access routes, including all walks and drainage facilities crossing the access routes, must be constructed to American Association of State Highway and Transportation Officials (AASHTO) H-20 loading standards (see Figure 1). Additional requirements will be placed on equestrian trails to protect the water quality of Metropolitan's pipelines and facilities.

2.5 Clear Zones

A 20-foot-wide clear zone is required to be maintained around Metropolitan's manholes and other above-ground facilities to accommodate vehicular access and maintenance. The clear zone should slope away from Metropolitan's facilities on a grade not to exceed 2 percent.

2.6 Slopes

Cut or fill slopes proposed within Metropolitan's rights-of-way must not exceed 10 percent. The proposed grade must not worsen the existing condition. This restriction is required to facilitate Metropolitan use of construction and maintenance equipment and allow uninhibited access to above-ground and below-ground facilities.

2.7 Structures

Construction of structures of any type is not allowed within the limits of Metropolitan's rights-of-way to avoid interference with the operation and maintenance of Metropolitan's facilities and possible construction of future facilities.

Footings and roof eaves of any proposed buildings adjacent to Metropolitan's rights-of-way must meet the following criteria:

A. Footings and roof eaves must not encroach onto Metropolitan's rights-of-way.

B. Footings must not impose any additional loading on Metropolitan's facilities.

C. Roof eaves must not overhang onto Metropolitan's rights-of-way.

Detailed plans of footings and roof eaves adjacent to Metropolitan's rights-of-way must be submitted for Metropolitan's review and written approval, as pertains to Metropolitan's facilities.

2.8 Protection of Metropolitan Facilities

Metropolitan facilities within its rights-of-way, including pipelines, structures, manholes, survey monuments, etc., must be protected from damage by the project proponent or property owner, at no expense to Metropolitan. The exact location, description and method of protection must be shown on the project plans.

2.9 Potholing of Metropolitan Pipelines

Metropolitan's pipelines must be potholed in advance, if the vertical clearance between a proposed utility and Metropolitan's pipeline is indicated to be 4 feet or less. A Metropolitan representative must be present during the potholing operation and will assist in locating the pipeline. Notice is required, a minimum of three working days, prior to any potholing activity.

2.10 Jacked Casings or Tunnels

A. General Requirements

Utility crossings installed by jacking, or in a jacked casing or tunnel under/over a Metropolitan pipeline, must have at least 3 feet of vertical clearance between the outside diameter of the pipelines and the jacked pipe, casing, or tunnel. The actual

cover over Metropolitan's pipeline shall be determined by potholing, under Metropolitan's supervision.

Utilities installed in a jacked casing or tunnel must have the annular space between the utility and the jacked casing or tunnel filled with grout. Provisions must be made for grouting any voids around the exterior of the jacked pipe, casing, or tunnel.

B. Jacking or Tunneling Procedures

Detailed jacking, tunneling, or directional boring procedures must be submitted to Metropolitan for review and approval. The procedures must cover all aspects of operation, including, but not limited to, dewatering, ground control, alignment control, and grouting pressure. The submittal must also include procedures to be used to control sloughing, running, or wet ground, if encountered. A minimum 10-foot clearance must be maintained between the face of the tunneling or receiving pits and outside edges of Metropolitan's facility.

C. Shoring

Detailed drawings of shoring for jacking or receiving pits must be submitted to Metropolitan for review and written-approval. (See Section 10 for shoring requirements).

D. Temporary Support

Temporary support of Metropolitan's pipelines may be required when a utility crosses under a Metropolitan pipeline and is installed by means of an open trench. Plans for temporary support must be reviewed and approved in writing by Metropolitan. (See Section 11, Supports of Metropolitan Facilities).

3.0 Landscaping

3.1 Plans

All landscape plans must show the location and limits of Metropolitan's right-of-way and the location and size of Metropolitan's pipeline and related facilities therein. All landscaping and vegetation shall be subject to removal without notice, as may be required by Metropolitan for ongoing maintenance, access, repair, and construction activities. Metropolitan will not be financially responsible for the removal of any landscaping and vegetation.

3.2 Drought-Tolerant Native and California Friendly Plants

Metropolitan recommends use of drought-tolerant native and California Friendly® plants (excluding sensitive plants) on proposed projects. For more information regarding California Friendly® plants refer to www.bewaterwise.com.

3.3 Trees

Trees are generally prohibited within Metropolitan's rights-of-way as they restrict Metropolitan's ability to operate, maintain and/or install new pipeline(s) located within these rights-of-way. Metropolitan will not be financially responsible for the removal and replacement of any existing trees should they interfere with access and any current or future Metropolitan project located within the right-of-way.

3.4 Other Vegetation

Shrubs, bushes, vines, and groundcover are generally allowed within Metropolitan's rights-of-way. Larger shrubs are not allowed on Metropolitan fee properties; however, they may be allowed within its easements if planted no closer than 15 feet from the outside edges of existing or future Metropolitan facilities. Only groundcover is allowed to be planted directly over Metropolitan pipeline, turf blocks or similar is recommended to accommodate our utility vehicle access. Metropolitan will not be financially responsible for the removal and replacement of the vegetation should it interfere with access and any current or future Metropolitan project.

3.5 Irrigation

Irrigation systems are acceptable within Metropolitan's rights-of-way, provided valves and controllers are located near the edges of the right-of-way and do not interfere with Metropolitan vehicular access. A shutoff valve should also be located along the edge of the right-of-way that will allow the shutdown of the system within the right-of-way should Metropolitan need to do any excavation. No pooling or saturation of water above Metropolitan's pipeline and right-of-way is allowed. Additional restrictions apply to non-potable water such as Recycled Water and are covered on Table 3 of Page 20.

3.6 Metropolitan Vehicular Access

Landscape plans must show Metropolitan vehicular access to Metropolitan's facilities and rights-of-way and must be maintained by the property owner or manager or homeowners association at all times. Walkways, bike paths, and trails within Metropolitan's rights-of-way may be used as Metropolitan access routes. (See Section 2.4, Walks, Bike Paths, and Trails).

4.0 General Utilities

Note: For non-potable piping like sewer, hazardous fluid, storm drain, disinfected tertiary recycled water and recycled water irrigation see Table 1 through Table 3.

4.1 Utility Structures

Permanent utility structures (e.g., manholes, power poles, pull boxes, electrical vaults, etc.) are not allowed within Metropolitan's rights-of-way. Metropolitan requests that all permanent utility structures within public streets be placed as far from its pipelines and facilities as practical, but not closer than 5 feet from the outside edges of Metropolitan facilities.

Note: Non-potable utility pipelines are an exception to the 5-foot minimum clearance. Non-potable utility pipelines should have 10 feet of separation.

4.2 Utility Crossings

Metropolitan requests a minimum of 1 foot of vertical clearance between Metropolitan's pipeline and any utility crossing the pipeline. Utility lines crossing Metropolitan's pipelines must be as perpendicular to the pipeline as possible. Cross-section drawings, showing proposed locations and elevations of utility lines and locations of Metropolitan's pipelines and limits of rights-of-way, must be submitted with utility plans, for all

crossings. Metropolitan's pipeline must be potholed under Metropolitan's supervision at the crossings (See Section 2.9).

4.3 Longitudinal Utilities

Installation of longitudinal utilities is generally not allowed along Metropolitan's rights-of-way. Within public streets, Metropolitan requests that all utilities parallel to Metropolitan's pipelines and appurtenant structures (facilities) be located as far from the facilities as possible, with a minimum clearance of 5 feet from the outside edges of the pipeline.

Note: Non-potable utility pipelines are an exception to the 5-foot minimum clearance. Non-potable utility pipelines should have 10 feet of separation (for more information See Table 1 on Page 18).

4.4 Underground Electrical Lines

Underground electrical conduits (110 volts or greater) which cross a Metropolitan's pipeline must have a minimum of 1 foot of vertical clearance between Metropolitan's pipeline and the electrical lines. Longitudinal electrical lines, including pull boxes and vaults, in public streets should have a minimum separation of 5 feet from the edge of a Metropolitan pipeline or structures.

4.5 Fiber Optic Lines

Fiber optic lines installed by directional boring require a minimum of 3 feet of vertical clearance when boring is over Metropolitan's pipelines and a minimum of 5 feet of vertical clearance when boring is under Metropolitan's pipelines. Longitudinal fiber optic lines, including pull boxes, in public streets should have a minimum separation of 5 feet from the edge of a Metropolitan pipelines or structures. Potholing must be performed, under Metropolitan's supervision, to verify the vertical clearances are maintained.

4.6 Overhead Electrical and Telephone Lines

Overhead electrical and telephone lines, where they cross Metropolitan's rights-of-way, must have a minimum 35 feet of clearance, as measured from the ground to the lowest point of the overhead line. Overhead electrical lines poles must be located at least 30 feet laterally from the edges of Metropolitan's facilities or outside Metropolitan's right-of-way, whichever is greater.

Longitudinal overhead electrical and or telephone lines in public streets should have a minimum separation of 10 feet from the edge of a Metropolitan pipelines or structures where possible.

4.7 Sewage Disposal Systems

Sewage disposal systems, including leach lines and septic tanks, must be a minimum of 100 feet from the outside limits of Metropolitan's rights-of-way or the edge of its facilities, whichever is greater. If soil conditions are poor, or other adverse site-specific conditions exist, a minimum distance of 150 feet is required. They must also comply with local and state health code requirements as they relate to sewage disposal systems in proximity to major drinking water supply pipelines.

4.8 Underground Tanks

Underground tanks containing hazardous materials must be a minimum of 100 feet from the outside limits of Metropolitan's rights-of-way or edge of its facilities, whichever is greater. In addition, groundwater flow should be considered with the placement of underground tanks down-gradient of Metropolitan's facilities.

5.0 Specific Utilities: Non-Potable Utility Pipelines

In addition to Metropolitan's general requirements, installation of non-potable utility pipelines (e.g., storm drains, sewers, and hazardous fluids pipelines) in Metropolitan's rights-of-way and public street rights-of-way must also conform to the State Water Resources Control Board's Division of Drinking Water (DDW) regulation (Waterworks Standards) and guidance for separation of water mains and non-potable pipelines and to applicable local county health code requirements. Written approval is required from DDW for the implementation of alternatives to the Waterworks Standards and, effective December 14, 2017, requests for alternatives to the Waterworks Standards must include information consistent with: DDW's Waterworks Standards Main Separation Alternative Request Checklist.

In addition to the following general guidelines, further review of the proposed project must be evaluated by Metropolitan and requirements may vary based on site specific conditions.

A. Sanitary Sewer and Hazardous Fluids (General Guideline See Table 1 on Page 18)

B. Storm Drain and Recycled Water (General Guideline See Table 2 on Page 19)

C. Irrigation with Recycled Water (General Guideline See Table 3 on Page 20)

D. Metropolitan generally does not allow Irrigation with recycled water to be applied directly above its treated water pipelines

E. Metropolitan requests copies of project correspondence with regulating agencies (e.g., Regional Water Quality Control Board, DDW); regarding the application of recycled water for all projects located on Metropolitan's rights-of-way

6.0 Cathodic Protection/Electrolysis Test Stations

6.1 Metropolitan Cathodic Protection

Metropolitan's existing cathodic protection facilities in the vicinity of any proposed work must be identified prior to any grading or excavation. The exact location, description, and type of protection must be shown on all project plans. Please contact Metropolitan for the location of its cathodic protection stations.

6.2 Review of Cathodic Protection Systems

Metropolitan must review any proposed installation of impressed-current cathodic protection systems on pipelines crossing or paralleling Metropolitan's pipelines to determine any potential conflicts with Metropolitan's existing cathodic protection system.

7.0 Drainage

7.1 Drainage Changes Affecting Metropolitan Rights-of-Way

Changes to existing drainage that could affect Metropolitan's rights-of-way require Metropolitan's approval. The project proponent must provide acceptable solutions to ensure Metropolitan's rights-of-way are not negatively affected by changes in the drainage conditions. Plans showing the changes, with a copy of a supporting hydrology report and hydraulic calculations, must be submitted to Metropolitan for review and approval. Long term maintenance of any proposed drainage facilities must be the responsibility of the project proponent, City, County, homeowner's association, etc., with a clear understanding of where this responsibility lies. If drainage must be discharged across Metropolitan's rights-of-way, it must be carried across by closed conduit or lined open channel and must be shown on the plans.

7.2 Metropolitan's Blowoff and Pumpwell Structures

Any changes to the existing local watercourse systems will need to be designed to accommodate Metropolitan's blowoff and pumpwell structures, which periodically convey discharged water from Metropolitan's blowoff and pumping well structures during pipeline dewatering. The project proponents' plans should include details of how these discharges are accommodated within the proposed development and must be submitted to Metropolitan for review and approval. Any blowoff discharge lines impacted must be modified accordingly at the expense of the project proponent.

8.0 Grading and Settlement

8.1 Changes in Cover over Metropolitan Pipelines

The existing cover over Metropolitan's pipelines must be maintained unless Metropolitan determines that proposed changes in grade and cover do not pose a hazard to the integrity of the pipeline or an impediment to its maintenance capability. Load and settlement or rebound due to change in cover over a Metropolitan pipeline or ground in the area of Metropolitan's rights-of-way will be factors considered by Metropolitan during project review.

In general, the minimum cover over a Metropolitan pipeline is 4 feet and the maximum cover varies per different pipeline. Any changes to the existing grade may require that Metropolitan's pipeline be potholed under Metropolitan's supervision to verify the existing cover.

8.2 Settlement

Any changes to the existing topography in the area of Metropolitan's pipeline or right-of-way that result in significant settlement or lateral displacement of Metropolitan's pipelines are not acceptable. Metropolitan may require submittal of a soils report showing the predicted settlement of the pipeline at 10-foot intervals for review. The data must be carried past the point of zero change in each direction and the actual size and varying depth of the fill must be considered when determining the settlement. Possible settlement due to soil collapse, rebound and lateral displacement must also be included.

In general, the typical maximum allowed deflection for Metropolitan's pipelines must not exceed a deflection of 1/4-inch for every 100 feet of pipe length. Metropolitan may require additional information per its Geotechnical Guidelines. Please contact Metropolitan's Substructures Team for a copy of the Geotechnical Guidelines.

9.0 Construction Equipment

9.1 Review of Proposed Equipment

Use of equipment across or adjacent to Metropolitan's facilities is subject to prior review and written approval by Metropolitan. Excavation, backfill, and other work in the vicinity of Metropolitan's facilities must be performed only by methods and with equipment approved by Metropolitan. A list of all equipment to be used must be submitted to Metropolitan a minimum of 30 days before the start of work.

A. For equipment operating within paved public roadways, equipment that imposes loads not greater than that of an AASHTO H-20 vehicle (see Figure 1 on Page 21) may operate across or adjacent to Metropolitan's pipelines provided the equipment operates in non-vibratory mode and the road remains continuously paved.

B. For equipment operating within unpaved public roadways, when the total cover over Metropolitan's pipeline is 10 feet or greater, equipment imposing loads no greater than those imposed by an AASHTO H-20 vehicle may operate over or adjacent to the pipeline provided the equipment is operated in non-vibratory mode. For crossings, vehicle path shall be maintained in a smooth condition, with no breaks in grade for 3 vehicle lengths on each side of the pipeline.

9.2 Equipment Restrictions

In general, no equipment may be used closer than 20 feet from all Metropolitan above-ground structures. The area around the structures should be flagged to prevent equipment encroaching into this zone.

9.3 Vibratory Compaction Equipment

Vibratory compaction equipment may not be used in vibratory mode within 20 feet of the edge of Metropolitan's pipelines.

9.4 Equipment Descriptions

The following information/specifications for each piece of equipment should be included on the list:

A. A description of the equipment, including the type, manufacturer, model year, and model number. For example, wheel tractor-scraper, 1990 Caterpillar 627E.

B. The empty and loaded total weight and the corresponding weight distribution. If equipment will be used empty only, it should be clearly stated.

C. The wheel base (for each axle), tread width (for each axle), and tire footprint (width and length) or the track ground contact (width and length), and track gauge (center to center of track).

10.0 Excavations Close to Metropolitan Facilities

10.1 Shoring Design Submittal

Excavation that impacts Metropolitan's facilities requires that the contractor submit an engineered shoring design to Metropolitan for review and acceptance a minimum of 30 days before the scheduled start of excavation. Excavation may not begin until the shoring design is accepted in writing by Metropolitan.

Shoring design submittals must include all required trenches, pits, and tunnel or jacking operations and related calculations. Before starting the shoring design, the design engineer should consult with Metropolitan regarding Metropolitan's requirements, particularly as to any special procedures that may be required.

10.2 Shoring Design Requirements

Shoring design submittals must be stamped and signed by a California registered civil or structural engineer. The following requirements apply:

A. The submitted shoring must provide appropriate support for soil adjacent to and under Metropolitan's facilities.

B. Shoring submittals must include detailed procedures for the installation and removal of the shoring.

C. Design calculations must follow the Title 8, Chapter 4, Article 6 of the California Code of Regulations (CCR) guidelines. Accepted methods of analysis must be used.

D. Loads must be in accordance with the CCR guidelines or a soils report by a geotechnical consultant.

E. All members must be secured to prevent sliding, falling, or kickouts.

Metropolitan's pipelines must be located by potholing under Metropolitan's supervision before the beginning construction. Use of driven piles within 20 feet of the centerline of Metropolitan's pipeline is not allowed. Piles installed in drilled holes must have a minimum 2-foot clearance between Metropolitan's pipeline and the edge of the drilled hole, and a minimum of 1-foot clearance between any part of the shoring and Metropolitan's pipeline.

11.0 Support of Metropolitan Facilities

11.1 Support Design Submittal

If temporary support of a Metropolitan facility is required, the contractor shall submit a support design plan to Metropolitan for review and approval a minimum of 30 days before the scheduled start of work. Work may not begin until the support design is approved in writing by Metropolitan. Before starting design, the design engineer should consult with Metropolitan regarding Metropolitan's requirements.

11.2 Support Design Requirements

Support design submittals must be prepared, stamped, and signed by a California registered civil or structural engineer. The following requirements apply:

A. Support drawings must include detailed procedures for the installation and removal of the support system.

B. Design calculations must follow accepted practices, and accepted methods of analysis must be used.

C. Support designs must show uniform support of Metropolitan's facilities with minimal deflection.

D. The total weight of the facility must be transferred to the support system before supporting soil is fully excavated.

E. All members must be secured to prevent sliding, falling, or kickouts.

12.0 Backfill

12.1 Metropolitan Pipeline Not Supported

In areas where a portion of Metropolitan pipeline is not supported during construction, the backfill under and to an elevation of 6 inches above the top of the pipeline must be one-sack minimum cement sand slurry. To prevent adhesion of the slurry to Metropolitan's pipeline, a minimum 6-mil-thick layer of polyethylene sheeting or similar approved sheeting must be placed between the concrete support and the pipeline.

12.2 Metropolitan Pipeline Partially Exposed

In areas where a Metropolitan pipeline is partially exposed during construction, the backfill must be a minimum of 6 inches above the top of the pipeline with sand compacted to minimum 90 percent compaction.

12.3 Metropolitan Cut and Cover Conduit on Colorado River Aqueduct (CRA)

In areas where a Metropolitan cut and cover conduit is exposed, the following guidelines apply:

A. No vehicle or equipment shall operate over or cross the conduit when the cover is less than 3 feet.

B. Track-type dozer with a gross vehicle weight of 12,000 lbs or less may be used over the conduit when the cover is a minimum of 3 feet.

C. Wheeled vehicles with a gross vehicle weight of 8,000 lbs or less may operate over the conduit when the cover is a minimum of 4 feet.

D. Tracked dozer or wheeled vehicle should be used to push material over the conduit from the side.

E. Tracked dozer or wheeled vehicle should gradually increase cover on one side of the conduit and then cross the conduit and increase cover on the other side of the conduit. The cover should be increased on one side of the conduit until a maximum of 2 feet of fill has been placed. The cover over the conduit is not allowed to be more than 2 feet higher on one side of the conduit than on the other side.

F. The cover should be gradually increased over the conduit until the grade elevations have been restored.

13.0 Piles

13.1 Impacts on Metropolitan Pipelines

Pile support for structures could impose lateral, vertical and seismic loads on Metropolitan's pipelines. Since the installation of piles could also cause settlement of Metropolitan pipelines, a settlement and/or lateral deformation study may be required for pile installations within 50 feet of Metropolitan's pipelines. Metropolitan may require additional information per its Geo-technical Guidelines for pile installation. Please contact Metropolitan's Substructures Team for a copy of the Geotechnical Guidelines.

13.2 Permanent Cast-in-place Piles

Permanent cast-in-place piles must be constructed so that down drag forces of the pile do not act on Metropolitan's pipeline. The pile must be designed so that down drag forces are not developed from the ground surface to springline of Metropolitan's pipeline.

Permanent cast-in-place piles shall not be placed closer than 5 feet from the edge of Metropolitan's pipeline. Metropolitan may require additional information per its Geo-technical Guidelines for pile installation. Please contact Metropolitan's Substructures Team for a copy of the Geotechnical Guidelines.

14.0 Protective Slabs for Road Crossings Over Metropolitan Pipelines

Protective slabs must be permanent cast-in-place concrete protective slabs configured in accordance with Drawing SK-1 (See Figure 2 on Page 22).

The moments and shear for the protective slab may be derived from the American Association of State Highway and Transportation Officials (AASHTO). The following requirements apply:

A. The concrete must be designed to meet the requirements of AASHTO

B. Load and impact factors must be in accordance with AASHTO. Accepted methods of analysis must be used.

C. The protective slab design must be stamped and signed by a California registered civil or structural engineer and submitted to Metropolitan with supporting calculations for review and approval.

Existing protective slabs that need to be lengthened can be lengthened without modification, provided the cover and other loading have not been increased.

15.0 Blasting

At least 90 days prior to the start of any drilling for rock excavation blasting, or any blasting in the vicinity of Metropolitan's facilities, a site-specific blasting plan must be submitted to Metropolitan for review and approval. The plan must consist of, but not be limited to, hole diameters, timing sequences, explosive weights, peak particle velocities (PPV) at Metropolitan pipelines/structures, and their distances to blast locations. The PPV must be estimated based on a site-specific power law equation. The power law equation provides the peak particle velocity versus the scaled distance and must be calibrated based on measured values at the site.

16.0 Metropolitan Plan Review Costs, Construction Costs and Billing

16.1 Plan Review Costs

Metropolitan plan reviews requiring 8 labor hours or less are generally performed at no cost to the project proponent. Metropolitan plan reviews requiring more than 8 labor hours must be paid by the project proponent, unless the project proponent has superior rights at the project area. The plan review will include a written response detailing Metropolitan's comments, requirements, and/or approval.

A deposit of funds in the amount of the estimated cost and a signed letter agreement will be required from the project proponent before Metropolitan begins or continues a detailed engineering plan review that exceeds 8 labor hours.

16.2 Cost of Modification of Facilities Performed by Metropolitan

Cost of modification work conducted by Metropolitan will be borne by the project proponent, when Metropolitan has paramount/prior rights at the subject location.

Metropolitan will transmit a cost estimate for the modification work to be performed (when it has paramount/prior rights) and will require that a deposit, in the amount of the estimate, be received before the work will be performed.

16.3 Final Billing

Final billing will be based on the actual costs incurred, including engineering plan review, inspection, materials, construction, and administrative overhead charges calculated in accordance with Metropolitan's standard accounting practices. If the total cost is less than the deposit, a refund will be made; however, if the cost exceeds the deposit, an invoice for the additional amount will be forwarded for payment.

17.0 Street Vacations and Reservation of Easements for Metropolitan

A reservation of an easement is required when all or a portion of a public street where Metropolitan facilities are located is to be vacated. The easement must be equal to the street width being vacated or a minimum 40 feet. The reservation must identify Metropolitan as a "public entity" and not a "public utility," prior to recordation of the vacation or tract map. The reservation of an easement must be submitted to Metropolitan for review prior to final approval.

18.0 Metropolitan Land Use Guidelines

If you are interested in obtaining permission to use Metropolitan land (temporary or long term), a Land Use Form must be completed and submitted to Metropolitan for review and consideration. A nonrefundable processing fee is required to cover Metropolitan's costs for reviewing your request. Land Use Request Forms can be found at:

http://mwdh2o.com/PDF_Doing_Your_Business/4.7.1_Land_Use_Request_form_revised.pdf

The request should be emailed to RealEstateServices@mwdh2o.com,or contact the Real Property Development and Management (RPDM) Group at (213) 217-7750.

After the initial application form has been submitted, Metropolitan may require the following in order to process your request:

A. A map indicating the location(s) where access is needed, and the location & size (height, width and depth) of any invasive subsurface activity (boreholes, trenches, etc.).

B. The California Environmental Quality Act (CEQA) document(s) or studies that have been prepared for the project (e.g., initial study, notice of exemption, Environmental Impact Report (EIR), Mitigated Negative Declaration (MND), etc.).

C. A copy of an ACORD insurance certification naming Metropolitan as an additional insured, or a current copy of a statement of self-insurance.

D. Confirmation of the legal name of the person(s) or entity(ies) that are to be named as the permittee(s) in the entry permit.

E. Confirmation of the purpose of the land use.

F. The name of the person(s) with the authority to sign the documents and any specific signature title block requirements for that person or any other persons required to sign the document (i.e., legal counsel, Board Secretary/Clerk, etc.).

G. A description of any vehicles that will have access to the property. The exact make or model information is not necessary; however, the general vehicle type, expected maximum dimensions (height, length, width), and a specific maximum weight must be provided.

Land use applications and proposed use of the property must be compatible with Metropolitan's present and/or future use of the property. Any preliminary review of your request by Metropolitan shall not be construed as a promise to grant any property rights for the use of Metropolitan's property.

19.0 Compliance with Environmental Laws and Regulations

As a public agency, Metropolitan is required to comply with all applicable environmental laws and regulations related to the activities it carries out or approves. Consequently, project plans, maps, and other information must be reviewed to determine Metropolitan's obligations pursuant to state and federal environmental laws and regulations, including, but not limited to:

A. California Environmental Quality Act (CEQA) (Public Resources Code 21000-21177) and the State CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 1500-15387)

B. Federal Endangered Species Act (ESA) of 1973, 16 U.S.C. §§ 1531, et seq.

C. California Fish and Game Code Sections 2050-2069 (California ESA)

D. California Fish and Game Code Section 1602

E. California Fish and Game Code Sections 3511, 4700, 5050 and 5515 (California fully protected species)

F. Federal Migratory Bird Treaty Act (MBTA), 16 U.S.C. §§ 703-712

G. Federal Clean Water Act (including but not limited to Sections 404 and 401) 33 U.S.C. §§ 1342, 1344)

H. Porter Cologne Water Quality Control Act of 1969, California Water Code §§ 13000-14076.

I. Title 22, California Code of Regulations, Chapter 16 (California Waterworks Standards), Section 64572 (Water Main Separation)

Metropolitan may require the project applicant to pay for any environmental review, compliance and/or mitigation costs incurred to satisfy such legal obligations.

20.0 Paramount Rights / Metropolitan's Rights within Existing Rights-of-Way

Facilities constructed within Metropolitan's rights-of-way shall be subject to the paramount right of Metropolitan to use its rights-of-way for the purpose for which they were acquired. If at any time Metropolitan or its assigns should, in the exercise of their rights, find it necessary to remove or relocate any facilities from its rights-of-way, such removal and replacement or relocation shall be at the expense of the owner of the facility.

21.0 Disclaimer and Information Accuracy

Metropolitan assumes no responsibility for the accuracy of the substructure information herein provided. The user assumes responsibility for verifying substructure locations before excavating and assumes all liability for damage to Metropolitan's facilities as a result of such excavation. Additionally, the user is cautioned to conduct surveys and other field investigations as you may deem prudent, to assure that your project plans are correct. The relevant representative from Metropolitan must be called at least two working days, before any work activity in proximity to Metropolitan's facilities.

It generally takes 30 days to review project plans and provide written responses. Metropolitan reserves the right to modify requirements based on case-specific issues and regulatory developments.

Table 1: General Guidelines for Pipeline Separation between Metropolitan's Pipeline[1] and Sanitary Sewer[2] or Hazardous Fluid Pipeline[3]

Pipeline Crossings	Metropolitan requires that sanitary sewer and hazardous fluid pipelines that cross Metropolitan's pipelines have special pipe construction (no joints) **and** secondary containment[4]. This is required for the full width of Metropolitan's rights-of-way or within 10 feet tangent to the outer edges of Metropolitan's pipeline within public streets. Additionally, sanitary sewer and hazardous fluid pipelines crossing Metropolitan's pipelines must be perpendicular and maintain a minimum 1-foot vertical clearance between the top and the bottom of Metropolitan's pipeline and the pipe casing. These requirements apply to all sanitary sewer crossings regardless if the sanitary sewer main is located below or above Metropolitan's pipeline.
Parallel Pipeline	Metropolitan generally does not permit the installation of longitudinal pipelines along its rights-of-way. Within public streets, Metropolitan requires that all parallel sanitary sewer, hazardous fluid pipelines and/or non-potable utilities be located a minimum of 10 feet from the outside edges of Metropolitan's pipelines. When 10-foot horizontal separation criteria cannot be met, longitudinal pipelines require special pipe construction (no joints) **and** secondary containment[4].
Sewer Manhole	Sanitary sewer manholes are not allowed within Metropolitan's rights-of-way. Within public streets, Metropolitan requests manholes parallel to its pipeline be located a minimum of 10 feet from the outside edges of its pipelines. When 10 foot horizontal separation criteria cannot be met, the structure must have secondary containment[5].

Notes:

[1] *Separation distances are measured from the outer edges of each pipe.*

[2] *Sanitary sewer requirements apply to all recycled water treated to less than disinfected tertiary recycled water (disinfected secondary recycled water or less).* Recycled water definitions are included in Title 22, California Code of Regulations, Chapter 3 (Water Recycling Criteria), Section 60301.

[3] *Hazardous fluids include e.g., oil, fuels, chemicals, industrial wastes, wastewater sludge, etc.*

[4] *Secondary Containment for Pipeline - Secondary containment consists of a continuous pipeline sleeve (no joints). Examples acceptable to Metropolitan include welded steel pipe with grout in annular space and cathodic protection (unless coated with non-conductive material) and High Density Polyethylene (HDPE) pipe with fusion-welded joints.*

[5] *Secondary Containment for Structures – Secondary containment consists of external HDPE liner or other approved method.*

Table 2: General Guidelines for Pipeline Separation between Metropolitan's Pipeline[1] and Storm Drain and/or Disinfected Tertiary Recycled Water[2]

Pipeline Crossings	Metropolitan requires crossing pipelines to be special pipe construction (no joints) or have secondary containment[3] within 10-feet tangent to the outer edges of Metropolitan's pipeline. Additionally, pipelines crossing Metropolitan's pipelines must be perpendicular and maintain a minimum 1-foot vertical clearance.
Parallel Pipeline	Metropolitan generally does not permit the installation of longitudinal pipelines along its rights-of-way. Within public streets, Metropolitan requests that all parallel pipelines be located a minimum of 10 feet from the outside edges of Metropolitan's pipelines. When 10-foot horizontal separation criteria cannot be met, special pipe construction (no joints) or secondary containment[3] are required.
Storm Drain Manhole	Permanent utility structures (e.g., manhole. catch basin, inlets) are not allowed within Metropolitan's rights-of-way. Within public streets, Metropolitan requests all structures parallel to its pipeline be located a minimum of 10 feet from the outside edges of its pipelines. When 10 foot horizontal separation criteria cannot be met, the structure must have secondary containment[4].

Notes:

[1] *Separation distances are measured from the outer edges of each pipe.*

[2] *Disinfected tertiary recycled water as defined* in Title 22, California Code of Regulations, Chapter 3 (*Water Recycling Criteria*), Section 60301.

[3] *Secondary Containment for Pipeline - Secondary containment consists of a continuous pipeline sleeve (no joints). Examples acceptable to Metropolitan include welded steel pipe with grout in annular space and cathodic protection (unless coated with non-conductive material) and High Density Polyethylene (HDPE) pipe with fusion-welded joints.*

[4] *Secondary Containment for Structures – Secondary containment consists of external HDPE liner or other approved method.*

Table 3: General Guidelines for Pipeline Separation[1] between Metropolitan's Pipeline and Recycled Water[2,4] Irrigations

Pressurized recycled irrigation mainlines	• Crossings - must be perpendicular and maintain a minimum 1-foot vertical clearance. Crossing pressurized recycled irrigation mainlines must be special pipe construction (no joints) or have secondary containment[3] within 10-feet tangent to the outer edges of Metropolitan's pipeline. • Longitudinal - must maintain a minimum 10-foot horizontal separation and route along the perimeter of Metropolitan's rights-of-way where possible.
Intermittently Energized Recycled Water Irrigation System Components	• Crossings - must be perpendicular and maintain a minimum 1-foot vertical clearance. Crossing irrigation laterals within 5-feet tangent to the outer edges of Metropolitan's pipeline must be special pipe construction (no joints) or have secondary containment[3]. • Longitudinal – must maintain a minimum 5-foot horizontal separation between all intermittently energized recycled water irrigation system components (e.g. irrigation lateral lines, control valves, rotors) and the outer edges of Metropolitan's pipeline. Longitudinal irrigation laterals within 5-feet tangent to the outer edges of Metropolitan's pipeline must be special pipe construction (no joints) or have secondary containment[3].
Irrigation Structures	Irrigation structures such as meters, pumps, control valves, etc. must be located outside of Metropolitan's rights-of-way.
Irrigation spray rotors near Metropolitan's aboveground facilities	Irrigation spray rotors must be located a minimum of 20-foot from any Metropolitan above ground structures with the spray direction away from these structures. These rotors should be routinely maintained and adjusted as necessary to ensure no over-spray into 20-foot clear zones.
Irrigations near open canals and aqueducts	Irrigation with recycled water near open canals and aqueducts will require a setback distance to be determined based on site-specific conditions. Runoff of recycled water must be contained within an approved use area and not impact Metropolitan facilities. Appropriate setbacks must also be in place to prevent overspray of recycled water impacting Metropolitan's facilities.

Notes:

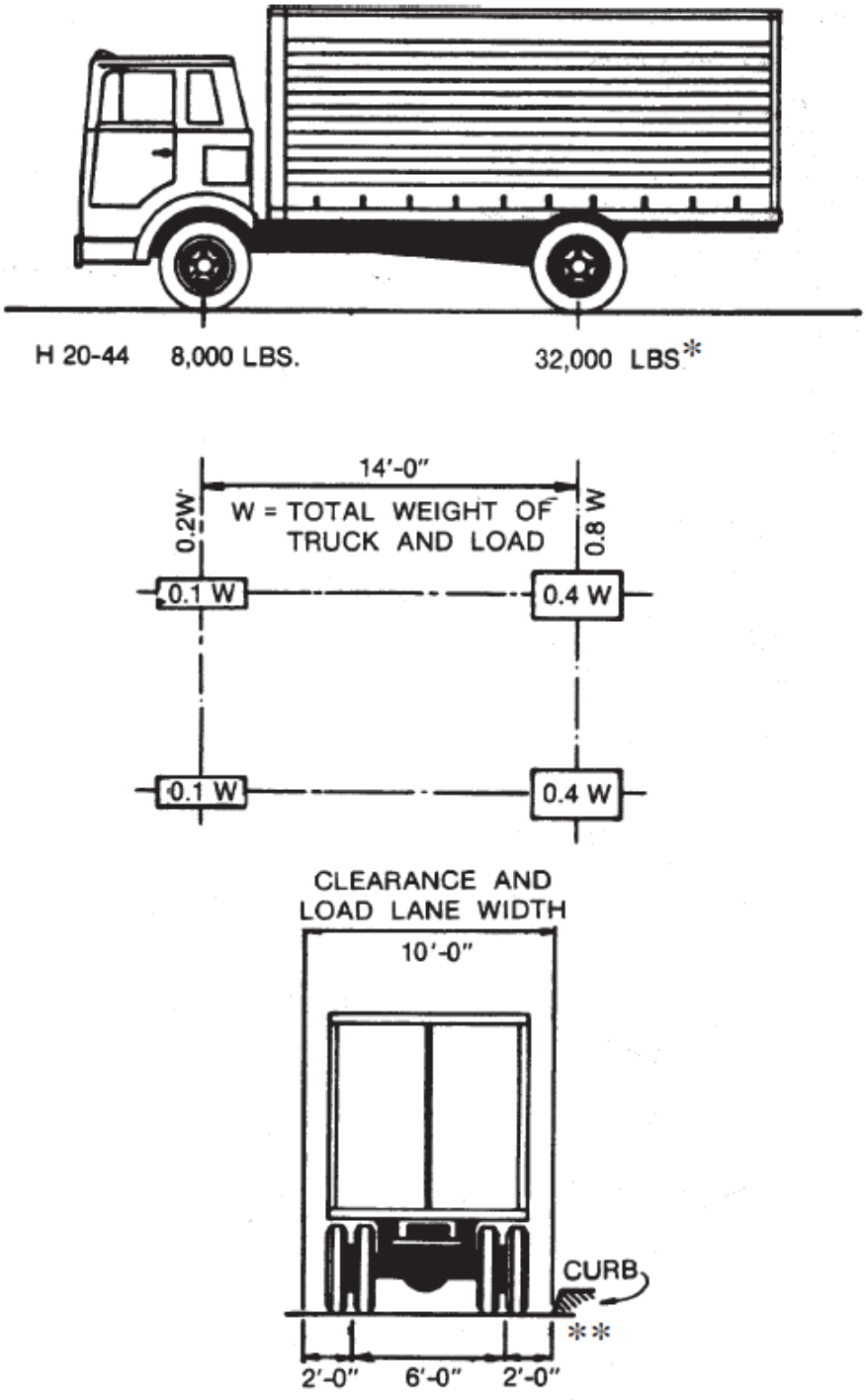
[1] *Separation distances are measured from the outer edges of each pipe.*

[2] *Requirements for recycled water irrigation apply to all levels of treatment of recycled water for non-potable uses.* Recycled water definitions are included in Title 22, California Code of Regulations, Chapter 3 (*Water Recycling Criteria*), Section 60301.

[3] *Secondary Containment for Pipeline - Secondary containment consists of a continuous pipeline sleeve (no joints). Examples acceptable to Metropolitan include welded steel pipe with grout in annular space and cathodic protection (unless coated with non-conductive material) and High Density Polyethylene (HDPE) pipe with fusion-welded joints.*

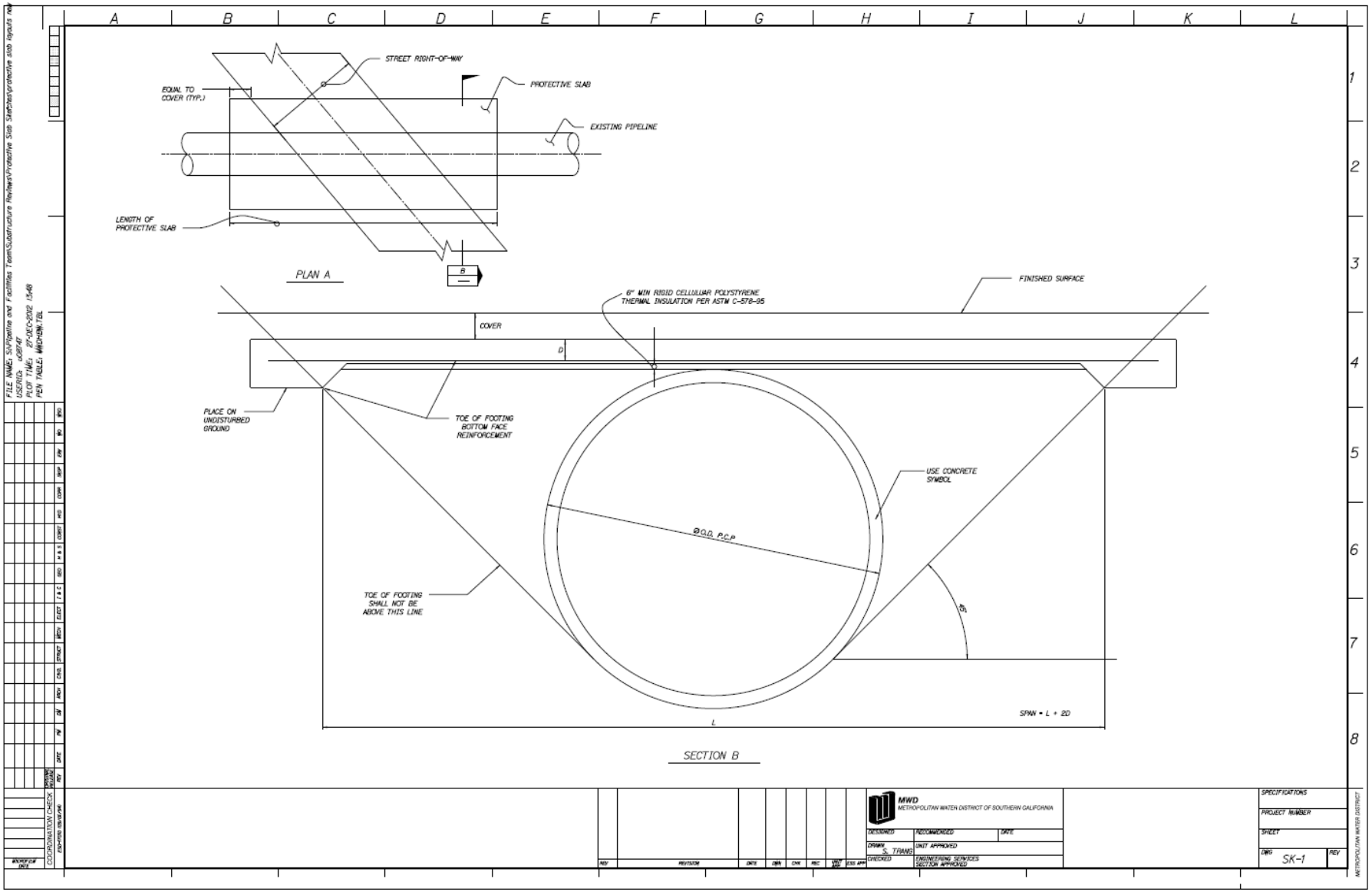
[4] *Irrigation with recycled water shall not be applied directly above Metropolitan's treated water pipelines.*

Figure 1: AASHTO H-20 Loading



Note: The H loadings consist of a two-axle truck or the corresponding lane loadings as illustrated above. The H loadings are designated "H" followed by a number indicating the gross weight in tons of the standard truck.

Figure 2: Drawing SK-1



Appendix AQ/GHG

Air Quality and Greenhouse Gas Emissions Calculations and Modeling

1-1 Assumptions

Western MWD - Riverside FMP
All Projects

Type	CIP Project	Project Type	Project Name	Description	Linear Feet Pipeline	Tank Build	Tank Upgrade	Lift/Pump Station Minor Upgrade	Lift/Pump Major Upgrade	Lift/Pump Station Build
PRIORITY										
Water	W-1	Pipeline Upsiz	Moonridge Drive Pipeline Upsizing	Upsize 6-inch -	1,200					
Water	W-2	Pipeline Upsiz	Blackburn Road Pipeline Upsizing	Upsize 6-inch -	10,100					
Water	W-3	Pipeline Upsiz	Cedar Street and Avenue D Pipeline Upsi	Upsize 6-inch -	4,000					
Wastewater	WW-1	Pipeline Upsiz	McKinley Trunk Sewer 1 Pipeline Upsizing	Upsize 390 LF -	390					
Wastewater	WW-2	Lift Station Up	Beazer Lift Station Upgrade	Increase capa -	1,300			1		
Wastewater	WW-3	Lift Station Up	Markham Lift Station Upgrade	Increase capa -					1	
NEAR-TERM										
Water	W-4	Pump Station	Hillside 2320 Pressure Zone Booster Pum	Add pumping -	4,700				1	
Water	W-5	Storage Tank	New 3 MG Hidden Valley Tank	Build 3 million -						
Water	W-6	Storage Tank	New 1.5 MG El Nido Tank	Build 1.5 MG -						
Water	W-7	Storage Tank	New 7 MG Markham Tank	Build 7 MG of -						
Water	W-9	Storage Tank	New 12.5 MG Orangecrest Tank	Build 12.5 MG -						
Water	W-10	Pressure Red	Highland Grove Pressure Reducing Valve	Add one pres -						
Water	W-11	Pipeline Upsiz	Cole Ave/Cedar Street Upsize	Upsize 460 fe -	5,060					
Water	W-12	Pipeline Upsiz	Mariposa Ave/ Lurin Avenue Upsize	Upsize 670-LF -	3,370					
Water	W-13	Pipeline	Highland Grove Pipeline III 18-Inch Pipelin	At the Greentr -	9,000					
Water	W-14	Pipeline	Highland Grove II and III 12-inch Pipeline	Build 4,000-LC -	4,000					
Water	W-15	Pipeline Upsiz	Juniper Road Pipeline Upsizing	Build 4,800 LF -	7,400					
Recycled Wat	RW-1	Storage Tank	New Orangecrest Tank	Install new 5 M -						
Recycled Wat	RW-1	Pipeline	Orangecrest Supply Pipelines	New 18-inch p -	4,800					
Recycled Wat	RW-1	Pipeline	Bergamont Park Conversion to RW	Install approxi -	1,600					
Recycled Wat	RW-1	Storage Tank	Lurin Irrigation Tank Improvements	Reconstruct a -						
Recycled Wat	RW-1	Pipeline	Meridian West Pipeline s	New 16-inch p -	4,400					
Recycled Wat	RW-1	Pipeline Upsiz	Idaleona Drive Upsizing	Upsize approx -	7,100					
Recycled Wat	RW-1	Pump Station	Cemetery PS Expansion	Expand dedic -					1	
Recycled Wat	RW-1	Pipeline	Lake Ranch Pipelines	Install 2,400 L -	2,400					
Recycled Wat	RW-1	Pump Station	El Sobrante PS Expansion (150 HP)	Install addition -						
Wastewater	WW-4	Lift Station an	MARB 1269 Lift Station and Pipeline Upgr	Increase the f -					1	
Wastewater	WW-5	Lift Station Up	Meridian Lift Station Upgrades (WWRF)	Increase capa -					1	
Wastewater	WW-6	WWRF Expar	WWRF Expansion Study	This study sh -					1	
FUTURE										
Water	W-8	Storage Tank	New 2 MG Tank	Build 2 MG of -	7,000	1				
Water	W-16	Pump Station	CITP (Intake PS)	Increase the f -				1		
Water	W-17	Pump Station	Increase Capacity of Mockingbird PS	Add 5,000 gpr -				1		
Water	W-18	Pump Station	Bergamont PS	Increase the f -				1		
Water	W-19	Pump Station	Rolling Meadows PS	Increase the f -				1		
Water	W-20	Storage Tank	New 2 MG PZ2116 Tank	Build 2 MG of -		1				
Water	W-21	Storage Tank	New 4 MG PZ1550 Tank	Build 4 MG of -		1				
Water	W-22	Storage Tank	New 3 MG Hidden Valley Tank	Build addition -		1				
Water	W-23	Storage Tank	New 13 MG Orangecrest Tank	Build addition -		1				
Water	W-24	Pipeline Upsiz	PZ 2320 12-Inch Pipelines	New 6,700-LF -	6,700					
Water	W-25	Pipeline Upsiz	Via Barranca Pipeline Upsizing	Upsize 4,200 -	4,200					
Recycled Wat	RW-1	Pipeline	Upper Plateau Development Pipelines	Install 4.4 mile -	23,232					
Recycled Wat	RW-2	Pipeline Upsiz	RNC Pipeline Upsize to 24"	Upsize approx -	3,000					
Recycled Wat	RW-2	Storage Tank	Additional 7-MG Storage in PZ1815	Install addition -		1				
Recycled Wat	RW-2	Pipeline Upsiz	RNC Pipeline Upsize to 18"	Upsize approx -	3,000					
Recycled Wat	RW-2	Pump Station	Oleander PS Expansion (200 HP)	Install addition -				1		
Recycled Wat	RW-2	Pump Station	McAllister PS Expansion (200 HP)	Additional 200 -				1		
Recycled Wat	RW-2	Pump Station	El Sobrante PS Expansion (150 HP)	Upsize El Sob -				1		
Wastewater	WW-7	Pipeline	McKinley Trunk Sewer 2 (WRCWRA)	Upsize 1,060 -	4,480					
Wastewater	WW-8	Pipeline	La Sierra Trunk Sewer(WRCWRA)	Upsize 8,345 -	8,345					
Wastewater	WW-9	Pipeline	Meridian Trunk Sewer North (WWRF)	Upsize 3,610 -	3,610					
Wastewater	WW-10	Pipeline	Arnold Heights Trunk Sewer (WWRF)	Upsize 2,375 -	2,375					
Wastewater	WW-11	Pipeline	Meridian Trunk Sewer South at RNC (WW	Upsize 500 LF -	500					
Wastewater	WW-12	Lift Station Up	Markham Lift Station Ultimate Upgrades	Upgrade lift st -				1		
Wastewater	WW-13	Lift Station Up	MARB 1269 Lift Station Upgrade Study	Study required -				1		

1-2 Construction Air Quality/Greenhouse Gas Calculations

Western MWD - Riverside FMP

GHG Emissions - Construction

Project Type	Quantity/Total Capacity Factor	MT (total per project) CO2e	GHG per project type CO2e MT	
Pipeline Install (up to 24 inch), 1000 ft	70.82	43	3040	
Tank Construction (5 MG)	5.8	233	1354	
Tank Improvement (5 MG Capacity)	2	171	342	
Lift/Pump Station Minor Upgrade (<=6 months)	3	121	364	
Lift/Pump Station Major Upgrade (12 months)	6	240	1439	
	TOTAL PRIORITY AND NEAR-TERM		6538	218 amortized over 30-year

FutureProject Type	Quantity	MT (total per project) CO2e	Total GHG CO2e MT	
Pipeline Install (up to 24 inch), 1000 ft	66.44	48	3179	
Tank Construction (5 MG)	6.2	252	1565	
Lift/Pump Station Minor Upgrade (<=6 months)	9	121	1090	
Lift/Pump Station Build/Re-build	0	208	0	
		TOTAL FUTURE	5834	194 amortized over 30-year

NOTE: This analysis conservatively assumes that all of the projects would occur in the same year

Tank Construction and Tank Improvement Capacity Factor were calculated by adding up the total proposed tank capacity and dividing by 5 (emissions are modeled for a 5 MG tank) 412

Western MWD - Riverside FMP
AQ Emissions - Construction
Regional AQ Emissions

Priority Project Max Daily Construction Emissions

QTY/scaling factor	Project Component/Phase	Max Daily Emissions ROG	NOX	CO	SO2	Total PM10	Total PM2.5
2	**Pipeline**						
	Max Emissions	3.6	32.3	30.0	0.1	7.0	4.0
1	**Lift/Pump Station Upgrade (minor)**						
	Max Emissions	1.0	8.2	10.4	0.0	0.6	0.4
	Total	**4.7**	**40.5**	**40.4**	**0.1**	**7.6**	**4.4**
	Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*55*

Notes: It was conservatively assumed that construction of two pipeline projects and one minor wastewater lift station would occur at the same time and their respective construction phases would occur concurrently

Near Term Project Max Daily Construction Emissions

	Project Component/Phase	Max Daily Emissions ROG	NOX	CO	SO2	Total PM10	Total PM2.5
2	**Pipeline**						
	Max Emissions	3.6	32.3	30.0	0.1	7.0	4.0
2	**Storage Tank (Build)**						
	Max Emissions	45.7	31.3	24.8	0.1	6.9	3.9
1	**Storage Tank (Upgrade)**						
	Max Emissions	22.8	9.3	12.4	0.0	0.6	0.4
2	**Lift/Pump Station Upgrade (major)**						
	Max Emissions	2.1	16.3	20.8	0.0	1.1	0.8
	Total	**74.2**	**89.3**	**88.0**	**0.2**	**15.5**	**9.1**
	Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*55*

Notes: It was conservatively assumed that construction of two pipeline projects, two storage tank build projects, one storage tank upgrade, and two major wastewater lift stations would occur at the same time and their respective construction phases would occur concurrently

Future Project Max Daily Construction Emissions

	Project Component/Phase	Max Daily Emissions ROG	NOX	CO	SO2	Total PM10	Total PM2.5
2	**Pipeline**						
	Max Emissions	3.4	17.5	27.7	0.1	6.1	3.2
1	**Storage Tank (Build)**						
	Max Emissions	22.7	6.9	12.2	0.0	3.0	1.6
2	**Lift/Pump Station Upgrade (minor)**						
	Max Emissions	1.6	11.4	20.3	0.0	0.7	0.3
	Total	**27.7**	**35.9**	**60.3**	**0.2**	**9.8**	**5.2**
	Significance Thresholds	*75*	*100*	*550*	*150*	*150*	*55*

Notes: It was conservatively assumed that construction of two pipeline projects, one storage tank build projects, and two minor wastewater lift stations would occur at the same time and their respective construction phases would occur concurrently

AQ Emissions - Construction

Localized AQ Emissions

Near Term and Priority Project Max Daily Construction Emissions

Project Component/Phase	Max Daily Emissions NOX	CO	Total PM10	Total PM2.5
Pipeline				
Max Emissions	15.3	14.3	3.2	1.9
Storage Tank (build)				
Max Emissions	14.4	11.8	3.1	1.8
Storage Tank (upgrade)				
Max Emissions	9.1	11.8	0.4	0.4
Lift/Pump Station (minor/major upgrade)				
Max Emissions	7.5	9.9	0.3	0.3
Max	**14.4**	**11.8**	**3.1**	**1.8**
Significance Thresholds	**118.0**	**602.0**	**4.0**	**3.0**

Notes: Multiple projects would not be located near the same sensitive receptors therefore the individual project maximums were not added together but rather compared to the localized significance threshold separately

SCAQMD Localized Significance Threshold for projects located in Source Receptor Area 23, on a one acre site, with sensitive receptors located 25 meters from the site

Future Project Max Daily Construction Emissions

Project Component/Phase	Max Daily Emissions NOX	CO	Total PM10	Total PM2.5
Pipeline				
Max Emissions	8.3	13.4	2.8	1.6
Storage Tank (Build)				
Max Emissions	6.1	11.8	2.7	1.5
Lift/Pump Station Upgrade				
Max Emissions	5.1	9.7	0.1	0.1
Max	**8.3**	**13.4**	**2.8**	**1.6**
Significance Thresholds	**118.0**	**602.0**	**4.0**	**3.0**

Notes: Multiple projects would not be located near the same sensitive receptors therefore the individual project maximums were not added together but rather compared to the localized significance threshold separately

SCAQMD Localized Significance Threshold for projects located in Source Receptor Area 23, on a one acre site, with sensitive receptors located 25 meters from the site

Western MWD - Riverside FMP

Total Emissions (scaling factor included)

		PRIORITY and NEAR -TERM PROJECTS						PRIORITY and NEAR -TERM PROJECTS						
		Local Emissions (maximum lb/day)						Regional Emissions (maximum lb/day)						MT (total per project)
Priority and Near Term Project Type	Scaling multiplier - AQ	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
Pipeline Install (up to 24 inch), 1000 ft	2	3.5	30.7	28.6	0.1	6.5	3.9	3.6	32.3	30.0	0.07	7.0	4.0	86
Tank Construction (5 MG)	2	45.6	28.8	23.6	0.0	6.2	3.7	45.7	31.3	24.8	0.06	6.9	3.9	467
Tank Improvement (5 MG Capacity)	1	22.8	9.1	11.8	0.0	0.4	0.4	22.8	9.3	12.4	0.02	0.6	0.4	171
Lift/Pump Station Minor Upgrade (<=6 months)	1	1.0	7.5	9.9	0.0	0.3	0.3	1.0	8.2	10.4	0.02	0.6	0.4	121
Lift/Pump Station Major Upgrade (12 months)	2	2.0	14.9	19.7	0.0	0.7	0.7	2.1	16.3	20.8	0.04	1.1	0.8	480
							Total:	75.2	97.5	98.4	0.22	16.1	9.5	

		FUTURE PROJECTS						FUTURE PROJECTS						
		Local Emissions (maximum lb/day)						Regional Emissions (maximum lb/day)						MT (total per project)
Future Project Type	Scaling multiplier - AQ	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
Pipeline Install (up to 24 inch), 1000 ft	2	3.3	16.6	26.8	0.1	5.6	3.1	3.4	17.5	27.7	0.1	6.1	3.2	96
Tank Construction (5 MG)	1	22.7	6.1	11.8	0.0	2.7	1.5	22.7	6.9	12.2	0.0	3.0	1.6	252
Lift/Pump Station Minor Upgrade (<=6 months)	2	1.5	10.1	19.5	0.0	0.2	0.2	1.6	11.4	20.3	0.0	0.7	0.3	242
Lift/Pump Station Build/Re-build	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
							Total:	27.7	35.9	60.3	0.2	9.8	5.2	

Emissions per project type

		PRIORITY and NEAR -TERM PROJECTS						PRIORITY and NEAR -TERM PROJECTS						
		Local Emissions (maximum lb/day)						Regional Emissions (maximum lb/day)						MT (total per project)
Project Type		ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
Pipeline Install (up to 24 inch), 1000 ft		1.7	15.3	14.3	0.03	3.2	1.9	1.8	16.2	15.0	0.0	3.5	2.0	43
Tank Construction (5 MG)		22.8	14.4	11.8	0.0	3.1	1.8	22.8	15.7	12.4	0.0	3.4	1.9	233.4
Tank Improvement (5 MG Capacity)		22.8	9.1	11.8	0.0	0.4	0.4	22.8	9.3	12.4	0.0	0.6	0.4	171.0
Lift/Pump Station Minor Upgrade (<=6 months)		1.0	7.5	9.9	0.02	0.3	0.3	1.0	8.2	10.4	0.02	0.6	0.4	121
Lift/Pump Station Major Upgrade (12 months)		1.0	7.5	9.9	0.02	0.3	0.3	1.0	8.2	10.4	0.02	0.6	0.4	240
							Total:	49.6	57.5	60.6	0.13	8.6	5.2	

		FUTURE PROJECTS						FUTURE PROJECTS						
		Local Emissions (maximum lb/day)						Regional Emissions (maximum lb/day)						MT (total per project)
Project Type		ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
Pipeline Install (up to 24 inch), 1000 ft		1.6	8.3	13.4	0.04	2.8	1.6	1.7	8.8	13.9	0.04	3.0	1.6	48
Tank Construction (5 MG)		22.7	6.1	11.8	0.03	2.7	1.5	22.7	6.9	12.2	0.04	3.0	1.6	252
Lift/Pump Station Minor Upgrade (<=6 months)		0.8	5.1	9.7	0.02	0.1	0.1	0.8	5.7	10.2	0.02	0.3	0.2	121
Lift/Pump Station Build/Re-build		1.0	5.1	9.7	0.03	1.4	0.8	1.0	5.1	10.0	0.03	1.5	0.8	208
							Total:	26.3	26.6	46.3	0.13	8.0	4.2	

Western MWD - Riverside FMP

Energy Consumption

			PRIORITY and NEAR -TERM PROJECTS							
			On-Site Construction Energy	On-Site Construction Energy	Construction Transportation (Worker, Vendor, Haul)			Construction Transportation (Worker, Vendor, Haul)		
	Unit Basis	Unit Basis Quantity	Diesel (gallons per unit basis)	Diesel (gallons)	Haul VMT	Vendor VMT	Worker VMT	Diesel (gallons)	Gasoline (gallons)	Electricity (kW-hr)
Pipeline Install (up to 24	1000 ft	70.8	3,826	270,970	199,712	43,979	499,706	38,560	18,271	6,174
Tank Construction (5 MG	Tank (5 MG)	5.8	20,746	120,327	27,144	41,621	302,673	10,130	11,067	3,739
Tank Improvement (5 MG	Tank (5 MG)	2	12,826	25,651	0	12,420	83,790	1,704	3,064	1,035
Lift/Pump Station Minor	Lift/Pump Station	3	6,854	20,561	5,280	5,465	58,212	1,610	2,128	719
Lift/Pump Station Major	Lift/Pump Station	6	13,324	79,945	10,560	21,611	228,438	4,684	8,352	2,822
ty and Near -Term Annual Average:[1]				129,364	60,674	31,274	293,205	14,172	10,721	3,623

			FUTURE PROJECTS							
			On-Site Construction Energy Off-Road Heavy-Duty	On-Site Construction Energy Off-Road Heavy-Duty	Construction Transportation (Worker, Vendor, Haul)			Construction Transportation (Worker, Vendor, Haul)		
Project Type	Unit Basis	Unit Basis Quantity	Diesel (gallons per unit basis)	Diesel (gallons)	Haul VMT	Vendor VMT	Worker VMT	Diesel (gallons)	Gasoline (gallons)	Electricity (kW-hr)
Pipeline Install (up to 24	1000 ft	66.4	3,826	254,219	187,366	41,260	468,815	32,409	14,589	11,201
Tank Construction (5 MG	Tank (5 MG)	6.2	19,180	118,917	29,016	44,491	323,547	9,834	10,068	7,730
Lift/Pump Station Minor	Lift/Pump Station	9	6,854	61,682	15,840	16,394	174,636	4,371	5,434	4,172
Lift/Pump Station Build/R	Lift/Pump Station	0	17,640	0	0	0	0	0	0	0
Combined Future Project Annual Average: [2]				*21,741*	*11,611*	*5,107*	*48,350*	*2,331*	*1,505*	*1,155*

Assuming ove

	Mobile On-Road Fuel Consumption Factors			
Category	**Haul**	**Vendor**	**Worker**	
EMFAC Vehicle Type	HHDT	HHDT/MHDT	LDA/LDT1/LDT2	
Fuel	diesel	diesel	gasoline	electricity
Consumption Factor	gal/VMT	gal/VMT	gal/VMT	kw-hr/VMT
2024 - Priority/Near-Term	0.1629	0.1372	0.0366	0.0124
2030 Future	0.1451	0.1264	0.0311	0.0239

Project Totals:	*952,272*	*474,919*	*227,242*	*2,139,817*	*103,303*	*72,974*	*37,594*	
Total Years:	*24*	*24*	*24*	*24*	*24*	*24*	*24*	
Overall Annual Average: [3]	*39,678*	*19,788*	*9,468*	*89,159*	*4,304*	*3,041*	*1,566*	

[1] The construction of priority and near-term projects are expected to occur between 2024 and 2030.

[2] Future project construction schedules are unknown but assumed to be constructed between 2030 and 2050 to develop an annual average energy consumption.

[3] The overall annual average combines all project types among the full build-out schedule between present time to 2050 in order to develop an annual average energy consumption.

Western MWD - Riverside FMP
Blasting Emissions Calculations

Assumptions:

250	blast diameter (ft); estimate for larger-sized tanks for this project
49,088	square feet area to be blasted
5	feet of blast (assume 5 feet blast depth; blast occuring at a depth below the surface)
245,438	cubic feet to be removed
9,090	cubic yards to be removed

ANFO Amount:

0.55	Estimated Powder Factor (lbs/cu.yd.) [1]
9,090	cubic yards to be removed (see Assumptions Page)
5,000	lbs of ANFO needed
13.93	lbs per blast [2]
359	# of blasts
25	cubic yards per blast
36	days of blasting
10	Maximum blasts per day

Dust Calculations:

Blasting:

$0.000014(A)^{1.5}$ = Formula for determining TSP (<30mg) from 1 blast [3]

where:

A = horizontal area (sqft) with a blasting depth of <70 ft.

49,088	=A for whole site
0.19	cubic yards per sqft area
137	squre feet per blast
1,368	square feet per day

0.71 =TSB lbs/blast for the project

0.000014

50,595 $=A^{1.5}$

0.52 scaling factor for PM10 [3]

0.03 scaling factor for PM2.5 [3]

Explosive Detination Calculations:

Emission Factors (NOx, CO, SO2): [4]

67.00	lbs/ton Carbon Monoxide
17.00	lbs/ton Nitrogen Oxide
2.00	lbs/ton SO_2
13.93	lbs/blast of ANFO
139.33	lbs/day of ANFO
5000	lbs of ANFO for all blasting
0.01	tons/blast of ANFO
0.07	tons/day of ANFO
2.50	tons of Anfo for all blasting

Emission Factor Mass-Balance Screening Estimate (VOC): [5,6]

0.06	ANFO fuel-oil fraction [5]
0.03	total VOC fraction in fuel oil [5]
0.02	uncombusted fraction [6] (100% - 98% = 2% or 0.02)
0.072	lb VOC/ton ANFO

Emission Factor GHG as Methane: [4] GWP= 25

1.3 lbs/ton Methane (ANFO has No Data for Methane; factor for Dynamite used based on similarilty of CO emission factor)

Western MWD - Riverside FMP
Blasting Emissions Calculations

Project Emissions:

	VOC	NOx	CO	SO_2	PM10	PM2.5	CO2e
				pounds per blast			
Fugitive	-	-	-	-	0.37	0.02	-
Explosion	-	0.12	0.47	0.01	-	-	0.23
Total	0.00	0.12	0.47	0.01	0.37	0.02	0.23
				pounds per day			
Fugitive	-	-	-	-	3.68	0.21	-
Explosion	0.01	1.18	4.67	0.14	-	-	2.26
Total	0.0	1.2	4.7	0.1	3.7	0.2	2.26
				Total pounds from blasting			
Fugitive	-	-	-	-	132.17	7.63	-
Explosion	0.18	42.50	167.49	5.00	-	-	81.24
Total	0.18	42.50	167.49	5.00	132.17	7.63	81.24
				Total tons from blasting (metric tons for CO2e)			
Fugitive	-	-	-	-	0.066	0.004	-
Explosion	0.000	0.021	0.084	0.002	-	-	0.037
Total	0.0	0.0	0.1	0.0	0.1	0.0	0.04

Sources:

1 Earth Construction and Mining 2014. *City of San Bernardino, CA, USA IDS Distribution Site Grading Palms and Industrial Parkway Conceptual Blast Plan Easter Area of Activity. September 1st.*

2 ECM stipulated 69.45 lbs per blast with closest receptor distance at 648 feet.

69.45	lbs/blast
648	feet
0.10717593	lbs/distance
130	feet, distance to receptor (per Mitigation Measure NOISE-2)
	(closer distances results in lower lbs/blast mix and lower emissions)
13.93	lbs/blast max

3 AP-42 (10/1998), Section 11.9, Western Surface Coal Mining, Table 11.9-1

4 AP-42 (2/80), Section 13.3, Explosives Detonation, Table 13.3-1

5 Australian Government, *Department of the Environment and Energy, National Pollutant Inventory Emission estimation technique manual for Explosives detonation and firing ranges* , Version 3.1, August 2016. See Table 8 (Note 2) and Table 6. https://www.dcceew.gov.au/sites/default/files/documents/explosives-detonation-and-firing-ranges.pdf.

6 U.S. Department of Energy, Office of Scientific and Technical Information, NETL Life Cycle Inventory Data Process Documentation File, 2013. See page 4 of 11: " A combustion efficiency of 98 percent was assumed." https://www.osti.gov/servlets/purl/1509114

1-3 Operational Air Quality/ Greenhouse Gas Calculations

Western MWD - Riverside FMP

Operational Emissions

	Maximum Daily Emissions (lb/day)					
	NOx	**CO**	**VOC**	**PM10**	**PM2.5**	**SO2**
Project Emissions						
Priority Projects	0.16	0.07	0.00	0.01	0.00	0.01
Near-Term Projects (prior to 2030)	7.09	3.06	0.21	0.48	0.19	0.66
Future Projects (after 2030)	3.90	1.68	0.12	0.26	0.11	0.36
Total:	**11.14**	**4.80**	**0.34**	**0.75**	**0.30**	**1.03**
SCAQMD Significance Threshold (lb/day):	55	550	55	150	55	n/a
Exceed Threshold?	no	no	no	no	no	no

All projects were conservatively assumed to overlap once the Future Projects are operational.
Riverside is severe NAA for ozone, serious NAA for PM10, attainment or unclassified for other pollutants

SOURCE: ESA 2026.

	Maximum Annual Emissions (MT/yr)	
	2024 CO2e	**2030 CO2e**
Project Emissions		
Priority Projects	47	33
Near-Term Projects (prior to 2030)	1935	1377
Future Projects (after 2030)	1064	757
Maximum:	**3045**	**2168**
SCAQMD Threshold (MT/yr):	10,000	10,000
Exceed Threshold?	no	no

CO2e= carbon dioxide equivalent; MT/yr = metric tons per year.

SOURCE: ESA 2026.

Maximum Daily Emissions (lb/day)
CRITERIA POLLUTANT EMISSIONS
EMISSIONS FROM Pump Station/Lift Station Upgrades

Type	CIP Project	Project Type	Project Name	Description	Project Type	Existing Million Gallon/Day	Project Million Gallon/Day	Delta (Mgal/day)	Existing Daily Energy	Project Daily	Existing Ann	Project Annu	NOx Emissions (lb/day)	CO Emissions (lb/day)	VOC Emissions (lb/day)	PM10 Emissions (lb/day)	PM2.5 Emissions (lb/day)	SO2 Emissions (lb/day)
Wastewater	WW-3	Lift Station Upgrade	Markham Lift Station Uporade	Increase capacity from 1.44 MGD to 2.1	Lift Station Upgrade	1.44	2.1	0.66	689	1005	252	367	0.15	0.06	0.00	0.01	0.00	0.01
Wastewater	WW-2	Lift Station Upgrade	Beazer Lift Station Upgrade	Increase capacity from 0.16 MGD to 0.25 MGD	Lift Station Upgrade	0.16	0.25	0.09	77	120	28	44	0.01	0.00	0.00	0.00	0.00	0.00
					Total:	***1.60***	***2.35***	***0.75***	***766***	***1125***	***280***	***411***	***0.16***	***0.07***	***0.00***	***0.01***	***0.00***	***0.01***

PRIORITY PROJECTS
GREENHOUSE GAS EMISSIONS

Type	CIP Project	Project Type	Project Name	Description	Project Type	Existing Million Gallon/Day	Project Million Gallon/Day	Delta (Mgal/day)	Existing Daily Energy Consumption (kWh/day)	Project Daily Energy Consumpt	Existing Annual Energy Cons	Project Annual Energy Cons	2024 CO2e Emissions (MT/yr)	2030 CO2e Emissions (MT/yr)
Wastewater	WW-3	Lift Station Upgrade	Markham Lift Station Uporade	Increase capacity from 1.44 MGD to 2.1	Lift Station Upgrade	1.44	2.1	0.66	689	1005	252	367	41	29
Wastewater	WW-2	Lift Station Upgrade	Beazer Lift Station Upgrade	Increase capacity from 0.16 MGD to 0.25 MGD	Lift Station Upgrade	0.16	0.25	0.09	77	120	28	44	6	4
					Total:	***1.60***	***2.35***	***0.75***	***766***	***1125***	***280***	***411***	***47***	***33***

	Value	Source
Energy Intensity Factor (kWhr/Mgal)	478.74	Markham Lift Station Data
Energy Intensity Factor (kWhr/Mgal)	1140.00	WMWD Pump Station Data
Energy Intensity Factor (kWhr/Mgal)	2145.23	WWRF Data

Criteria Pollutant Emission Factors

NOx EF (lbs/MWh)	0.475	EPA eGrid
CO EF (lbs/MWh)	0.205	AP-42
VOC EF (lbs/MWh)	0.014	AP-42
PM10 EF (lbs/MWh)	0.032	AP-42
PM2.5 EF (lbs/MWh)	0.013	AP-42
SO2 EF (lbs/MWh)	0.044	EPA eGrid

Greenhouse Gas Emission Factors

CO2e 2024 EF (lbs/MWh)	783.08	Riverside Public Utility
CO2e 2030 EF (lbs/MWh)	557.35	Riverside Public Utility

Totals

	NOx Emissions (lb	CO Emissions (lb/day	VOC Emissions (lb	PM10 Emissions (	PM2.5 Emission	SO2 Emissions (l	2024 CO2e En	2030 CO2e Emissions (MT/yr)
max/total	0.16	0.07	0.00	0.01	0.00	0.01	46.55	33.13

Maximum Annual Emissions (lb/day)

NEAR-TERM PROJECTS (BY 2030)

EMISSIONS FROM Pump Station/Lift Station Upgrades

Type	CIP Project	Project Type	Project Name	nstruction Timefra	Project Type	Existing Million Gallon/Day	Project Million Gallon/Day	Delta (Mgal/day)	Existin g Daily Energy Consu	Project Daily Energy Consu	Existin g Annual Energy	Project Annual Energy Consu	NOx Emissions (lb/day)	CO Emissions (lb/day)	VOC Emissions (lb/day)	PM10 Emissions (lb/day)	PM2.5 Emissions (lb/day)	SO2 Emissions (lb/day)	MT/yr 2024 CO2e Emissions	MT/yr 2030 CO2e Emissions
Water	W-4	Add pumping capacity of 3,700	Hillside 2320 Pressure Zone	2027	ump Station Upgrad	0.00	9.65	9.65	0	10999	0	4015	5.22	2.25	0.16	0.35	0.14	0.48	1426	1015
Recycled Water	RW-1	Pump station upgrade to 200 HP	Riverside National Cemetery Pumo	2027	ump Station Upgrad	0.00	2.80	2.80	0	3186	0	1163	1.51	0.65	0.05	0.10	0.04	0.14	413	294
Recycled Water	RW-1	Additional 150 HP pump	El Sobrante Pump Station Upgrade	2028	ump Station Upgrad	0.00	2.10	2.10	0	2390	0	872	1.14	0.49	0.03	0.08	0.03	0.11	310	221
Wastewater	WW-4	Increase the firm capacity of MARB	MARB 1269 Lift Station and Pipeline	2027	ump Station Upgrad	1.30	1.90	0.60	622	910	227	332	0.14	0.06	0.00	0.01	0.00	0.01	37	27
Wastewater	WW-6	Expand WWRF from 3 MGD to 5 MGD	WWRF Expansion	2030		3.00	5.00	2.00	6436	10726	2349	3915	2.04	0.88	0.06	0.14	0.06	0.19	556	396
Wastewater	WW-5	Increase capacity from 0.16 MGD to	Meridian Lift Station Upgrade	2027	Lift Station Upgrade	0.16	1.10	0.94	77	527	28	192	0.21	0.09	0.01	0.01	0.01	0.02	58	42
					Total 2027:	1.46	5.80	4.34	699	15621	255	5702	7.09	3.06	0.21	0.48	0.19	0.66	1935	1377
					Total 2028:	0.00	2.10	2.10	0	2390	0	872	1.14	0.49	0.03	0.08	0.03	0.11	310	221
					Total 2030:	3.00	5.00	2.00	6436	10726	2349	3915	2.04	0.88	0.06	0.14	0.06	0.19	556	396
					Maximum:	***3.00***	***5.80***	***4.34***	***6436***	***15621***	***2349***	***5702***	***7.09***	***3.06***	***0.21***	***0.48***	***0.19***	***0.66***	***1935***	***1377***

	Value	Source
Energy Intensity Factor (kWh/Mgal)	478.74	Markham Lift Station Data
Energy Intensity Factor (kWh/Mgal)	1140.00	WMWD Pump Station Data
Energy Intensity Factor (kWh/Mgal)	2145.23	WWRF Data
Criteria Pollutant Emission Factors		
NOx EF (lbs/MWh)	0.475	EPA eGrid
CO EF (lbs/MWh)	0.205	AP-42
VOC EF (lbs/MWh)	0.014	AP-42
PM10 EF (lbs/MWh)	0.032	AP-42
PM2.5 EF (lbs/MWh)	0.013	AP-42
SO2 EF (lbs/MWh)	0.044	EPA eGrid
Greenhouse Gas Emission Factors		
CO2e 2024 EF (lbs/MWh)	783.075	Riverside Public Utility
CO2e 2030 EF (lbs/MWh)	557.349	Riverside Public Utility

Totals

	NOx Emissions (lb/	CO Emissions	VOC Emissions	PM10 Emissior	PM2.5 Emissio	SO2 Emissions	2024 CO2e I	2030 CO2e Emissions (MT/yr)
max/total	7.09	3.06	0.21	0.48	0.19	0.66	1935	1377

Maximum Annual Emissions (lb/day)

FUTURE PROJECTS (BY 2050)

EMISSIONS FROM Pump Station/Lift Station Upgrades

Type	CIP Project	Project Type	Project Name	Description	Notes	Existing Million Gallon/Day	Project Million Gallon/Day	Delta (Mgal/day)	Existing Daily Energy Consumpt	Project Daily Energy Consum	Existing Annual Energy Consumpt	Project Annual Energy Consumpt	NOx Emissions (lb/day)	CO Emissions (lb/day)	VOC Emissions (lb/day)	PM10 Emissions (lb/day)	PM2.5 Emissions (lb/day)	SO2 Emissions (lb/day)	2024 CO2e Emissions	2030 CO2e Emissions
Water	W-16	mp Station Upgr	CITP (Intake PS	PS that feeds PZ		9.22	13.68	4.46	10506	15595	3835	5692	2.42	1.04	0.07	0.16	0.07	**0.22**	660	470
Water	W-17	mp Station Upgr	Capacity of Mock	eds PZ 1650 to r		0.00	7.20	7.20	0	8208	0	2996	3.90	1.68	0.12	0.26	0.11	0.36	1064	757
Water	W-18	mp Station Upgr	Bergamont PS	S that feeds PZ 1		17.28	21.02	3.74	19699	23968	7190	8748	2.03	0.87	0.06	0.14	0.06	0.19	553	394
Water	W-19	mp Station Upgr	olling Meadows I	as PS that feeds P		1.68	2.88	1.20	1912	3283	698	1198	0.65	0.28	0.02	0.04	0.02	0.06	178	126
Recycled Wa	RW-2	mp Station Upgr	PS Expansion (	leander PS sized		0.00	4.46	4.46	0	5089	0	1857	2.42	1.04	0.07	0.16	0.07	0.22	660	470
Recycled Wa	RW-2	mp Station Upgr	r PS Expansion	HP pump; upsize		0.00	2.80	2.80	0	3186	0	1163	1.51	0.65	0.05	0.10	0.04	0.14	413	294
Recycled Wa	RW-2	mp Station Upgr	te PS Expansion	capacity from 2,4(		3.46	6.62	3.17	3940	7551	1438	2756	1.72	0.74	0.05	0.12	0.05	0.16	468	333
Wastewater	WW-12	ift Station Upgra	ft Station Ultimat	to a firm capacity		1.44	2.80	1.36	689	1340	252	489	0.31	0.13	0.01	0.02	0.01	0.03	84	60
Wastewater	WW-13	ift Station Upgra	Station 1269 Up	mined base ata as		1.44	2.1	0.66	689	1005	252	367	0.15	0.06	0.00	0.01	0.00	0.01	41	29
					Maximu	***17.28***	***21.02***	***7.20***	***19699***	***23968***	***7190***	***8748***	***3.90***	***1.68***	***0.12***	***0.26***	***0.11***	***0.36***	***1064***	***757***

	Value	Source
Energy Intensity Factor (kWhr/Mgal)	478.74	Markham Lift Station Data
Energy Intensity Factor (kWhr/Mgal)	1140.00	WMWD Pump Station Data
Energy Intensity Factor (kWhr/Mgal)	2145.23	WWRF Data

Criteria Pollutant Emission Factors

NOx EF (lbs/MWh)	0.475	EPA eGrid
CO EF (lbs/MWh)	2.05E-01	AP-42
VOC EF (lbs/MWh)	1.43E-02	AP-42
PM10 EF (lbs/MWh)	3.21E-02	AP-42
PM2.5 EF (lbs/MWh)	1.30E-02	AP-42
SO2 EF (lbs/MWh)	4.40E-02	EPA eGrid

Greenhouse Gas Emission Factors

CO2e 2024 EF (lbs/MWh)	7.83E+02	Riverside Public Utility
CO2e 2030 EF (lbs/MWh)	5.57E+02	Riverside Public Utility

Totals

	NOx Emis:	CO Emissi	VOC Emissio	PM10 Emiss	PM2.5 Ei	SO2	2024 CO2e Em	2030 CO2e Emissions (MT/yr)
max/t	3.90	1.68	0.12	0.26	0.11	###	1064.17	757.42

Western MWD - Riverside FMP
PRIORITY PROJECTS
Operational Energy Consumption

CIP Proj	Proj Type	Proj Name	Proj Daily Energy Consumption (kWh/day)	Proj Annual Energy Consumption (MWh/year)
WW-3	Lift Station Upgrade	Markham Lift Station Upgrade	1005	367
WW-2	Lift Station Upgrade	Beazer Lift Station Upgrade	120	44
		Total:	**1125**	**411**

Near-Term Projects
Operational Energy Consumption

CIP Proj	Proj Type	Proj Name	Proj Daily Energy Consumption (kWh/day)	Proj Annual Energy Consumption (MWh/year)
W-4	ultimately 6,700 gpm; upone Booster Pump Station [MOVED fr		10999	4015
RW-1	ıp station upgrade to 20(de National Cemetery Pump Station U		3186	1163
RW-1	Additional 150 HP pump	El Sobrante Pump Station Upgrade	2390	872
WW-4	of MARB 1269 lift station	Lift Station and Pipeline Upgrade 126	910	332
WW-6	WWRF from 3 MGD to	WWRF Expansion	10726	3915
WW-5	from 0.16 MGD to 1.1 M	Meridian Lift Station Upgrade	527	192
		Total:	**28737**	**10489**

Future Projects
Operational Energy Consumption

CIP Proj	Proj Type	Proj Name	Proj Daily Energy Consumption (kWh/day)	Proj Annual Energy Consumption (MWh/year)
W-16	Pump Station Upgrade	CITP (Intake PS)	15595	5692
W-17	Pump Station Upgrade	Increase Capacity of Mockingbird PS	8208	2996
W-18	Pump Station Upgrade	Bergamont PS	23968	8748
W-19	Pump Station Upgrade	Rolling Meadows PS	3283	1198
RW-2	Pump Station Upgrade	Oleander PS Expansion (200 HP)	5089	1857
RW-2	Pump Station Upgrade	McAllister PS Expansion (200 HP)	3186	1163
RW-2	Pump Station Upgrade	El Sobrante PS Expansion (150 HP)	7551	2756
WW-12	Lift Station Upgrade	Markham Lift Station Ultimate Upgrade	1340	489
WW-13	Lift Station Upgrade	MARB Lift Station 1269 Upgrade Study	1005	367
		Total:	**69227**	**25268**

Table 3.1-1. EMISSION FACTORS FOR NITROGEN OXIDES (NO_X) AND CARBON MONOXIDE (CO) FROM STATIONARY GAS TURBINES

Emission Factors[a]				
Turbine Type	Nitrogen Oxides		Carbon Monoxide	
Natural Gas-Fired Turbines[b]	(lb/MMBtu)[c] (Fuel Input)	Emission Factor Rating	(lb/MMBtu)[c] (Fuel Input)	Emission Factor Rating
Uncontrolled	3.2 E-01	A	8.2 E-02[d]	A
Water-Steam Injection	1.3 E-01	A	3.0 E-02	A
Lean-Premix	9.9 E-02	D	1.5 E-02	D
Distillate Oil-Fired Turbines[e]	(lb/MMBtu)[f] (Fuel Input)	Emission Factor Rating	(lb/MMBtu)[f] (Fuel Input)	Emission Factor Rating
Uncontrolled	8.8 E-01	C	3.3 E-03	C
Water-Steam Injection	2.4 E-01	B	7.6 E-02	C
Landfill Gas-Fired Turbines[g]	(lb/MMBtu)[h] (Fuel Input)	Emission Factor Rating	(lb/MMBtu)[h] (Fuel Input)	Emission Factor Rating
Uncontrolled	1.4 E-01	A	4.4 E-01	A
Digester Gas-Fired Turbines[i]	(lb/MMBtu)[h] (Fuel Input)	Emission Factor Rating	(lb/MMBtu)[h] (Fuel Input)	Emission Factor Rating
Uncontrolled	1.6 E-01	D	1.7 E-02	D

[a] Factors are derived from units operating at high loads (>80 percent load) only. For information on units operating at other loads, consult the background report for this chapter (Reference 16), available at "www.epa.gov/ttn/chief".

[b] Source Classification Codes (SCCs) for natural gas-fired turbines include 2-01-002-01, 2-02-002-01, 2-02-002-03, 2-03-002-02, and 2-03-002-03. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value.

[c] Emission factors based on an average natural gas heating value (HHV) of 1020 Btu/scf at 60°F. To convert from (lb/MMBtu) to (lb/10^6 scf), multiply by 1020.

It is recognized that the uncontrolled emission factor for CO is higher than the water-steam injection and

1 Gallon 0.133681 scf
1 kWh .003412 MMBtu

1 kWh 7.4 scf

EF (lb/MW-hr)=(EF[lb/MMBtu] x (3.413 [MMBtu/MWh)/(efficiency)

Table 3.1-2a. EMISSION FACTORS FOR CRITERIA POLLUTANTS AND GREENHOUSE GASES FROM STATIONARY GAS TURBINES

Emission Factors[a] - Uncontrolled				
Pollutant	Natural Gas-Fired Turbines[b]		Distillate Oil-Fired Turbines[d]	
	(lb/MMBtu)[c] (Fuel Input)	Emission Factor Rating	(lb/MMBtu)[c] (Fuel Input)	Emission Factor Rating
CO_2[f]	110	A	157	A
N_2O	0.003[g]	E	ND	NA
Lead	ND	NA	1.4 E-05	C
SO_2	0.94S[h]	B	1.01S[h]	B
Methane	8.6 E-03	C	ND	NA
VOC	2.1 E-03	D	4.1 E-04[i]	E
TOC[k]	1.1 E-02	B	4.0 E-03[i]	C
PM (condensible)	4.7 E-03[j]	C	7.2 E-03[i]	C
PM (filterable)	1.9 E-03[j]	C	4.3 E-03[i]	C
PM (total)	6.6 E-03[j]	C	1.2 E-02[i]	C

[a] Factors are derived from units operating at high loads (>80 percent load) only. For information on units operating at other loads, consult the background report for this chapter (Reference 16), available at "www.epa.gov/ttn/chief". ND = No Data, NA = Not Applicable.

[b] SCCs for natural gas-fired turbines include 2-01-002-01, 2-02-002-01 & 03, and 2-03-002-02 & 03.

[c] Emission factors based on an average natural gas heating value (HHV) of 1020 Btu/scf at 60°F. To convert from (lb/MMBtu) to (lb/10^6 scf), multiply by 1020. Similarly, these emission factors can be converted to other natural gas heating values.

[d] SCCs for distillate oil-fired turbines are 2-01-001-01, 2-02-001-01, 2-02-001-03, and 2-03-001-02.

[e] Emission factors based on an average distillate oil heating value of 139 MMBtu/10^3 gallons. To convert from (lb/MMBtu) to (lb/10^3 gallons), multiply by 139.

[f] Based on 99.5% conversion of fuel carbon to CO_2 for natural gas and 99% conversion of fuel carbon to CO_2 for distillate oil. CO_2 (Natural Gas) [lb/MMBtu] = (0.0036 scf/Btu)(%CON)(C)(D), where %CON = weight percent conversion of fuel carbon to CO_2, C = carbon content of fuel by weight, and D = density of fuel. For natural gas, C is assumed at 75%, and D is assumed at 4.1 E+04 lb/10^6scf. For distillate oil, CO_2 (Distillate Oil) [lb/MMBtu] = (26.4 gal/MMBtu) (%CON)(C)(D), where C is assumed at 87%, and the D is assumed at 6.9 lb/gallon.

[g] Emission factor is carried over from the previous revision to AP-42 (Supplement B, October 1996) and is based on limited source tests on a single turbine with water-steam injection (Reference 5).

[h] All sulfur in the fuel is assumed to be converted to SO_x. S = percent sulfur in fuel. Example, if sulfur

The annual average amounts of coal, natural gas, and petroleum fuels used to generate a kilowatthour (kWh) of electricity by U.S. electric utilities and independent power producers in 2021 were:[1]

- Coal–1.12 pounds/kWh
- Natural gas–7.40 cubic feet/kWh
- Petroleum liquids–0.08 gallons/kWh
- Petroleum coke–0.80 pounds/kWh

Convert to lb/kw-hr output
assume 50% efficiency

VOC	2.10E-03	lb MMBtu (fuel input)
VOC	1.43E-02	lb MWh (power output)
NOX	0.88738	lb/MWhr
	eGrid (CAMX - California = 0.475 lb/MWhr)	
CO	3.00E-02	lb MMBtu (fuel input)
CO	2.05E-01	lb MWh (power output)
PM10	4.70E-03	lb MMBtu (fuel input)
PM10	3.21E-02	lb MWh (power output)
PM2.5	1.90E-03	lb MMBtu (fuel input)
PM2.5	1.30E-02	lb MWh (power output)
SO2	4.40E-02	lb MWh (power output)

Riverside Public Utility - Emission Factor Projections

RPU Power Mix

Source	2017	2018	2019	2020
Renewables	36%	34%	38%	42%
Coal	26%	29%	29%	25%
Natural Gas	5%	4%	4%	5%
Nuclear	4%	4%	5%	5%
Large Hydroelectric	1%	1%	1%	1%
Unspecificed	28%	27%	23%	22%
Total	100%	99%	100%	100%

Source: California Energy Commission, RPU Power Content Labels

2017 https://ww2.energy.ca.gov/pcl/labels/2017_labels/Riverside_2017_PCL.pdf
2018 https://www.riversideca.gov/utilities/about-rpu/2018%20Power%20Content%20Label_Riverside
2019 https://www.energy.ca.gov/filebrowser/download/3216
2020 https://www.energy.ca.gov/filebrowser/download/3850

Global Warming Potentials

	CO2	CH4	N2O
GWPs - AR4	1	25	298

Source: IPCC, Climate Change 2007: The Physical Science Basis, Contribution of Working Group I to the Fourth Assessment Report, Chapter 2: Changes in Atmospheric Constituents and in Radiative Forcing

Conversion Factor

lbs	MT
2,204.62	1

Actual CO2e Intensity Factors

	2017	2018	2019	2020
MTCO2e/MWh Delivered	0.398	0.416	0.397	0.365
lbs CO2e/MWh Delivered	877.88	917.12	875.00	804.00

Source: City of Riverside Public Utilities, Resource Operations & Strategic Analytics, Tracy Sato, Email, October 1, 2019.
CAPCOA, Handbook for Analyzing GHG Emissions Reductions. https://www.airquality.org/ClimateChange/Documents/Final%20Handbook_AB434.p

Statewide RPS Renewable Targets

	2020	2030	2045
SB100 State Targets	33%	60%	100%

Source: Senate Bill No. 100, Chapter 312, September 10, 2018.
https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180SB100

Projected CO2e Intensity Factors

lbs CO2e/MWh delivered	2017	2018	2019	2020	Avg. 2017-20		
CO2e/MWh for Non-RPS Electricity	1371.7	1411.0	1402.2	1388.6	1393.4		
CO2e/MWh for Non-Carbon-Free Energy	1487.9	1528.5	1556.9	1555.1	1532.1		
CO2e/MWh for Each year RPS						**Year**	**RPS**
2020 RPS (33%)	919.0	945.3	939.5	930.4	933.6	2020	33%
2021 RPS (36%)	882.0	907.2	901.6	892.9	895.9	2021	36%
2022 RPS (38%)	845.0	869.1	863.8	855.4	858.3	2022	38%
2023 RPS (41%)	807.9	831.1	825.9	817.9	820.7	2023	41%
2024 RPS (44%)	770.9	793.0	788.1	780.4	783.1	2024	44%
2025 RPS (47%)	733.9	754.9	750.2	742.9	745.5	2025	47%
2026 RPS (49%)	696.8	716.8	712.3	705.4	707.8	2026	49%
2027 RPS (52%)	659.8	678.7	674.5	667.9	670.2	2027	52%
2028 RPS (55%)	622.7	640.6	636.6	630.4	632.6	2028	55%
2029 RPS (57%)	585.7	602.5	598.8	592.9	595.9	2029	57%
2030 RPS (60%)	548.7	564.4	560.9	555.4	557.3	2030	60%
2031 RPS (63%)	512.1	526.8	523.5	518.4	520.2	2031	63%
2032 RPS (65%)	475.5	489.1	486.1	481.4	483.0	2032	65%
2033 RPS (68%)	438.9	451.5	448.7	444.4	445.9	2033	68%
2034 RPS (71%)	402.4	413.9	411.3	407.3	408.7	2034	71%
2035 RPS (73%)	365.8	376.3	373.9	370.3	371.6	2035	73%
2036 RPS (76%)	329.2	338.6	336.5	333.3	334.4	2036	76%
2037 RPS (79%)	292.6	301.0	299.1	296.2	297.3	2037	79%
2038 RPS (81%)	256.0	263.4	261.8	259.2	260.1	2038	81%
2039 RPS (84%)	219.5	225.8	224.4	222.2	222.9	2039	84%
2040 RPS (87%)	182.9	188.1	187.0	185.1	185.8	2040	87%
2041 RPS (89%)	146.3	150.5	149.6	148.1	148.6	2041	89%
2042 RPS (92%)	109.7	112.9	112.2	111.1	111.5	2042	92%
2043 RPS (95%)	73.2	75.3	74.8	74.1	74.3	2043	95%
2044 RPS (97%)	36.6	37.6	37.4	37.0	37.2	2044	97%
2045 RPS (100%)	0.0	0.0	0.0	0.0	0.0	2045	100%

El Sobrante Pump #1	75 hp	test1	test2	test3	Average	
Pump Curves		3.448	3.143	3.059	3.217	acre-ft per 24 hrs
Operational Emissions		1.12E+06	1.02E+06	9.97E+05	1.05E+06	gal/day
		1.124	1.024	0.997	1.048	MGal/day
		0.0150	0.0137	0.0133	0.0140	MGal/day/hp
		311	311	311	311	Annual Average Acre-Ft (2014-2019)
		85%	85%	85%		(percent of 100 percent capacity)
		393	433	441		kWh/acre-ft
		1206.1	1328.8	1353.4		kwh/Million gallons

WMWD Pump Station Energy Intensity
Operational Emissions

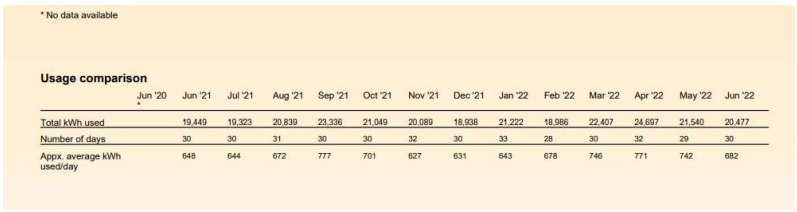
Table 1: Pumping Characteristics

Facility	Average Energy Intensity (kWh/MG)	Average Energy Price ($/kWh)	Average Pumping Cost ($/HCF)
1860 (Lake Hills) Pump Station	1,700	$0.12	$0.15
Bergamont Pump Station	360	$0.17	$0.05
Hillside (Elderidge) Pump Station	2,220	$0.19	$0.31
Holcomb (Alessandro) Pump Station	860	$0.17	$0.11
Mockingbird Pump Station	1,860	$0.09	$0.13
Old Lake (1945) Pump Station	700	$0.13	$0.07
Oleander Pump Station	850	$0.13	$0.08
Rolling Meadows Pump Station	570	$0.21	$0.09

kWh/MG	
1700	
360	
2220	
860	
1860	
700	
850	
570	
2220	Max
1140	Average

Lift Station Energy Intensity
Operational Emissions

Markham LS KW Usage last 12 months.pdf
Markham LS KW Usage last 12 months.pdf



* No data available

Usage comparison

	Jun '20 *	Jun '21	Jul '21	Aug '21	Sep '21	Oct '21	Nov '21	Dec '21	Jan '22	Feb '22	Mar '22	Apr '22	May '22	Jun '22
Total kWh used		19,449	19,323	20,839	23,336	21,049	20,089	18,938	21,222	18,986	22,407	24,697	21,540	20,477
Number of days		30	30	31	30	30	32	30	33	28	30	32	29	30
Appx. average kWh used/day		648	644	672	777	701	627	631	643	678	746	771	742	682

Markham Lift Station Upgrade — Increase capacity from 1.44 MGD to 2.1 MGD

Existing Capacity 1.44 MGD

Month	kwhr-day
Jun-21	648
Jul-21	644
Aug-21	672
Sep-21	777
Oct-21	701
Nov-21	627
Dec-21	631
Jan-22	643
Feb-22	678
Mar-22	746
Apr-22	771
May-22	742
Jun-22	682
Average	689.4

Energy Intensity = 478.7393 kw-hr/MG

WWRF Energy Intensity
Operational Emissions

Usage comparison

	May '20 *	May '21	Jun '21	Jul '21	Aug '21	Sep '21	Oct '21	Nov '21	Dec '21	Jan '22	Feb '22	Mar '22	Apr '22	May '22
Total kWh used		237,968	236,162	204,476	187,386	234,968	186,807	237,841	154,945	179,134	178,499	168,577	166,260	167,700
Number of days		29	32	30	29	32	30	33	29	30	32	29	30	29
Appx. average kWh used/day		8,205	7,380	6,815	6,461	7,342	6,226	7,207	5,342	5,971	5,578	5,813	5,542	5,782

Existing Capcacity - WWRF 3 MGD

8205 kwhr/day
7380
6815
6461
7342
6226
7207
5342
5971
5578
5813
5542
5782

6435.692 KW-HR/DAY

2145.231 KWhr/MG

Table 9.2 Water and Wastewater Electricity Intensity

Location Type	Name	Source	Supply Water	Treat Water	Distribute Water	Wastewater Treatment
			kWhr/ million gallons			
Air Basin	Great Basin Valleys	1	2117	111	1272	1911
	Lake County	1	2117	111	1272	1911
	Lake Tahoe	1	2117	111	1272	1911
	Mojave Desert	2	9727	111	1272	1911
	Mountain Counties	1	2117	111	1272	1911
	North Central Coast	1	2117	111	1272	1911
	North Coast	1	2117	111	1272	1911
	Northeast Plateau	1	2117	111	1272	1911
	Sacramento Valley	1	2117	111	1272	1911
	Salton Sea	2	9727	111	1272	1911
	San Diego	2	9727	111	1272	1911
	San Francisco Bay Area	1	2117	111	1272	1911
	San Joaquin Valley	1	2117	111	1272	1911
	South Central Coast	1	2117	111	1272	1911
	South Coast	2	9727	111	1272	1911

2-1 Emissions Modeling

2-2 Near Term Project Emissions

Western MWD - Riverside FMP

Pipeline - Priority and Near-Term Projects 2024-2030 (per 1000 LF)

Local Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
Source	**lb/day**						
Pipeline per 1000 ft	1.7	15.3	14.3	0.03	3.2	1.9	—
Regional Emissions	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	**CO2e**
Source	**lb/day, MT/yr for CO2e**						
Pipeline per 1000 ft	1.8	16.2	15.0	0.04	3.5	2.0	42.93

Western MWD - Riverside FMP
Total Annual Emissions
Air Quality Construction Analysis

Regional Emissions	Total Project Emissons (ton/yr), MT/yr CO2e						
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
	ton/yr						MT/yr
Pipeline Installation - Priority and Near-Term Projects per 1000 Ft	0.02	0.21	0.20	0.000	0.04	0.03	42.93
Project Annual Emissions	**0.02**	**0.21**	**0.20**	**0.00**	**0.04**	**0.03**	42.93

Western MWD - Riverside FMP
Maximum Daily Projected Emissions
Air Quality Construction Analysis

Winter Regional Emissions	Onsite Emissions						Offsite Emissions					
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
	lb/day						lb/day					
Site Preparation/Demolition	1.71	15.07	14.29	0.031	3.23	1.95	0.07	0.49	0.70	0.00	0.25	0.07
Pipeline Installation	1.73	15.34	13.53	0.031	3.05	1.91	0.07	0.82	0.77	0.01	0.31	0.09
Pave/Restore Surface	0.49	4.35	5.77	0.011	0.20	0.19	0.06	0.34	0.68	0.00	0.22	0.06

Regional Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
Site Preparation/Demolition	1.8	15.6	15.0	0.0	3.5	2.0
Pipeline Installation	1.8	16.2	14.3	0.0	3.4	2.0
Pave/Restore Surface	0.6	4.7	6.4	0.0	0.4	0.2
Project Daily Maximum Emissions	**1.81**	**16.16**	**14.99**	**0.04**	**3.48**	**2.02**

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Pipeline Priority and Near Term

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1,000.00	User Defined Unit	1.00	43,560.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2024 Project Year Start or Later
1,000 ft of pipeline install (up to 24 inches in diameter)
Land Use - assume 1 acre area associated with 1000 LF of piping

Construction Phase - See Pipeline Assumptions Worksheet

Off-road Equipment - 8 hours per day exceprt:
Cranes only for pipe placement
Bore/drill rigs for minimal jack-and-bore
Pumps for minimal use/dewatering
Off-Highway Trucks: Haul and Water trucksm(on-site)

Off-road Equipment - See assumptions worksheet
Off-Highway Truck = asphalt trucks (on-site)

Off-road Equipment - Off-Highway Trucks =Haul trucks for demo material and Water trucks (on-site operation)
Assume on avg 1 operating along 1,000 LF corridor at any time

Trips and VMT - 8 workers , 16 trips for each phase
water trucks included in Vendor Trips

Grading - Grading - of 1 acre acre twice

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	20.00
tblConstructionPhase	NumDays	1.00	5.00
tblGrading	AcresOfGrading	10.00	2.00
tblGrading	MaterialExported	0.00	590.00
tblGrading	MaterialExported	0.00	100.00
tblGrading	MaterialImported	0.00	440.00
tblLandUse	LandUseSquareFeet	0.00	43,560.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	13.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	20.00	16.00
tblTripsAndVMT	WorkerTripNumber	10.00	16.00

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.0238	0.2121	0.1954	4.8000e-004	0.0819	8.8900e-003	0.0907	0.0428	8.2800e-003	0.0510						42.9286
Maximum	**0.0238**	**0.2121**	**0.1954**	**4.8000e-004**	**0.0819**	**8.8900e-003**	**0.0907**	**0.0428**	**8.2800e-003**	**0.0510**						**42.9286**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.0238	0.2121	0.1954	4.8000e-004	0.0344	8.8900e-003	0.0433	0.0174	8.2800e-003	0.0256						42.9286
Maximum	**0.0238**	**0.2121**	**0.1954**	**4.8000e-004**	**0.0344**	**8.8900e-003**	**0.0433**	**0.0174**	**8.2800e-003**	**0.0256**						**42.9286**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**57.93**	**0.00**	**52.26**	**59.42**	**0.00**	**49.77**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-4-2024	6-3-2024	0.2069	0.2069
		Highest	0.2069	0.2069

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1788	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005						0.0264
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Waste						0.0000	0.0000		0.0000	0.0000						0.0000
Water						0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.1788**	**1.2000e-004**	**0.0127**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**						**0.0264**

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1788	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005						0.0264
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Waste						0.0000	0.0000		0.0000	0.0000						0.0000
Water						0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.1788**	**1.2000e-004**	**0.0127**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**5.0000e-005**						**0.0264**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/4/2024	3/8/2024	5	5	Site Preparation/Demolition
2	Grading	Grading	3/11/2024	4/5/2024	5	20	Pipeline Installation
3	Paving	Paving	4/8/2024	4/12/2024	5	5	Pave/Restore Surface

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Concrete/Industrial Saws	2	8.00	81	0.73
Site Preparation	Off-Highway Trucks	1	4.00	402	0.38
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Bore/Drill Rigs	1	1.00	221	0.50
Grading	Cranes	1	4.00	231	0.29
Grading	Excavators	1	8.00	158	0.38
Grading	Off-Highway Trucks	1	4.00	402	0.38
Grading	Pumps	1	1.00	84	0.74
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Welders	1	8.00	46	0.45
Paving	Off-Highway Trucks	1	2.00	402	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Plate Compactors	1	8.00	8	0.43
Paving	Rollers	1	8.00	80	0.38

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	5	16.00	4.00	12.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
Grading	8	16.00	2.00	129.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
Paving	4	16.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0164	0.0000	0.0164	8.4200e-003	0.0000	8.4200e-003						0.0000
Off-Road	4.2800e-003	0.0377	0.0357	8.0000e-005		1.6700e-003	1.6700e-003		1.5800e-003	1.5800e-003						6.7358
Total	**4.2800e-003**	**0.0377**	**0.0357**	**8.0000e-005**	**0.0164**	**1.6700e-003**	**0.0181**	**8.4200e-003**	**1.5800e-003**	**0.0100**						**6.7358**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	6.3000e-004	1.7000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	4.0000e-005						0.3293
Vendor	2.0000e-005	5.0000e-004	2.2000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005						0.2096
Worker	1.2000e-004	9.0000e-005	1.1800e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004						0.3331
Total	**1.5000e-004**	**1.2200e-003**	**1.5700e-003**	**0.0000**	**6.0000e-004**	**1.0000e-005**	**6.1000e-004**	**1.7000e-004**	**1.0000e-005**	**1.8000e-004**						**0.8719**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.3900e-003	0.0000	6.3900e-003	3.2800e-003	0.0000	3.2800e-003						0.0000
Off-Road	4.2800e-003	0.0377	0.0357	8.0000e-005		1.6700e-003	1.6700e-003		1.5800e-003	1.5800e-003						6.7358
Total	**4.2800e-003**	**0.0377**	**0.0357**	**8.0000e-005**	**6.3900e-003**	**1.6700e-003**	**8.0600e-003**	**3.2800e-003**	**1.5800e-003**	**4.8600e-003**						**6.7358**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	6.3000e-004	1.7000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	4.0000e-005						0.3293
Vendor	2.0000e-005	5.0000e-004	2.2000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005						0.2096
Worker	1.2000e-004	9.0000e-005	1.1800e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004						0.3331
Total	**1.5000e-004**	**1.2200e-003**	**1.5700e-003**	**0.0000**	**6.0000e-004**	**1.0000e-005**	**6.1000e-004**	**1.7000e-004**	**1.0000e-005**	**1.8000e-004**						**0.8719**

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0614	0.0000	0.0614	0.0332	0.0000	0.0332						0.0000
Off-Road	0.0173	0.1534	0.1353	3.1000e-004		6.5900e-003	6.5900e-003		6.1200e-003	6.1200e-003						26.9504
Total	**0.0173**	**0.1534**	**0.1353**	**3.1000e-004**	**0.0614**	**6.5900e-003**	**0.0679**	**0.0332**	**6.1200e-003**	**0.0394**						**26.9504**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	6.8100e-003	1.8100e-003	3.0000e-005	1.1100e-003	8.0000e-005	1.1900e-003	3.1000e-004	7.0000e-005	3.8000e-004						3.5397
Vendor	3.0000e-005	1.0000e-003	4.4000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	4.0000e-005						0.4192
Worker	4.8000e-004	3.4000e-004	4.7100e-003	1.0000e-005	1.7600e-003	1.0000e-005	1.7700e-003	4.7000e-004	1.0000e-005	4.7000e-004						1.3323
Total	**6.5000e-004**	**8.1500e-003**	**6.9600e-003**	**4.0000e-005**	**2.9900e-003**	**1.0000e-004**	**3.0900e-003**	**8.1000e-004**	**9.0000e-005**	**8.9000e-004**						**5.2912**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0239	0.0000	0.0239	0.0130	0.0000	0.0130						0.0000
Off-Road	0.0173	0.1534	0.1353	3.1000e-004		6.5900e-003	6.5900e-003		6.1200e-003	6.1200e-003						26.9503
Total	**0.0173**	**0.1534**	**0.1353**	**3.1000e-004**	**0.0239**	**6.5900e-003**	**0.0305**	**0.0130**	**6.1200e-003**	**0.0191**						**26.9503**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	6.8100e-003	1.8100e-003	3.0000e-005	1.1100e-003	8.0000e-005	1.1900e-003	3.1000e-004	7.0000e-005	3.8000e-004						3.5397
Vendor	3.0000e-005	1.0000e-003	4.4000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	4.0000e-005						0.4192
Worker	4.8000e-004	3.4000e-004	4.7100e-003	1.0000e-005	1.7600e-003	1.0000e-005	1.7700e-003	4.7000e-004	1.0000e-005	4.7000e-004						1.3323
Total	**6.5000e-004**	**8.1500e-003**	**6.9600e-003**	**4.0000e-005**	**2.9900e-003**	**1.0000e-004**	**3.0900e-003**	**8.1000e-004**	**9.0000e-005**	**8.9000e-004**						**5.2912**

3.4 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.2300e-003	0.0109	0.0144	3.0000e-005		5.0000e-004	5.0000e-004		4.7000e-004	4.7000e-004						2.4319
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**1.2300e-003**	**0.0109**	**0.0144**	**3.0000e-005**		**5.0000e-004**	**5.0000e-004**		**4.7000e-004**	**4.7000e-004**						**2.4319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	2.0000e-005	7.5000e-004	3.3000e-004	0.0000	9.0000e-005	1.0000e-005	1.0000e-004	2.0000e-005	1.0000e-005	3.0000e-005						0.3144
Worker	1.2000e-004	9.0000e-005	1.1800e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004						0.3331
Total	**1.4000e-004**	**8.4000e-004**	**1.5100e-003**	**0.0000**	**5.3000e-004**	**1.0000e-005**	**5.4000e-004**	**1.4000e-004**	**1.0000e-005**	**1.5000e-004**						**0.6475**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.2300e-003	0.0109	0.0144	3.0000e-005		5.0000e-004	5.0000e-004		4.7000e-004	4.7000e-004						2.4319
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**1.2300e-003**	**0.0109**	**0.0144**	**3.0000e-005**		**5.0000e-004**	**5.0000e-004**		**4.7000e-004**	**4.7000e-004**						**2.4319**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	2.0000e-005	7.5000e-004	3.3000e-004	0.0000	9.0000e-005	1.0000e-005	1.0000e-004	2.0000e-005	1.0000e-005	3.0000e-005						0.3144
Worker	1.2000e-004	9.0000e-005	1.1800e-003	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004						0.3331
Total	**1.4000e-004**	**8.4000e-004**	**1.5100e-003**	**0.0000**	**5.3000e-004**	**1.0000e-005**	**5.4000e-004**	**1.4000e-004**	**1.0000e-005**	**1.5000e-004**						**0.6475**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.540541	0.056458	0.173793	0.136090	0.025268	0.007074	0.011525	0.018705	0.000610	0.000304	0.023606	0.001094	0.004

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0				0.0000
Total					**0.0000**

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Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0				0.0000
Total					**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1788	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005						0.0264
Unmitigated	0.1788	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005						0.0264

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0202					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.1574					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	1.1700e-003	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005						0.0264
Total	**0.1788**	**1.2000e-004**	**0.0127**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**						**0.0264**

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Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0202					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.1574					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	1.1700e-003	1.2000e-004	0.0127	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005						0.0264
Total	**0.1788**	**1.2000e-004**	**0.0127**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**						**0.0264**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				0.0000
Unmitigated				0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0				0.0000
Total					**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0				0.0000
Total					**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				0.0000
Unmitigated				0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0				0.0000
Total					**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0				0.0000
Total					**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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WMWD Riverside FMP : Pipeline Priority and Near Term

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1,000.00	User Defined Unit	1.00	43,560.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2024 Project Year Start or Later
1,000 ft of pipeline install (up to 24 inches in diameter)
Land Use - assume 1 acre area associated with 1000 LF of piping

Construction Phase - See Pipeline Assumptions Worksheet

Off-road Equipment - 8 hours per day exceprt:
Cranes only for pipe placement
Bore/drill rigs for minimal jack-and-bore
Pumps for minimal use/dewatering
Off-Highway Trucks: Haul and Water trucksm(on-site)

Off-road Equipment - See assumptions worksheet
Off-Highway Truck = asphalt trucks (on-site)

Off-road Equipment - Off-Highway Trucks =Haul trucks for demo material and Water trucks (on-site operation)
Assume on avg 1 operating along 1,000 LF corridor at any time

Trips and VMT - 8 workers , 16 trips for each phase
water trucks included in Vendor Trips

Grading - Grading - of 1 acre acre twice

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	20.00
tblConstructionPhase	NumDays	1.00	5.00
tblGrading	AcresOfGrading	10.00	2.00
tblGrading	MaterialExported	0.00	590.00
tblGrading	MaterialExported	0.00	100.00
tblGrading	MaterialImported	0.00	440.00
tblLandUse	LandUseSquareFeet	0.00	43,560.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	13.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	20.00	16.00
tblTripsAndVMT	WorkerTripNumber	10.00	16.00

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2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.8059	16.1089	14.9944	0.0363	6.7999	0.6740	7.4739	3.4335	0.6379	4.0714						3,565.0559
Maximum	**1.8059**	**16.1089**	**14.9944**	**0.0363**	**6.7999**	**0.6740**	**7.4739**	**3.4335**	**0.6379**	**4.0714**						**3,565.0559**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.8059	16.1089	14.9944	0.0363	2.8015	0.6740	3.4754	1.3791	0.6379	2.0170						3,565.0559
Maximum	**1.8059**	**16.1089**	**14.9944**	**0.0363**	**2.8015**	**0.6740**	**3.4754**	**1.3791**	**0.6379**	**2.0170**						**3,565.0559**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.80**	**0.00**	**53.50**	**59.83**	**0.00**	**50.46**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9825	9.2000e-004	0.1018	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2331
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	**0.9825**	**9.2000e-004**	**0.1018**	**1.0000e-005**	**0.0000**	**3.6000e-004**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**3.6000e-004**						**0.2331**

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9825	9.2000e-004	0.1018	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2331
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	**0.9825**	**9.2000e-004**	**0.1018**	**1.0000e-005**	**0.0000**	**3.6000e-004**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**3.6000e-004**						**0.2331**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/4/2024	3/8/2024	5	5	Site Preparation/Demolition
2	Grading	Grading	3/11/2024	4/5/2024	5	20	Pipeline Installation
3	Paving	Paving	4/8/2024	4/12/2024	5	5	Pave/Restore Surface

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Concrete/Industrial Saws	2	8.00	81	0.73
Site Preparation	Off-Highway Trucks	1	4.00	402	0.38
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Bore/Drill Rigs	1	1.00	221	0.50
Grading	Cranes	1	4.00	231	0.29
Grading	Excavators	1	8.00	158	0.38
Grading	Off-Highway Trucks	1	4.00	402	0.38
Grading	Pumps	1	1.00	84	0.74
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Welders	1	8.00	46	0.45
Paving	Off-Highway Trucks	1	2.00	402	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Plate Compactors	1	8.00	8	0.43
Paving	Rollers	1	8.00	80	0.38

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	5	16.00	4.00	12.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
Grading	8	16.00	2.00	129.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
Paving	4	16.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5549	0.0000	6.5549	3.3679	0.0000	3.3679						0.0000
Off-Road	1.7132	15.0684	14.2919	0.0308		0.6686	0.6686		0.6328	0.6328						2,969.9628
Total	**1.7132**	**15.0684**	**14.2919**	**0.0308**	**6.5549**	**0.6686**	**7.2235**	**3.3679**	**0.6328**	**4.0007**						**2,969.9628**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.2400e-003	0.2404	0.0666	1.3000e-003	0.0420	2.8800e-003	0.0449	0.0115	2.7500e-003	0.0143						145.0894
Vendor	6.4900e-003	0.1904	0.0862	8.2000e-004	0.0242	1.6800e-003	0.0259	6.6400e-003	1.6100e-003	8.2500e-003						92.2588
Worker	0.0545	0.0322	0.5496	1.5200e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482						158.2305
Total	**0.0662**	**0.4630**	**0.7025**	**3.6400e-003**	**0.2451**	**5.3600e-003**	**0.2504**	**0.0656**	**5.1000e-003**	**0.0707**						**395.5787**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5564	0.0000	2.5564	1.3135	0.0000	1.3135						0.0000
Off-Road	1.7132	15.0684	14.2919	0.0308		0.6686	0.6686		0.6328	0.6328						2,969.9628
Total	**1.7132**	**15.0684**	**14.2919**	**0.0308**	**2.5564**	**0.6686**	**3.2250**	**1.3135**	**0.6328**	**1.9463**						**2,969.9628**

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.2400e-003	0.2404	0.0666	1.3000e-003	0.0420	2.8800e-003	0.0449	0.0115	2.7500e-003	0.0143						145.0894
Vendor	6.4900e-003	0.1904	0.0862	8.2000e-004	0.0242	1.6800e-003	0.0259	6.6400e-003	1.6100e-003	8.2500e-003						92.2588
Worker	0.0545	0.0322	0.5496	1.5200e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482						158.2305
Total	**0.0662**	**0.4630**	**0.7025**	**3.6400e-003**	**0.2451**	**5.3600e-003**	**0.2504**	**0.0656**	**5.1000e-003**	**0.0707**						**395.5787**

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1347	0.0000	6.1347	3.3227	0.0000	3.3227						0.0000
Off-Road	1.7340	15.3355	13.5277	0.0309		0.6595	0.6595		0.6117	0.6117						2,970.7683
Total	**1.7340**	**15.3355**	**13.5277**	**0.0309**	**6.1347**	**0.6595**	**6.7942**	**3.3227**	**0.6117**	**3.9344**						**2,970.7683**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0141	0.6459	0.1791	3.4800e-003	0.1129	7.7300e-003	0.1206	0.0310	7.3900e-003	0.0383						389.9277
Vendor	3.2500e-003	0.0952	0.0431	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003						46.1294
Worker	0.0545	0.0322	0.5496	1.5200e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482						158.2305
Total	**0.0718**	**0.7734**	**0.7718**	**5.4100e-003**	**0.3038**	**9.3700e-003**	**0.3132**	**0.0817**	**8.9400e-003**	**0.0906**						**594.2876**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3925	0.0000	2.3925	1.2958	0.0000	1.2958						0.0000
Off-Road	1.7340	15.3355	13.5277	0.0309		0.6595	0.6595		0.6117	0.6117						2,970.7683
Total	**1.7340**	**15.3355**	**13.5277**	**0.0309**	**2.3925**	**0.6595**	**3.0520**	**1.2958**	**0.6117**	**1.9075**						**2,970.7683**

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0141	0.6459	0.1791	3.4800e-003	0.1129	7.7300e-003	0.1206	0.0310	7.3900e-003	0.0383						389.9277
Vendor	3.2500e-003	0.0952	0.0431	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003						46.1294
Worker	0.0545	0.0322	0.5496	1.5200e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482						158.2305
Total	**0.0718**	**0.7734**	**0.7718**	**5.4100e-003**	**0.3038**	**9.3700e-003**	**0.3132**	**0.0817**	**8.9400e-003**	**0.0906**						**594.2876**

3.4 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4937	4.3494	5.7661	0.0111		0.2017	0.2017		0.1864	0.1864						1,072.2876
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.4937**	**4.3494**	**5.7661**	**0.0111**		**0.2017**	**0.2017**		**0.1864**	**0.1864**						**1,072.2876**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	9.7400e-003	0.2857	0.1293	1.2400e-003	0.0363	2.5200e-003	0.0388	9.9600e-003	2.4200e-003	0.0124						138.3882
Worker	0.0545	0.0322	0.5496	1.5200e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482						158.2305
Total	**0.0642**	**0.3179**	**0.6789**	**2.7600e-003**	**0.2152**	**3.3200e-003**	**0.2185**	**0.0574**	**3.1600e-003**	**0.0606**						**296.6187**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4937	4.3494	5.7661	0.0111		0.2017	0.2017		0.1864	0.1864						1,072.2876
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.4937**	**4.3494**	**5.7661**	**0.0111**		**0.2017**	**0.2017**		**0.1864**	**0.1864**						**1,072.2876**

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	9.7400e-003	0.2857	0.1293	1.2400e-003	0.0363	2.5200e-003	0.0388	9.9600e-003	2.4200e-003	0.0124						138.3882
Worker	0.0545	0.0322	0.5496	1.5200e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482						158.2305
Total	**0.0642**	**0.3179**	**0.6789**	**2.7600e-003**	**0.2152**	**3.3200e-003**	**0.2185**	**0.0574**	**3.1600e-003**	**0.0606**						**296.6187**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.540541	0.056458	0.173793	0.136090	0.025268	0.007074	0.011525	0.018705	0.000610	0.000304	0.023606	0.001094	0.004932

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9825	9.2000e-004	0.1018	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2331
Unmitigated	0.9825	9.2000e-004	0.1018	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2331

Date: 6/9/2022 8:35 AM

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1106					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.8625					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	9.3800e-003	9.2000e-004	0.1018	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2331
Total	**0.9825**	**9.2000e-004**	**0.1018**	**1.0000e-005**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**						**0.2331**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1106					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.8625					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	9.3800e-003	9.2000e-004	0.1018	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2331
Total	**0.9825**	**9.2000e-004**	**0.1018**	**1.0000e-005**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**						**0.2331**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Pipeline Priority and Near Term

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1,000.00	User Defined Unit	1.00	43,560.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2024 Project Year Start or Later
1,000 ft of pipeline install (up to 24 inches in diameter)
Land Use - assume 1 acre area associated with 1000 LF of piping

Construction Phase - See Pipeline Assumptions Worksheet

Off-road Equipment - 8 hours per day exceprt:
Cranes only for pipe placement
Bore/drill rigs for minimal jack-and-bore
Pumps for minimal use/dewatering
Off-Highway Trucks: Haul and Water trucksm(on-site)

Off-road Equipment - See assumptions worksheet
Off-Highway Truck = asphalt trucks (on-site)

Off-road Equipment - Off-Highway Trucks =Haul trucks for demo material and Water trucks (on-site operation)
Assume on avg 1 operating along 1,000 LF corridor at any time

Trips and VMT - 8 workers , 16 trips for each phase
water trucks included in Vendor Trips

Grading - Grading - of 1 acre acre twice

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	20.00
tblConstructionPhase	NumDays	1.00	5.00
tblGrading	AcresOfGrading	10.00	2.00
tblGrading	MaterialExported	0.00	590.00
tblGrading	MaterialExported	0.00	100.00
tblGrading	MaterialImported	0.00	440.00
tblLandUse	LandUseSquareFeet	0.00	43,560.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	13.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	20.00	16.00
tblTripsAndVMT	WorkerTripNumber	10.00	16.00

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.8011	16.1550	14.8950	0.0362	6.7999	0.6740	7.4739	3.4335	0.6379	4.0714						3,551.1522
Maximum	**1.8011**	**16.1550**	**14.8950**	**0.0362**	**6.7999**	**0.6740**	**7.4739**	**3.4335**	**0.6379**	**4.0714**						**3,551.1522**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.8011	16.1550	14.8950	0.0362	2.8015	0.6740	3.4755	1.3791	0.6379	2.0170						3,551.1522
Maximum	**1.8011**	**16.1550**	**14.8950**	**0.0362**	**2.8015**	**0.6740**	**3.4755**	**1.3791**	**0.6379**	**2.0170**						**3,551.1522**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	58.80	0.00	53.50	59.83	0.00	50.46	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9825	9.2000e-004	0.1018	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2331
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	**0.9825**	**9.2000e-004**	**0.1018**	**1.0000e-005**	**0.0000**	**3.6000e-004**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**3.6000e-004**						**0.2331**

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9825	9.2000e-004	0.1018	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2331
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	**0.9825**	**9.2000e-004**	**0.1018**	**1.0000e-005**	**0.0000**	**3.6000e-004**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**3.6000e-004**						**0.2331**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/4/2024	3/8/2024	5	5	Site Preparation/Demolition
2	Grading	Grading	3/11/2024	4/5/2024	5	20	Pipeline Installation
3	Paving	Paving	4/8/2024	4/12/2024	5	5	Pave/Restore Surface

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Concrete/Industrial Saws	2	8.00	81	0.73
Site Preparation	Off-Highway Trucks	1	4.00	402	0.38
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Bore/Drill Rigs	1	1.00	221	0.50
Grading	Cranes	1	4.00	231	0.29
Grading	Excavators	1	8.00	158	0.38
Grading	Off-Highway Trucks	1	4.00	402	0.38
Grading	Pumps	1	1.00	84	0.74
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Welders	1	8.00	46	0.45
Paving	Off-Highway Trucks	1	2.00	402	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Plate Compactors	1	8.00	8	0.43
Paving	Rollers	1	8.00	80	0.38

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	5	16.00	4.00	12.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
Grading	8	16.00	2.00	129.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
Paving	4	16.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5549	0.0000	6.5549	3.3679	0.0000	3.3679						0.0000
Off-Road	1.7132	15.0684	14.2919	0.0308		0.6686	0.6686		0.6328	0.6328						2,969.9628
Total	**1.7132**	**15.0684**	**14.2919**	**0.0308**	**6.5549**	**0.6686**	**7.2235**	**3.3679**	**0.6328**	**4.0007**						**2,969.9628**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.8200e-003	0.2547	0.0680	1.3000e-003	0.0420	2.8800e-003	0.0449	0.0115	2.7600e-003	0.0143						145.3166
Vendor	5.7900e-003	0.2033	0.0885	8.3000e-004	0.0242	1.6900e-003	0.0259	6.6400e-003	1.6200e-003	8.2600e-003						92.6374
Worker	0.0512	0.0334	0.4465	1.3800e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482						143.5270
Total	**0.0619**	**0.4914**	**0.6031**	**3.5100e-003**	**0.2451**	**5.3700e-003**	**0.2504**	**0.0656**	**5.1200e-003**	**0.0707**						**381.4809**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5564	0.0000	2.5564	1.3135	0.0000	1.3135						0.0000
Off-Road	1.7132	15.0684	14.2919	0.0308		0.6686	0.6686		0.6328	0.6328						2,969.9628
Total	**1.7132**	**15.0684**	**14.2919**	**0.0308**	**2.5564**	**0.6686**	**3.2250**	**1.3135**	**0.6328**	**1.9463**						**2,969.9628**

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.8200e-003	0.2547	0.0680	1.3000e-003	0.0420	2.8800e-003	0.0449	0.0115	2.7600e-003	0.0143						145.3166
Vendor	5.7900e-003	0.2033	0.0885	8.3000e-004	0.0242	1.6900e-003	0.0259	6.6400e-003	1.6200e-003	8.2600e-003						92.6374
Worker	0.0512	0.0334	0.4465	1.3800e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482						143.5270
Total	**0.0619**	**0.4914**	**0.6031**	**3.5100e-003**	**0.2451**	**5.3700e-003**	**0.2504**	**0.0656**	**5.1200e-003**	**0.0707**						**381.4809**

3.3 Grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1347	0.0000	6.1347	3.3227	0.0000	3.3227						0.0000
Off-Road	1.7340	15.3355	13.5277	0.0309		0.6595	0.6595		0.6117	0.6117						2,970.7683
Total	**1.7340**	**15.3355**	**13.5277**	**0.0309**	**6.1347**	**0.6595**	**6.7942**	**3.3227**	**0.6117**	**3.9344**						**2,970.7683**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0130	0.6845	0.1828	3.4900e-003	0.1129	7.7400e-003	0.1206	0.0310	7.4000e-003	0.0384						390.5382
Vendor	2.8900e-003	0.1016	0.0443	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003						46.3187
Worker	0.0512	0.0334	0.4465	1.3800e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482						143.5270
Total	**0.0671**	**0.8195**	**0.6736**	**5.2800e-003**	**0.3038**	**9.3800e-003**	**0.3132**	**0.0817**	**8.9500e-003**	**0.0907**						**580.3839**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3925	0.0000	2.3925	1.2958	0.0000	1.2958						0.0000
Off-Road	1.7340	15.3355	13.5277	0.0309		0.6595	0.6595		0.6117	0.6117						2,970.7683
Total	**1.7340**	**15.3355**	**13.5277**	**0.0309**	**2.3925**	**0.6595**	**3.0520**	**1.2958**	**0.6117**	**1.9075**						**2,970.7683**

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0130	0.6845	0.1828	3.4900e-003	0.1129	7.7400e-003	0.1206	0.0310	7.4000e-003	0.0384						390.5382
Vendor	2.8900e-003	0.1016	0.0443	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003						46.3187
Worker	0.0512	0.0334	0.4465	1.3800e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482						143.5270
Total	**0.0671**	**0.8195**	**0.6736**	**5.2800e-003**	**0.3038**	**9.3800e-003**	**0.3132**	**0.0817**	**8.9500e-003**	**0.0907**						**580.3839**

3.4 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4937	4.3494	5.7661	0.0111		0.2017	0.2017		0.1864	0.1864						1,072.2876
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.4937**	**4.3494**	**5.7661**	**0.0111**		**0.2017**	**0.2017**		**0.1864**	**0.1864**						**1,072.2876**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	8.6800e-003	0.3049	0.1328	1.2400e-003	0.0363	2.5300e-003	0.0389	9.9600e-003	2.4200e-003	0.0124						138.9561
Worker	0.0512	0.0334	0.4465	1.3800e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482						143.5270
Total	**0.0599**	**0.3383**	**0.5793**	**2.6200e-003**	**0.2152**	**3.3300e-003**	**0.2185**	**0.0574**	**3.1600e-003**	**0.0606**						**282.4831**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.4937	4.3494	5.7661	0.0111		0.2017	0.2017		0.1864	0.1864						1,072.2876
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.4937**	**4.3494**	**5.7661**	**0.0111**		**0.2017**	**0.2017**		**0.1864**	**0.1864**						**1,072.2876**

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	8.6800e-003	0.3049	0.1328	1.2400e-003	0.0363	2.5300e-003	0.0389	9.9600e-003	2.4200e-003	0.0124						138.9561
Worker	0.0512	0.0334	0.4465	1.3800e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482						143.5270
Total	**0.0599**	**0.3383**	**0.5793**	**2.6200e-003**	**0.2152**	**3.3300e-003**	**0.2185**	**0.0574**	**3.1600e-003**	**0.0606**						**282.4831**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.540541	0.056458	0.173793	0.136090	0.025268	0.007074	0.011525	0.018705	0.000610	0.000304	0.023606	0.001094	0.004932

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9825	9.2000e-004	0.1018	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2331
Unmitigated	0.9825	9.2000e-004	0.1018	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2331

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1106					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.8625					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	9.3800e-003	9.2000e-004	0.1018	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2331
Total	**0.9825**	**9.2000e-004**	**0.1018**	**1.0000e-005**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**						**0.2331**

WMWD Riverside FMP : Pipeline Priority and Near Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1106					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.8625					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	9.3800e-003	9.2000e-004	0.1018	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2331
Total	**0.9825**	**9.2000e-004**	**0.1018**	**1.0000e-005**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**						**0.2331**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Western MWD - Riverside FMP

Tank Improvement (No Foundation Work) 2025-2030 - Near Term

Local Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
Source	**lb/day**						
Tank Improvement- add 5 MG	22.8	9.1	11.8	0.02	0.4	0.4	—
Regional Emissions	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	**CO2e**
	lb/day, MT/yr for CO2e						
Tank Improvement- add 5 MG	22.8	9.3	12.4	0.02	0.6	0.4	171.01

Western MWD - Riverside FMP

Total Annual Emissions

Air Quality Construction Analysis

Regional Emissions	Total Project Emissons (ton/yr), MT/yr CO2e						
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
	ton/yr						MT/yr
Tank Improvement (no foundation work) -add 5 MG - Near-Term Project	0.59	0.80	1.09	0.002	0.05	0.04	171.009
Project Annual Emissions	**0.59**	**0.80**	**1.09**	**0.00**	**0.05**	**0.04**	171.009

Western MWD - Riverside FMP

Maximum Daily Projected Emissions

Air Quality Construction Analysis

summer Regional Emissions	Onsite Emissions						Offsite Emissions					
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
	lb/day						lb/day					
4. Tank Erection	0.99	9.06	11.78	0.020	0.37	0.35	0.06	0.24	0.63	0.00	0.22	0.06
5. Coating	22.80	4.30	7.01	0.011	0.18	0.18	0.03	0.02	0.34	0.00	0.11	0.03
7. Cathodic Protection System	0.02	0.15	0.26	0.001	0.09	0.03	0.07	1.05	2.19	0.00	0.02	0.02

Regional Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
4. Tank Erection	1.1	9.3	12.4	0.0	0.6	0.4
5. Coating	22.8	4.3	7.4	0.0	0.3	0.2
7. Cathodic Protection System	0.1	1.2	2.4	0.0	0.1	0.0
Project Daily Maximum Emissions	**22.83**	**9.30**	**12.40**	**0.02**	**0.59**	**0.41**

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Tank Improvement Near-Term

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	30,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2024 Project Year Start or Later
Based on Tank Construction but without Site Prep and Foundation Phases

Land Use - 1 acre site, 30,000 sf tank and paved area

Construction Phase - Typical tank construction - see assumptions worksheet
only Tank Improvement Phases

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Trips and VMT - See assumptions worksheet

Grading - See assumptions worksheet
2 passes grading

Architectural Coating - 36,000 square ft = pi()DH + pi*D^2/4 based on 150 ft diameter , 38-39 ft high tank
* 3 coats = 108,000 sf
meets SCAQMD =Rule 1168 specifications

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	15,000.00	108,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	45,000.00	108,000.00
tblConstructionPhase	NumDays	5.00	45.00
tblConstructionPhase	NumDays	100.00	150.00
tblConstructionPhase	NumDays	100.00	2.00
tblLandUse	LandUseSquareFeet	0.00	30,000.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblTripsAndVMT	VendorTripNumber	5.00	6.00
tblTripsAndVMT	VendorTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	3.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	22.8313	9.3031	12.3044	0.0224	0.2173	0.3693	0.5866	0.0585	0.3525	0.4110	0.0000	2,137.0567	2,137.0567	0.3919	0.0198	2,152.7456
Maximum	**22.8313**	**9.3031**	**12.3044**	**0.0224**	**0.2173**	**0.3693**	**0.5866**	**0.0585**	**0.3525**	**0.4110**	**0.0000**	**2,137.0567**	**2,137.0567**	**0.3919**	**0.0198**	**2,152.7456**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	22.8313	9.3031	12.3044	0.0224	0.2173	0.3693	0.5866	0.0585	0.3525	0.4110	0.0000	2,137.0567	2,137.0567	0.3919	0.0198	2,152.7456
Maximum	**22.8313**	**9.3031**	**12.3044**	**0.0224**	**0.2173**	**0.3693**	**0.5866**	**0.0585**	**0.3525**	**0.4110**	**0.0000**	**2,137.0567**	**2,137.0567**	**0.3919**	**0.0198**	**2,152.7456**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	4. Tank Erection	Building Construction	3/11/2024	10/4/2024	5	150	
2	5. Coating	Architectural Coating	10/7/2024	12/6/2024	5	45	
3	7. Cathodic Protection System	Building Construction	12/30/2024	12/31/2024	5	2	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 108,000; Non-Residential Outdoor: 108,000; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
4. Tank Erection	Aerial Lifts	2	8.00	63	0.31
4. Tank Erection	Cranes	1	4.00	231	0.29
4. Tank Erection	Forklifts	1	8.00	89	0.20
4. Tank Erection	Generator Sets	1	8.00	84	0.74
4. Tank Erection	Tractors/Loaders/Backhoes	1	8.00	97	0.37
4. Tank Erection	Welders	1	8.00	46	0.45
5. Coating	Aerial Lifts	2	8.00	63	0.31
5. Coating	Air Compressors	2	8.00	78	0.48
7. Cathodic Protection System	Aerial Lifts	2	8.00	63	0.31

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
4. Tank Erection	7	16.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
5. Coating	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
7. Cathodic Protection System	2	6.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 4. Tank Erection - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9941	9.0618	11.7754	0.0200		0.3668	0.3668		0.3501	0.3501		1,884.9532	1,884.9532	0.3874		1,894.6387
Total	**0.9941**	**9.0618**	**11.7754**	**0.0200**		**0.3668**	**0.3668**		**0.3501**	**0.3501**		**1,884.9532**	**1,884.9532**	**0.3874**		**1,894.6387**

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.1600e-003	0.2079	0.0825	1.0300e-003	0.0384	1.7000e-003	0.0401	0.0111	1.6300e-003	0.0127		109.7229	109.7229	1.1500e-003	0.0162	114.5800
Worker	0.0512	0.0334	0.4465	1.3800e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482		142.3806	142.3806	3.3200e-003	3.5700e-003	143.5270
Total	**0.0574**	**0.2413**	**0.5290**	**2.4100e-003**	**0.2173**	**2.5000e-003**	**0.2198**	**0.0585**	**2.3700e-003**	**0.0609**		**252.1034**	**252.1034**	**4.4700e-003**	**0.0198**	**258.1070**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9941	9.0618	11.7754	0.0200		0.3668	0.3668		0.3501	0.3501	0.0000	1,884.9532	1,884.9532	0.3874		1,894.6387
Total	**0.9941**	**9.0618**	**11.7754**	**0.0200**		**0.3668**	**0.3668**		**0.3501**	**0.3501**	**0.0000**	**1,884.9532**	**1,884.9532**	**0.3874**		**1,894.6387**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.1600e-003	0.2079	0.0825	1.0300e-003	0.0384	1.7000e-003	0.0401	0.0111	1.6300e-003	0.0127		109.7229	109.7229	1.1500e-003	0.0162	114.5800
Worker	0.0512	0.0334	0.4465	1.3800e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482		142.3806	142.3806	3.3200e-003	3.5700e-003	143.5270
Total	**0.0574**	**0.2413**	**0.5290**	**2.4100e-003**	**0.2173**	**2.5000e-003**	**0.2198**	**0.0585**	**2.3700e-003**	**0.0609**		**252.1034**	**252.1034**	**4.4700e-003**	**0.0198**	**258.1070**

3.3 5. Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.2480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.5513	4.3027	7.0126	0.0113		0.1807	0.1807		0.1792	0.1792		1,075.7678	1,075.7678	0.1475		1,079.4541
Total	**22.7993**	**4.3027**	**7.0126**	**0.0113**		**0.1807**	**0.1807**		**0.1792**	**0.1792**		**1,075.7678**	**1,075.7678**	**0.1475**		**1,079.4541**

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0320**	**0.0209**	**0.2791**	**8.6000e-004**	**0.1118**	**5.0000e-004**	**0.1123**	**0.0296**	**4.6000e-004**	**0.0301**		**88.9879**	**88.9879**	**2.0800e-003**	**2.2300e-003**	**89.7044**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.2480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.5513	4.3027	7.0126	0.0113		0.1807	0.1807		0.1792	0.1792	0.0000	1,075.7678	1,075.7678	0.1475		1,079.4541
Total	**22.7993**	**4.3027**	**7.0126**	**0.0113**		**0.1807**	**0.1807**		**0.1792**	**0.1792**	**0.0000**	**1,075.7678**	**1,075.7678**	**0.1475**		**1,079.4541**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0320**	**0.0209**	**0.2791**	**8.6000e-004**	**0.1118**	**5.0000e-004**	**0.1123**	**0.0296**	**4.6000e-004**	**0.0301**		**88.9879**	**88.9879**	**2.0800e-003**	**2.2300e-003**	**89.7044**

3.4 7. Cathodic Protection System - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0692	1.0526	2.1856	3.3600e-003		0.0183	0.0183		0.0168	0.0168		325.2397	325.2397	0.1052		327.8694
Total	**0.0692**	**1.0526**	**2.1856**	**3.3600e-003**		**0.0183**	**0.0183**		**0.0168**	**0.0168**		**325.2397**	**325.2397**	**0.1052**		**327.8694**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1100e-003	0.1386	0.0550	6.9000e-004	0.0256	1.1300e-003	0.0268	7.3800e-003	1.0900e-003	8.4600e-003		73.1486	73.1486	7.7000e-004	0.0108	76.3866
Worker	0.0192	0.0125	0.1674	5.2000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		53.3927	53.3927	1.2500e-003	1.3400e-003	53.8226
Total	**0.0233**	**0.1511**	**0.2224**	**1.2100e-003**	**0.0927**	**1.4300e-003**	**0.0941**	**0.0252**	**1.3700e-003**	**0.0265**		**126.5413**	**126.5413**	**2.0200e-003**	**0.0121**	**130.2093**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0692	1.0526	2.1856	3.3600e-003		0.0183	0.0183		0.0168	0.0168	0.0000	325.2397	325.2397	0.1052		327.8694
Total	**0.0692**	**1.0526**	**2.1856**	**3.3600e-003**		**0.0183**	**0.0183**		**0.0168**	**0.0168**	**0.0000**	**325.2397**	**325.2397**	**0.1052**		**327.8694**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1100e-003	0.1386	0.0550	6.9000e-004	0.0256	1.1300e-003	0.0268	7.3800e-003	1.0900e-003	8.4600e-003		73.1486	73.1486	7.7000e-004	0.0108	76.3866
Worker	0.0192	0.0125	0.1674	5.2000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		53.3927	53.3927	1.2500e-003	1.3400e-003	53.8226
Total	**0.0233**	**0.1511**	**0.2224**	**1.2100e-003**	**0.0927**	**1.4300e-003**	**0.0941**	**0.0252**	**1.3700e-003**	**0.0265**		**126.5413**	**126.5413**	**2.0200e-003**	**0.0121**	**130.2093**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.540541	0.056458	0.173793	0.136090	0.025268	0.007074	0.011525	0.018705	0.000610	0.000304	0.023606	0.001094	0.004932

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5940					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5940					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Tank Improvement Near-Term

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	30,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2024 Project Year Start or Later
Based on Tank Construction but without Site Prep and Foundation Phases

Land Use - 1 acre site, 30,000 sf tank and paved area

Construction Phase - Typical tank construction - see assumptions worksheet
only Tank Improvement Phases

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Trips and VMT - See assumptions worksheet

Grading - See assumptions worksheet
2 passes grading

Architectural Coating - 36,000 square ft = pi()DH + pi*D^2/4 based on 150 ft diameter , 38-39 ft high tank
* 3 coats = 108,000 sf
meets SCAQMD =Rule 1168 specifications

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	15,000.00	108,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	45,000.00	108,000.00
tblConstructionPhase	NumDays	5.00	45.00
tblConstructionPhase	NumDays	100.00	150.00
tblConstructionPhase	NumDays	100.00	2.00
tblLandUse	LandUseSquareFeet	0.00	30,000.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblTripsAndVMT	VendorTripNumber	5.00	6.00
tblTripsAndVMT	VendorTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	3.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	22.8333	9.2900	12.4048	0.0226	0.2173	0.3693	0.5866	0.0585	0.3525	0.4110	0.0000	2,151.5107	2,151.5107	0.3919	0.0196	2,167.1603
Maximum	**22.8333**	**9.2900**	**12.4048**	**0.0226**	**0.2173**	**0.3693**	**0.5866**	**0.0585**	**0.3525**	**0.4110**	**0.0000**	**2,151.5107**	**2,151.5107**	**0.3919**	**0.0196**	**2,167.1603**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	22.8333	9.2900	12.4048	0.0226	0.2173	0.3693	0.5866	0.0585	0.3525	0.4110	0.0000	2,151.5107	2,151.5107	0.3919	0.0196	2,167.1603
Maximum	**22.8333**	**9.2900**	**12.4048**	**0.0226**	**0.2173**	**0.3693**	**0.5866**	**0.0585**	**0.3525**	**0.4110**	**0.0000**	**2,151.5107**	**2,151.5107**	**0.3919**	**0.0196**	**2,167.1603**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	4. Tank Erection	Building Construction	3/11/2024	10/4/2024	5	150	
2	5. Coating	Architectural Coating	10/7/2024	12/6/2024	5	45	
3	7. Cathodic Protection System	Building Construction	12/30/2024	12/31/2024	5	2	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 108,000; Non-Residential Outdoor: 108,000; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
4. Tank Erection	Aerial Lifts	2	8.00	63	0.31
4. Tank Erection	Cranes	1	4.00	231	0.29
4. Tank Erection	Forklifts	1	8.00	89	0.20
4. Tank Erection	Generator Sets	1	8.00	84	0.74
4. Tank Erection	Tractors/Loaders/Backhoes	1	8.00	97	0.37
4. Tank Erection	Welders	1	8.00	46	0.45
5. Coating	Aerial Lifts	2	8.00	63	0.31
5. Coating	Air Compressors	2	8.00	78	0.48
7. Cathodic Protection System	Aerial Lifts	2	8.00	63	0.31

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
4. Tank Erection	7	16.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
5. Coating	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
7. Cathodic Protection System	2	6.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 4. Tank Erection - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9941	9.0618	11.7754	0.0200		0.3668	0.3668		0.3501	0.3501		1,884.9532	1,884.9532	0.3874		1,894.6387
Total	**0.9941**	**9.0618**	**11.7754**	**0.0200**		**0.3668**	**0.3668**		**0.3501**	**0.3501**		**1,884.9532**	**1,884.9532**	**0.3874**		**1,894.6387**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.6600e-003	0.1960	0.0798	1.0300e-003	0.0384	1.7000e-003	0.0401	0.0111	1.6200e-003	0.0127		109.4494	109.4494	1.1700e-003	0.0162	114.2911
Worker	0.0545	0.0322	0.5496	1.5200e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482		157.1081	157.1081	3.3300e-003	3.4900e-003	158.2305
Total	**0.0612**	**0.2282**	**0.6294**	**2.5500e-003**	**0.2173**	**2.5000e-003**	**0.2198**	**0.0585**	**2.3600e-003**	**0.0609**		**266.5574**	**266.5574**	**4.5000e-003**	**0.0196**	**272.5216**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9941	9.0618	11.7754	0.0200		0.3668	0.3668		0.3501	0.3501	0.0000	1,884.9532	1,884.9532	0.3874		1,894.6387
Total	**0.9941**	**9.0618**	**11.7754**	**0.0200**		**0.3668**	**0.3668**		**0.3501**	**0.3501**	**0.0000**	**1,884.9532**	**1,884.9532**	**0.3874**		**1,894.6387**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.6600e-003	0.1960	0.0798	1.0300e-003	0.0384	1.7000e-003	0.0401	0.0111	1.6200e-003	0.0127		109.4494	109.4494	1.1700e-003	0.0162	114.2911
Worker	0.0545	0.0322	0.5496	1.5200e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482		157.1081	157.1081	3.3300e-003	3.4900e-003	158.2305
Total	**0.0612**	**0.2282**	**0.6294**	**2.5500e-003**	**0.2173**	**2.5000e-003**	**0.2198**	**0.0585**	**2.3600e-003**	**0.0609**		**266.5574**	**266.5574**	**4.5000e-003**	**0.0196**	**272.5216**

3.3 5. Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.2480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.5513	4.3027	7.0126	0.0113		0.1807	0.1807		0.1792	0.1792		1,075.7678	1,075.7678	0.1475		1,079.4541
Total	**22.7993**	**4.3027**	**7.0126**	**0.0113**		**0.1807**	**0.1807**		**0.1792**	**0.1792**		**1,075.7678**	**1,075.7678**	**0.1475**		**1,079.4541**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0341**	**0.0201**	**0.3435**	**9.5000e-004**	**0.1118**	**5.0000e-004**	**0.1123**	**0.0296**	**4.6000e-004**	**0.0301**		**98.1926**	**98.1926**	**2.0800e-003**	**2.1800e-003**	**98.8941**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.2480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.5513	4.3027	7.0126	0.0113		0.1807	0.1807		0.1792	0.1792	0.0000	1,075.7678	1,075.7678	0.1475		1,079.4541
Total	**22.7993**	**4.3027**	**7.0126**	**0.0113**		**0.1807**	**0.1807**		**0.1792**	**0.1792**	**0.0000**	**1,075.7678**	**1,075.7678**	**0.1475**		**1,079.4541**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0341**	**0.0201**	**0.3435**	**9.5000e-004**	**0.1118**	**5.0000e-004**	**0.1123**	**0.0296**	**4.6000e-004**	**0.0301**		**98.1926**	**98.1926**	**2.0800e-003**	**2.1800e-003**	**98.8941**

3.4 7. Cathodic Protection System - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0692	1.0526	2.1856	3.3600e-003		0.0183	0.0183		0.0168	0.0168		325.2397	325.2397	0.1052		327.8694
Total	**0.0692**	**1.0526**	**2.1856**	**3.3600e-003**		**0.0183**	**0.0183**		**0.0168**	**0.0168**		**325.2397**	**325.2397**	**0.1052**		**327.8694**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4400e-003	0.1307	0.0532	6.9000e-004	0.0256	1.1300e-003	0.0268	7.3800e-003	1.0800e-003	8.4600e-003		72.9662	72.9662	7.8000e-004	0.0108	76.1941
Worker	0.0204	0.0121	0.2061	5.7000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		58.9155	58.9155	1.2500e-003	1.3100e-003	59.3365
Total	**0.0249**	**0.1428**	**0.2593**	**1.2600e-003**	**0.0927**	**1.4300e-003**	**0.0941**	**0.0252**	**1.3600e-003**	**0.0265**		**131.8818**	**131.8818**	**2.0300e-003**	**0.0121**	**135.5305**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0692	1.0526	2.1856	3.3600e-003		0.0183	0.0183		0.0168	0.0168	0.0000	325.2397	325.2397	0.1052		327.8694
Total	**0.0692**	**1.0526**	**2.1856**	**3.3600e-003**		**0.0183**	**0.0183**		**0.0168**	**0.0168**	**0.0000**	**325.2397**	**325.2397**	**0.1052**		**327.8694**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4400e-003	0.1307	0.0532	6.9000e-004	0.0256	1.1300e-003	0.0268	7.3800e-003	1.0800e-003	8.4600e-003		72.9662	72.9662	7.8000e-004	0.0108	76.1941
Worker	0.0204	0.0121	0.2061	5.7000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		58.9155	58.9155	1.2500e-003	1.3100e-003	59.3365
Total	**0.0249**	**0.1428**	**0.2593**	**1.2600e-003**	**0.0927**	**1.4300e-003**	**0.0941**	**0.0252**	**1.3600e-003**	**0.0265**		**131.8818**	**131.8818**	**2.0300e-003**	**0.0121**	**135.5305**

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.540541	0.056458	0.173793	0.136090	0.025268	0.007074	0.011525	0.018705	0.000610	0.000304	0.023606	0.001094	0.004932

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5940					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5940					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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WMWD Riverside FMP : Tank Improvement Near-Term

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	30,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2024 Project Year Start or Later
Based on Tank Construction but without Site Prep and Foundation Phases

Land Use - 1 acre site, 30,000 sf tank and paved area

Construction Phase - Typical tank construction - see assumptions worksheet
only Tank Improvement Phases

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Trips and VMT - See assumptions worksheet

Grading - See assumptions worksheet
2 passes grading

Architectural Coating - 36,000 square ft = pi()DH + pi*D^2/4 based on 150 ft diameter , 38-39 ft high tank
* 3 coats = 108,000 sf
meets SCAQMD =Rule 1168 specifications

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	15,000.00	108,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	45,000.00	108,000.00
tblConstructionPhase	NumDays	5.00	45.00
tblConstructionPhase	NumDays	100.00	150.00
tblConstructionPhase	NumDays	100.00	2.00
tblLandUse	LandUseSquareFeet	0.00	30,000.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblTripsAndVMT	VendorTripNumber	5.00	6.00
tblTripsAndVMT	VendorTripNumber	5.00	4.00
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	3.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.5924	0.7961	1.0913	1.9600e-003	0.0186	0.0318	0.0504	5.0000e-003	0.0305	0.0355	0.0000	169.8451	169.8451	0.0298	1.4100e-003	171.0092
Maximum	**0.5924**	**0.7961**	**1.0913**	**1.9600e-003**	**0.0186**	**0.0318**	**0.0504**	**5.0000e-003**	**0.0305**	**0.0355**	**0.0000**	**169.8451**	**169.8451**	**0.0298**	**1.4100e-003**	**171.0092**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.5924	0.7961	1.0913	1.9600e-003	0.0186	0.0318	0.0504	5.0000e-003	0.0305	0.0355	0.0000	169.8449	169.8449	0.0298	1.4100e-003	171.0090
Maximum	**0.5924**	**0.7961**	**1.0913**	**1.9600e-003**	**0.0186**	**0.0318**	**0.0504**	**5.0000e-003**	**0.0305**	**0.0355**	**0.0000**	**169.8449**	**169.8449**	**0.0298**	**1.4100e-003**	**171.0090**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2024	3-31-2024	0.0777	0.0777
2	4-1-2024	6-30-2024	0.3362	0.3362
3	7-1-2024	9-30-2024	0.3399	0.3399
		Highest	0.3399	0.3399

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1223	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1223**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1223	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1223**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	4. Tank Erection	Building Construction	3/11/2024	10/4/2024	5	150	
2	5. Coating	Architectural Coating	10/7/2024	12/6/2024	5	45	
3	7. Cathodic Protection System	Building Construction	12/30/2024	12/31/2024	5	2	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 108,000; Non-Residential Outdoor: 108,000; Striped Parking Area: 0 (Architectural

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
4. Tank Erection	Aerial Lifts	2	8.00	63	0.31
4. Tank Erection	Cranes	1	4.00	231	0.29
4. Tank Erection	Forklifts	1	8.00	89	0.20
4. Tank Erection	Generator Sets	1	8.00	84	0.74
4. Tank Erection	Tractors/Loaders/Backhoes	1	8.00	97	0.37
4. Tank Erection	Welders	1	8.00	46	0.45
5. Coating	Aerial Lifts	2	8.00	63	0.31
5. Coating	Air Compressors	2	8.00	78	0.48
7. Cathodic Protection System	Aerial Lifts	2	8.00	63	0.31

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
4. Tank Erection	7	16.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
5. Coating	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
7. Cathodic Protection System	2	6.00	4.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 4. Tank Erection - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0746	0.6796	0.8832	1.5000e-003		0.0275	0.0275		0.0263	0.0263	0.0000	128.2501	128.2501	0.0264	0.0000	128.9091
Total	**0.0746**	**0.6796**	**0.8832**	**1.5000e-003**		**0.0275**	**0.0275**		**0.0263**	**0.0263**	**0.0000**	**128.2501**	**128.2501**	**0.0264**	**0.0000**	**128.9091**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.8000e-004	0.0154	6.0800e-003	8.0000e-005	2.8400e-003	1.3000e-004	2.9700e-003	8.2000e-004	1.2000e-004	9.4000e-004	0.0000	7.4546	7.4546	8.0000e-005	1.1000e-003	7.7846
Worker	3.6400e-003	2.5700e-003	0.0353	1.1000e-004	0.0132	6.0000e-005	0.0133	3.5000e-003	6.0000e-005	3.5600e-003	0.0000	9.9126	9.9126	2.3000e-004	2.5000e-004	9.9920
Total	**4.1200e-003**	**0.0180**	**0.0414**	**1.9000e-004**	**0.0160**	**1.9000e-004**	**0.0162**	**4.3200e-003**	**1.8000e-004**	**4.5000e-003**	**0.0000**	**17.3673**	**17.3673**	**3.1000e-004**	**1.3500e-003**	**17.7766**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0746	0.6796	0.8832	1.5000e-003		0.0275	0.0275		0.0263	0.0263	0.0000	128.2499	128.2499	0.0264	0.0000	128.9089
Total	**0.0746**	**0.6796**	**0.8832**	**1.5000e-003**		**0.0275**	**0.0275**		**0.0263**	**0.0263**	**0.0000**	**128.2499**	**128.2499**	**0.0264**	**0.0000**	**128.9089**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.8000e-004	0.0154	6.0800e-003	8.0000e-005	2.8400e-003	1.3000e-004	2.9700e-003	8.2000e-004	1.2000e-004	9.4000e-004	0.0000	7.4546	7.4546	8.0000e-005	1.1000e-003	7.7846
Worker	3.6400e-003	2.5700e-003	0.0353	1.1000e-004	0.0132	6.0000e-005	0.0133	3.5000e-003	6.0000e-005	3.5600e-003	0.0000	9.9126	9.9126	2.3000e-004	2.5000e-004	9.9920
Total	**4.1200e-003**	**0.0180**	**0.0414**	**1.9000e-004**	**0.0160**	**1.9000e-004**	**0.0162**	**4.3200e-003**	**1.8000e-004**	**4.5000e-003**	**0.0000**	**17.3673**	**17.3673**	**3.1000e-004**	**1.3500e-003**	**17.7766**

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 5. Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5006					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.0968	0.1578	2.5000e-004		4.0700e-003	4.0700e-003		4.0300e-003	4.0300e-003	0.0000	21.9582	21.9582	3.0100e-003	0.0000	22.0335
Total	**0.5130**	**0.0968**	**0.1578**	**2.5000e-004**		**4.0700e-003**	**4.0700e-003**		**4.0300e-003**	**4.0300e-003**	**0.0000**	**21.9582**	**21.9582**	**3.0100e-003**	**0.0000**	**22.0335**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	4.8000e-004	6.6200e-003	2.0000e-005	2.4700e-003	1.0000e-005	2.4800e-003	6.6000e-004	1.0000e-005	6.7000e-004	0.0000	1.8586	1.8586	4.0000e-005	5.0000e-005	1.8735
Total	**6.8000e-004**	**4.8000e-004**	**6.6200e-003**	**2.0000e-005**	**2.4700e-003**	**1.0000e-005**	**2.4800e-003**	**6.6000e-004**	**1.0000e-005**	**6.7000e-004**	**0.0000**	**1.8586**	**1.8586**	**4.0000e-005**	**5.0000e-005**	**1.8735**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5006					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.0968	0.1578	2.5000e-004		4.0700e-003	4.0700e-003		4.0300e-003	4.0300e-003	0.0000	21.9582	21.9582	3.0100e-003	0.0000	22.0334
Total	**0.5130**	**0.0968**	**0.1578**	**2.5000e-004**		**4.0700e-003**	**4.0700e-003**		**4.0300e-003**	**4.0300e-003**	**0.0000**	**21.9582**	**21.9582**	**3.0100e-003**	**0.0000**	**22.0334**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	4.8000e-004	6.6200e-003	2.0000e-005	2.4700e-003	1.0000e-005	2.4800e-003	6.6000e-004	1.0000e-005	6.7000e-004	0.0000	1.8586	1.8586	4.0000e-005	5.0000e-005	1.8735
Total	**6.8000e-004**	**4.8000e-004**	**6.6200e-003**	**2.0000e-005**	**2.4700e-003**	**1.0000e-005**	**2.4800e-003**	**6.6000e-004**	**1.0000e-005**	**6.7000e-004**	**0.0000**	**1.8586**	**1.8586**	**4.0000e-005**	**5.0000e-005**	**1.8735**

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 7. Cathodic Protection System - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.0000e-005	1.0500e-003	2.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2951	0.2951	1.0000e-004	0.0000	0.2974
Total	**7.0000e-005**	**1.0500e-003**	**2.1900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.2951**	**0.2951**	**1.0000e-004**	**0.0000**	**0.2974**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	1.4000e-004	5.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0663	0.0663	0.0000	1.0000e-005	0.0692
Worker	2.0000e-005	1.0000e-005	1.8000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0496	0.0496	0.0000	0.0000	0.0500
Total	**2.0000e-005**	**1.5000e-004**	**2.3000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1158**	**0.1158**	**0.0000**	**1.0000e-005**	**0.1192**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.0000e-005	1.0500e-003	2.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2951	0.2951	1.0000e-004	0.0000	0.2974
Total	**7.0000e-005**	**1.0500e-003**	**2.1900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.2951**	**0.2951**	**1.0000e-004**	**0.0000**	**0.2974**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	1.4000e-004	5.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0663	0.0663	0.0000	1.0000e-005	0.0692
Worker	2.0000e-005	1.0000e-005	1.8000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0496	0.0496	0.0000	0.0000	0.0500
Total	**2.0000e-005**	**1.5000e-004**	**2.3000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1158**	**0.1158**	**0.0000**	**1.0000e-005**	**0.1192**

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.540541	0.056458	0.173793	0.136090	0.025268	0.007074	0.011525	0.018705	0.000610	0.000304	0.023606	0.001094	0.004932

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1223	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.1223	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0139					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1084					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.1223**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0139					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1084					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.1223**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

WMWD Riverside FMP : Tank Improvement Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Western MWD - Riverside FMP

Tank - Priority and Near-term Projects (2024-2030)

Local Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
Source	**lb/day**						
Tank Construction - 5 MG	22.8	14.4	11.8	0.02	3.1	1.8	—
Regional Emissions	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	**CO2e**
	lb/day, MT/yr for CO2e						
Tank Construction - 5 MG	22.8	15.7	12.4	0.03	3.4	1.9	233.39

Western MWD - Riverside FMP

Total Annual Emissions

Air Quality Construction Analysis

Regional Emissions	Total Project Emissons (ton/yr), MT/yr CO2e						
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
				ton/yr			MT/yr
Tank Construction - 5 MG - Priority and Near-Term Project	0.62	1.07	1.37	0.003	0.09	0.06	233.3891
Project Annual Emissions	**0.62**	**1.07**	**1.37**	**0.00**	**0.09**	**0.06**	233.3891

Riverside FMP
Maximum Daily Projected Emissions
Air Quality Construction Analysis

summer Regional Emissions	Onsite Emissions						Offsite Emissions					
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
	lb/day						lb/day					
1. Site Prep/Clearing	1.44	14.40	8.65	0.025	3.10	1.85	0.06	1.28	0.68	0.01	0.34	0.10
2. Excavation/grading	1.12	10.19	8.02	0.020	2.86	1.71	0.05	0.71	0.53	0.00	0.24	0.07
3. Foundation	0.78	6.19	8.00	0.017	0.26	0.25	0.04	0.44	0.47	0.00	0.18	0.05
4. Tank Erection	0.99	9.06	11.78	0.020	0.37	0.35	0.06	0.24	0.63	0.00	0.22	0.06
5. Coating	22.80	4.30	7.01	0.011	0.18	0.18	0.03	0.02	0.34	0.00	0.11	0.03
6. Paving Finishing	0.57	4.83	6.17	0.012	0.22	0.21	0.04	0.12	0.39	0.00	0.13	0.03
7. Cathodic Protection System	0.07	1.05	2.19	0.003	0.02	0.02	0.02	0.08	0.23	0.00	0.08	0.02

Regional Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
1. Site Prep/Clearing	1.5	15.7	9.3	0.0	3.4	1.9
2. Excavation/grading	1.2	10.9	8.6	0.0	3.1	1.8
3. Foundation	0.8	6.6	8.5	0.0	0.4	0.3
4. Tank Erection	1.1	9.3	12.4	0.0	0.6	0.4
5. Coating	22.8	4.3	7.4	0.0	0.3	0.2
6. Paving Finishing	0.6	5.0	6.6	0.0	0.3	0.2
7. Cathodic Protection System	0.1	1.1	2.4	0.0	0.1	0.0
Project Daily Maximum Emissions	**22.83**	**15.67**	**12.40**	**0.03**	**3.44**	**1.95**

WMWD Riverside FMP : Tank Construction Priority and Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Tank Construction Priority and Near-Term

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	30,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2024 Project Year Start or Later

Land Use - 1 acre site, 30,000 sf tank and paved area

Construction Phase - Typical tank construction - see assumptions worksheet

Off-road Equipment - see assumptions page

Off-road Equipment - See assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - Off-highway truck = asphalt trucks on site

Off-road Equipment - see assumptions page

Off-road Equipment - Lift -Pump Station Assumptions

Trips and VMT - See assumptions worksheet

Grading - See assumptions worksheet
2 passes grading

Architectural Coating - 36,000 square ft = pi()DH + pi*D^2/4 based on 150 ft diameter , 38-39 ft high tank
* 3 coats = 108,000 sf
meets SCAQMD =Rule 1168 specifications

Date: 6/11/2022 4:52 AM

WMWD Riverside FMP : Tank Construction Priority and Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	15,000.00	108,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	45,000.00	108,000.00
tblConstructionPhase	NumDays	5.00	45.00
tblConstructionPhase	NumDays	100.00	150.00
tblConstructionPhase	NumDays	100.00	2.00
tblConstructionPhase	NumDays	2.00	15.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	5.00
tblConstructionPhase	NumDays	1.00	30.00
tblGrading	AcresOfGrading	7.50	2.00
tblGrading	AcresOfGrading	5.00	2.00
tblGrading	MaterialExported	0.00	700.00
tblGrading	MaterialExported	0.00	450.00
tblLandUse	LandUseSquareFeet	0.00	30,000.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	HorsePower	9.00	70.00
tblOffRoadEquipment	HorsePower	8.00	9.00
tblOffRoadEquipment	LoadFactor	0.43	0.56
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	90.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	5.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	5.00	2.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	3.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

WMWD Riverside FMP : Tank Construction Priority and Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	23.4373	15.6743	13.7873	0.0321	6.7783	0.5968	7.3751	3.4448	0.5496	3.9944	0.0000	3,182.4818	3,182.4818	0.7915	0.1097	3,234.9535
Maximum	**23.4373**	**15.6743**	**13.7873**	**0.0321**	**6.7783**	**0.5968**	**7.3751**	**3.4448**	**0.5496**	**3.9944**	**0.0000**	**3,182.4818**	**3,182.4818**	**0.7915**	**0.1097**	**3,234.9535**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	23.4373	15.6743	13.7873	0.0321	2.8391	0.5968	3.4359	1.3966	0.5496	1.9462	0.0000	3,182.4818	3,182.4818	0.7915	0.1097	3,234.9535
Maximum	**23.4373**	**15.6743**	**13.7873**	**0.0321**	**2.8391**	**0.5968**	**3.4359**	**1.3966**	**0.5496**	**1.9462**	**0.0000**	**3,182.4818**	**3,182.4818**	**0.7915**	**0.1097**	**3,234.9535**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.11**	**0.00**	**53.41**	**59.46**	**0.00**	**51.28**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	1. Site Prep/Clearing	Site Preparation	1/1/2024	1/5/2024	5	5	
2	2. Excavation/grading	Grading	1/8/2024	1/26/2024	5	15	
3	3. Foundation	Site Preparation	1/29/2024	3/8/2024	5	30	
4	4. Tank Erection	Building Construction	3/11/2024	10/4/2024	5	150	
5	5. Coating	Architectural Coating	10/7/2024	12/6/2024	5	45	
6	6. Paving Finishing	Paving	12/2/2024	12/27/2024	5	20	
7	7. Cathodic Protection System	Building Construction	12/30/2024	12/31/2024	5	2	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 108,000; Non-Residential Outdoor: 108,000; Striped Parking Area: 0 (Architectural

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
1. Site Prep/Clearing	Graders	1	8.00	187	0.41
1. Site Prep/Clearing	Off-Highway Trucks	1	4.00	402	0.38
1. Site Prep/Clearing	Rubber Tired Dozers	1	8.00	247	0.40
1. Site Prep/Clearing	Tractors/Loaders/Backhoes	1	8.00	97	0.37
2. Excavation/grading	Excavators	1	8.00	158	0.38
2. Excavation/grading	Off-Highway Trucks	1	4.00	402	0.38
2. Excavation/grading	Rubber Tired Dozers	1	8.00	247	0.40
3. Foundation	Cement and Mortar Mixers	1	4.00	70	0.56
3. Foundation	Off-Highway Trucks	1	4.00	402	0.38
3. Foundation	Plate Compactors	2	8.00	8	0.43
3. Foundation	Pumps	1	8.00	84	0.74
3. Foundation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
4. Tank Erection	Aerial Lifts	2	8.00	63	0.31
4. Tank Erection	Cranes	1	4.00	231	0.29
4. Tank Erection	Forklifts	1	8.00	89	0.20
4. Tank Erection	Generator Sets	1	8.00	84	0.74
4. Tank Erection	Tractors/Loaders/Backhoes	1	8.00	97	0.37
4. Tank Erection	Welders	1	8.00	46	0.45
5. Coating	Aerial Lifts	2	8.00	63	0.31
5. Coating	Air Compressors	2	8.00	78	0.48
6. Paving Finishing	Off-Highway Trucks	1	2.00	402	0.38
6. Paving Finishing	Pavers	1	8.00	130	0.42
6. Paving Finishing	Plate Compactors	2	8.00	9	0.56
6. Paving Finishing	Rollers	1	8.00	80	0.38
7. Cathodic Protection System	Aerial Lifts	2	8.00	63	0.31

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Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
1. Site Prep/Clearing	4	10.00	2.00	56.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
2. Excavation/grading	3	10.00	2.00	88.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
3. Foundation	6	10.00	2.00	90.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
4. Tank Erection	7	16.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
5. Coating	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
6. Paving Finishing	5	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
7. Cathodic Protection System	2	6.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 1. Site Prep/Clearing - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4577	0.0000	6.4577	3.3578	0.0000	3.3578			0.0000			0.0000
Off-Road	1.4421	14.3956	8.6482	0.0249		0.5823	0.5823		0.5357	0.5357		2,409.4304	2,409.4304	0.7793		2,428.9119
Total	**1.4421**	**14.3956**	**8.6482**	**0.0249**	**6.4577**	**0.5823**	**7.0400**	**3.3578**	**0.5357**	**3.8935**		**2,409.4304**	**2,409.4304**	**0.7793**		**2,428.9119**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0225	1.1885	0.3174	6.0600e-003	0.1960	0.0134	0.2095	0.0537	0.0129	0.0666		647.4892	647.4892	9.7500e-003	0.1021	678.1439
Vendor	2.0500e-003	0.0693	0.0275	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.5743	36.5743	3.8000e-004	5.4000e-003	38.1933
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0566**	**1.2787**	**0.6240**	**7.2600e-003**	**0.3206**	**0.0145**	**0.3351**	**0.0871**	**0.0139**	**0.1009**		**773.0514**	**773.0514**	**0.0122**	**0.1097**	**806.0416**

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5185	0.0000	2.5185	1.3095	0.0000	1.3095			0.0000			0.0000
Off-Road	1.4421	14.3956	8.6482	0.0249		0.5823	0.5823		0.5357	0.5357	0.0000	2,409.4304	2,409.4304	0.7793		2,428.9119
Total	**1.4421**	**14.3956**	**8.6482**	**0.0249**	**2.5185**	**0.5823**	**3.1008**	**1.3095**	**0.5357**	**1.8453**	**0.0000**	**2,409.4304**	**2,409.4304**	**0.7793**		**2,428.9119**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0225	1.1885	0.3174	6.0600e-003	0.1960	0.0134	0.2095	0.0537	0.0129	0.0666		647.4892	647.4892	9.7500e-003	0.1021	678.1439
Vendor	2.0500e-003	0.0693	0.0275	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.5743	36.5743	3.8000e-004	5.4000e-003	38.1933
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0566**	**1.2787**	**0.6240**	**7.2600e-003**	**0.3206**	**0.0145**	**0.3351**	**0.0871**	**0.0139**	**0.1009**		**773.0514**	**773.0514**	**0.0122**	**0.1097**	**806.0416**

3.3 2. Excavation/grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1694	0.0000	6.1694	3.3264	0.0000	3.3264			0.0000			0.0000
Off-Road	1.1238	10.1944	8.0212	0.0203		0.4502	0.4502		0.4142	0.4142		1,967.4216	1,967.4216	0.6363		1,983.3292
Total	**1.1238**	**10.1944**	**8.0212**	**0.0203**	**6.1694**	**0.4502**	**6.6196**	**3.3264**	**0.4142**	**3.7406**		**1,967.4216**	**1,967.4216**	**0.6363**		**1,983.3292**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0118	0.6226	0.1663	3.1700e-003	0.1027	7.0400e-003	0.1097	0.0282	6.7300e-003	0.0349		339.1610	339.1610	5.1000e-003	0.0535	355.2182
Vendor	2.0500e-003	0.0693	0.0275	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.5743	36.5743	3.8000e-004	5.4000e-003	38.1933
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0459**	**0.7128**	**0.4728**	**4.3700e-003**	**0.2273**	**8.1100e-003**	**0.2354**	**0.0615**	**7.7300e-003**	**0.0692**		**464.7232**	**464.7232**	**7.5600e-003**	**0.0611**	**483.1159**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4061	0.0000	2.4061	1.2973	0.0000	1.2973			0.0000			0.0000
Off-Road	1.1238	10.1944	8.0212	0.0203		0.4502	0.4502		0.4142	0.4142	0.0000	1,967.4216	1,967.4216	0.6363		1,983.3292
Total	**1.1238**	**10.1944**	**8.0212**	**0.0203**	**2.4061**	**0.4502**	**2.8562**	**1.2973**	**0.4142**	**1.7115**	**0.0000**	**1,967.4216**	**1,967.4216**	**0.6363**		**1,983.3292**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0118	0.6226	0.1663	3.1700e-003	0.1027	7.0400e-003	0.1097	0.0282	6.7300e-003	0.0349		339.1610	339.1610	5.1000e-003	0.0535	355.2182
Vendor	2.0500e-003	0.0693	0.0275	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.5743	36.5743	3.8000e-004	5.4000e-003	38.1933
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0459**	**0.7128**	**0.4728**	**4.3700e-003**	**0.2273**	**8.1100e-003**	**0.2354**	**0.0615**	**7.7300e-003**	**0.0692**		**464.7232**	**464.7232**	**7.5600e-003**	**0.0611**	**483.1159**

3.4 3. Foundation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7785	6.1933	8.0015	0.0173		0.2632	0.2632		0.2531	0.2531		1,633.9353	1,633.9353	0.3392		1,642.4156
Total	**0.7785**	**6.1933**	**8.0015**	**0.0173**	**0.0000**	**0.2632**	**0.2632**	**0.0000**	**0.2531**	**0.2531**		**1,633.9353**	**1,633.9353**	**0.3392**		**1,642.4156**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.0200e-003	0.3184	0.0850	1.6200e-003	0.0525	3.6000e-003	0.0561	0.0144	3.4400e-003	0.0178		173.4346	173.4346	2.6100e-003	0.0273	181.6457
Vendor	2.8900e-003	0.1016	0.0443	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003		44.2249	44.2249	6.8000e-004	6.9700e-003	46.3187
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0409**	**0.4409**	**0.4084**	**2.8900e-003**	**0.1764**	**4.9400e-003**	**0.1813**	**0.0474**	**4.7100e-003**	**0.0521**		**306.6474**	**306.6474**	**5.3700e-003**	**0.0365**	**317.6688**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7785	6.1933	8.0015	0.0173		0.2632	0.2632		0.2531	0.2531	0.0000	1,633.9353	1,633.9353	0.3392		1,642.4156
Total	**0.7785**	**6.1933**	**8.0015**	**0.0173**	**0.0000**	**0.2632**	**0.2632**	**0.0000**	**0.2531**	**0.2531**	**0.0000**	**1,633.9353**	**1,633.9353**	**0.3392**		**1,642.4156**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.0200e-003	0.3184	0.0850	1.6200e-003	0.0525	3.6000e-003	0.0561	0.0144	3.4400e-003	0.0178		173.4346	173.4346	2.6100e-003	0.0273	181.6457
Vendor	2.8900e-003	0.1016	0.0443	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003		44.2249	44.2249	6.8000e-004	6.9700e-003	46.3187
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0409**	**0.4409**	**0.4084**	**2.8900e-003**	**0.1764**	**4.9400e-003**	**0.1813**	**0.0474**	**4.7100e-003**	**0.0521**		**306.6474**	**306.6474**	**5.3700e-003**	**0.0365**	**317.6688**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 4. Tank Erection - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9941	9.0618	11.7754	0.0200		0.3668	0.3668		0.3501	0.3501		1,884.9532	1,884.9532	0.3874		1,894.6387
Total	**0.9941**	**9.0618**	**11.7754**	**0.0200**		**0.3668**	**0.3668**		**0.3501**	**0.3501**		**1,884.9532**	**1,884.9532**	**0.3874**		**1,894.6387**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.1600e-003	0.2079	0.0825	1.0300e-003	0.0384	1.7000e-003	0.0401	0.0111	1.6300e-003	0.0127		109.7229	109.7229	1.1500e-003	0.0162	114.5800
Worker	0.0512	0.0334	0.4465	1.3800e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482		142.3806	142.3806	3.3200e-003	3.5700e-003	143.5270
Total	**0.0574**	**0.2413**	**0.5290**	**2.4100e-003**	**0.2173**	**2.5000e-003**	**0.2198**	**0.0585**	**2.3700e-003**	**0.0609**		**252.1034**	**252.1034**	**4.4700e-003**	**0.0198**	**258.1070**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9941	9.0618	11.7754	0.0200		0.3668	0.3668		0.3501	0.3501	0.0000	1,884.9532	1,884.9532	0.3874		1,894.6387
Total	**0.9941**	**9.0618**	**11.7754**	**0.0200**		**0.3668**	**0.3668**		**0.3501**	**0.3501**	**0.0000**	**1,884.9532**	**1,884.9532**	**0.3874**		**1,894.6387**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.1600e-003	0.2079	0.0825	1.0300e-003	0.0384	1.7000e-003	0.0401	0.0111	1.6300e-003	0.0127		109.7229	109.7229	1.1500e-003	0.0162	114.5800
Worker	0.0512	0.0334	0.4465	1.3800e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482		142.3806	142.3806	3.3200e-003	3.5700e-003	143.5270
Total	**0.0574**	**0.2413**	**0.5290**	**2.4100e-003**	**0.2173**	**2.5000e-003**	**0.2198**	**0.0585**	**2.3700e-003**	**0.0609**		**252.1034**	**252.1034**	**4.4700e-003**	**0.0198**	**258.1070**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 5. Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.2480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.5513	4.3027	7.0126	0.0113		0.1807	0.1807		0.1792	0.1792		1,075.7678	1,075.7678	0.1475		1,079.4541
Total	**22.7993**	**4.3027**	**7.0126**	**0.0113**		**0.1807**	**0.1807**		**0.1792**	**0.1792**		**1,075.7678**	**1,075.7678**	**0.1475**		**1,079.4541**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0320**	**0.0209**	**0.2791**	**8.6000e-004**	**0.1118**	**5.0000e-004**	**0.1123**	**0.0296**	**4.6000e-004**	**0.0301**		**88.9879**	**88.9879**	**2.0800e-003**	**2.2300e-003**	**89.7044**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.2480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.5513	4.3027	7.0126	0.0113		0.1807	0.1807		0.1792	0.1792	0.0000	1,075.7678	1,075.7678	0.1475		1,079.4541
Total	**22.7993**	**4.3027**	**7.0126**	**0.0113**		**0.1807**	**0.1807**		**0.1792**	**0.1792**	**0.0000**	**1,075.7678**	**1,075.7678**	**0.1475**		**1,079.4541**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0320**	**0.0209**	**0.2791**	**8.6000e-004**	**0.1118**	**5.0000e-004**	**0.1123**	**0.0296**	**4.6000e-004**	**0.0301**		**88.9879**	**88.9879**	**2.0800e-003**	**2.2300e-003**	**89.7044**

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3.7 6. Paving Finishing - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5711	4.8345	6.1723	0.0121		0.2206	0.2206		0.2052	0.2052		1,130.4281	1,130.4281	0.3434		1,139.0136
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5711**	**4.8345**	**6.1723**	**0.0121**		**0.2206**	**0.2206**		**0.2052**	**0.2052**		**1,130.4281**	**1,130.4281**	**0.3434**		**1,139.0136**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8900e-003	0.1016	0.0443	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003		44.2249	44.2249	6.8000e-004	6.9700e-003	46.3187
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0349**	**0.1225**	**0.3233**	**1.2700e-003**	**0.1239**	**1.3400e-003**	**0.1252**	**0.0330**	**1.2700e-003**	**0.0342**		**133.2128**	**133.2128**	**2.7600e-003**	**9.2000e-003**	**136.0231**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5711	4.8345	6.1723	0.0121		0.2206	0.2206		0.2052	0.2052	0.0000	1,130.4281	1,130.4281	0.3434		1,139.0136
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5711**	**4.8345**	**6.1723**	**0.0121**		**0.2206**	**0.2206**		**0.2052**	**0.2052**	**0.0000**	**1,130.4281**	**1,130.4281**	**0.3434**		**1,139.0136**

WMWD Riverside FMP : Tank Construction Priority and Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8900e-003	0.1016	0.0443	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003		44.2249	44.2249	6.8000e-004	6.9700e-003	46.3187
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0349**	**0.1225**	**0.3233**	**1.2700e-003**	**0.1239**	**1.3400e-003**	**0.1252**	**0.0330**	**1.2700e-003**	**0.0342**		**133.2128**	**133.2128**	**2.7600e-003**	**9.2000e-003**	**136.0231**

3.8 7. Cathodic Protection System - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0692	1.0526	2.1856	3.3600e-003		0.0183	0.0183		0.0168	0.0168		325.2397	325.2397	0.1052		327.8694
Total	**0.0692**	**1.0526**	**2.1856**	**3.3600e-003**		**0.0183**	**0.0183**		**0.0168**	**0.0168**		**325.2397**	**325.2397**	**0.1052**		**327.8694**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0500e-003	0.0693	0.0275	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.5743	36.5743	3.8000e-004	5.4000e-003	38.1933
Worker	0.0192	0.0125	0.1674	5.2000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		53.3927	53.3927	1.2500e-003	1.3400e-003	53.8226
Total	**0.0213**	**0.0818**	**0.1949**	**8.6000e-004**	**0.0799**	**8.7000e-004**	**0.0808**	**0.0215**	**8.2000e-004**	**0.0223**		**89.9670**	**89.9670**	**1.6300e-003**	**6.7400e-003**	**92.0159**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0692	1.0526	2.1856	3.3600e-003		0.0183	0.0183		0.0168	0.0168	0.0000	325.2397	325.2397	0.1052		327.8694
Total	**0.0692**	**1.0526**	**2.1856**	**3.3600e-003**		**0.0183**	**0.0183**		**0.0168**	**0.0168**	**0.0000**	**325.2397**	**325.2397**	**0.1052**		**327.8694**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0500e-003	0.0693	0.0275	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.5743	36.5743	3.8000e-004	5.4000e-003	38.1933
Worker	0.0192	0.0125	0.1674	5.2000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		53.3927	53.3927	1.2500e-003	1.3400e-003	53.8226
Total	**0.0213**	**0.0818**	**0.1949**	**8.6000e-004**	**0.0799**	**8.7000e-004**	**0.0808**	**0.0215**	**8.2000e-004**	**0.0223**		**89.9670**	**89.9670**	**1.6300e-003**	**6.7400e-003**	**92.0159**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.540541	0.056458	0.173793	0.136090	0.025268	0.007074	0.011525	0.018705	0.000610	0.000304	0.023606	0.001094	0.004932

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

WMWD Riverside FMP : Tank Construction Priority and Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5940					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

WMWD Riverside FMP : Tank Construction Priority and Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5940					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

WMWD Riverside FMP : Tank Construction Priority and Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Tank Construction Priority and Near-Term

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	30,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2024 Project Year Start or Later

Land Use - 1 acre site, 30,000 sf tank and paved area

Construction Phase - Typical tank construction - see assumptions worksheet

Off-road Equipment - see assumptions page

Off-road Equipment - See assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - Off-highway truck = asphalt trucks on site

Off-road Equipment - see assumptions page

Off-road Equipment - Lift -Pump Station Assumptions

Trips and VMT - See assumptions worksheet

Grading - See assumptions worksheet
2 passes grading

Architectural Coating - 36,000 square ft = pi()DH + pi*D^2/4 based on 150 ft diameter , 38-39 ft high tank
* 3 coats = 108,000 sf
meets SCAQMD =Rule 1168 specifications

WMWD Riverside FMP : Tank Construction Priority and Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	15,000.00	108,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	45,000.00	108,000.00
tblConstructionPhase	NumDays	5.00	45.00
tblConstructionPhase	NumDays	100.00	150.00
tblConstructionPhase	NumDays	100.00	2.00
tblConstructionPhase	NumDays	2.00	15.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	5.00
tblConstructionPhase	NumDays	1.00	30.00
tblGrading	AcresOfGrading	7.50	2.00
tblGrading	AcresOfGrading	5.00	2.00
tblGrading	MaterialExported	0.00	700.00
tblGrading	MaterialExported	0.00	450.00
tblLandUse	LandUseSquareFeet	0.00	30,000.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	HorsePower	9.00	70.00
tblOffRoadEquipment	HorsePower	8.00	9.00
tblOffRoadEquipment	LoadFactor	0.43	0.56
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	90.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	5.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	5.00	2.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	3.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	23.4417	15.6026	13.9150	0.0322	6.7783	0.5968	7.3751	3.4448	0.5496	3.9944	0.0000	3,190.5806	3,190.5806	0.7916	0.1095	3,242.9867
Maximum	**23.4417**	**15.6026**	**13.9150**	**0.0322**	**6.7783**	**0.5968**	**7.3751**	**3.4448**	**0.5496**	**3.9944**	**0.0000**	**3,190.5806**	**3,190.5806**	**0.7916**	**0.1095**	**3,242.9867**

WMWD Riverside FMP : Tank Construction Priority and Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	23.4417	15.6026	13.9150	0.0322	2.8391	0.5968	3.4359	1.3966	0.5496	1.9462	0.0000	3,190.5806	3,190.5806	0.7916	0.1095	3,242.9867
Maximum	**23.4417**	**15.6026**	**13.9150**	**0.0322**	**2.8391**	**0.5968**	**3.4359**	**1.3966**	**0.5496**	**1.9462**	**0.0000**	**3,190.5806**	**3,190.5806**	**0.7916**	**0.1095**	**3,242.9867**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.11**	**0.00**	**53.41**	**59.46**	**0.00**	**51.28**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	1. Site Prep/Clearing	Site Preparation	1/1/2024	1/5/2024	5	5	
2	2. Excavation/grading	Grading	1/8/2024	1/26/2024	5	15	
3	3. Foundation	Site Preparation	1/29/2024	3/8/2024	5	30	
4	4. Tank Erection	Building Construction	3/11/2024	10/4/2024	5	150	
5	5. Coating	Architectural Coating	10/7/2024	12/6/2024	5	45	
6	6. Paving Finishing	Paving	12/2/2024	12/27/2024	5	20	
7	7. Cathodic Protection System	Building Construction	12/30/2024	12/31/2024	5	2	

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Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 108,000; Non-Residential Outdoor: 108,000; Striped Parking Area: 0 (Architectural

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
1. Site Prep/Clearing	Graders	1	8.00	187	0.41
1. Site Prep/Clearing	Off-Highway Trucks	1	4.00	402	0.38
1. Site Prep/Clearing	Rubber Tired Dozers	1	8.00	247	0.40
1. Site Prep/Clearing	Tractors/Loaders/Backhoes	1	8.00	97	0.37
2. Excavation/grading	Excavators	1	8.00	158	0.38
2. Excavation/grading	Off-Highway Trucks	1	4.00	402	0.38
2. Excavation/grading	Rubber Tired Dozers	1	8.00	247	0.40
3. Foundation	Cement and Mortar Mixers	1	4.00	70	0.56
3. Foundation	Off-Highway Trucks	1	4.00	402	0.38
3. Foundation	Plate Compactors	2	8.00	8	0.43
3. Foundation	Pumps	1	8.00	84	0.74
3. Foundation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
4. Tank Erection	Aerial Lifts	2	8.00	63	0.31
4. Tank Erection	Cranes	1	4.00	231	0.29
4. Tank Erection	Forklifts	1	8.00	89	0.20
4. Tank Erection	Generator Sets	1	8.00	84	0.74
4. Tank Erection	Tractors/Loaders/Backhoes	1	8.00	97	0.37
4. Tank Erection	Welders	1	8.00	46	0.45
5. Coating	Aerial Lifts	2	8.00	63	0.31
5. Coating	Air Compressors	2	8.00	78	0.48
6. Paving Finishing	Off-Highway Trucks	1	2.00	402	0.38
6. Paving Finishing	Pavers	1	8.00	130	0.42
6. Paving Finishing	Plate Compactors	2	8.00	9	0.56
6. Paving Finishing	Rollers	1	8.00	80	0.38
7. Cathodic Protection System	Aerial Lifts	2	8.00	63	0.31

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
1. Site Prep/Clearing	4	10.00	2.00	56.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
2. Excavation/grading	3	10.00	2.00	88.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
3. Foundation	6	10.00	2.00	90.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
4. Tank Erection	7	16.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
5. Coating	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
6. Paving Finishing	5	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
7. Cathodic Protection System	2	6.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 1. Site Prep/Clearing - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4577	0.0000	6.4577	3.3578	0.0000	3.3578			0.0000			0.0000
Off-Road	1.4421	14.3956	8.6482	0.0249		0.5823	0.5823		0.5357	0.5357		2,409.4304	2,409.4304	0.7793		2,428.9119
Total	**1.4421**	**14.3956**	**8.6482**	**0.0249**	**6.4577**	**0.5823**	**7.0400**	**3.3578**	**0.5357**	**3.8935**		**2,409.4304**	**2,409.4304**	**0.7793**		**2,428.9119**

Unmitigated Construction Off-Site

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0245	1.1216	0.3110	6.0500e-003	0.1960	0.0134	0.2094	0.0537	0.0128	0.0666		646.4745	646.4745	9.8400e-003	0.1019	677.0837
Vendor	2.2200e-003	0.0654	0.0266	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.4831	36.4831	3.9000e-004	5.3800e-003	38.0970
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0607**	**1.2071**	**0.6811**	**7.3400e-003**	**0.3206**	**0.0145**	**0.3351**	**0.0871**	**0.0138**	**0.1009**		**781.1502**	**781.1502**	**0.0123**	**0.1095**	**814.0749**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5185	0.0000	2.5185	1.3095	0.0000	1.3095			0.0000			0.0000
Off-Road	1.4421	14.3956	8.6482	0.0249		0.5823	0.5823		0.5357	0.5357	0.0000	2,409.4304	2,409.4304	0.7793		2,428.9119
Total	**1.4421**	**14.3956**	**8.6482**	**0.0249**	**2.5185**	**0.5823**	**3.1008**	**1.3095**	**0.5357**	**1.8453**	**0.0000**	**2,409.4304**	**2,409.4304**	**0.7793**		**2,428.9119**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0245	1.1216	0.3110	6.0500e-003	0.1960	0.0134	0.2094	0.0537	0.0128	0.0666		646.4745	646.4745	9.8400e-003	0.1019	677.0837
Vendor	2.2200e-003	0.0654	0.0266	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.4831	36.4831	3.9000e-004	5.3800e-003	38.0970
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0607**	**1.2071**	**0.6811**	**7.3400e-003**	**0.3206**	**0.0145**	**0.3351**	**0.0871**	**0.0138**	**0.1009**		**781.1502**	**781.1502**	**0.0123**	**0.1095**	**814.0749**

3.3 2. Excavation/grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1694	0.0000	6.1694	3.3264	0.0000	3.3264			0.0000			0.0000
Off-Road	1.1238	10.1944	8.0212	0.0203		0.4502	0.4502		0.4142	0.4142		1,967.4216	1,967.4216	0.6363		1,983.3292
Total	**1.1238**	**10.1944**	**8.0212**	**0.0203**	**6.1694**	**0.4502**	**6.6196**	**3.3264**	**0.4142**	**3.7406**		**1,967.4216**	**1,967.4216**	**0.6363**		**1,983.3292**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0128	0.5875	0.1629	3.1700e-003	0.1027	7.0300e-003	0.1097	0.0282	6.7300e-003	0.0349		338.6295	338.6295	5.1500e-003	0.0534	354.6629
Vendor	2.2200e-003	0.0654	0.0266	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.4831	36.4831	3.9000e-004	5.3800e-003	38.0970
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0491**	**0.6730**	**0.5330**	**4.4600e-003**	**0.2273**	**8.1000e-003**	**0.2354**	**0.0615**	**7.7300e-003**	**0.0692**		**473.3052**	**473.3052**	**7.6200e-003**	**0.0609**	**491.6540**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4061	0.0000	2.4061	1.2973	0.0000	1.2973			0.0000			0.0000
Off-Road	1.1238	10.1944	8.0212	0.0203		0.4502	0.4502		0.4142	0.4142	0.0000	1,967.4216	1,967.4216	0.6363		1,983.3292
Total	**1.1238**	**10.1944**	**8.0212**	**0.0203**	**2.4061**	**0.4502**	**2.8562**	**1.2973**	**0.4142**	**1.7115**	**0.0000**	**1,967.4216**	**1,967.4216**	**0.6363**		**1,983.3292**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0128	0.5875	0.1629	3.1700e-003	0.1027	7.0300e-003	0.1097	0.0282	6.7300e-003	0.0349		338.6295	338.6295	5.1500e-003	0.0534	354.6629
Vendor	2.2200e-003	0.0654	0.0266	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.4831	36.4831	3.9000e-004	5.3800e-003	38.0970
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0491**	**0.6730**	**0.5330**	**4.4600e-003**	**0.2273**	**8.1000e-003**	**0.2354**	**0.0615**	**7.7300e-003**	**0.0692**		**473.3052**	**473.3052**	**7.6200e-003**	**0.0609**	**491.6540**

3.4 3. Foundation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7785	6.1933	8.0015	0.0173		0.2632	0.2632		0.2531	0.2531		1,633.9353	1,633.9353	0.3392		1,642.4156
Total	**0.7785**	**6.1933**	**8.0015**	**0.0173**	**0.0000**	**0.2632**	**0.2632**	**0.0000**	**0.2531**	**0.2531**		**1,633.9353**	**1,633.9353**	**0.3392**		**1,642.4156**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.5500e-003	0.3004	0.0833	1.6200e-003	0.0525	3.5900e-003	0.0561	0.0144	3.4400e-003	0.0178		173.1628	173.1628	2.6400e-003	0.0273	181.3617
Vendor	3.2500e-003	0.0952	0.0431	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003		44.0437	44.0437	7.0000e-004	6.9400e-003	46.1294
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0439**	**0.4158**	**0.4699**	**2.9800e-003**	**0.1764**	**4.9300e-003**	**0.1813**	**0.0474**	**4.7100e-003**	**0.0521**		**315.3991**	**315.3991**	**5.4200e-003**	**0.0364**	**326.3852**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7785	6.1933	8.0015	0.0173		0.2632	0.2632		0.2531	0.2531	0.0000	1,633.9353	1,633.9353	0.3392		1,642.4156
Total	**0.7785**	**6.1933**	**8.0015**	**0.0173**	**0.0000**	**0.2632**	**0.2632**	**0.0000**	**0.2531**	**0.2531**	**0.0000**	**1,633.9353**	**1,633.9353**	**0.3392**		**1,642.4156**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.5500e-003	0.3004	0.0833	1.6200e-003	0.0525	3.5900e-003	0.0561	0.0144	3.4400e-003	0.0178		173.1628	173.1628	2.6400e-003	0.0273	181.3617
Vendor	3.2500e-003	0.0952	0.0431	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003		44.0437	44.0437	7.0000e-004	6.9400e-003	46.1294
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0439**	**0.4158**	**0.4699**	**2.9800e-003**	**0.1764**	**4.9300e-003**	**0.1813**	**0.0474**	**4.7100e-003**	**0.0521**		**315.3991**	**315.3991**	**5.4200e-003**	**0.0364**	**326.3852**

3.5 4. Tank Erection - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9941	9.0618	11.7754	0.0200		0.3668	0.3668		0.3501	0.3501		1,884.9532	1,884.9532	0.3874		1,894.6387
Total	**0.9941**	**9.0618**	**11.7754**	**0.0200**		**0.3668**	**0.3668**		**0.3501**	**0.3501**		**1,884.9532**	**1,884.9532**	**0.3874**		**1,894.6387**

WMWD Riverside FMP : Tank Construction Priority and Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.6600e-003	0.1960	0.0798	1.0300e-003	0.0384	1.7000e-003	0.0401	0.0111	1.6200e-003	0.0127		109.4494	109.4494	1.1700e-003	0.0162	114.2911
Worker	0.0545	0.0322	0.5496	1.5200e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482		157.1081	157.1081	3.3300e-003	3.4900e-003	158.2305
Total	**0.0612**	**0.2282**	**0.6294**	**2.5500e-003**	**0.2173**	**2.5000e-003**	**0.2198**	**0.0585**	**2.3600e-003**	**0.0609**		**266.5574**	**266.5574**	**4.5000e-003**	**0.0196**	**272.5216**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9941	9.0618	11.7754	0.0200		0.3668	0.3668		0.3501	0.3501	0.0000	1,884.9532	1,884.9532	0.3874		1,894.6387
Total	**0.9941**	**9.0618**	**11.7754**	**0.0200**		**0.3668**	**0.3668**		**0.3501**	**0.3501**	**0.0000**	**1,884.9532**	**1,884.9532**	**0.3874**		**1,894.6387**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.6600e-003	0.1960	0.0798	1.0300e-003	0.0384	1.7000e-003	0.0401	0.0111	1.6200e-003	0.0127		109.4494	109.4494	1.1700e-003	0.0162	114.2911
Worker	0.0545	0.0322	0.5496	1.5200e-003	0.1788	8.0000e-004	0.1796	0.0474	7.4000e-004	0.0482		157.1081	157.1081	3.3300e-003	3.4900e-003	158.2305
Total	**0.0612**	**0.2282**	**0.6294**	**2.5500e-003**	**0.2173**	**2.5000e-003**	**0.2198**	**0.0585**	**2.3600e-003**	**0.0609**		**266.5574**	**266.5574**	**4.5000e-003**	**0.0196**	**272.5216**

3.6 5. Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.2480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.5513	4.3027	7.0126	0.0113		0.1807	0.1807		0.1792	0.1792		1,075.7678	1,075.7678	0.1475		1,079.4541
Total	**22.7993**	**4.3027**	**7.0126**	**0.0113**		**0.1807**	**0.1807**		**0.1792**	**0.1792**		**1,075.7678**	**1,075.7678**	**0.1475**		**1,079.4541**

WMWD Riverside FMP : Tank Construction Priority and Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0341**	**0.0201**	**0.3435**	**9.5000e-004**	**0.1118**	**5.0000e-004**	**0.1123**	**0.0296**	**4.6000e-004**	**0.0301**		**98.1926**	**98.1926**	**2.0800e-003**	**2.1800e-003**	**98.8941**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.2480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.5513	4.3027	7.0126	0.0113		0.1807	0.1807		0.1792	0.1792	0.0000	1,075.7678	1,075.7678	0.1475		1,079.4541
Total	**22.7993**	**4.3027**	**7.0126**	**0.0113**		**0.1807**	**0.1807**		**0.1792**	**0.1792**	**0.0000**	**1,075.7678**	**1,075.7678**	**0.1475**		**1,079.4541**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0341**	**0.0201**	**0.3435**	**9.5000e-004**	**0.1118**	**5.0000e-004**	**0.1123**	**0.0296**	**4.6000e-004**	**0.0301**		**98.1926**	**98.1926**	**2.0800e-003**	**2.1800e-003**	**98.8941**

3.7 6. Paving Finishing - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5711	4.8345	6.1723	0.0121		0.2206	0.2206		0.2052	0.2052		1,130.4281	1,130.4281	0.3434		1,139.0136
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5711**	**4.8345**	**6.1723**	**0.0121**		**0.2206**	**0.2206**		**0.2052**	**0.2052**		**1,130.4281**	**1,130.4281**	**0.3434**		**1,139.0136**

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WMWD Riverside FMP : Tank Construction Priority and Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2500e-003	0.0952	0.0431	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003		44.0437	44.0437	7.0000e-004	6.9400e-003	46.1294
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0373**	**0.1153**	**0.3866**	**1.3600e-003**	**0.1239**	**1.3400e-003**	**0.1252**	**0.0330**	**1.2700e-003**	**0.0342**		**142.2362**	**142.2362**	**2.7800e-003**	**9.1200e-003**	**145.0235**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.5711	4.8345	6.1723	0.0121		0.2206	0.2206		0.2052	0.2052	0.0000	1,130.4281	1,130.4281	0.3434		1,139.0136
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.5711**	**4.8345**	**6.1723**	**0.0121**		**0.2206**	**0.2206**		**0.2052**	**0.2052**	**0.0000**	**1,130.4281**	**1,130.4281**	**0.3434**		**1,139.0136**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2500e-003	0.0952	0.0431	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003		44.0437	44.0437	7.0000e-004	6.9400e-003	46.1294
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0373**	**0.1153**	**0.3866**	**1.3600e-003**	**0.1239**	**1.3400e-003**	**0.1252**	**0.0330**	**1.2700e-003**	**0.0342**		**142.2362**	**142.2362**	**2.7800e-003**	**9.1200e-003**	**145.0235**

3.8 7. Cathodic Protection System - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0692	1.0526	2.1856	3.3600e-003		0.0183	0.0183		0.0168	0.0168		325.2397	325.2397	0.1052		327.8694
Total	**0.0692**	**1.0526**	**2.1856**	**3.3600e-003**		**0.0183**	**0.0183**		**0.0168**	**0.0168**		**325.2397**	**325.2397**	**0.1052**		**327.8694**

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WMWD Riverside FMP : Tank Construction Priority and Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2200e-003	0.0654	0.0266	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.4831	36.4831	3.9000e-004	5.3800e-003	38.0970
Worker	0.0204	0.0121	0.2061	5.7000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		58.9155	58.9155	1.2500e-003	1.3100e-003	59.3365
Total	**0.0227**	**0.0774**	**0.2327**	**9.1000e-004**	**0.0799**	**8.7000e-004**	**0.0808**	**0.0215**	**8.2000e-004**	**0.0223**		**95.3987**	**95.3987**	**1.6400e-003**	**6.6900e-003**	**97.4335**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0692	1.0526	2.1856	3.3600e-003		0.0183	0.0183		0.0168	0.0168	0.0000	325.2397	325.2397	0.1052		327.8694
Total	**0.0692**	**1.0526**	**2.1856**	**3.3600e-003**		**0.0183**	**0.0183**		**0.0168**	**0.0168**	**0.0000**	**325.2397**	**325.2397**	**0.1052**		**327.8694**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2200e-003	0.0654	0.0266	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.4831	36.4831	3.9000e-004	5.3800e-003	38.0970
Worker	0.0204	0.0121	0.2061	5.7000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		58.9155	58.9155	1.2500e-003	1.3100e-003	59.3365
Total	**0.0227**	**0.0774**	**0.2327**	**9.1000e-004**	**0.0799**	**8.7000e-004**	**0.0808**	**0.0215**	**8.2000e-004**	**0.0223**		**95.3987**	**95.3987**	**1.6400e-003**	**6.6900e-003**	**97.4335**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

WMWD Riverside FMP : Tank Construction Priority and Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.540541	0.056458	0.173793	0.136090	0.025268	0.007074	0.011525	0.018705	0.000610	0.000304	0.023606	0.001094	0.004932

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5940					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5940					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Tank Construction Priority and Near-Term

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	30,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2024 Project Year Start or Later

Land Use - 1 acre site, 30,000 sf tank and paved area

Construction Phase - Typical tank construction - see assumptions worksheet

Off-road Equipment - see assumptions page

Off-road Equipment - See assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - Off-highway truck = asphalt trucks on site

Off-road Equipment - see assumptions page

Off-road Equipment - Lift -Pump Station Assumptions

Trips and VMT - See assumptions worksheet

Grading - See assumptions worksheet
2 passes grading

Architectural Coating - 36,000 square ft = pi()DH + pi*D^2/4 based on 150 ft diameter , 38-39 ft high tank
* 3 coats = 108,000 sf
meets SCAQMD =Rule 1168 specifications

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	15,000.00	108,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	45,000.00	108,000.00
tblConstructionPhase	NumDays	5.00	45.00
tblConstructionPhase	NumDays	100.00	150.00
tblConstructionPhase	NumDays	100.00	2.00
tblConstructionPhase	NumDays	2.00	15.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	5.00
tblConstructionPhase	NumDays	1.00	30.00
tblGrading	AcresOfGrading	7.50	2.00
tblGrading	AcresOfGrading	5.00	2.00
tblGrading	MaterialExported	0.00	700.00
tblGrading	MaterialExported	0.00	450.00
tblLandUse	LandUseSquareFeet	0.00	30,000.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	HorsePower	9.00	70.00
tblOffRoadEquipment	HorsePower	8.00	9.00
tblOffRoadEquipment	LoadFactor	0.43	0.56
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	90.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	5.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	5.00	2.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	3.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.6233	1.0661	1.3698	2.6700e-003	0.0873	0.0430	0.1303	0.0400	0.0410	0.0810	0.0000	231.5055	231.5055	0.0438	2.6500e-003	233.3894
Maximum	**0.6233**	**1.0661**	**1.3698**	**2.6700e-003**	**0.0873**	**0.0430**	**0.1303**	**0.0400**	**0.0410**	**0.0810**	**0.0000**	**231.5055**	**231.5055**	**0.0438**	**2.6500e-003**	**233.3894**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.6233	1.0661	1.3698	2.6700e-003	0.0492	0.0430	0.0922	0.0197	0.0410	0.0607	0.0000	231.5053	231.5053	0.0438	2.6500e-003	233.3891
Maximum	**0.6233**	**1.0661**	**1.3698**	**2.6700e-003**	**0.0492**	**0.0430**	**0.0922**	**0.0197**	**0.0410**	**0.0607**	**0.0000**	**231.5053**	**231.5053**	**0.0438**	**2.6500e-003**	**233.3891**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**43.61**	**0.00**	**29.23**	**50.80**	**0.00**	**25.11**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2024	3-31-2024	0.2968	0.2968
2	4-1-2024	6-30-2024	0.3362	0.3362
3	7-1-2024	9-30-2024	0.3399	0.3399
		Highest	0.3399	0.3399

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1223	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1223**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1223	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1223**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	1. Site Prep/Clearing	Site Preparation	1/1/2024	1/5/2024	5	5	
2	2. Excavation/grading	Grading	1/8/2024	1/26/2024	5	15	
3	3. Foundation	Site Preparation	1/29/2024	3/8/2024	5	30	
4	4. Tank Erection	Building Construction	3/11/2024	10/4/2024	5	150	
5	5. Coating	Architectural Coating	10/7/2024	12/6/2024	5	45	
6	6. Paving Finishing	Paving	12/2/2024	12/27/2024	5	20	
7	7. Cathodic Protection System	Building Construction	12/30/2024	12/31/2024	5	2	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 108,000; Non-Residential Outdoor: 108,000; Striped Parking Area: 0 (Architectural

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
1. Site Prep/Clearing	Graders	1	8.00	187	0.41
1. Site Prep/Clearing	Off-Highway Trucks	1	4.00	402	0.38
1. Site Prep/Clearing	Rubber Tired Dozers	1	8.00	247	0.40
1. Site Prep/Clearing	Tractors/Loaders/Backhoes	1	8.00	97	0.37
2. Excavation/grading	Excavators	1	8.00	158	0.38
2. Excavation/grading	Off-Highway Trucks	1	4.00	402	0.38
2. Excavation/grading	Rubber Tired Dozers	1	8.00	247	0.40
3. Foundation	Cement and Mortar Mixers	1	4.00	70	0.56
3. Foundation	Off-Highway Trucks	1	4.00	402	0.38
3. Foundation	Plate Compactors	2	8.00	8	0.43
3. Foundation	Pumps	1	8.00	84	0.74
3. Foundation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
4. Tank Erection	Aerial Lifts	2	8.00	63	0.31
4. Tank Erection	Cranes	1	4.00	231	0.29
4. Tank Erection	Forklifts	1	8.00	89	0.20
4. Tank Erection	Generator Sets	1	8.00	84	0.74
4. Tank Erection	Tractors/Loaders/Backhoes	1	8.00	97	0.37
4. Tank Erection	Welders	1	8.00	46	0.45
5. Coating	Aerial Lifts	2	8.00	63	0.31
5. Coating	Air Compressors	2	8.00	78	0.48
6. Paving Finishing	Off-Highway Trucks	1	2.00	402	0.38
6. Paving Finishing	Pavers	1	8.00	130	0.42
6. Paving Finishing	Plate Compactors	2	8.00	9	0.56
6. Paving Finishing	Rollers	1	8.00	80	0.38
7. Cathodic Protection System	Aerial Lifts	2	8.00	63	0.31

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
1. Site Prep/Clearing	4	10.00	2.00	56.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
2. Excavation/grading	3	10.00	2.00	88.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
3. Foundation	6	10.00	2.00	90.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
4. Tank Erection	7	16.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
5. Coating	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
6. Paving Finishing	5	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
7. Cathodic Protection System	2	6.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

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3.1 Mitigation Measures Construction

Water Exposed Area

3.2 1. Site Prep/Clearing - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0161	0.0000	0.0161	8.3900e-003	0.0000	8.3900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6100e-003	0.0360	0.0216	6.0000e-005		1.4600e-003	1.4600e-003		1.3400e-003	1.3400e-003	0.0000	5.4645	5.4645	1.7700e-003	0.0000	5.5087
Total	**3.6100e-003**	**0.0360**	**0.0216**	**6.0000e-005**	**0.0161**	**1.4600e-003**	**0.0176**	**8.3900e-003**	**1.3400e-003**	**9.7300e-003**	**0.0000**	**5.4645**	**5.4645**	**1.7700e-003**	**0.0000**	**5.5087**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	2.9600e-003	7.8000e-004	2.0000e-005	4.8000e-004	3.0000e-005	5.2000e-004	1.3000e-004	3.0000e-005	1.6000e-004	0.0000	1.4672	1.4672	2.0000e-005	2.3000e-004	1.5366
Vendor	1.0000e-005	1.7000e-004	7.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0828	0.0828	0.0000	1.0000e-005	0.0865
Worker	8.0000e-005	5.0000e-005	7.4000e-004	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2065	0.2065	0.0000	1.0000e-005	0.2082
Total	**1.5000e-004**	**3.1800e-003**	**1.5900e-003**	**2.0000e-005**	**7.8000e-004**	**3.0000e-005**	**8.3000e-004**	**2.1000e-004**	**3.0000e-005**	**2.4000e-004**	**0.0000**	**1.7565**	**1.7565**	**2.0000e-005**	**2.5000e-004**	**1.8313**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.3000e-003	0.0000	6.3000e-003	3.2700e-003	0.0000	3.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6100e-003	0.0360	0.0216	6.0000e-005		1.4600e-003	1.4600e-003		1.3400e-003	1.3400e-003	0.0000	5.4645	5.4645	1.7700e-003	0.0000	5.5087
Total	**3.6100e-003**	**0.0360**	**0.0216**	**6.0000e-005**	**6.3000e-003**	**1.4600e-003**	**7.7600e-003**	**3.2700e-003**	**1.3400e-003**	**4.6100e-003**	**0.0000**	**5.4645**	**5.4645**	**1.7700e-003**	**0.0000**	**5.5087**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	2.9600e-003	7.8000e-004	2.0000e-005	4.8000e-004	3.0000e-005	5.2000e-004	1.3000e-004	3.0000e-005	1.6000e-004	0.0000	1.4672	1.4672	2.0000e-005	2.3000e-004	1.5366
Vendor	1.0000e-005	1.7000e-004	7.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0828	0.0828	0.0000	1.0000e-005	0.0865
Worker	8.0000e-005	5.0000e-005	7.4000e-004	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2065	0.2065	0.0000	1.0000e-005	0.2082
Total	**1.5000e-004**	**3.1800e-003**	**1.5900e-003**	**2.0000e-005**	**7.8000e-004**	**3.0000e-005**	**8.3000e-004**	**2.1000e-004**	**3.0000e-005**	**2.4000e-004**	**0.0000**	**1.7565**	**1.7565**	**2.0000e-005**	**2.5000e-004**	**1.8313**

3.3 2. Excavation/grading - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0463	0.0000	0.0463	0.0250	0.0000	0.0250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Off-Road	8.4300e-003	0.0765	0.0602	1.5000e-004		3.3800e-003	3.3800e-003		3.1100e-003	3.1100e-003	0.0000	13.3861	13.3861	4.3300e-003	0.0000	13.4943
Total	**8.4300e-003**	**0.0765**	**0.0602**	**1.5000e-004**	**0.0463**	**3.3800e-003**	**0.0497**	**0.0250**	**3.1100e-003**	**0.0281**	**0.0000**	**13.3861**	**13.3861**	**4.3300e-003**	**0.0000**	**13.4943**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	4.6500e-003	1.2300e-003	2.0000e-005	7.6000e-004	5.0000e-005	8.1000e-004	2.1000e-004	5.0000e-005	2.6000e-004	0.0000	2.3055	2.3055	3.0000e-005	3.6000e-004	2.4147
Vendor	2.0000e-005	5.1000e-004	2.0000e-004	0.0000	9.0000e-005	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.2485	0.2485	0.0000	4.0000e-005	0.2595
Worker	2.3000e-004	1.6000e-004	2.2100e-003	1.0000e-005	8.2000e-004	0.0000	8.3000e-004	2.2000e-004	0.0000	2.2000e-004	0.0000	0.6195	0.6195	1.0000e-005	2.0000e-005	0.6245
Total	**3.4000e-004**	**5.3200e-003**	**3.6400e-003**	**3.0000e-005**	**1.6700e-003**	**5.0000e-005**	**1.7400e-003**	**4.6000e-004**	**5.0000e-005**	**5.1000e-004**	**0.0000**	**3.1736**	**3.1736**	**4.0000e-005**	**4.2000e-004**	**3.2987**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0181	0.0000	0.0181	9.7300e-003	0.0000	9.7300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.4300e-003	0.0765	0.0602	1.5000e-004		3.3800e-003	3.3800e-003		3.1100e-003	3.1100e-003	0.0000	13.3861	13.3861	4.3300e-003	0.0000	13.4943
Total	**8.4300e-003**	**0.0765**	**0.0602**	**1.5000e-004**	**0.0181**	**3.3800e-003**	**0.0214**	**9.7300e-003**	**3.1100e-003**	**0.0128**	**0.0000**	**13.3861**	**13.3861**	**4.3300e-003**	**0.0000**	**13.4943**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	4.6500e-003	1.2300e-003	2.0000e-005	7.6000e-004	5.0000e-005	8.1000e-004	2.1000e-004	5.0000e-005	2.6000e-004	0.0000	2.3055	2.3055	3.0000e-005	3.6000e-004	2.4147
Vendor	2.0000e-005	5.1000e-004	2.0000e-004	0.0000	9.0000e-005	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.2485	0.2485	0.0000	4.0000e-005	0.2595
Worker	2.3000e-004	1.6000e-004	2.2100e-003	1.0000e-005	8.2000e-004	0.0000	8.3000e-004	2.2000e-004	0.0000	2.2000e-004	0.0000	0.6195	0.6195	1.0000e-005	2.0000e-005	0.6245
Total	**3.4000e-004**	**5.3200e-003**	**3.6400e-003**	**3.0000e-005**	**1.6700e-003**	**5.0000e-005**	**1.7400e-003**	**4.6000e-004**	**5.0000e-005**	**5.1000e-004**	**0.0000**	**3.1736**	**3.1736**	**4.0000e-005**	**4.2000e-004**	**3.2987**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 3. Foundation - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0117	0.0929	0.1200	2.6000e-004		3.9500e-003	3.9500e-003		3.8000e-003	3.8000e-003	0.0000	22.2342	22.2342	4.6200e-003	0.0000	22.3496
Total	**0.0117**	**0.0929**	**0.1200**	**2.6000e-004**	**0.0000**	**3.9500e-003**	**3.9500e-003**	**0.0000**	**3.8000e-003**	**3.8000e-003**	**0.0000**	**22.2342**	**22.2342**	**4.6200e-003**	**0.0000**	**22.3496**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	4.7500e-003	1.2600e-003	2.0000e-005	7.8000e-004	5.0000e-005	8.3000e-004	2.1000e-004	5.0000e-005	2.6000e-004	0.0000	2.3579	2.3579	4.0000e-005	3.7000e-004	2.4696
Vendor	5.0000e-005	1.5000e-003	6.5000e-004	1.0000e-005	1.8000e-004	1.0000e-005	1.9000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.6004	0.6004	1.0000e-005	9.0000e-005	0.6288
Worker	4.5000e-004	3.2000e-004	4.4100e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.2391	1.2391	3.0000e-005	3.0000e-005	1.2490
Total	**5.9000e-004**	**6.5700e-003**	**6.3200e-003**	**4.0000e-005**	**2.6100e-003**	**7.0000e-005**	**2.6800e-003**	**7.0000e-004**	**7.0000e-005**	**7.6000e-004**	**0.0000**	**4.1974**	**4.1974**	**8.0000e-005**	**4.9000e-004**	**4.3474**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0117	0.0929	0.1200	2.6000e-004		3.9500e-003	3.9500e-003		3.8000e-003	3.8000e-003	0.0000	22.2342	22.2342	4.6200e-003	0.0000	22.3496
Total	**0.0117**	**0.0929**	**0.1200**	**2.6000e-004**	**0.0000**	**3.9500e-003**	**3.9500e-003**	**0.0000**	**3.8000e-003**	**3.8000e-003**	**0.0000**	**22.2342**	**22.2342**	**4.6200e-003**	**0.0000**	**22.3496**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	4.7500e-003	1.2600e-003	2.0000e-005	7.8000e-004	5.0000e-005	8.3000e-004	2.1000e-004	5.0000e-005	2.6000e-004	0.0000	2.3579	2.3579	4.0000e-005	3.7000e-004	2.4696
Vendor	5.0000e-005	1.5000e-003	6.5000e-004	1.0000e-005	1.8000e-004	1.0000e-005	1.9000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.6004	0.6004	1.0000e-005	9.0000e-005	0.6288
Worker	4.5000e-004	3.2000e-004	4.4100e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.2391	1.2391	3.0000e-005	3.0000e-005	1.2490
Total	**5.9000e-004**	**6.5700e-003**	**6.3200e-003**	**4.0000e-005**	**2.6100e-003**	**7.0000e-005**	**2.6800e-003**	**7.0000e-004**	**7.0000e-005**	**7.6000e-004**	**0.0000**	**4.1974**	**4.1974**	**8.0000e-005**	**4.9000e-004**	**4.3474**

WMWD Riverside FMP : Tank Construction Priority and Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 4. Tank Erection - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0746	0.6796	0.8832	1.5000e-003		0.0275	0.0275		0.0263	0.0263	0.0000	128.2501	128.2501	0.0264	0.0000	128.9091
Total	**0.0746**	**0.6796**	**0.8832**	**1.5000e-003**		**0.0275**	**0.0275**		**0.0263**	**0.0263**	**0.0000**	**128.2501**	**128.2501**	**0.0264**	**0.0000**	**128.9091**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.8000e-004	0.0154	6.0800e-003	8.0000e-005	2.8400e-003	1.3000e-004	2.9700e-003	8.2000e-004	1.2000e-004	9.4000e-004	0.0000	7.4546	7.4546	8.0000e-005	1.1000e-003	7.7846
Worker	3.6400e-003	2.5700e-003	0.0353	1.1000e-004	0.0132	6.0000e-005	0.0133	3.5000e-003	6.0000e-005	3.5600e-003	0.0000	9.9126	9.9126	2.3000e-004	2.5000e-004	9.9920
Total	**4.1200e-003**	**0.0180**	**0.0414**	**1.9000e-004**	**0.0160**	**1.9000e-004**	**0.0162**	**4.3200e-003**	**1.8000e-004**	**4.5000e-003**	**0.0000**	**17.3673**	**17.3673**	**3.1000e-004**	**1.3500e-003**	**17.7766**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0746	0.6796	0.8832	1.5000e-003		0.0275	0.0275		0.0263	0.0263	0.0000	128.2499	128.2499	0.0264	0.0000	128.9089
Total	**0.0746**	**0.6796**	**0.8832**	**1.5000e-003**		**0.0275**	**0.0275**		**0.0263**	**0.0263**	**0.0000**	**128.2499**	**128.2499**	**0.0264**	**0.0000**	**128.9089**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.8000e-004	0.0154	6.0800e-003	8.0000e-005	2.8400e-003	1.3000e-004	2.9700e-003	8.2000e-004	1.2000e-004	9.4000e-004	0.0000	7.4546	7.4546	8.0000e-005	1.1000e-003	7.7846
Worker	3.6400e-003	2.5700e-003	0.0353	1.1000e-004	0.0132	6.0000e-005	0.0133	3.5000e-003	6.0000e-005	3.5600e-003	0.0000	9.9126	9.9126	2.3000e-004	2.5000e-004	9.9920
Total	**4.1200e-003**	**0.0180**	**0.0414**	**1.9000e-004**	**0.0160**	**1.9000e-004**	**0.0162**	**4.3200e-003**	**1.8000e-004**	**4.5000e-003**	**0.0000**	**17.3673**	**17.3673**	**3.1000e-004**	**1.3500e-003**	**17.7766**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 5. Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5006					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.0968	0.1578	2.5000e-004		4.0700e-003	4.0700e-003		4.0300e-003	4.0300e-003	0.0000	21.9582	21.9582	3.0100e-003	0.0000	22.0335
Total	**0.5130**	**0.0968**	**0.1578**	**2.5000e-004**		**4.0700e-003**	**4.0700e-003**		**4.0300e-003**	**4.0300e-003**	**0.0000**	**21.9582**	**21.9582**	**3.0100e-003**	**0.0000**	**22.0335**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	4.8000e-004	6.6200e-003	2.0000e-005	2.4700e-003	1.0000e-005	2.4800e-003	6.6000e-004	1.0000e-005	6.7000e-004	0.0000	1.8586	1.8586	4.0000e-005	5.0000e-005	1.8735
Total	**6.8000e-004**	**4.8000e-004**	**6.6200e-003**	**2.0000e-005**	**2.4700e-003**	**1.0000e-005**	**2.4800e-003**	**6.6000e-004**	**1.0000e-005**	**6.7000e-004**	**0.0000**	**1.8586**	**1.8586**	**4.0000e-005**	**5.0000e-005**	**1.8735**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5006					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0124	0.0968	0.1578	2.5000e-004		4.0700e-003	4.0700e-003		4.0300e-003	4.0300e-003	0.0000	21.9582	21.9582	3.0100e-003	0.0000	22.0334
Total	**0.5130**	**0.0968**	**0.1578**	**2.5000e-004**		**4.0700e-003**	**4.0700e-003**		**4.0300e-003**	**4.0300e-003**	**0.0000**	**21.9582**	**21.9582**	**3.0100e-003**	**0.0000**	**22.0334**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	4.8000e-004	6.6200e-003	2.0000e-005	2.4700e-003	1.0000e-005	2.4800e-003	6.6000e-004	1.0000e-005	6.7000e-004	0.0000	1.8586	1.8586	4.0000e-005	5.0000e-005	1.8735
Total	**6.8000e-004**	**4.8000e-004**	**6.6200e-003**	**2.0000e-005**	**2.4700e-003**	**1.0000e-005**	**2.4800e-003**	**6.6000e-004**	**1.0000e-005**	**6.7000e-004**	**0.0000**	**1.8586**	**1.8586**	**4.0000e-005**	**5.0000e-005**	**1.8735**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 6. Paving Finishing - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.7100e-003	0.0484	0.0617	1.2000e-004		2.2100e-003	2.2100e-003		2.0500e-003	2.0500e-003	0.0000	10.2551	10.2551	3.1200e-003	0.0000	10.3330
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.7100e-003**	**0.0484**	**0.0617**	**1.2000e-004**		**2.2100e-003**	**2.2100e-003**		**2.0500e-003**	**2.0500e-003**	**0.0000**	**10.2551**	**10.2551**	**3.1200e-003**	**0.0000**	**10.3330**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	1.0000e-003	4.4000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.4003	0.4003	1.0000e-005	6.0000e-005	0.4192
Worker	3.0000e-004	2.1000e-004	2.9400e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1000e-003	2.9000e-004	0.0000	3.0000e-004	0.0000	0.8261	0.8261	2.0000e-005	2.0000e-005	0.8327
Total	**3.3000e-004**	**1.2100e-003**	**3.3800e-003**	**1.0000e-005**	**1.2200e-003**	**2.0000e-005**	**1.2300e-003**	**3.2000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.2263**	**1.2263**	**3.0000e-005**	**8.0000e-005**	**1.2519**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.7100e-003	0.0483	0.0617	1.2000e-004		2.2100e-003	2.2100e-003		2.0500e-003	2.0500e-003	0.0000	10.2551	10.2551	3.1200e-003	0.0000	10.3329
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.7100e-003**	**0.0483**	**0.0617**	**1.2000e-004**		**2.2100e-003**	**2.2100e-003**		**2.0500e-003**	**2.0500e-003**	**0.0000**	**10.2551**	**10.2551**	**3.1200e-003**	**0.0000**	**10.3329**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	1.0000e-003	4.4000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.4003	0.4003	1.0000e-005	6.0000e-005	0.4192
Worker	3.0000e-004	2.1000e-004	2.9400e-003	1.0000e-005	1.1000e-003	1.0000e-005	1.1000e-003	2.9000e-004	0.0000	3.0000e-004	0.0000	0.8261	0.8261	2.0000e-005	2.0000e-005	0.8327
Total	**3.3000e-004**	**1.2100e-003**	**3.3800e-003**	**1.0000e-005**	**1.2200e-003**	**2.0000e-005**	**1.2300e-003**	**3.2000e-004**	**1.0000e-005**	**3.4000e-004**	**0.0000**	**1.2263**	**1.2263**	**3.0000e-005**	**8.0000e-005**	**1.2519**

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3.8 7. Cathodic Protection System - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.0000e-005	1.0500e-003	2.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2951	0.2951	1.0000e-004	0.0000	0.2974
Total	**7.0000e-005**	**1.0500e-003**	**2.1900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.2951**	**0.2951**	**1.0000e-004**	**0.0000**	**0.2974**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	7.0000e-005	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0331	0.0331	0.0000	0.0000	0.0346
Worker	2.0000e-005	1.0000e-005	1.8000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0496	0.0496	0.0000	0.0000	0.0500
Total	**2.0000e-005**	**8.0000e-005**	**2.1000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0827**	**0.0827**	**0.0000**	**0.0000**	**0.0846**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.0000e-005	1.0500e-003	2.1900e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.2951	0.2951	1.0000e-004	0.0000	0.2974
Total	**7.0000e-005**	**1.0500e-003**	**2.1900e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.2951**	**0.2951**	**1.0000e-004**	**0.0000**	**0.2974**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	7.0000e-005	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0331	0.0331	0.0000	0.0000	0.0346
Worker	2.0000e-005	1.0000e-005	1.8000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0496	0.0496	0.0000	0.0000	0.0500
Total	**2.0000e-005**	**8.0000e-005**	**2.1000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0827**	**0.0827**	**0.0000**	**0.0000**	**0.0846**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.540541	0.056458	0.173793	0.136090	0.025268	0.007074	0.011525	0.018705	0.000610	0.000304	0.023606	0.001094	0.004932

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1223	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.1223	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0139					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1084					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.1223**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0139					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1084					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.1223**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Western MWD - Riverside FMP

Station Upgrades - Minor (2024-2030) - Priority and Near-Term Projects

Local Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
Source	**lb/day**						
Pump/Lift Station Upgrades (6 months)	1.0	7.5	9.9	0.02	0.3	0.3	—
Regional Emissions	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	**CO2e**
Source	**lb/day, MT/yr for CO2e**						
Pump/Lift Station Upgrades (6 months)	1.0	8.2	10.4	0.02	0.6	0.4	121.21

Hauling

								<-- hauling emissions from Tanks
1 Day	0.0128	0.6226	0.1663	.1700e-00	0.1097	0.0349	355.2182	applied to Lift Stations
130	0.001	0.040	0.011	0.000	0.007	0.002	20.946	<-- tons (metric tons for CO2e)

(6 months work days or 130 work days)

Riverside FMP
Maximum Daily Projected Emissions
Air Quality Construction Analysis

summer Regional Emissions	Onsite Emissions						Offsite Emissions						
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	
	lb/day						lb/day						
Building Upgrades - Mechanical and Electrical	0.99	7.46	9.86	0.017	0.33	0.33	0.04	0.09	0.37	0.00	0.13	0.03	
							0.0128	0.6226	0.1663	3.1700e-003	0.1097	0.0349	<-- hauling emissions from Tanks applied to Lift Stations

Regional Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
Building Upgrades - Mechanical and Electrical	1.0	8.2	10.4	0.0	0.6	0.4
Project Daily Maximum Emissions	**1.04**	**8.17**	**10.39**	**0.02**	**0.57**	**0.40**

Riverside FMP

Summer

Air Quality Construction Analysis

	x Y	AJ AK	Aw AX	Bs BT	DI DM	Ff FG	x	AJ	Aw	Bs	DI	Ff	
summer Regional Emissions	**Onsite Emissions**						**Offsite Emissions**						
Source	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	
	lb/day						**lb/day**						
Building Upgrades - Mechanical and Electrical	0.99	7.46	9.86	0.017	0.33	0.33	0.04	0.09	0.37	0.00	0.13	0.03	
							0.0128	0.5875	0.1629	3.1700e-003	0.1097	0.0349	<-- hauling emissions from Tanks applied to Lift Stations
Regional Emissions	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**							
Building Upgrades - Mechanical and Electrical	1.0	8.1	10.4	0.0	0.6	0.4							
Project Daily Maximum Emissions	**1.04**	**8.14**	**10.39**	**0.02**	**0.57**	**0.40**							

Riverside FMP
Winter
Air Quality Construction Analysis

	x Y	AJ AK	Aw AX	Bs BT	DI DM	Ff FG	x	AJ	Aw	Bs	DI	Ff	
winter Regional Emissions	**Onsite Emissions**						**Offsite Emissions**						
Source	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	
	lb/day						**lb/day**						
Building Upgrades - Mechanical and Electrical	0.99	7.46	9.86	0.017	0.33	0.33	0.03	0.09	0.31	0.00	0.13	0.03	
							0.0118	0.6226	0.1663	3.1700e-003	0.1097	0.0349	<-- hauling emissions from Tanks applied to Lift Stations
Regional Emissions	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**							
Building Upgrades - Mechanical and Electrical	1.0	8.2	10.3	0.0	0.6	0.4							
Project Daily Maximum Emissions	**1.04**	**8.17**	**10.33**	**0.02**	**0.57**	**0.40**							

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.25	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2024 Project Year Start or Later
Priority Lift/Pump Station Projects are UPGRADES ONLY

Land Use - 0.25 acre site, 1000 SF structure

Construction Phase - See Lift Station Upgrades Worksheet
Minor Upgrade 6 months
Interior Electrical and Mechanical Work

Off-road Equipment - Lift -Pump Station Assumptions

Off-road Equipment - See assumptions sheet

Trips and VMT - vendor trips HHDT/MHDT mix

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	132.00
tblConstructionPhase	PhaseEndDate	5/17/2024	7/2/2024
tblLandUse	LandUseSquareFeet	0.00	1,000.00
tblLandUse	LotAcreage	0.00	0.25
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.0280	7.5475	10.2285	0.0178	0.1246	0.3355	0.4601	0.0333	0.3278	0.3611	0.0000	1,674.6827	1,674.6827	0.1909	7.5600e-003	1,681.7077
Maximum	**1.0280**	**7.5475**	**10.2285**	**0.0178**	**0.1246**	**0.3355**	**0.4601**	**0.0333**	**0.3278**	**0.3611**	**0.0000**	**1,674.6827**	**1,674.6827**	**0.1909**	**7.5600e-003**	**1,681.7077**

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.0280	7.5475	10.2285	0.0178	0.1246	0.3355	0.4601	0.0333	0.3278	0.3611	0.0000	1,674.6827	1,674.6827	0.1909	7.5600e-003	1,681.7077
Maximum	**1.0280**	**7.5475**	**10.2285**	**0.0178**	**0.1246**	**0.3355**	**0.4601**	**0.0333**	**0.3278**	**0.3611**	**0.0000**	**1,674.6827**	**1,674.6827**	**0.1909**	**7.5600e-003**	**1,681.7077**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Upgrades - Mechanical and Electrical	Building Construction	1/1/2024	7/2/2024	5	132	Interior Upgrades

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Upgrades - Mechanical and Electrical	Air Compressors	1	8.00	78	0.48
Building Upgrades - Mechanical and Electrical	Concrete/Industrial Saws	1	8.00	81	0.73
Building Upgrades - Mechanical and Electrical	Cranes	1	2.00	231	0.29
Building Upgrades - Mechanical and Electrical	Forklifts	1	4.00	89	0.20
Building Upgrades - Mechanical and Electrical	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Upgrades - Mechanical and Electrical	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Upgrades - Mechanical and	6	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Building Upgrades - Mechanical and Electrical - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9917	7.4620	9.8584	0.0165		0.3344	0.3344		0.3268	0.3268		1,540.0071	1,540.0071	0.1884		1,544.7166
Total	**0.9917**	**7.4620**	**9.8584**	**0.0165**		**0.3344**	**0.3344**		**0.3268**	**0.3268**		**1,540.0071**	**1,540.0071**	**0.1884**		**1,544.7166**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2200e-003	0.0654	0.0266	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.4831	36.4831	3.9000e-004	5.3800e-003	38.0970
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0363**	**0.0855**	**0.3701**	**1.2900e-003**	**0.1246**	**1.0700e-003**	**0.1257**	**0.0333**	**1.0000e-003**	**0.0343**		**134.6757**	**134.6757**	**2.4700e-003**	**7.5600e-003**	**136.9911**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9917	7.4620	9.8584	0.0165		0.3344	0.3344		0.3268	0.3268	0.0000	1,540.0071	1,540.0071	0.1884		1,544.7166
Total	**0.9917**	**7.4620**	**9.8584**	**0.0165**		**0.3344**	**0.3344**		**0.3268**	**0.3268**	**0.0000**	**1,540.0071**	**1,540.0071**	**0.1884**		**1,544.7166**

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2200e-003	0.0654	0.0266	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.4831	36.4831	3.9000e-004	5.3800e-003	38.0970
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0363**	**0.0855**	**0.3701**	**1.2900e-003**	**0.1246**	**1.0700e-003**	**0.1257**	**0.0333**	**1.0000e-003**	**0.0343**		**134.6757**	**134.6757**	**2.4700e-003**	**7.5600e-003**	**136.9911**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.540541	0.056458	0.173793	0.136090	0.025268	0.007074	0.011525	0.018705	0.000610	0.000304	0.023606	0.001094	0.004932

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.25	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2024 Project Year Start or Later
Priority Lift/Pump Station Projects are UPGRADES ONLY

Land Use - 0.25 acre site, 1000 SF structure

Construction Phase - See Lift Station Upgrades Worksheet
Minor Upgrade 6 months
Interior Electrical and Mechanical Work

Off-road Equipment - Lift -Pump Station Assumptions

Off-road Equipment - See assumptions sheet

Trips and VMT - vendor trips HHDT/MHDT mix

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	132.00
tblConstructionPhase	PhaseEndDate	5/17/2024	7/2/2024
tblLandUse	LandUseSquareFeet	0.00	1,000.00
tblLandUse	LotAcreage	0.00	0.25
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.0258	7.5522	10.1650	0.0177	0.1246	0.3355	0.4601	0.0333	0.3278	0.3611	0.0000	1,665.5692	1,665.5692	0.1908	7.6300e-003	1,672.6143
Maximum	**1.0258**	**7.5522**	**10.1650**	**0.0177**	**0.1246**	**0.3355**	**0.4601**	**0.0333**	**0.3278**	**0.3611**	**0.0000**	**1,665.5692**	**1,665.5692**	**0.1908**	**7.6300e-003**	**1,672.6143**

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.0258	7.5522	10.1650	0.0177	0.1246	0.3355	0.4601	0.0333	0.3278	0.3611	0.0000	1,665.5692	1,665.5692	0.1908	7.6300e-003	1,672.6143
Maximum	**1.0258**	**7.5522**	**10.1650**	**0.0177**	**0.1246**	**0.3355**	**0.4601**	**0.0333**	**0.3278**	**0.3611**	**0.0000**	**1,665.5692**	**1,665.5692**	**0.1908**	**7.6300e-003**	**1,672.6143**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Upgrades - Mechanical and Electrical	Building Construction	1/1/2024	7/2/2024	5	132	Interior Upgrades

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating –

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Upgrades - Mechanical and Electrical	Air Compressors	1	8.00	78	0.48
Building Upgrades - Mechanical and Electrical	Concrete/Industrial Saws	1	8.00	81	0.73
Building Upgrades - Mechanical and Electrical	Cranes	1	2.00	231	0.29
Building Upgrades - Mechanical and Electrical	Forklifts	1	4.00	89	0.20
Building Upgrades - Mechanical and Electrical	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Upgrades - Mechanical and Electrical	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Upgrades - Mechanical and	6	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Building Upgrades - Mechanical and Electrical - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9917	7.4620	9.8584	0.0165		0.3344	0.3344		0.3268	0.3268		1,540.0071	1,540.0071	0.1884		1,544.7166
Total	**0.9917**	**7.4620**	**9.8584**	**0.0165**		**0.3344**	**0.3344**		**0.3268**	**0.3268**		**1,540.0071**	**1,540.0071**	**0.1884**		**1,544.7166**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0500e-003	0.0693	0.0275	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.5743	36.5743	3.8000e-004	5.4000e-003	38.1933
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0341**	**0.0902**	**0.3066**	**1.2000e-003**	**0.1246**	**1.0700e-003**	**0.1257**	**0.0333**	**1.0000e-003**	**0.0343**		**125.5621**	**125.5621**	**2.4600e-003**	**7.6300e-003**	**127.8977**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9917	7.4620	9.8584	0.0165		0.3344	0.3344		0.3268	0.3268	0.0000	1,540.0071	1,540.0071	0.1884		1,544.7166
Total	**0.9917**	**7.4620**	**9.8584**	**0.0165**		**0.3344**	**0.3344**		**0.3268**	**0.3268**	**0.0000**	**1,540.0071**	**1,540.0071**	**0.1884**		**1,544.7166**

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0500e-003	0.0693	0.0275	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.5743	36.5743	3.8000e-004	5.4000e-003	38.1933
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0341**	**0.0902**	**0.3066**	**1.2000e-003**	**0.1246**	**1.0700e-003**	**0.1257**	**0.0333**	**1.0000e-003**	**0.0343**		**125.5621**	**125.5621**	**2.4600e-003**	**7.6300e-003**	**127.8977**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.540541	0.056458	0.173793	0.136090	0.025268	0.007074	0.011525	0.018705	0.000610	0.000304	0.023606	0.001094	0.004932

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.25	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2024 Project Year Start or Later
Priority Lift/Pump Station Projects are UPGRADES ONLY

Land Use - 0.25 acre site, 1000 SF structure

Construction Phase - See Lift Station Upgrades Worksheet
Minor Upgrade 6 months
Interior Electrical and Mechanical Work

Off-road Equipment - Lift -Pump Station Assumptions

Off-road Equipment - See assumptions sheet

Trips and VMT - vendor trips HHDT/MHDT mix

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	132.00
tblConstructionPhase	PhaseEndDate	5/17/2024	7/2/2024
tblLandUse	LandUseSquareFeet	0.00	1,000.00
tblLandUse	LotAcreage	0.00	0.25
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.0676	0.4984	0.6719	1.1700e-003	8.0900e-003	0.0221	0.0302	2.1700e-003	0.0216	0.0238	0.0000	99.8453	99.8453	0.0114	4.6000e-004	100.2678
Maximum	**0.0676**	**0.4984**	**0.6719**	**1.1700e-003**	**8.0900e-003**	**0.0221**	**0.0302**	**2.1700e-003**	**0.0216**	**0.0238**	**0.0000**	**99.8453**	**99.8453**	**0.0114**	**4.6000e-004**	**100.2678**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.0676	0.4984	0.6719	1.1700e-003	8.0900e-003	0.0221	0.0302	2.1700e-003	0.0216	0.0238	0.0000	99.8452	99.8452	0.0114	4.6000e-004	100.2677
Maximum	**0.0676**	**0.4984**	**0.6719**	**1.1700e-003**	**8.0900e-003**	**0.0221**	**0.0302**	**2.1700e-003**	**0.0216**	**0.0238**	**0.0000**	**99.8452**	**99.8452**	**0.0114**	**4.6000e-004**	**100.2677**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2024**	**3-31-2024**	0.2788	0.2788
2	**4-1-2024**	**6-30-2024**	0.2787	0.2787
3	**7-1-2024**	**9-30-2024**	0.0061	0.0061
		Highest	0.2788	0.2788

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.0800e-003**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.0800e-003**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Upgrades - Mechanical and Electrical	Building Construction	1/1/2024	7/2/2024	5	132	Interior Upgrades

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Upgrades - Mechanical and Electrical	Air Compressors	1	8.00	78	0.48
Building Upgrades - Mechanical and Electrical	Concrete/Industrial Saws	1	8.00	81	0.73
Building Upgrades - Mechanical and Electrical	Cranes	1	2.00	231	0.29
Building Upgrades - Mechanical and Electrical	Forklifts	1	4.00	89	0.20
Building Upgrades - Mechanical and Electrical	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Upgrades - Mechanical and Electrical	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Upgrades - Mechanical and	6	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Building Upgrades - Mechanical and Electrical - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0655	0.4925	0.6507	1.0900e-003		0.0221	0.0221		0.0216	0.0216	0.0000	92.2067	92.2067	0.0113	0.0000	92.4887
Total	**0.0655**	**0.4925**	**0.6507**	**1.0900e-003**		**0.0221**	**0.0221**		**0.0216**	**0.0216**	**0.0000**	**92.2067**	**92.2067**	**0.0113**	**0.0000**	**92.4887**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4000e-004	4.5300e-003	1.7800e-003	2.0000e-005	8.3000e-004	4.0000e-005	8.7000e-004	2.4000e-004	4.0000e-005	2.8000e-004	0.0000	2.1867	2.1867	2.0000e-005	3.2000e-004	2.2835
Worker	2.0000e-003	1.4100e-003	0.0194	6.0000e-005	7.2500e-003	3.0000e-005	7.2900e-003	1.9300e-003	3.0000e-005	1.9600e-003	0.0000	5.4520	5.4520	1.2000e-004	1.4000e-004	5.4956
Total	**2.1400e-003**	**5.9400e-003**	**0.0212**	**8.0000e-005**	**8.0800e-003**	**7.0000e-005**	**8.1600e-003**	**2.1700e-003**	**7.0000e-005**	**2.2400e-003**	**0.0000**	**7.6386**	**7.6386**	**1.4000e-004**	**4.6000e-004**	**7.7791**

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0655	0.4925	0.6507	1.0900e-003		0.0221	0.0221		0.0216	0.0216	0.0000	92.2066	92.2066	0.0113	0.0000	92.4886
Total	**0.0655**	**0.4925**	**0.6507**	**1.0900e-003**		**0.0221**	**0.0221**		**0.0216**	**0.0216**	**0.0000**	**92.2066**	**92.2066**	**0.0113**	**0.0000**	**92.4886**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.4000e-004	4.5300e-003	1.7800e-003	2.0000e-005	8.3000e-004	4.0000e-005	8.7000e-004	2.4000e-004	4.0000e-005	2.8000e-004	0.0000	2.1867	2.1867	2.0000e-005	3.2000e-004	2.2835
Worker	2.0000e-003	1.4100e-003	0.0194	6.0000e-005	7.2500e-003	3.0000e-005	7.2900e-003	1.9300e-003	3.0000e-005	1.9600e-003	0.0000	5.4520	5.4520	1.2000e-004	1.4000e-004	5.4956
Total	**2.1400e-003**	**5.9400e-003**	**0.0212**	**8.0000e-005**	**8.0800e-003**	**7.0000e-005**	**8.1600e-003**	**2.1700e-003**	**7.0000e-005**	**2.2400e-003**	**0.0000**	**7.6386**	**7.6386**	**1.4000e-004**	**4.6000e-004**	**7.7791**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.540541	0.056458	0.173793	0.136090	0.025268	0.007074	0.011525	0.018705	0.000610	0.000304	0.023606	0.001094	0.004932

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**4.0700e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**4.0700e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

WMWD Riverside FMP : Lift/Pump Station Upgrades Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Western MWD - Riverside FMP

Pump/Booster Station Major Upgrades -(2024-2030) Priority and Near-Term Projects

Local Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
Source	**lb/day**						
Pump/Booster Station Construction	1.0	7.5	9.9	0.02	0.3	0.3	—
Regional Emissions	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	**CO2e**
Source	**lb/day, MT/yr for CO2e**						
Pump/Booster Station Construction	1.0	8.2	10.4	0.02	0.6	0.4	239.82

Western MWD - Riverside FMP
Total Annual Emissions
Air Quality Construction Analysis

Regional Emissions	Total Project Emissons (ton/yr), MT/yr CO2e							
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e	Row Number
				ton/yr			MT/yr	
Pump/Lift Station Major Upgrade (12 months) Priority and Near-Term Project	0.13	1.06	1.34	0.003	0.07	0.05	239.8226	75
Project Annual Emissions	**0.13**	**1.06**	**1.34**	**0.00**	**0.07**	**0.05**	239.8226	

Hauling

								<-- hauling emissions from Tanks
1 Day	0.0128	0.6226	0.1663	.1700e-00	0.1097	0.0349	355.2182	applied to Lift Stations
260	0.002	0.081	0.022	0.000	0.014	0.005	41.892	<-- tons (metric tons for CO2e)
(12 months work days or 260 work days)								

Western MWD - Riverside FMP
Maximum Daily Projected Emissions
Air Quality Construction Analysis

Summer Regional Emissions	Onsite Emissions						Offsite Emissions						
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	
	lb/day						lb/day						
Building Upgrades	0.99	7.46	9.86	0.017	0.33	0.33	0.04	0.09	0.37	0.00	0.13	0.03	
Paving	0.66	5.43	6.79	0.015	0.24	0.22	0.02	0.11	0.25	0.00	0.08	0.02	
							0.0128	0.6226	0.1663	3.1700e-003	0.1097	0.0349	<-- hauling emissions from Tanks applied to Lift Stations (summed to Building Upgrades)

Regional Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
Building Upgrades	1.0	8.2	10.4	0.0	0.6	0.4
Paving	0.7	5.5	7.0	0.0	0.3	0.2
Project Daily Maximum Emissions	**1.04**	**8.17**	**10.39**	**0.02**	**0.57**	**0.40**

Western MWD - Riverside FMP
Summer
Air Quality Construction Analysis

Summer Regional Emissions	Onsite Emissions						Offsite Emissions						
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	
	lb/day						lb/day						
Building Upgrades	0.99	7.46	9.86	0.017	0.33	0.33	0.04	0.09	0.37	0.00	0.13	0.03	
Paving	0.66	5.43	6.79	0.015	0.24	0.22	0.02	0.11	0.25	0.00	0.08	0.02	
							0.0128	0.5875	0.1629	3.1700e-003	0.1097	0.0349	<-- hauling emissions from Tanks applied to Lift Stations (summed to Building Upgrades)

Regional Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
Building Upgrades	1.0	8.1	10.4	0.0	0.6	0.4
Paving	0.7	5.5	7.0	0.0	0.3	0.2
Project Daily Maximum Emissions	**1.04**	**8.14**	**10.39**	**0.02**	**0.57**	**0.40**

Western MWD - Riverside FMP
Winter
Air Quality Construction Analysis

Winter Regional Emissions	Onsite Emissions						Offsite Emissions						
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	
	lb/day						lb/day						
Building Upgrades	0.99	7.46	9.86	0.017	0.33	0.33	0.03	0.09	0.31	0.00	0.13	0.03	
Paving	0.66	5.43	6.79	0.015	0.24	0.22	0.02	0.11	0.21	0.00	0.08	0.02	
							0.0118	0.6226	0.1663	3.1700e-003	0.1097	0.0349	<-- hauling emissions from Tanks applied to Lift Stations (summed to Building Upgrades)

Regional Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
Building Upgrades	1.0	8.2	10.3	0.0	0.6	0.4
Paving	0.7	5.5	7.0	0.0	0.3	0.2
Project Daily Maximum Emissions	**1.04**	**8.17**	**10.33**	**0.02**	**0.57**	**0.40**

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.25	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2024 Project Year Start or Later
Priority Lift/Pump Station Projects are UPGRADES ONLY
12 month major upgrades including site-resurfacing
Land Use - 0.25 acre site, 1000 SF structure

Construction Phase - See Lift Station Upgrades Worksheet
Construction to fit in one year. Major Upgrade 12 months, Minor Upgrade 6 months
Interior Electrical and Mechanical Work; site resurfacing
Off-road Equipment - Lift -Pump Station Assumptions
Off-road Equipment - Cranes only for pipe placement, Bore/drill rigs for minimal jack-and-bore, Pumps for minimal use/dewatering, Off-Higway Trucks: Haul and Water trucks - avg 1 on site
Off-road Equipment - Off-Highway Truck - asphalt haul trucks on site movement
Trips and VMT - vendor trips HHDT/MHDT mix

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	256.00
tblLandUse	LandUseSquareFeet	0.00	1,000.00
tblLandUse	LotAcreage	0.00	0.25
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.0258	7.5522	10.1650	0.0177	0.1246	0.3355	0.4601	0.0333	0.3278	0.3611	0.0000	1,665.5692	1,665.5692	0.4455	8.3100e-003	1,672.6143
Maximum	**1.0258**	**7.5522**	**10.1650**	**0.0177**	**0.1246**	**0.3355**	**0.4601**	**0.0333**	**0.3278**	**0.3611**	**0.0000**	**1,665.5692**	**1,665.5692**	**0.4455**	**8.3100e-003**	**1,672.6143**

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.0258	7.5522	10.1650	0.0177	0.1246	0.3355	0.4601	0.0333	0.3278	0.3611	0.0000	1,665.5692	1,665.5692	0.4455	8.3100e-003	1,672.6143
Maximum	**1.0258**	**7.5522**	**10.1650**	**0.0177**	**0.1246**	**0.3355**	**0.4601**	**0.0333**	**0.3278**	**0.3611**	**0.0000**	**1,665.5692**	**1,665.5692**	**0.4455**	**8.3100e-003**	**1,672.6143**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Upgrades	Building Construction	1/1/2024	12/23/2024	5	256	Interior Upgrades
2	Paving	Paving	12/24/2024	12/30/2024	5	5	Pave/Restore Surface

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Upgrades	Air Compressors	1	8.00	78	0.48
Building Upgrades	Concrete/Industrial Saws	1	8.00	81	0.73
Building Upgrades	Cranes	1	2.00	231	0.29
Building Upgrades	Forklifts	1	4.00	89	0.20
Building Upgrades	Welders	1	8.00	46	0.45
Paving	Off-Highway Trucks	1	4.00	402	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Plate Compactors	2	8.00	8	0.43
Paving	Rollers	1	8.00	80	0.38
Building Upgrades	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Upgrades	6	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	6.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Building Upgrades - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9917	7.4620	9.8584	0.0165		0.3344	0.3344		0.3268	0.3268		1,540.0071	1,540.0071	0.1884		1,544.7166
Total	**0.9917**	**7.4620**	**9.8584**	**0.0165**		**0.3344**	**0.3344**		**0.3268**	**0.3268**		**1,540.0071**	**1,540.0071**	**0.1884**		**1,544.7166**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0500e-003	0.0693	0.0275	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.5743	36.5743	3.8000e-004	5.4000e-003	38.1933
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0341**	**0.0902**	**0.3066**	**1.2000e-003**	**0.1246**	**1.0700e-003**	**0.1257**	**0.0333**	**1.0000e-003**	**0.0343**		**125.5621**	**125.5621**	**2.4600e-003**	**7.6300e-003**	**127.8977**

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9917	7.4620	9.8584	0.0165		0.3344	0.3344		0.3268	0.3268	0.0000	1,540.0071	1,540.0071	0.1884		1,544.7166
Total	**0.9917**	**7.4620**	**9.8584**	**0.0165**		**0.3344**	**0.3344**		**0.3268**	**0.3268**	**0.0000**	**1,540.0071**	**1,540.0071**	**0.1884**		**1,544.7166**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0500e-003	0.0693	0.0275	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.5743	36.5743	3.8000e-004	5.4000e-003	38.1933
Worker	0.0320	0.0209	0.2791	8.6000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		88.9879	88.9879	2.0800e-003	2.2300e-003	89.7044
Total	**0.0341**	**0.0902**	**0.3066**	**1.2000e-003**	**0.1246**	**1.0700e-003**	**0.1257**	**0.0333**	**1.0000e-003**	**0.0343**		**125.5621**	**125.5621**	**2.4600e-003**	**7.6300e-003**	**127.8977**

3.3 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6580	5.4327	6.7891	0.0149		0.2415	0.2415		0.2237	0.2237		1,418.4419	1,418.4419	0.4436		1,429.5321
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6580**	**5.4327**	**6.7891**	**0.0149**		**0.2415**	**0.2415**		**0.2237**	**0.2237**		**1,418.4419**	**1,418.4419**	**0.4436**		**1,429.5321**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8900e-003	0.1016	0.0443	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003		44.2249	44.2249	6.8000e-004	6.9700e-003	46.3187
Worker	0.0192	0.0125	0.1674	5.2000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		53.3927	53.3927	1.2500e-003	1.3400e-003	53.8226
Total	**0.0221**	**0.1142**	**0.2117**	**9.3000e-004**	**0.0792**	**1.1400e-003**	**0.0803**	**0.0211**	**1.0900e-003**	**0.0222**		**97.6176**	**97.6176**	**1.9300e-003**	**8.3100e-003**	**100.1413**

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6580	5.4327	6.7891	0.0149		0.2415	0.2415		0.2237	0.2237	0.0000	1,418.4419	1,418.4419	0.4436		1,429.5321
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6580**	**5.4327**	**6.7891**	**0.0149**		**0.2415**	**0.2415**		**0.2237**	**0.2237**	**0.0000**	**1,418.4419**	**1,418.4419**	**0.4436**		**1,429.5321**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8900e-003	0.1016	0.0443	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003		44.2249	44.2249	6.8000e-004	6.9700e-003	46.3187
Worker	0.0192	0.0125	0.1674	5.2000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		53.3927	53.3927	1.2500e-003	1.3400e-003	53.8226
Total	**0.0221**	**0.1142**	**0.2117**	**9.3000e-004**	**0.0792**	**1.1400e-003**	**0.0803**	**0.0211**	**1.0900e-003**	**0.0222**		**97.6176**	**97.6176**	**1.9300e-003**	**8.3100e-003**	**100.1413**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.540541	0.056458	0.173793	0.136090	0.025268	0.007074	0.011525	0.018705	0.000610	0.000304	0.023606	0.001094	0.004932

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.25	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2024 Project Year Start or Later
Priority Lift/Pump Station Projects are UPGRADES ONLY
12 month major upgrades including site-resurfacing
Land Use - 0.25 acre site, 1000 SF structure

Construction Phase - See Lift Station Upgrades Worksheet
Construction to fit in one year. Major Upgrade 12 months, Minor Upgrade 6 months
Interior Electrical and Mechanical Work; site resurfacing
Off-road Equipment - Lift -Pump Station Assumptions

Off-road Equipment - Cranes only for pipe placement, Bore/drill rigs for minimal jack-and-bore, Pumps for minimal use/dewatering, Off-Higway Trucks: Haul and Water trucks - avg 1 on site
Off-road Equipment - Off-Highway Truck - asphalt haul trucks on site movement

Trips and VMT - vendor trips HHDT/MHDT mix

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	256.00
tblLandUse	LandUseSquareFeet	0.00	1,000.00
tblLandUse	LotAcreage	0.00	0.25
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.0280	7.5475	10.2285	0.0178	0.1246	0.3355	0.4601	0.0333	0.3278	0.3611	0.0000	1,674.6827	1,674.6827	0.4456	8.2500e-003	1,681.7077
Maximum	**1.0280**	**7.5475**	**10.2285**	**0.0178**	**0.1246**	**0.3355**	**0.4601**	**0.0333**	**0.3278**	**0.3611**	**0.0000**	**1,674.6827**	**1,674.6827**	**0.4456**	**8.2500e-003**	**1,681.7077**

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2024	1.0280	7.5475	10.2285	0.0178	0.1246	0.3355	0.4601	0.0333	0.3278	0.3611	0.0000	1,674.6827	1,674.6827	0.4456	8.2500e-003	1,681.7077
Maximum	**1.0280**	**7.5475**	**10.2285**	**0.0178**	**0.1246**	**0.3355**	**0.4601**	**0.0333**	**0.3278**	**0.3611**	**0.0000**	**1,674.6827**	**1,674.6827**	**0.4456**	**8.2500e-003**	**1,681.7077**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Upgrades	Building Construction	1/1/2024	12/23/2024	5	256	Interior Upgrades
2	Paving	Paving	12/24/2024	12/30/2024	5	5	Pave/Restore Surface

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Upgrades	Air Compressors	1	8.00	78	0.48
Building Upgrades	Concrete/Industrial Saws	1	8.00	81	0.73
Building Upgrades	Cranes	1	2.00	231	0.29
Building Upgrades	Forklifts	1	4.00	89	0.20
Building Upgrades	Welders	1	8.00	46	0.45
Paving	Off-Highway Trucks	1	4.00	402	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Plate Compactors	2	8.00	8	0.43
Paving	Rollers	1	8.00	80	0.38
Building Upgrades	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Upgrades	6	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	6.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Building Upgrades - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9917	7.4620	9.8584	0.0165		0.3344	0.3344		0.3268	0.3268		1,540.0071	1,540.0071	0.1884		1,544.7166
Total	**0.9917**	**7.4620**	**9.8584**	**0.0165**		**0.3344**	**0.3344**		**0.3268**	**0.3268**		**1,540.0071**	**1,540.0071**	**0.1884**		**1,544.7166**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2200e-003	0.0654	0.0266	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.4831	36.4831	3.9000e-004	5.3800e-003	38.0970
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0363**	**0.0855**	**0.3701**	**1.2900e-003**	**0.1246**	**1.0700e-003**	**0.1257**	**0.0333**	**1.0000e-003**	**0.0343**		**134.6757**	**134.6757**	**2.4700e-003**	**7.5600e-003**	**136.9911**

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9917	7.4620	9.8584	0.0165		0.3344	0.3344		0.3268	0.3268	0.0000	1,540.0071	1,540.0071	0.1884		1,544.7166
Total	**0.9917**	**7.4620**	**9.8584**	**0.0165**		**0.3344**	**0.3344**		**0.3268**	**0.3268**	**0.0000**	**1,540.0071**	**1,540.0071**	**0.1884**		**1,544.7166**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2200e-003	0.0654	0.0266	3.4000e-004	0.0128	5.7000e-004	0.0134	3.6900e-003	5.4000e-004	4.2300e-003		36.4831	36.4831	3.9000e-004	5.3800e-003	38.0970
Worker	0.0341	0.0201	0.3435	9.5000e-004	0.1118	5.0000e-004	0.1123	0.0296	4.6000e-004	0.0301		98.1926	98.1926	2.0800e-003	2.1800e-003	98.8941
Total	**0.0363**	**0.0855**	**0.3701**	**1.2900e-003**	**0.1246**	**1.0700e-003**	**0.1257**	**0.0333**	**1.0000e-003**	**0.0343**		**134.6757**	**134.6757**	**2.4700e-003**	**7.5600e-003**	**136.9911**

3.3 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6580	5.4327	6.7891	0.0149		0.2415	0.2415		0.2237	0.2237		1,418.4419	1,418.4419	0.4436		1,429.5321
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6580**	**5.4327**	**6.7891**	**0.0149**		**0.2415**	**0.2415**		**0.2237**	**0.2237**		**1,418.4419**	**1,418.4419**	**0.4436**		**1,429.5321**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2500e-003	0.0952	0.0431	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003		44.0437	44.0437	7.0000e-004	6.9400e-003	46.1294
Worker	0.0204	0.0121	0.2061	5.7000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		58.9155	58.9155	1.2500e-003	1.3100e-003	59.3365
Total	**0.0237**	**0.1073**	**0.2492**	**9.8000e-004**	**0.0792**	**1.1400e-003**	**0.0803**	**0.0211**	**1.0900e-003**	**0.0222**		**102.9592**	**102.9592**	**1.9500e-003**	**8.2500e-003**	**105.4659**

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6580	5.4327	6.7891	0.0149		0.2415	0.2415		0.2237	0.2237	0.0000	1,418.4419	1,418.4419	0.4436		1,429.5321
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6580**	**5.4327**	**6.7891**	**0.0149**		**0.2415**	**0.2415**		**0.2237**	**0.2237**	**0.0000**	**1,418.4419**	**1,418.4419**	**0.4436**		**1,429.5321**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2500e-003	0.0952	0.0431	4.1000e-004	0.0121	8.4000e-004	0.0130	3.3200e-003	8.1000e-004	4.1300e-003		44.0437	44.0437	7.0000e-004	6.9400e-003	46.1294
Worker	0.0204	0.0121	0.2061	5.7000e-004	0.0671	3.0000e-004	0.0674	0.0178	2.8000e-004	0.0181		58.9155	58.9155	1.2500e-003	1.3100e-003	59.3365
Total	**0.0237**	**0.1073**	**0.2492**	**9.8000e-004**	**0.0792**	**1.1400e-003**	**0.0803**	**0.0211**	**1.0900e-003**	**0.0222**		**102.9592**	**102.9592**	**1.9500e-003**	**8.2500e-003**	**105.4659**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.540541	0.056458	0.173793	0.136090	0.025268	0.007074	0.011525	0.018705	0.000610	0.000304	0.023606	0.001094	0.004932

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Summer

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5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.25	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2025
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2024 Project Year Start or Later
Priority Lift/Pump Station Projects are UPGRADES ONLY
12 month major upgrades including site-resurfacing

Land Use - 0.25 acre site, 1000 SF structure

Construction Phase - See Lift Station Upgrades Worksheet
Construction to fit in one year. Major Upgrade 12 months, Minor Upgrade 6 months
Interior Electrical and Mechanical Work; site resurfacing

Off-road Equipment - Lift -Pump Station Assumptions

Off-road Equipment - Cranes only for pipe placement, Bore/drill rigs for minimal jack-and-bore, Pumps for minimal use/dewatering, Off-Higway Trucks: Haul and Water trucks - avg 1 on site

Off-road Equipment - Off-Highway Truck - asphalt haul trucks on site movement

Trips and VMT - vendor trips HHDT/MHDT mix

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	256.00
tblLandUse	LandUseSquareFeet	0.00	1,000.00
tblLandUse	LotAcreage	0.00	0.25
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.1328	0.9805	1.3205	2.3100e-003	0.0159	0.0436	0.0594	4.2500e-003	0.0425	0.0468	0.0000	197.0804	197.0804	0.0232	9.1000e-004	197.9305
Maximum	**0.1328**	**0.9805**	**1.3205**	**2.3100e-003**	**0.0159**	**0.0436**	**0.0594**	**4.2500e-003**	**0.0425**	**0.0468**	**0.0000**	**197.0804**	**197.0804**	**0.0232**	**9.1000e-004**	**197.9305**

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Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2024	0.1328	0.9805	1.3205	2.3100e-003	0.0159	0.0436	0.0594	4.2500e-003	0.0425	0.0468	0.0000	197.0802	197.0802	0.0232	9.1000e-004	197.9303
Maximum	**0.1328**	**0.9805**	**1.3205**	**2.3100e-003**	**0.0159**	**0.0436**	**0.0594**	**4.2500e-003**	**0.0425**	**0.0468**	**0.0000**	**197.0802**	**197.0802**	**0.0232**	**9.1000e-004**	**197.9303**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2024**	**3-31-2024**	0.2788	0.2788
2	**4-1-2024**	**6-30-2024**	0.2787	0.2787
3	**7-1-2024**	**9-30-2024**	0.2818	0.2818
		Highest	0.2818	0.2818

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.0800e-003**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.0800e-003**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Upgrades	Building Construction	1/1/2024	12/23/2024	5	256	Interior Upgrades
2	Paving	Paving	12/24/2024	12/30/2024	5	5	Pave/Restore Surface

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Upgrades	Air Compressors	1	8.00	78	0.48
Building Upgrades	Concrete/Industrial Saws	1	8.00	81	0.73
Building Upgrades	Cranes	1	2.00	231	0.29
Building Upgrades	Forklifts	1	4.00	89	0.20
Building Upgrades	Welders	1	8.00	46	0.45
Paving	Off-Highway Trucks	1	4.00	402	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Plate Compactors	2	8.00	8	0.43
Paving	Rollers	1	8.00	80	0.38
Building Upgrades	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Upgrades	6	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	5	6.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Building Upgrades - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1269	0.9551	1.2619	2.1200e-003		0.0428	0.0428		0.0418	0.0418	0.0000	178.8251	178.8251	0.0219	0.0000	179.3720
Total	**0.1269**	**0.9551**	**1.2619**	**2.1200e-003**		**0.0428**	**0.0428**		**0.0418**	**0.0418**	**0.0000**	**178.8251**	**178.8251**	**0.0219**	**0.0000**	**179.3720**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7000e-004	8.7800e-003	3.4600e-003	4.0000e-005	1.6200e-003	7.0000e-005	1.6900e-003	4.7000e-004	7.0000e-005	5.4000e-004	0.0000	4.2409	4.2409	5.0000e-005	6.3000e-004	4.4286
Worker	3.8800e-003	2.7400e-003	0.0376	1.1000e-004	0.0141	6.0000e-005	0.0141	3.7400e-003	6.0000e-005	3.7900e-003	0.0000	10.5735	10.5735	2.4000e-004	2.6000e-004	10.6582
Total	**4.1500e-003**	**0.0115**	**0.0411**	**1.5000e-004**	**0.0157**	**1.3000e-004**	**0.0158**	**4.2100e-003**	**1.3000e-004**	**4.3300e-003**	**0.0000**	**14.8144**	**14.8144**	**2.9000e-004**	**8.9000e-004**	**15.0867**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1269	0.9551	1.2619	2.1200e-003		0.0428	0.0428		0.0418	0.0418	0.0000	178.8249	178.8249	0.0219	0.0000	179.3717
Total	**0.1269**	**0.9551**	**1.2619**	**2.1200e-003**		**0.0428**	**0.0428**		**0.0418**	**0.0418**	**0.0000**	**178.8249**	**178.8249**	**0.0219**	**0.0000**	**179.3717**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.7000e-004	8.7800e-003	3.4600e-003	4.0000e-005	1.6200e-003	7.0000e-005	1.6900e-003	4.7000e-004	7.0000e-005	5.4000e-004	0.0000	4.2409	4.2409	5.0000e-005	6.3000e-004	4.4286
Worker	3.8800e-003	2.7400e-003	0.0376	1.1000e-004	0.0141	6.0000e-005	0.0141	3.7400e-003	6.0000e-005	3.7900e-003	0.0000	10.5735	10.5735	2.4000e-004	2.6000e-004	10.6582
Total	**4.1500e-003**	**0.0115**	**0.0411**	**1.5000e-004**	**0.0157**	**1.3000e-004**	**0.0158**	**4.2100e-003**	**1.3000e-004**	**4.3300e-003**	**0.0000**	**14.8144**	**14.8144**	**2.9000e-004**	**8.9000e-004**	**15.0867**

3.3 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6500e-003	0.0136	0.0170	4.0000e-005		6.0000e-004	6.0000e-004		5.6000e-004	5.6000e-004	0.0000	3.2170	3.2170	1.0100e-003	0.0000	3.2421
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6500e-003**	**0.0136**	**0.0170**	**4.0000e-005**		**6.0000e-004**	**6.0000e-004**		**5.6000e-004**	**5.6000e-004**	**0.0000**	**3.2170**	**3.2170**	**1.0100e-003**	**0.0000**	**3.2421**

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	2.5000e-004	1.1000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1001	0.1001	0.0000	2.0000e-005	0.1048
Worker	5.0000e-005	3.0000e-005	4.4000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1239	0.1239	0.0000	0.0000	0.1249
Total	**6.0000e-005**	**2.8000e-004**	**5.5000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.2240**	**0.2240**	**0.0000**	**2.0000e-005**	**0.2297**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.6500e-003	0.0136	0.0170	4.0000e-005		6.0000e-004	6.0000e-004		5.6000e-004	5.6000e-004	0.0000	3.2170	3.2170	1.0100e-003	0.0000	3.2421
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**1.6500e-003**	**0.0136**	**0.0170**	**4.0000e-005**		**6.0000e-004**	**6.0000e-004**		**5.6000e-004**	**5.6000e-004**	**0.0000**	**3.2170**	**3.2170**	**1.0100e-003**	**0.0000**	**3.2421**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	2.5000e-004	1.1000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.1001	0.1001	0.0000	2.0000e-005	0.1048
Worker	5.0000e-005	3.0000e-005	4.4000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1239	0.1239	0.0000	0.0000	0.1249
Total	**6.0000e-005**	**2.8000e-004**	**5.5000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.2240**	**0.2240**	**0.0000**	**2.0000e-005**	**0.2297**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.540541	0.056458	0.173793	0.136090	0.025268	0.007074	0.011525	0.018705	0.000610	0.000304	0.023606	0.001094	0.004932

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**4.0700e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**4.0700e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

WMWD Riverside FMP : Lift/Pump Station Upgrade Near-Term - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

2-3 Future Term Project Emissions

Western MWD - Riverside FMP

Pump/Lift Station Minor Upgrade (2031-2050)- Future Projects

Local Emissions	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	**CO2e**
Source				**lb/day**			
Pump/.Lift Station Minor Upgrade (6 months)	0.8	5.1	9.7	0.02	0.1	0.1	—
Regional Emissions	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	**CO2e**
Source				**lb/day, MT/yr for CO2e**			
Pump/.Lift Station Minor Upgrade (6 months)	0.8	5.7	10.2	0.02	0.3	0.2	121.11

Western MWD - Riverside FMP
Total Annual Emissions

Regional Emissions	Total Project Emissons (ton/yr), MT/yr CO2e							
Source	ROG	NOX	CO	SO2 ton/yr	Total PM10	Total PM2.5	CO2e MT/yr	Row Number
Pump/Lift Station Minor Upgrade (<=6 months) Future Projects	0.05	0.38	0.67	0.001	0.02	0.01	121.1095	69
Project Annual Emissions	**0.05**	**0.38**	**0.67**	**0.00**	**0.02**	**0.01**	121.1095	

Hauling

1 Day	0.0125	0.5844	0.1734	.7200e-00	0.1092	0.0344	305.1786	<-- hauling emissions from Tanks applied to Lift Stations
130	0.001	0.038	0.011	0.000	0.007	0.002	17.995	<-- tons (metric tons for CO2e)

(6 months work days or 130 work days)

Riverside FMP
Maximum Daily Projected Emissions
Air Quality Construction Analysis

summer Regional Emissions	Onsite Emissions						Offsite Emissions						
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	
	lb/day						lb/day						
Building Upgrades - Mechanical and Electrical	0.77	5.05	9.74	0.017	0.10	0.10	0.02	0.08	0.26	0.00	0.13	0.03	
							0.0125	0.5844	0.1734	2.7200e-003	0.1092	0.0344	<-- hauling emissions from Tanks applied to Lift Stations
Regional Emissions	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**							
Building Upgrades - Mechanical and Electrical	0.8	5.7	10.2	0.0	0.3	0.2							
Project Daily Maximum Emissions	**0.80**	**5.72**	**10.17**	**0.02**	**0.34**	**0.17**							

Riverside FMP

Summer

Air Quality Construction Analysis

	x Y	AJ AK	Aw AX	Bs BT	DI DM	Ff FG	x	AJ	Aw	Bs	DI	Ff	
summer Regional Emissions	**Onsite Emissions**						**Offsite Emissions**						
Source	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	
	lb/day						**lb/day**						
Building Upgrades - Mechanical and Electrical	0.77	5.05	9.74	0.017	0.10	0.10	0.02	0.07	0.26	0.00	0.13	0.03	
							0.0125	0.5511	0.1701	2.7100e-003	0.1092	0.0344	<-- hauling emissions from Tanks applied to Lift Stations
Regional Emissions	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**							
Building Upgrades - Mechanical and Electrical	0.8	5.7	10.2	0.0	0.3	0.2							
Project Daily Maximum Emissions	**0.80**	**5.68**	**10.17**	**0.02**	**0.34**	**0.17**							

Riverside FMP
Winter
Air Quality Construction Analysis

	x Y	AJ AK	Aw AX	Bs BT	DI DM	Ff FG	x	AJ	Aw	Bs	DI	Ff	
winter Regional Emissions	**Onsite Emissions**						**Offsite Emissions**						
Source	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	
	lb/day						**lb/day**						
Building Upgrades - Mechanical and Electrical	0.77	5.05	9.74	0.017	0.10	0.10	0.02	0.08	0.22	0.00	0.13	0.03	
							0.0115	0.5844	0.1734	2.7200e-003	0.1092	0.0344	<-- hauling emissions from Tanks applied to Lift Stations
Regional Emissions	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**							
Building Upgrades - Mechanical and Electrical	0.8	5.7	10.1	0.0	0.3	0.2							
Project Daily Maximum Emissions	**0.80**	**5.72**	**10.13**	**0.02**	**0.34**	**0.17**							

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

WMWD Riverside FMP : Lift/Pump Station Upgrades Future

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.25	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2032
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2031 Project Year Start or Later
Priority Lift/Pump Station Projects are UPGRADES ONLY

Land Use - 0.25 acre site, 1000 SF structure

Construction Phase - See Lift Station Upgrades Worksheet
Minor Upgrade 6 months
Interior Electrical and Mechanical Work

Off-road Equipment - Lift -Pump Station Assumptions

Off-road Equipment - See assumptions sheet

Trips and VMT - vendor trips HHDT/MHDT mix

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	132.00
tblConstructionPhase	PhaseEndDate	5/20/2031	7/3/2031
tblLandUse	LandUseSquareFeet	0.00	1,000.00
tblLandUse	LotAcreage	0.00	0.25
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	0.7886	5.1313	9.9546	0.0184	0.1246	0.1018	0.2264	0.0333	0.1017	0.1351	0.0000	1,716.9607	1,716.9607	0.0687	6.2700e-003	1,720.5457
Maximum	**0.7886**	**5.1313**	**9.9546**	**0.0184**	**0.1246**	**0.1018**	**0.2264**	**0.0333**	**0.1017**	**0.1351**	**0.0000**	**1,716.9607**	**1,716.9607**	**0.0687**	**6.2700e-003**	**1,720.5457**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	0.7886	5.1313	9.9546	0.0184	0.1246	0.1018	0.2264	0.0333	0.1017	0.1351	0.0000	1,716.9607	1,716.9607	0.0687	6.2700e-003	1,720.5457
Maximum	**0.7886**	**5.1313**	**9.9546**	**0.0184**	**0.1246**	**0.1018**	**0.2264**	**0.0333**	**0.1017**	**0.1351**	**0.0000**	**1,716.9607**	**1,716.9607**	**0.0687**	**6.2700e-003**	**1,720.5457**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Upgrades - Mechanical and Electrical	Building Construction	1/1/2031	7/3/2031	5	132	Interior Upgrades

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Upgrades - Mechanical and Electrical	Air Compressors	1	8.00	78	0.48
Building Upgrades - Mechanical and Electrical	Concrete/Industrial Saws	1	8.00	81	0.73
Building Upgrades - Mechanical and Electrical	Cranes	1	2.00	231	0.29
Building Upgrades - Mechanical and Electrical	Forklifts	1	4.00	89	0.20
Building Upgrades - Mechanical and Electrical	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Upgrades - Mechanical and Electrical	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Upgrades - Mechanical and	6	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Building Upgrades - Mechanical and Electrical - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7654	5.0541	9.7356	0.0174		0.1009	0.1009		0.1009	0.1009		1,612.3375	1,612.3375	0.0670		1,614.0133
Total	**0.7654**	**5.0541**	**9.7356**	**0.0174**		**0.1009**	**0.1009**		**0.1009**	**0.1009**		**1,612.3375**	**1,612.3375**	**0.0670**		**1,614.0133**

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0213	0.0113	0.1926	7.2000e-004	0.1118	3.2000e-004	0.1121	0.0296	3.0000e-004	0.0299		72.4614	72.4614	1.1400e-003	1.5800e-003	72.9609
Total	**0.0232**	**0.0772**	**0.2191**	**1.0200e-003**	**0.1246**	**8.5000e-004**	**0.1254**	**0.0333**	**8.1000e-004**	**0.0341**		**104.6232**	**104.6232**	**1.6200e-003**	**6.2700e-003**	**106.5324**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7654	5.0541	9.7356	0.0174		0.1009	0.1009		0.1009	0.1009	0.0000	1,612.3375	1,612.3375	0.0670		1,614.0133
Total	**0.7654**	**5.0541**	**9.7356**	**0.0174**		**0.1009**	**0.1009**		**0.1009**	**0.1009**	**0.0000**	**1,612.3375**	**1,612.3375**	**0.0670**		**1,614.0133**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0213	0.0113	0.1926	7.2000e-004	0.1118	3.2000e-004	0.1121	0.0296	3.0000e-004	0.0299		72.4614	72.4614	1.1400e-003	1.5800e-003	72.9609
Total	**0.0232**	**0.0772**	**0.2191**	**1.0200e-003**	**0.1246**	**8.5000e-004**	**0.1254**	**0.0333**	**8.1000e-004**	**0.0341**		**104.6232**	**104.6232**	**1.6200e-003**	**6.2700e-003**	**106.5324**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.551512	0.058170	0.178297	0.126510	0.022409	0.006479	0.011491	0.017248	0.000593	0.000271	0.022353	0.001062	0.003606

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

WMWD Riverside FMP : Lift/Pump Station Upgrades Future

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.25	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2032
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2031 Project Year Start or Later
Priority Lift/Pump Station Projects are UPGRADES ONLY

Land Use - 0.25 acre site, 1000 SF structure

Construction Phase - See Lift Station Upgrades Worksheet
Minor Upgrade 6 months
Interior Electrical and Mechanical Work

Off-road Equipment - Lift -Pump Station Assumptions

Off-road Equipment - See assumptions sheet

Trips and VMT - vendor trips HHDT/MHDT mix

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	132.00
tblConstructionPhase	PhaseEndDate	5/20/2031	7/3/2031
tblLandUse	LandUseSquareFeet	0.00	1,000.00
tblLandUse	LotAcreage	0.00	0.25
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	0.7897	5.1271	9.9974	0.0185	0.1246	0.1018	0.2264	0.0333	0.1017	0.1351	0.0000	1,724.3169	1,724.3169	0.0686	6.2200e-003	1,727.8871
Maximum	**0.7897**	**5.1271**	**9.9974**	**0.0185**	**0.1246**	**0.1018**	**0.2264**	**0.0333**	**0.1017**	**0.1351**	**0.0000**	**1,724.3169**	**1,724.3169**	**0.0686**	**6.2200e-003**	**1,727.8871**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	0.7897	5.1271	9.9974	0.0185	0.1246	0.1018	0.2264	0.0333	0.1017	0.1351	0.0000	1,724.3169	1,724.3169	0.0686	6.2200e-003	1,727.8871
Maximum	**0.7897**	**5.1271**	**9.9974**	**0.0185**	**0.1246**	**0.1018**	**0.2264**	**0.0333**	**0.1017**	**0.1351**	**0.0000**	**1,724.3169**	**1,724.3169**	**0.0686**	**6.2200e-003**	**1,727.8871**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Upgrades - Mechanical and Electrical	Building Construction	1/1/2031	7/3/2031	5	132	Interior Upgrades

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Upgrades - Mechanical and Electrical	Air Compressors	1	8.00	78	0.48
Building Upgrades - Mechanical and Electrical	Concrete/Industrial Saws	1	8.00	81	0.73
Building Upgrades - Mechanical and Electrical	Cranes	1	2.00	231	0.29
Building Upgrades - Mechanical and Electrical	Forklifts	1	4.00	89	0.20
Building Upgrades - Mechanical and Electrical	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Upgrades - Mechanical and Electrical	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Upgrades - Mechanical and	6	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Building Upgrades - Mechanical and Electrical - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7654	5.0541	9.7356	0.0174		0.1009	0.1009		0.1009	0.1009		1,612.3375	1,612.3375	0.0670		1,614.0133
Total	**0.7654**	**5.0541**	**9.7356**	**0.0174**		**0.1009**	**0.1009**		**0.1009**	**0.1009**		**1,612.3375**	**1,612.3375**	**0.0670**		**1,614.0133**

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0222	0.0109	0.2363	7.9000e-004	0.1118	3.2000e-004	0.1121	0.0296	3.0000e-004	0.0299		79.9000	79.9000	1.1300e-003	1.5500e-003	80.3891
Total	**0.0243**	**0.0730**	**0.2619**	**1.0900e-003**	**0.1246**	**8.5000e-004**	**0.1254**	**0.0333**	**8.1000e-004**	**0.0341**		**111.9794**	**111.9794**	**1.6100e-003**	**6.2200e-003**	**113.8737**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7654	5.0541	9.7356	0.0174		0.1009	0.1009		0.1009	0.1009	0.0000	1,612.3375	1,612.3375	0.0670		1,614.0133
Total	**0.7654**	**5.0541**	**9.7356**	**0.0174**		**0.1009**	**0.1009**		**0.1009**	**0.1009**	**0.0000**	**1,612.3375**	**1,612.3375**	**0.0670**		**1,614.0133**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0222	0.0109	0.2363	7.9000e-004	0.1118	3.2000e-004	0.1121	0.0296	3.0000e-004	0.0299		79.9000	79.9000	1.1300e-003	1.5500e-003	80.3891
Total	**0.0243**	**0.0730**	**0.2619**	**1.0900e-003**	**0.1246**	**8.5000e-004**	**0.1254**	**0.0333**	**8.1000e-004**	**0.0341**		**111.9794**	**111.9794**	**1.6100e-003**	**6.2200e-003**	**113.8737**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.551512	0.058170	0.178297	0.126510	0.022409	0.006479	0.011491	0.017248	0.000593	0.000271	0.022353	0.001062	0.003606

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Date: 6/9/2022 11:20 AM

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

WMWD Riverside FMP : Lift/Pump Station Upgrades Future

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.25	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2032
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2031 Project Year Start or Later
Priority Lift/Pump Station Projects are UPGRADES ONLY

Land Use - 0.25 acre site, 1000 SF structure

Construction Phase - See Lift Station Upgrades Worksheet
Minor Upgrade 6 months
Interior Electrical and Mechanical Work

Off-road Equipment - Lift -Pump Station Assumptions

Off-road Equipment - See assumptions sheet

Trips and VMT - vendor trips HHDT/MHDT mix

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	100.00	132.00
tblConstructionPhase	PhaseEndDate	5/20/2031	7/3/2031
tblLandUse	LandUseSquareFeet	0.00	1,000.00
tblLandUse	LotAcreage	0.00	0.25
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2031	0.0520	0.3386	0.6577	1.2200e-003	8.0900e-003	6.7200e-003	0.0148	2.1700e-003	6.7100e-003	8.8800e-003	0.0000	102.8991	102.8991	4.1100e-003	3.8000e-004	103.1141
Maximum	**0.0520**	**0.3386**	**0.6577**	**1.2200e-003**	**8.0900e-003**	**6.7200e-003**	**0.0148**	**2.1700e-003**	**6.7100e-003**	**8.8800e-003**	**0.0000**	**102.8991**	**102.8991**	**4.1100e-003**	**3.8000e-004**	**103.1141**

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2031	0.0520	0.3386	0.6577	1.2200e-003	8.0900e-003	6.7200e-003	0.0148	2.1700e-003	6.7100e-003	8.8800e-003	0.0000	102.8990	102.8990	4.1100e-003	3.8000e-004	103.1140
Maximum	**0.0520**	**0.3386**	**0.6577**	**1.2200e-003**	**8.0900e-003**	**6.7200e-003**	**0.0148**	**2.1700e-003**	**6.7100e-003**	**8.8800e-003**	**0.0000**	**102.8990**	**102.8990**	**4.1100e-003**	**3.8000e-004**	**103.1140**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2031	3-31-2031	0.1903	0.1903
2	4-1-2031	6-30-2031	0.1923	0.1923
3	7-1-2031	9-30-2031	0.0063	0.0063
		Highest	0.1923	0.1923

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.0800e-003**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.0800e-003**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Building Upgrades - Mechanical and Electrical	Building Construction	1/1/2031	7/3/2031	5	132	Interior Upgrades

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Building Upgrades - Mechanical and Electrical	Air Compressors	1	8.00	78	0.48
Building Upgrades - Mechanical and Electrical	Concrete/Industrial Saws	1	8.00	81	0.73
Building Upgrades - Mechanical and Electrical	Cranes	1	2.00	231	0.29
Building Upgrades - Mechanical and Electrical	Forklifts	1	4.00	89	0.20
Building Upgrades - Mechanical and Electrical	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Building Upgrades - Mechanical and Electrical	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Building Upgrades - Mechanical and	6	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Building Upgrades - Mechanical and Electrical - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0505	0.3336	0.6426	1.1500e-003		6.6600e-003	6.6600e-003		6.6600e-003	6.6600e-003	0.0000	96.5374	96.5374	4.0100e-003	0.0000	96.6377
Total	**0.0505**	**0.3336**	**0.6426**	**1.1500e-003**		**6.6600e-003**	**6.6600e-003**		**6.6600e-003**	**6.6600e-003**	**0.0000**	**96.5374**	**96.5374**	**4.0100e-003**	**0.0000**	**96.6377**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	4.3000e-003	1.7100e-003	2.0000e-005	8.3000e-004	4.0000e-005	8.7000e-004	2.4000e-004	3.0000e-005	2.7000e-004	0.0000	1.9228	1.9228	3.0000e-005	2.8000e-004	2.0071
Worker	1.3100e-003	7.7000e-004	0.0134	5.0000e-005	7.2500e-003	2.0000e-005	7.2800e-003	1.9300e-003	2.0000e-005	1.9500e-003	0.0000	4.4389	4.4389	7.0000e-005	1.0000e-004	4.4693
Total	**1.4400e-003**	**5.0700e-003**	**0.0151**	**7.0000e-005**	**8.0800e-003**	**6.0000e-005**	**8.1500e-003**	**2.1700e-003**	**5.0000e-005**	**2.2200e-003**	**0.0000**	**6.3617**	**6.3617**	**1.0000e-004**	**3.8000e-004**	**6.4764**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0505	0.3336	0.6426	1.1500e-003		6.6600e-003	6.6600e-003		6.6600e-003	6.6600e-003	0.0000	96.5373	96.5373	4.0100e-003	0.0000	96.6376
Total	**0.0505**	**0.3336**	**0.6426**	**1.1500e-003**		**6.6600e-003**	**6.6600e-003**		**6.6600e-003**	**6.6600e-003**	**0.0000**	**96.5373**	**96.5373**	**4.0100e-003**	**0.0000**	**96.6376**

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3000e-004	4.3000e-003	1.7100e-003	2.0000e-005	8.3000e-004	4.0000e-005	8.7000e-004	2.4000e-004	3.0000e-005	2.7000e-004	0.0000	1.9228	1.9228	3.0000e-005	2.8000e-004	2.0071
Worker	1.3100e-003	7.7000e-004	0.0134	5.0000e-005	7.2500e-003	2.0000e-005	7.2800e-003	1.9300e-003	2.0000e-005	1.9500e-003	0.0000	4.4389	4.4389	7.0000e-005	1.0000e-004	4.4693
Total	**1.4400e-003**	**5.0700e-003**	**0.0151**	**7.0000e-005**	**8.0800e-003**	**6.0000e-005**	**8.1500e-003**	**2.1700e-003**	**5.0000e-005**	**2.2200e-003**	**0.0000**	**6.3617**	**6.3617**	**1.0000e-004**	**3.8000e-004**	**6.4764**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.551512	0.058170	0.178297	0.126510	0.022409	0.006479	0.011491	0.017248	0.000593	0.000271	0.022353	0.001062	0.003606

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**4.0700e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**4.0700e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

WMWD Riverside FMP : Lift/Pump Station Upgrades Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Western MWD - Riverside FMP

Pipeline - Future Projects (2031-2050) (per 1000 LF)

Local Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
Source	**lb/day**						
Pipeline per 1000 ft	1.6	8.3	13.4	0.04	2.8	1.6	—
Regional Emissions	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	**CO2e**
	lb/day, MT/yr for CO2e						
Pipeline per 1000 ft	1.7	8.8	13.9	0.04	3.0	1.6	47.84

Western MWD - Riverside FMP

Total Annual Emissions

Air Quality Construction Analysis

Regional Emissions	Total Project Emissons (ton/yr), MT/yr CO2e						
	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
Source	ton/yr						MT/yr
Pipeline Installation - Future Projects per 1000 Ft	0.02	0.11	0.18	0.001	0.04	0.02	47.84
Project Annual Emissions	**0.02**	**0.11**	**0.18**	**0.00**	**0.04**	**0.02**	47.84

Riverside FMP
Maximum Daily Projected Emissions
Air Quality Construction Analysis

summer Regional Emissions	Onsite Emissions						Offsite Emissions					
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
	lb/day						lb/day					
Site Preparation/Demolition	1.51	8.31	13.39	0.034	2.79	1.55	0.05	0.45	0.54	0.00	0.25	0.07
Pipeline Installation	1.63	7.32	12.69	0.036	2.62	1.52	0.05	0.76	0.62	0.005	0.31	0.09
Pave/Restore Surface	0.63	2.98	6.11	0.01	0.13	0.13	0.05	0.31	0.52	0.00	0.22	0.06

Regional Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
Site Preparation/Demolition	1.56	8.76	13.94	0.04	3.04	1.62
Pipeline Installation	1.68	8.08	13.30	0.04	2.93	1.61
Pave/Restore Surface	0.68	3.29	6.62	0.02	0.35	0.19
Project Daily Maximum Emissions	**1.68**	**8.76**	**13.94**	**0.04**	**3.04**	**1.62**

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Pipeline Future

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1,000.00	User Defined Unit	1.00	43,560.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2032
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2031 Project Year Start or Later
1,000 ft of pipeline install (up to 24 inches in diameter)

Land Use - assume 1 acre area associated with 1000 LF of piping

Construction Phase - See Pipeline Assumptions Worksheet

Off-road Equipment - 8 hours per day except:
Cranes only for pipe placement
Bore/drill rigs for minimal jack-and-bore
Pumps for minimal use/dewatering
Off-Highway Trucks: Haul and Water trucks(on-site)

Off-road Equipment - See assumptions worksheet
Off-Highway Truck = asphalt trucks (on-site)

Off-road Equipment - Off-Highway Trucks =Haul trucks for demo material and Water trucks (on-site operation)
Assume on avg 1 operating along 1,000 LF corridor at any time

Trips and VMT - 8 workers , 16 trips for each phase
water trucks included in Vendor Trips

Grading - Grading - of 1 acre acre twice

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	20.00
tblConstructionPhase	NumDays	1.00	5.00
tblGrading	AcresOfGrading	10.00	2.00
tblGrading	MaterialExported	0.00	590.00
tblGrading	MaterialExported	0.00	100.00
tblGrading	MaterialImported	0.00	440.00
tblLandUse	LandUseSquareFeet	0.00	43,560.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	13.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	20.00	16.00
tblTripsAndVMT	WorkerTripNumber	10.00	16.00

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2031	0.0223	0.1108	0.1837	5.3000e-004	0.0819	3.2600e-003	0.0851	0.0428	3.2600e-003	0.0460						47.8410
Maximum	**0.0223**	**0.1108**	**0.1837**	**5.3000e-004**	**0.0819**	**3.2600e-003**	**0.0851**	**0.0428**	**3.2600e-003**	**0.0460**						**47.8410**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2031	0.0223	0.1108	0.1837	5.3000e-004	0.0344	3.2600e-003	0.0377	0.0174	3.2600e-003	0.0206						47.8409
Maximum	**0.0223**	**0.1108**	**0.1837**	**5.3000e-004**	**0.0344**	**3.2600e-003**	**0.0377**	**0.0174**	**3.2600e-003**	**0.0206**						**47.8409**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**57.93**	**0.00**	**55.71**	**59.42**	**0.00**	**55.21**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-3-2031	6-2-2031	0.1159	0.1159
		Highest	0.1159	0.1159

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1788	1.1000e-004	0.0127	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005						0.0264
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Waste						0.0000	0.0000		0.0000	0.0000						0.0000
Water						0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.1788**	**1.1000e-004**	**0.0127**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**4.0000e-005**						**0.0264**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1788	1.1000e-004	0.0127	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005						0.0264
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Waste						0.0000	0.0000		0.0000	0.0000						0.0000
Water						0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.1788**	**1.1000e-004**	**0.0127**	**0.0000**	**0.0000**	**4.0000e-005**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**4.0000e-005**						**0.0264**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/3/2031	3/7/2031	5	5	Site Preparation/Demolition
2	Grading	Grading	3/10/2031	4/4/2031	5	20	Pipeline Installation
3	Paving	Paving	4/7/2031	4/11/2031	5	5	Pave/Restore Surface

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Concrete/Industrial Saws	2	8.00	81	0.73
Site Preparation	Off-Highway Trucks	1	4.00	402	0.38
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Bore/Drill Rigs	1	1.00	221	0.50
Grading	Cranes	1	4.00	231	0.29
Grading	Excavators	1	8.00	158	0.38
Grading	Off-Highway Trucks	1	4.00	402	0.38
Grading	Pumps	1	1.00	84	0.74
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Welders	1	8.00	46	0.45
Paving	Off-Highway Trucks	1	2.00	402	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Plate Compactors	1	8.00	8	0.43
Paving	Rollers	1	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	5	16.00	4.00	12.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
Grading	8	16.00	2.00	129.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
Paving	4	16.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0164	0.0000	0.0164	8.4200e-003	0.0000	8.4200e-003						0.0000
Off-Road	3.7700e-003	0.0208	0.0335	8.0000e-005		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004						7.4938
Total	**3.7700e-003**	**0.0208**	**0.0335**	**8.0000e-005**	**0.0164**	**5.9000e-004**	**0.0170**	**8.4200e-003**	**5.9000e-004**	**9.0100e-003**						**7.4938**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	5.9000e-004	1.8000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	3.0000e-005						0.2833
Vendor	2.0000e-005	4.8000e-004	2.2000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005						0.1807
Worker	8.0000e-005	5.0000e-005	8.3000e-004	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004						0.2915
Total	**1.1000e-004**	**1.1200e-003**	**1.2300e-003**	**0.0000**	**6.0000e-004**	**1.0000e-005**	**6.1000e-004**	**1.7000e-004**	**1.0000e-005**	**1.7000e-004**						**0.7554**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category	tons/yr										MT/yr					
Fugitive Dust					6.3900e-003	0.0000	6.3900e-003	3.2800e-003	0.0000	3.2800e-003						0.0000
Off-Road	3.7700e-003	0.0208	0.0335	8.0000e-005		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004						7.4938
Total	**3.7700e-003**	**0.0208**	**0.0335**	**8.0000e-005**	**6.3900e-003**	**5.9000e-004**	**6.9800e-003**	**3.2800e-003**	**5.9000e-004**	**3.8700e-003**						**7.4938**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	5.9000e-004	1.8000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	3.0000e-005						0.2833
Vendor	2.0000e-005	4.8000e-004	2.2000e-004	0.0000	6.0000e-005	0.0000	6.0000e-005	2.0000e-005	0.0000	2.0000e-005						0.1807
Worker	8.0000e-005	5.0000e-005	8.3000e-004	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004						0.2915
Total	**1.1000e-004**	**1.1200e-003**	**1.2300e-003**	**0.0000**	**6.0000e-004**	**1.0000e-005**	**6.1000e-004**	**1.7000e-004**	**1.0000e-005**	**1.7000e-004**						**0.7554**

3.3 Grading - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0614	0.0000	0.0614	0.0332	0.0000	0.0332						0.0000
Off-Road	0.0163	0.0732	0.1269	3.6000e-004		2.2400e-003	2.2400e-003		2.2400e-003	2.2400e-003						31.5745
Total	**0.0163**	**0.0732**	**0.1269**	**3.6000e-004**	**0.0614**	**2.2400e-003**	**0.0636**	**0.0332**	**2.2400e-003**	**0.0355**						**31.5745**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3000e-004	6.3900e-003	1.8800e-003	3.0000e-005	1.1100e-003	7.0000e-005	1.1800e-003	3.1000e-004	7.0000e-005	3.7000e-004						3.0459
Vendor	3.0000e-005	9.5000e-004	4.4000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	4.0000e-005						0.3613
Worker	3.2000e-004	1.9000e-004	3.3000e-003	1.0000e-005	1.7600e-003	1.0000e-005	1.7600e-003	4.7000e-004	0.0000	4.7000e-004						1.1658
Total	**4.8000e-004**	**7.5300e-003**	**5.6200e-003**	**4.0000e-005**	**2.9900e-003**	**9.0000e-005**	**3.0700e-003**	**8.1000e-004**	**8.0000e-005**	**8.8000e-004**						**4.5730**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0239	0.0000	0.0239	0.0130	0.0000	0.0130						0.0000
Off-Road	0.0163	0.0732	0.1269	3.6000e-004		2.2400e-003	2.2400e-003		2.2400e-003	2.2400e-003						31.5745
Total	**0.0163**	**0.0732**	**0.1269**	**3.6000e-004**	**0.0239**	**2.2400e-003**	**0.0262**	**0.0130**	**2.2400e-003**	**0.0152**						**31.5745**

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.3000e-004	6.3900e-003	1.8800e-003	3.0000e-005	1.1100e-003	7.0000e-005	1.1800e-003	3.1000e-004	7.0000e-005	3.7000e-004						3.0459
Vendor	3.0000e-005	9.5000e-004	4.4000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	4.0000e-005						0.3613
Worker	3.2000e-004	1.9000e-004	3.3000e-003	1.0000e-005	1.7600e-003	1.0000e-005	1.7600e-003	4.7000e-004	0.0000	4.7000e-004						1.1658
Total	**4.8000e-004**	**7.5300e-003**	**5.6200e-003**	**4.0000e-005**	**2.9900e-003**	**9.0000e-005**	**3.0700e-003**	**8.1000e-004**	**8.0000e-005**	**8.8000e-004**						**4.5730**

3.4 Paving - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5900e-003	7.4400e-003	0.0153	3.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004						2.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**1.5900e-003**	**7.4400e-003**	**0.0153**	**3.0000e-005**		**3.2000e-004**	**3.2000e-004**		**3.2000e-004**	**3.2000e-004**						**2.8818**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	2.0000e-005	7.1000e-004	3.3000e-004	0.0000	9.0000e-005	1.0000e-005	1.0000e-004	2.0000e-005	1.0000e-005	3.0000e-005						0.2710
Worker	8.0000e-005	5.0000e-005	8.3000e-004	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004						0.2915
Total	**1.0000e-004**	**7.6000e-004**	**1.1600e-003**	**0.0000**	**5.3000e-004**	**1.0000e-005**	**5.4000e-004**	**1.4000e-004**	**1.0000e-005**	**1.5000e-004**						**0.5624**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.5900e-003	7.4400e-003	0.0153	3.0000e-005		3.2000e-004	3.2000e-004		3.2000e-004	3.2000e-004						2.8818
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**1.5900e-003**	**7.4400e-003**	**0.0153**	**3.0000e-005**		**3.2000e-004**	**3.2000e-004**		**3.2000e-004**	**3.2000e-004**						**2.8818**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	2.0000e-005	7.1000e-004	3.3000e-004	0.0000	9.0000e-005	1.0000e-005	1.0000e-004	2.0000e-005	1.0000e-005	3.0000e-005						0.2710
Worker	8.0000e-005	5.0000e-005	8.3000e-004	0.0000	4.4000e-004	0.0000	4.4000e-004	1.2000e-004	0.0000	1.2000e-004						0.2915
Total	**1.0000e-004**	**7.6000e-004**	**1.1600e-003**	**0.0000**	**5.3000e-004**	**1.0000e-005**	**5.4000e-004**	**1.4000e-004**	**1.0000e-005**	**1.5000e-004**						**0.5624**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.551512	0.058170	0.178297	0.126510	0.022409	0.006479	0.011491	0.017248	0.000593	0.000271	0.022353	0.001062	0.003606

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000						0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0				0.0000
Total					**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0				0.0000
Total					**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1788	1.1000e-004	0.0127	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005						0.0264
Unmitigated	0.1788	1.1000e-004	0.0127	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005						0.0264

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0202					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.1574					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	1.1600e-003	1.1000e-004	0.0127	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005						0.0264
Total	**0.1788**	**1.1000e-004**	**0.0127**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**						**0.0264**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0202					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.1574					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	1.1600e-003	1.1000e-004	0.0127	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005						0.0264
Total	**0.1788**	**1.1000e-004**	**0.0127**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**						**0.0264**

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				0.0000
Unmitigated				0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0				0.0000
Total					**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0				0.0000
Total					**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				0.0000
Unmitigated				0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0				0.0000
Total					**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0				0.0000
Total					**0.0000**

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Pipeline Future

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1,000.00	User Defined Unit	1.00	43,560.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2032
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2031 Project Year Start or Later
1,000 ft of pipeline install (up to 24 inches in diameter)

Land Use - assume 1 acre area associated with 1000 LF of piping

Construction Phase - See Pipeline Assumptions Worksheet

Off-road Equipment - 8 hours per day except:
Cranes only for pipe placement
Bore/drill rigs for minimal jack-and-bore
Pumps for minimal use/dewatering
Off-Highway Trucks: Haul and Water trucks(on-site)

Off-road Equipment - See assumptions worksheet
Off-Highway Truck = asphalt trucks (on-site)

Off-road Equipment - Off-Highway Trucks =Haul trucks for demo material and Water trucks (on-site operation)
Assume on avg 1 operating along 1,000 LF corridor at any time

Trips and VMT - 8 workers , 16 trips for each phase
water trucks included in Vendor Trips

Grading - Grading - of 1 acre acre twice

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	20.00
tblConstructionPhase	NumDays	1.00	5.00
tblGrading	AcresOfGrading	10.00	2.00
tblGrading	MaterialExported	0.00	590.00
tblGrading	MaterialExported	0.00	100.00
tblGrading	MaterialImported	0.00	440.00
tblLandUse	LandUseSquareFeet	0.00	43,560.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	13.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	20.00	16.00
tblTripsAndVMT	WorkerTripNumber	10.00	16.00

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	1.6788	8.7316	13.9363	0.0403	6.7999	0.2420	7.0419	3.4335	0.2418	3.6752						3,994.1844
Maximum	**1.6788**	**8.7316**	**13.9363**	**0.0403**	**6.7999**	**0.2420**	**7.0419**	**3.4335**	**0.2418**	**3.6752**						**3,994.1844**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	1.6788	8.7316	13.9363	0.0403	2.8014	0.2420	3.0434	1.3791	0.2418	1.6208						3,994.1844
Maximum	**1.6788**	**8.7316**	**13.9363**	**0.0403**	**2.8014**	**0.2420**	**3.0434**	**1.3791**	**0.2418**	**1.6208**						**3,994.1844**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.80**	**0.00**	**56.78**	**59.83**	**0.00**	**55.90**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9824	9.1000e-004	0.1016	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2330
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	**0.9824**	**9.1000e-004**	**0.1016**	**1.0000e-005**	**0.0000**	**3.6000e-004**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**3.6000e-004**						**0.2330**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9824	9.1000e-004	0.1016	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2330
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	**0.9824**	**9.1000e-004**	**0.1016**	**1.0000e-005**	**0.0000**	**3.6000e-004**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**3.6000e-004**						**0.2330**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/3/2031	3/7/2031	5	5	Site Preparation/Demolition
2	Grading	Grading	3/10/2031	4/4/2031	5	20	Pipeline Installation
3	Paving	Paving	4/7/2031	4/11/2031	5	5	Pave/Restore Surface

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Concrete/Industrial Saws	2	8.00	81	0.73
Site Preparation	Off-Highway Trucks	1	4.00	402	0.38
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Bore/Drill Rigs	1	1.00	221	0.50
Grading	Cranes	1	4.00	231	0.29
Grading	Excavators	1	8.00	158	0.38
Grading	Off-Highway Trucks	1	4.00	402	0.38
Grading	Pumps	1	1.00	84	0.74
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Welders	1	8.00	46	0.45
Paving	Off-Highway Trucks	1	2.00	402	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Plate Compactors	1	8.00	8	0.43
Paving	Rollers	1	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	5	16.00	4.00	12.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
Grading	8	16.00	2.00	129.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
Paving	4	16.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5549	0.0000	6.5549	3.3679	0.0000	3.3679						0.0000
Off-Road	1.5079	8.3073	13.3945	0.0335		0.2372	0.2372		0.2372	0.2372						3,304.2178
Total	**1.5079**	**8.3073**	**13.3945**	**0.0335**	**6.5549**	**0.2372**	**6.7921**	**3.3679**	**0.2372**	**3.6051**						**3,304.2178**

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.1200e-003	0.2255	0.0696	1.1100e-003	0.0420	2.6700e-003	0.0447	0.0115	2.5600e-003	0.0141						124.8458
Vendor	6.3900e-003	0.1813	0.0876	7.1000e-004	0.0242	1.5700e-003	0.0258	6.6400e-003	1.5000e-003	8.1400e-003						79.5119
Worker	0.0357	0.0176	0.3847	1.2600e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479						138.4095
Total	**0.0472**	**0.4243**	**0.5419**	**3.0800e-003**	**0.2450**	**4.7600e-003**	**0.2498**	**0.0656**	**4.5400e-003**	**0.0701**						**342.7672**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5564	0.0000	2.5564	1.3135	0.0000	1.3135						0.0000
Off-Road	1.5079	8.3073	13.3945	0.0335		0.2372	0.2372		0.2372	0.2372						3,304.2178
Total	**1.5079**	**8.3073**	**13.3945**	**0.0335**	**2.5564**	**0.2372**	**2.7936**	**1.3135**	**0.2372**	**1.5507**						**3,304.2178**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.1200e-003	0.2255	0.0696	1.1100e-003	0.0420	2.6700e-003	0.0447	0.0115	2.5600e-003	0.0141						124.8458
Vendor	6.3900e-003	0.1813	0.0876	7.1000e-004	0.0242	1.5700e-003	0.0258	6.6400e-003	1.5000e-003	8.1400e-003						79.5119
Worker	0.0357	0.0176	0.3847	1.2600e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479						138.4095
Total	**0.0472**	**0.4243**	**0.5419**	**3.0800e-003**	**0.2450**	**4.7600e-003**	**0.2498**	**0.0656**	**4.5400e-003**	**0.0701**						**342.7672**

3.3 Grading - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1347	0.0000	6.1347	3.3227	0.0000	3.3227						0.0000
Off-Road	1.6261	7.3176	12.6890	0.0357		0.2245	0.2245		0.2245	0.2245						3,480.4960
Total	**1.6261**	**7.3176**	**12.6890**	**0.0357**	**6.1347**	**0.2245**	**6.3591**	**3.3227**	**0.2245**	**3.5471**						**3,480.4960**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0138	0.6059	0.1870	2.9800e-003	0.1129	7.1900e-003	0.1201	0.0309	6.8800e-003	0.0378						335.5230
Vendor	3.1900e-003	0.0906	0.0438	3.5000e-004	0.0121	7.8000e-004	0.0129	3.3200e-003	7.5000e-004	4.0700e-003						39.7559
Worker	0.0357	0.0176	0.3847	1.2600e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479						138.4095
Total	**0.0527**	**0.7141**	**0.6155**	**4.5900e-003**	**0.3038**	**8.4900e-003**	**0.3123**	**0.0817**	**8.1100e-003**	**0.0898**						**513.6885**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3925	0.0000	2.3925	1.2958	0.0000	1.2958						0.0000
Off-Road	1.6261	7.3176	12.6890	0.0357		0.2245	0.2245		0.2245	0.2245						3,480.4960
Total	**1.6261**	**7.3176**	**12.6890**	**0.0357**	**2.3925**	**0.2245**	**2.6170**	**1.2958**	**0.2245**	**1.5203**						**3,480.4960**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0138	0.6059	0.1870	2.9800e-003	0.1129	7.1900e-003	0.1201	0.0309	6.8800e-003	0.0378						335.5230
Vendor	3.1900e-003	0.0906	0.0438	3.5000e-004	0.0121	7.8000e-004	0.0129	3.3200e-003	7.5000e-004	4.0700e-003						39.7559
Worker	0.0357	0.0176	0.3847	1.2600e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479						138.4095
Total	**0.0527**	**0.7141**	**0.6155**	**4.5900e-003**	**0.3038**	**8.4900e-003**	**0.3123**	**0.0817**	**8.1100e-003**	**0.0898**						**513.6885**

3.4 Paving - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6348	2.9776	6.1080	0.0129		0.1279	0.1279		0.1279	0.1279						1,270.6438
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.6348**	**2.9776**	**6.1080**	**0.0129**		**0.1279**	**0.1279**		**0.1279**	**0.1279**						**1,270.6438**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	9.5800e-003	0.2719	0.1314	1.0600e-003	0.0363	2.3500e-003	0.0387	9.9600e-003	2.2500e-003	0.0122						119.2678
Worker	0.0357	0.0176	0.3847	1.2600e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479						138.4095
Total	**0.0453**	**0.2895**	**0.5161**	**2.3200e-003**	**0.2151**	**2.8700e-003**	**0.2180**	**0.0574**	**2.7300e-003**	**0.0601**						**257.6773**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6348	2.9776	6.1080	0.0129		0.1279	0.1279		0.1279	0.1279						1,270.6438
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.6348**	**2.9776**	**6.1080**	**0.0129**		**0.1279**	**0.1279**		**0.1279**	**0.1279**						**1,270.6438**

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	9.5800e-003	0.2719	0.1314	1.0600e-003	0.0363	2.3500e-003	0.0387	9.9600e-003	2.2500e-003	0.0122						119.2678
Worker	0.0357	0.0176	0.3847	1.2600e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479						138.4095
Total	**0.0453**	**0.2895**	**0.5161**	**2.3200e-003**	**0.2151**	**2.8700e-003**	**0.2180**	**0.0574**	**2.7300e-003**	**0.0601**						**257.6773**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.551512	0.058170	0.178297	0.126510	0.022409	0.006479	0.011491	0.017248	0.000593	0.000271	0.022353	0.001062	0.003606

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**0.0000**

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9824	9.1000e-004	0.1016	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2330
Unmitigated	0.9824	9.1000e-004	0.1016	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2330

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1106					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.8625					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	9.2900e-003	9.1000e-004	0.1016	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2330
Total	**0.9824**	**9.1000e-004**	**0.1016**	**1.0000e-005**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**						**0.2330**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1106					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.8625					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	9.2900e-003	9.1000e-004	0.1016	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2330
Total	**0.9824**	**9.1000e-004**	**0.1016**	**1.0000e-005**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**						**0.2330**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Pipeline Future

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1,000.00	User Defined Unit	1.00	43,560.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2032
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2031 Project Year Start or Later
1,000 ft of pipeline install (up to 24 inches in diameter)

Land Use - assume 1 acre area associated with 1000 LF of piping

Construction Phase - See Pipeline Assumptions Worksheet

Off-road Equipment - 8 hours per day except:
Cranes only for pipe placement
Bore/drill rigs for minimal jack-and-bore
Pumps for minimal use/dewatering
Off-Highway Trucks: Haul and Water trucks(on-site)

Off-road Equipment - See assumptions worksheet
Off-Highway Truck = asphalt trucks (on-site)

Off-road Equipment - Off-Highway Trucks =Haul trucks for demo material and Water trucks (on-site operation)
Assume on avg 1 operating along 1,000 LF corridor at any time

Trips and VMT - 8 workers , 16 trips for each phase
water trucks included in Vendor Trips

Grading - Grading - of 1 acre acre twice

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	2.00	20.00
tblConstructionPhase	NumDays	1.00	5.00
tblGrading	AcresOfGrading	10.00	2.00
tblGrading	MaterialExported	0.00	590.00
tblGrading	MaterialExported	0.00	100.00
tblGrading	MaterialImported	0.00	440.00
tblLandUse	LandUseSquareFeet	0.00	43,560.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripNumber	13.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	4.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	20.00	16.00
tblTripsAndVMT	WorkerTripNumber	10.00	16.00

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	1.6758	8.7582	13.8688	0.0402	6.7999	0.2420	7.0419	3.4335	0.2418	3.6752						3,982.0925
Maximum	**1.6758**	**8.7582**	**13.8688**	**0.0402**	**6.7999**	**0.2420**	**7.0419**	**3.4335**	**0.2418**	**3.6752**						**3,982.0925**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	1.6758	8.7582	13.8688	0.0402	2.8014	0.2420	3.0434	1.3791	0.2418	1.6208						3,982.0925
Maximum	**1.6758**	**8.7582**	**13.8688**	**0.0402**	**2.8014**	**0.2420**	**3.0434**	**1.3791**	**0.2418**	**1.6208**						**3,982.0925**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.80**	**0.00**	**56.78**	**59.83**	**0.00**	**55.90**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9824	9.1000e-004	0.1016	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2330
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	**0.9824**	**9.1000e-004**	**0.1016**	**1.0000e-005**	**0.0000**	**3.6000e-004**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**3.6000e-004**						**0.2330**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.9824	9.1000e-004	0.1016	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2330
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Total	**0.9824**	**9.1000e-004**	**0.1016**	**1.0000e-005**	**0.0000**	**3.6000e-004**	**3.6000e-004**	**0.0000**	**3.6000e-004**	**3.6000e-004**						**0.2330**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/3/2031	3/7/2031	5	5	Site Preparation/Demolition
2	Grading	Grading	3/10/2031	4/4/2031	5	20	Pipeline Installation
3	Paving	Paving	4/7/2031	4/11/2031	5	5	Pave/Restore Surface

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Concrete/Industrial Saws	2	8.00	81	0.73
Site Preparation	Off-Highway Trucks	1	4.00	402	0.38
Site Preparation	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Bore/Drill Rigs	1	1.00	221	0.50
Grading	Cranes	1	4.00	231	0.29
Grading	Excavators	1	8.00	158	0.38
Grading	Off-Highway Trucks	1	4.00	402	0.38
Grading	Pumps	1	1.00	84	0.74
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Welders	1	8.00	46	0.45
Paving	Off-Highway Trucks	1	2.00	402	0.38
Paving	Pavers	1	8.00	130	0.42
Paving	Plate Compactors	1	8.00	8	0.43
Paving	Rollers	1	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	5	16.00	4.00	12.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
Grading	8	16.00	2.00	129.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
Paving	4	16.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5549	0.0000	6.5549	3.3679	0.0000	3.3679						0.0000
Off-Road	1.5079	8.3073	13.3945	0.0335		0.2372	0.2372		0.2372	0.2372						3,304.2178
Total	**1.5079**	**8.3073**	**13.3945**	**0.0335**	**6.5549**	**0.2372**	**6.7921**	**3.3679**	**0.2372**	**3.6051**						**3,304.2178**

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.7000e-003	0.2391	0.0709	1.1100e-003	0.0420	2.6800e-003	0.0447	0.0115	2.5600e-003	0.0141						125.0473
Vendor	5.6900e-003	0.1937	0.0899	7.1000e-004	0.0242	1.5700e-003	0.0258	6.6400e-003	1.5000e-003	8.1400e-003						79.8477
Worker	0.0342	0.0182	0.3136	1.1500e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479						125.6080
Total	**0.0446**	**0.4509**	**0.4744**	**2.9700e-003**	**0.2450**	**4.7700e-003**	**0.2498**	**0.0656**	**4.5400e-003**	**0.0701**						**330.5031**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5564	0.0000	2.5564	1.3135	0.0000	1.3135						0.0000
Off-Road	1.5079	8.3073	13.3945	0.0335		0.2372	0.2372		0.2372	0.2372						3,304.2178
Total	**1.5079**	**8.3073**	**13.3945**	**0.0335**	**2.5564**	**0.2372**	**2.7936**	**1.3135**	**0.2372**	**1.5507**						**3,304.2178**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.7000e-003	0.2391	0.0709	1.1100e-003	0.0420	2.6800e-003	0.0447	0.0115	2.5600e-003	0.0141						125.0473
Vendor	5.6900e-003	0.1937	0.0899	7.1000e-004	0.0242	1.5700e-003	0.0258	6.6400e-003	1.5000e-003	8.1400e-003						79.8477
Worker	0.0342	0.0182	0.3136	1.1500e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479						125.6080
Total	**0.0446**	**0.4509**	**0.4744**	**2.9700e-003**	**0.2450**	**4.7700e-003**	**0.2498**	**0.0656**	**4.5400e-003**	**0.0701**						**330.5031**

3.3 Grading - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1347	0.0000	6.1347	3.3227	0.0000	3.3227						0.0000
Off-Road	1.6261	7.3176	12.6890	0.0357		0.2245	0.2245		0.2245	0.2245						3,480.4960
Total	**1.6261**	**7.3176**	**12.6890**	**0.0357**	**6.1347**	**0.2245**	**6.3591**	**3.3227**	**0.2245**	**3.5471**						**3,480.4960**

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0126	0.6425	0.1906	2.9900e-003	0.1129	7.2000e-003	0.1201	0.0309	6.8900e-003	0.0378						336.0647
Vendor	2.8400e-003	0.0968	0.0449	3.5000e-004	0.0121	7.9000e-004	0.0129	3.3200e-003	7.5000e-004	4.0700e-003						39.9239
Worker	0.0342	0.0182	0.3136	1.1500e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479						125.6080
Total	**0.0497**	**0.7575**	**0.5491**	**4.4900e-003**	**0.3038**	**8.5100e-003**	**0.3123**	**0.0817**	**8.1200e-003**	**0.0898**						**501.5966**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3925	0.0000	2.3925	1.2958	0.0000	1.2958						0.0000
Off-Road	1.6261	7.3176	12.6890	0.0357		0.2245	0.2245		0.2245	0.2245						3,480.4960
Total	**1.6261**	**7.3176**	**12.6890**	**0.0357**	**2.3925**	**0.2245**	**2.6170**	**1.2958**	**0.2245**	**1.5203**						**3,480.4960**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0126	0.6425	0.1906	2.9900e-003	0.1129	7.2000e-003	0.1201	0.0309	6.8900e-003	0.0378						336.0647
Vendor	2.8400e-003	0.0968	0.0449	3.5000e-004	0.0121	7.9000e-004	0.0129	3.3200e-003	7.5000e-004	4.0700e-003						39.9239
Worker	0.0342	0.0182	0.3136	1.1500e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479						125.6080
Total	**0.0497**	**0.7575**	**0.5491**	**4.4900e-003**	**0.3038**	**8.5100e-003**	**0.3123**	**0.0817**	**8.1200e-003**	**0.0898**						**501.5966**

3.4 Paving - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6348	2.9776	6.1080	0.0129		0.1279	0.1279		0.1279	0.1279						1,270.6438
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.6348**	**2.9776**	**6.1080**	**0.0129**		**0.1279**	**0.1279**		**0.1279**	**0.1279**						**1,270.6438**

WMWD Riverside FMP : Pipeline Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	8.5300e-003	0.2905	0.1348	1.0600e-003	0.0363	2.3600e-003	0.0387	9.9600e-003	2.2500e-003	0.0122						119.7716
Worker	0.0342	0.0182	0.3136	1.1500e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479						125.6080
Total	**0.0427**	**0.3087**	**0.4484**	**2.2100e-003**	**0.2151**	**2.8800e-003**	**0.2180**	**0.0574**	**2.7300e-003**	**0.0601**						**245.3796**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6348	2.9776	6.1080	0.0129		0.1279	0.1279		0.1279	0.1279						1,270.6438
Paving	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Total	**0.6348**	**2.9776**	**6.1080**	**0.0129**		**0.1279**	**0.1279**		**0.1279**	**0.1279**						**1,270.6438**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Vendor	8.5300e-003	0.2905	0.1348	1.0600e-003	0.0363	2.3600e-003	0.0387	9.9600e-003	2.2500e-003	0.0122						119.7716
Worker	0.0342	0.0182	0.3136	1.1500e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479						125.6080
Total	**0.0427**	**0.3087**	**0.4484**	**2.2100e-003**	**0.2151**	**2.8800e-003**	**0.2180**	**0.0574**	**2.7300e-003**	**0.0601**						**245.3796**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.551512	0.058170	0.178297	0.126510	0.022409	0.006479	0.011491	0.017248	0.000593	0.000271	0.022353	0.001062	0.003606

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**						**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9824	9.1000e-004	0.1016	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2330
Unmitigated	0.9824	9.1000e-004	0.1016	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2330

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1106					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.8625					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	9.2900e-003	9.1000e-004	0.1016	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2330
Total	**0.9824**	**9.1000e-004**	**0.1016**	**1.0000e-005**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**						**0.2330**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1106					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	0.8625					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	9.2900e-003	9.1000e-004	0.1016	1.0000e-005		3.6000e-004	3.6000e-004		3.6000e-004	3.6000e-004						0.2330
Total	**0.9824**	**9.1000e-004**	**0.1016**	**1.0000e-005**		**3.6000e-004**	**3.6000e-004**		**3.6000e-004**	**3.6000e-004**						**0.2330**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Western MWD - Riverside FMP

Tank Construction (2031-2050) - Future Projects

Local Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
Source	**lb/day**						
Tank Construction - 5 MG	22.7	6.1	11.8	0.03	2.7	1.5	—
Regional Emissions	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	**CO2e**
	lb/day, MT/yr for CO2e						
Tank Construction - 5 MG	22.7	6.9	12.2	0.04	3.0	1.6	252.41

Western MWD - Riverside FMP
Total Annual Emissions
Air Quality Construction Analysis

Regional Emissions	Total Project Emissons (ton/yr), MT/yr CO2e						
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
				ton/yr			MT/yr
Tank Construction - 5 MG - Future Project	0.61	0.71	1.35	0.003	0.07	0.04	252.4081
Project Annual Emissions	**0.61**	**0.71**	**1.35**	**0.00**	**0.07**	**0.04**	252.4081

Riverside FMP
Maximum Daily Projected Emissions
Air Quality Construction Analysis

summer Regional Emissions	Onsite Emissions						Offsite Emissions					
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
	lb/day						lb/day					
1. Site Prep/Clearing	1.34	5.76	7.69	0.029	2.71	1.50	0.05	1.19	0.59	0.01	0.33	0.10
2. Excavation/grading	1.10	4.36	7.35	0.024	2.57	1.46	0.04	0.66	0.44	0.00	0.23	0.07
3. Foundation	0.76	3.97	7.94	0.018	0.10	0.10	0.03	0.38	0.35	0.00	0.18	0.05
4. Tank Erection	0.88	6.10	11.76	0.023	0.12	0.12	0.04	0.22	0.46	0.00	0.22	0.06
5. Coating	22.73	3.42	7.10	0.012	0.08	0.08	0.02	0.01	0.24	0.00	0.11	0.03
6. Paving Finishing	0.71	3.46	6.51	0.014	0.15	0.15	0.03	0.11	0.28	0.00	0.13	0.03
7. Cathodic Protection System	0.13	1.14	2.31	0.004	0.02	0.02	0.02	0.07	0.17	0.00	0.08	0.02

Regional Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
1. Site Prep/Clearing	1.4	6.9	8.3	0.0	3.0	1.6
2. Excavation/grading	1.1	5.0	7.8	0.0	2.8	1.5
3. Foundation	0.8	4.3	8.3	0.0	0.3	0.2
4. Tank Erection	0.9	6.3	12.2	0.0	0.3	0.2
5. Coating	22.7	3.4	7.3	0.0	0.2	0.1
6. Paving Finishing	0.7	3.6	6.8	0.0	0.3	0.2
7. Cathodic Protection System	0.1	1.2	2.5	0.0	0.1	0.0
Project Daily Maximum Emissions	**22.75**	**6.95**	**12.22**	**0.04**	**3.05**	**1.60**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Tank Construction Future

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	30,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2032
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2031 Project Year Start or Later

Land Use - 1 acre site, 30,000 sf tank and paved area

Construction Phase - Typical tank construction - see assumptions worksheet

Off-road Equipment - see assumptions page

Off-road Equipment - See assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - Off-highway truck = asphalt trucks on site

Off-road Equipment - see assumptions page

Off-road Equipment - Lift -Pump Station Assumptions

Trips and VMT - See assumptions worksheet

Grading - See assumptions worksheet
2 passes grading

Architectural Coating - 36,000 square ft = pi()DH + pi*D^2/4 based on 150 ft diameter , 38-39 ft high tank
* 3 coats = 108,000 sf
meets SCAQMD =Rule 1168 specifications

Date: 6/11/2022 5:26 AM

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	15,000.00	108,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	45,000.00	108,000.00
tblConstructionPhase	NumDays	5.00	45.00
tblConstructionPhase	NumDays	100.00	150.00
tblConstructionPhase	NumDays	100.00	2.00
tblConstructionPhase	NumDays	2.00	15.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	5.00
tblConstructionPhase	NumDays	1.00	30.00
tblGrading	AcresOfGrading	7.50	2.00
tblGrading	AcresOfGrading	5.00	2.00
tblGrading	MaterialExported	0.00	700.00
tblGrading	MaterialExported	0.00	450.00
tblLandUse	LandUseSquareFeet	0.00	30,000.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	HorsePower	9.00	70.00
tblOffRoadEquipment	HorsePower	8.00	9.00
tblOffRoadEquipment	LoadFactor	0.43	0.56
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	90.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	5.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	5.00	2.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	3.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	23.4840	7.0071	14.0544	0.0353	6.7783	0.2271	6.9862	3.4448	0.2270	3.6522	0.0000	3,551.2345	3,551.2345	0.1334	0.0942	3,582.6402
Maximum	**23.4840**	**7.0071**	**14.0544**	**0.0353**	**6.7783**	**0.2271**	**6.9862**	**3.4448**	**0.2270**	**3.6522**	**0.0000**	**3,551.2345**	**3,551.2345**	**0.1334**	**0.0942**	**3,582.6402**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	23.4840	7.0071	14.0544	0.0353	2.8391	0.2271	3.0470	1.3966	0.2270	1.6039	0.0000	3,551.2345	3,551.2345	0.1334	0.0942	3,582.6402
Maximum	**23.4840**	**7.0071**	**14.0544**	**0.0353**	**2.8391**	**0.2271**	**3.0470**	**1.3966**	**0.2270**	**1.6039**	**0.0000**	**3,551.2345**	**3,551.2345**	**0.1334**	**0.0942**	**3,582.6402**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.12**	**0.00**	**56.39**	**59.46**	**0.00**	**56.08**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	1. Site Prep/Clearing	Site Preparation	1/1/2031	1/7/2031	5	5	
2	2. Excavation/grading	Grading	1/8/2031	1/28/2031	5	15	
3	3. Foundation	Site Preparation	1/29/2031	3/11/2031	5	30	
4	4. Tank Erection	Building Construction	3/12/2031	10/7/2031	5	150	
5	5. Coating	Architectural Coating	10/8/2031	12/9/2031	5	45	
6	6. Paving Finishing	Paving	12/1/2031	12/26/2031	5	20	
7	7. Cathodic Protection System	Building Construction	12/29/2031	12/30/2031	5	2	

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WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 108,000; Non-Residential Outdoor: 108,000; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
1. Site Prep/Clearing	Graders	1	8.00	187	0.41
1. Site Prep/Clearing	Off-Highway Trucks	1	4.00	402	0.38
1. Site Prep/Clearing	Rubber Tired Dozers	1	8.00	247	0.40
1. Site Prep/Clearing	Tractors/Loaders/Backhoes	1	8.00	97	0.37
2. Excavation/grading	Excavators	1	8.00	158	0.38
2. Excavation/grading	Off-Highway Trucks	1	4.00	402	0.38
2. Excavation/grading	Rubber Tired Dozers	1	8.00	247	0.40
3. Foundation	Cement and Mortar Mixers	1	4.00	70	0.56
3. Foundation	Off-Highway Trucks	1	4.00	402	0.38
3. Foundation	Plate Compactors	2	8.00	8	0.43
3. Foundation	Pumps	1	8.00	84	0.74
3. Foundation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
4. Tank Erection	Aerial Lifts	2	8.00	63	0.31
4. Tank Erection	Cranes	1	4.00	231	0.29
4. Tank Erection	Forklifts	1	8.00	89	0.20
4. Tank Erection	Generator Sets	1	8.00	84	0.74
4. Tank Erection	Tractors/Loaders/Backhoes	1	8.00	97	0.37
4. Tank Erection	Welders	1	8.00	46	0.45
5. Coating	Aerial Lifts	2	8.00	63	0.31
5. Coating	Air Compressors	2	8.00	78	0.48
6. Paving Finishing	Off-Highway Trucks	1	2.00	402	0.38
6. Paving Finishing	Pavers	1	8.00	130	0.42
6. Paving Finishing	Plate Compactors	2	8.00	9	0.56
6. Paving Finishing	Rollers	1	8.00	80	0.38
7. Cathodic Protection System	Aerial Lifts	2	8.00	63	0.31

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
1. Site Prep/Clearing	4	10.00	2.00	56.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
2. Excavation/grading	3	10.00	2.00	88.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
3. Foundation	6	10.00	2.00	90.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
4. Tank Erection	7	16.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
5. Coating	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
6. Paving Finishing	5	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
7. Cathodic Protection System	2	6.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 1. Site Prep/Clearing - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4577	0.0000	6.4577	3.3578	0.0000	3.3578			0.0000			0.0000
Off-Road	1.3390	5.7552	7.6884	0.0291		0.1946	0.1946		0.1946	0.1946		2,884.0407	2,884.0407	0.1188		2,887.0095
Total	**1.3390**	**5.7552**	**7.6884**	**0.0291**	**6.4577**	**0.1946**	**6.6523**	**3.3578**	**0.1946**	**3.5523**		**2,884.0407**	**2,884.0407**	**0.1188**		**2,887.0095**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0219	1.1156	0.3310	5.1800e-003	0.1960	0.0125	0.2085	0.0537	0.0120	0.0657		557.0265	557.0265	0.0130	0.0879	583.5542
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0452**	**1.1929**	**0.5534**	**6.2000e-003**	**0.3206**	**0.0134**	**0.3339**	**0.0871**	**0.0128**	**0.0998**		**667.1939**	**667.1939**	**0.0146**	**0.0942**	**695.6307**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5185	0.0000	2.5185	1.3095	0.0000	1.3095			0.0000			0.0000
Off-Road	1.3390	5.7552	7.6884	0.0291		0.1946	0.1946		0.1946	0.1946	0.0000	2,884.0407	2,884.0407	0.1188		2,887.0095
Total	**1.3390**	**5.7552**	**7.6884**	**0.0291**	**2.5185**	**0.1946**	**2.7131**	**1.3095**	**0.1946**	**1.5041**	**0.0000**	**2,884.0407**	**2,884.0407**	**0.1188**		**2,887.0095**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0219	1.1156	0.3310	5.1800e-003	0.1960	0.0125	0.2085	0.0537	0.0120	0.0657		557.0265	557.0265	0.0130	0.0879	583.5542
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0452**	**1.1929**	**0.5534**	**6.2000e-003**	**0.3206**	**0.0134**	**0.3339**	**0.0871**	**0.0128**	**0.0998**		**667.1939**	**667.1939**	**0.0146**	**0.0942**	**695.6307**

3.3 2. Excavation/grading - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1694	0.0000	6.1694	3.3264	0.0000	3.3264			0.0000			0.0000
Off-Road	1.1003	4.3583	7.3510	0.0235		0.1675	0.1675		0.1675	0.1675		2,357.6286	2,357.6286	0.0980		2,360.0783
Total	**1.1003**	**4.3583**	**7.3510**	**0.0235**	**6.1694**	**0.1675**	**6.3369**	**3.3264**	**0.1675**	**3.4939**		**2,357.6286**	**2,357.6286**	**0.0980**		**2,360.0783**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0115	0.5844	0.1734	2.7200e-003	0.1027	6.5500e-003	0.1092	0.0281	6.2600e-003	0.0344		291.7758	291.7758	6.8100e-003	0.0461	305.6713
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0348**	**0.6616**	**0.3958**	**3.7400e-003**	**0.2272**	**7.4100e-003**	**0.2346**	**0.0615**	**7.0700e-003**	**0.0686**		**401.9431**	**401.9431**	**8.4300e-003**	**0.0523**	**417.7477**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4061	0.0000	2.4061	1.2973	0.0000	1.2973			0.0000			0.0000
Off-Road	1.1003	4.3583	7.3510	0.0235		0.1675	0.1675		0.1675	0.1675	0.0000	2,357.6286	2,357.6286	0.0980		2,360.0783
Total	**1.1003**	**4.3583**	**7.3510**	**0.0235**	**2.4061**	**0.1675**	**2.5736**	**1.2973**	**0.1675**	**1.4648**	**0.0000**	**2,357.6286**	**2,357.6286**	**0.0980**		**2,360.0783**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0115	0.5844	0.1734	2.7200e-003	0.1027	6.5500e-003	0.1092	0.0281	6.2600e-003	0.0344		291.7758	291.7758	6.8100e-003	0.0461	305.6713
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0348**	**0.6616**	**0.3958**	**3.7400e-003**	**0.2272**	**7.4100e-003**	**0.2346**	**0.0615**	**7.0700e-003**	**0.0686**		**401.9431**	**401.9431**	**8.4300e-003**	**0.0523**	**417.7477**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 3. Foundation - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7550	3.9696	7.9447	0.0181		0.1009	0.1009		0.1009	0.1009		1,817.2844	1,817.2844	0.0666		1,818.9490
Total	**0.7550**	**3.9696**	**7.9447**	**0.0181**	**0.0000**	**0.1009**	**0.1009**	**0.0000**	**0.1009**	**0.1009**		**1,817.2844**	**1,817.2844**	**0.0666**		**1,818.9490**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.8700e-003	0.2988	0.0887	1.3900e-003	0.0525	3.3500e-003	0.0558	0.0144	3.2000e-003	0.0176		149.2035	149.2035	3.4800e-003	0.0236	156.3092
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0292**	**0.3761**	**0.3111**	**2.4100e-003**	**0.1771**	**4.2100e-003**	**0.1813**	**0.0477**	**4.0100e-003**	**0.0517**		**259.3709**	**259.3709**	**5.1000e-003**	**0.0298**	**268.3857**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7550	3.9696	7.9447	0.0181		0.1009	0.1009		0.1009	0.1009	0.0000	1,817.2844	1,817.2844	0.0666		1,818.9490
Total	**0.7550**	**3.9696**	**7.9447**	**0.0181**	**0.0000**	**0.1009**	**0.1009**	**0.0000**	**0.1009**	**0.1009**	**0.0000**	**1,817.2844**	**1,817.2844**	**0.0666**		**1,818.9490**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.8700e-003	0.2988	0.0887	1.3900e-003	0.0525	3.3500e-003	0.0558	0.0144	3.2000e-003	0.0176		149.2035	149.2035	3.4800e-003	0.0236	156.3092
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0292**	**0.3761**	**0.3111**	**2.4100e-003**	**0.1771**	**4.2100e-003**	**0.1813**	**0.0477**	**4.0100e-003**	**0.0517**		**259.3709**	**259.3709**	**5.1000e-003**	**0.0298**	**268.3857**

3.5 4. Tank Erection - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8819	6.0979	11.7617	0.0225		0.1183	0.1183		0.1183	0.1183		2,095.8759	2,095.8759	0.0787		2,097.8436
Total	**0.8819**	**6.0979**	**11.7617**	**0.0225**		**0.1183**	**0.1183**		**0.1183**	**0.1183**		**2,095.8759**	**2,095.8759**	**0.0787**		**2,097.8436**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.7800e-003	0.1977	0.0793	9.1000e-004	0.0384	1.6000e-003	0.0400	0.0111	1.5300e-003	0.0126		96.4856	96.4856	1.4300e-003	0.0141	100.7145
Worker	0.0342	0.0182	0.3136	1.1500e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479		124.8088	124.8088	1.8200e-003	2.5300e-003	125.6080
Total	**0.0400**	**0.2159**	**0.3929**	**2.0600e-003**	**0.2173**	**2.1200e-003**	**0.2194**	**0.0585**	**2.0100e-003**	**0.0605**		**221.2944**	**221.2944**	**3.2500e-003**	**0.0166**	**226.3225**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8819	6.0979	11.7617	0.0225		0.1183	0.1183		0.1183	0.1183	0.0000	2,095.8759	2,095.8759	0.0787		2,097.8436
Total	**0.8819**	**6.0979**	**11.7617**	**0.0225**		**0.1183**	**0.1183**		**0.1183**	**0.1183**	**0.0000**	**2,095.8759**	**2,095.8759**	**0.0787**		**2,097.8436**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.7800e-003	0.1977	0.0793	9.1000e-004	0.0384	1.6000e-003	0.0400	0.0111	1.5300e-003	0.0126		96.4856	96.4856	1.4300e-003	0.0141	100.7145
Worker	0.0342	0.0182	0.3136	1.1500e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479		124.8088	124.8088	1.8200e-003	2.5300e-003	125.6080
Total	**0.0400**	**0.2159**	**0.3929**	**2.0600e-003**	**0.2173**	**2.1200e-003**	**0.2194**	**0.0585**	**2.0100e-003**	**0.0605**		**221.2944**	**221.2944**	**3.2500e-003**	**0.0166**	**226.3225**

3.6 5. Coating - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.2480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4782	3.4249	7.1032	0.0121		0.0790	0.0790		0.0790	0.0790		1,142.0296	1,142.0296	0.0421		1,143.0817
Total	**22.7262**	**3.4249**	**7.1032**	**0.0121**		**0.0790**	**0.0790**		**0.0790**	**0.0790**		**1,142.0296**	**1,142.0296**	**0.0421**		**1,143.0817**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0214**	**0.0114**	**0.1960**	**7.2000e-004**	**0.1118**	**3.3000e-004**	**0.1121**	**0.0296**	**3.0000e-004**	**0.0300**		**78.0055**	**78.0055**	**1.1400e-003**	**1.5800e-003**	**78.5050**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.2480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4782	3.4249	7.1032	0.0121		0.0790	0.0790		0.0790	0.0790	0.0000	1,142.0296	1,142.0296	0.0421		1,143.0817
Total	**22.7262**	**3.4249**	**7.1032**	**0.0121**		**0.0790**	**0.0790**		**0.0790**	**0.0790**	**0.0000**	**1,142.0296**	**1,142.0296**	**0.0421**		**1,143.0817**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0214**	**0.0114**	**0.1960**	**7.2000e-004**	**0.1118**	**3.3000e-004**	**0.1121**	**0.0296**	**3.0000e-004**	**0.0300**		**78.0055**	**78.0055**	**1.1400e-003**	**1.5800e-003**	**78.5050**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 6. Paving Finishing - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7122	3.4626	6.5143	0.0138		0.1467	0.1467		0.1467	0.1467		1,335.7757	1,335.7757	0.0638		1,337.3698
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7122**	**3.4626**	**6.5143**	**0.0138**		**0.1467**	**0.1467**		**0.1467**	**0.1467**		**1,335.7757**	**1,335.7757**	**0.0638**		**1,337.3698**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8400e-003	0.0968	0.0449	3.5000e-004	0.0121	7.9000e-004	0.0129	3.3200e-003	7.5000e-004	4.0700e-003		38.1096	38.1096	8.8000e-004	6.0100e-003	39.9239
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0242**	**0.1082**	**0.2409**	**1.0700e-003**	**0.1239**	**1.1200e-003**	**0.1250**	**0.0330**	**1.0500e-003**	**0.0340**		**116.1151**	**116.1151**	**2.0200e-003**	**7.5900e-003**	**118.4289**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7122	3.4626	6.5143	0.0138		0.1467	0.1467		0.1467	0.1467	0.0000	1,335.7757	1,335.7757	0.0638		1,337.3698
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7122**	**3.4626**	**6.5143**	**0.0138**		**0.1467**	**0.1467**		**0.1467**	**0.1467**	**0.0000**	**1,335.7757**	**1,335.7757**	**0.0638**		**1,337.3698**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8400e-003	0.0968	0.0449	3.5000e-004	0.0121	7.9000e-004	0.0129	3.3200e-003	7.5000e-004	4.0700e-003		38.1096	38.1096	8.8000e-004	6.0100e-003	39.9239
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0242**	**0.1082**	**0.2409**	**1.0700e-003**	**0.1239**	**1.1200e-003**	**0.1250**	**0.0330**	**1.0500e-003**	**0.0340**		**116.1151**	**116.1151**	**2.0200e-003**	**7.5900e-003**	**118.4289**

3.8 7. Cathodic Protection System - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1295	1.1415	2.3092	4.1300e-003		0.0248	0.0248		0.0248	0.0248		391.5015	391.5015	0.0117		391.7942
Total	**0.1295**	**1.1415**	**2.3092**	**4.1300e-003**		**0.0248**	**0.0248**		**0.0248**	**0.0248**		**391.5015**	**391.5015**	**0.0117**		**391.7942**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0128	6.8300e-003	0.1176	4.3000e-004	0.0671	2.0000e-004	0.0673	0.0178	1.8000e-004	0.0180		46.8033	46.8033	6.8000e-004	9.5000e-004	47.1030
Total	**0.0148**	**0.0727**	**0.1440**	**7.3000e-004**	**0.0799**	**7.3000e-004**	**0.0806**	**0.0215**	**6.9000e-004**	**0.0222**		**78.9652**	**78.9652**	**1.1600e-003**	**5.6400e-003**	**80.6745**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1295	1.1415	2.3092	4.1300e-003		0.0248	0.0248		0.0248	0.0248	0.0000	391.5015	391.5015	0.0117		391.7942
Total	**0.1295**	**1.1415**	**2.3092**	**4.1300e-003**		**0.0248**	**0.0248**		**0.0248**	**0.0248**	**0.0000**	**391.5015**	**391.5015**	**0.0117**		**391.7942**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0128	6.8300e-003	0.1176	4.3000e-004	0.0671	2.0000e-004	0.0673	0.0178	1.8000e-004	0.0180		46.8033	46.8033	6.8000e-004	9.5000e-004	47.1030
Total	**0.0148**	**0.0727**	**0.1440**	**7.3000e-004**	**0.0799**	**7.3000e-004**	**0.0806**	**0.0215**	**6.9000e-004**	**0.0222**		**78.9652**	**78.9652**	**1.1600e-003**	**5.6400e-003**	**80.6745**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.551512	0.058170	0.178297	0.126510	0.022409	0.006479	0.011491	0.017248	0.000593	0.000271	0.022353	0.001062	0.003

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5940					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5940					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Tank Construction Future

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	30,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2032
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2031 Project Year Start or Later

Land Use - 1 acre site, 30,000 sf tank and paved area

Construction Phase - Typical tank construction - see assumptions worksheet

Off-road Equipment - see assumptions page

Off-road Equipment - See assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - Off-highway truck = asphalt trucks on site

Off-road Equipment - see assumptions page

Off-road Equipment - Lift -Pump Station Assumptions

Trips and VMT - See assumptions worksheet

Grading - See assumptions worksheet
2 passes grading

Architectural Coating - 36,000 square ft = pi()DH + pi*D^2/4 based on 150 ft diameter , 38-39 ft high tank
* 3 coats = 108,000 sf
meets SCAQMD =Rule 1168 specifications

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	15,000.00	108,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	45,000.00	108,000.00
tblConstructionPhase	NumDays	5.00	45.00
tblConstructionPhase	NumDays	100.00	150.00
tblConstructionPhase	NumDays	100.00	2.00
tblConstructionPhase	NumDays	2.00	15.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	5.00
tblConstructionPhase	NumDays	1.00	30.00
tblGrading	AcresOfGrading	7.50	2.00
tblGrading	AcresOfGrading	5.00	2.00
tblGrading	MaterialExported	0.00	700.00
tblGrading	MaterialExported	0.00	450.00
tblLandUse	LandUseSquareFeet	0.00	30,000.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	HorsePower	9.00	70.00
tblOffRoadEquipment	HorsePower	8.00	9.00
tblOffRoadEquipment	LoadFactor	0.43	0.56
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	90.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	5.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	5.00	2.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	3.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	23.4862	7.0002	14.1421	0.0354	6.7783	0.2271	6.9862	3.4448	0.2270	3.6522	0.0000	3,558.2631	3,558.2631	0.1335	0.0940	3,589.6138
Maximum	**23.4862**	**7.0002**	**14.1421**	**0.0354**	**6.7783**	**0.2271**	**6.9862**	**3.4448**	**0.2270**	**3.6522**	**0.0000**	**3,558.2631**	**3,558.2631**	**0.1335**	**0.0940**	**3,589.6138**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	23.4862	7.0002	14.1421	0.0354	2.8391	0.2271	3.0470	1.3966	0.2270	1.6039	0.0000	3,558.2631	3,558.2631	0.1335	0.0940	3,589.6138
Maximum	**23.4862**	**7.0002**	**14.1421**	**0.0354**	**2.8391**	**0.2271**	**3.0470**	**1.3966**	**0.2270**	**1.6039**	**0.0000**	**3,558.2631**	**3,558.2631**	**0.1335**	**0.0940**	**3,589.6138**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.12**	**0.00**	**56.39**	**59.46**	**0.00**	**56.08**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	1. Site Prep/Clearing	Site Preparation	1/1/2031	1/7/2031	5	5	
2	2. Excavation/grading	Grading	1/8/2031	1/28/2031	5	15	
3	3. Foundation	Site Preparation	1/29/2031	3/11/2031	5	30	
4	4. Tank Erection	Building Construction	3/12/2031	10/7/2031	5	150	
5	5. Coating	Architectural Coating	10/8/2031	12/9/2031	5	45	
6	6. Paving Finishing	Paving	12/1/2031	12/26/2031	5	20	
7	7. Cathodic Protection System	Building Construction	12/29/2031	12/30/2031	5	2	

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WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 108,000; Non-Residential Outdoor: 108,000; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
1. Site Prep/Clearing	Graders	1	8.00	187	0.41
1. Site Prep/Clearing	Off-Highway Trucks	1	4.00	402	0.38
1. Site Prep/Clearing	Rubber Tired Dozers	1	8.00	247	0.40
1. Site Prep/Clearing	Tractors/Loaders/Backhoes	1	8.00	97	0.37
2. Excavation/grading	Excavators	1	8.00	158	0.38
2. Excavation/grading	Off-Highway Trucks	1	4.00	402	0.38
2. Excavation/grading	Rubber Tired Dozers	1	8.00	247	0.40
3. Foundation	Cement and Mortar Mixers	1	4.00	70	0.56
3. Foundation	Off-Highway Trucks	1	4.00	402	0.38
3. Foundation	Plate Compactors	2	8.00	8	0.43
3. Foundation	Pumps	1	8.00	84	0.74
3. Foundation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
4. Tank Erection	Aerial Lifts	2	8.00	63	0.31
4. Tank Erection	Cranes	1	4.00	231	0.29
4. Tank Erection	Forklifts	1	8.00	89	0.20
4. Tank Erection	Generator Sets	1	8.00	84	0.74
4. Tank Erection	Tractors/Loaders/Backhoes	1	8.00	97	0.37
4. Tank Erection	Welders	1	8.00	46	0.45
5. Coating	Aerial Lifts	2	8.00	63	0.31
5. Coating	Air Compressors	2	8.00	78	0.48
6. Paving Finishing	Off-Highway Trucks	1	2.00	402	0.38
6. Paving Finishing	Pavers	1	8.00	130	0.42
6. Paving Finishing	Plate Compactors	2	8.00	9	0.56
6. Paving Finishing	Rollers	1	8.00	80	0.38
7. Cathodic Protection System	Aerial Lifts	2	8.00	63	0.31

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
1. Site Prep/Clearing	4	10.00	2.00	56.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
2. Excavation/grading	3	10.00	2.00	88.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
3. Foundation	6	10.00	2.00	90.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
4. Tank Erection	7	16.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
5. Coating	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
6. Paving Finishing	5	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
7. Cathodic Protection System	2	6.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 1. Site Prep/Clearing - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.4577	0.0000	6.4577	3.3578	0.0000	3.3578			0.0000			0.0000
Off-Road	1.3390	5.7552	7.6884	0.0291		0.1946	0.1946		0.1946	0.1946		2,884.0407	2,884.0407	0.1188		2,887.0095
Total	**1.3390**	**5.7552**	**7.6884**	**0.0291**	**6.4577**	**0.1946**	**6.6523**	**3.3578**	**0.1946**	**3.5523**		**2,884.0407**	**2,884.0407**	**0.1188**		**2,887.0095**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0239	1.0521	0.3247	5.1800e-003	0.1960	0.0125	0.2085	0.0537	0.0119	0.0657		556.1261	556.1261	0.0131	0.0878	582.6136
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0483**	**1.1252**	**0.5906**	**6.2700e-003**	**0.3206**	**0.0133**	**0.3339**	**0.0871**	**0.0128**	**0.0998**		**674.2224**	**674.2224**	**0.0147**	**0.0940**	**702.6043**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.5185	0.0000	2.5185	1.3095	0.0000	1.3095			0.0000			0.0000
Off-Road	1.3390	5.7552	7.6884	0.0291		0.1946	0.1946		0.1946	0.1946	0.0000	2,884.0407	2,884.0407	0.1188		2,887.0095
Total	**1.3390**	**5.7552**	**7.6884**	**0.0291**	**2.5185**	**0.1946**	**2.7131**	**1.3095**	**0.1946**	**1.5041**	**0.0000**	**2,884.0407**	**2,884.0407**	**0.1188**		**2,887.0095**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0239	1.0521	0.3247	5.1800e-003	0.1960	0.0125	0.2085	0.0537	0.0119	0.0657		556.1261	556.1261	0.0131	0.0878	582.6136
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0483**	**1.1252**	**0.5906**	**6.2700e-003**	**0.3206**	**0.0133**	**0.3339**	**0.0871**	**0.0128**	**0.0998**		**674.2224**	**674.2224**	**0.0147**	**0.0940**	**702.6043**

3.3 2. Excavation/grading - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1694	0.0000	6.1694	3.3264	0.0000	3.3264			0.0000			0.0000
Off-Road	1.1003	4.3583	7.3510	0.0235		0.1675	0.1675		0.1675	0.1675		2,357.6286	2,357.6286	0.0980		2,360.0783
Total	**1.1003**	**4.3583**	**7.3510**	**0.0235**	**6.1694**	**0.1675**	**6.3369**	**3.3264**	**0.1675**	**3.4939**		**2,357.6286**	**2,357.6286**	**0.0980**		**2,360.0783**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0125	0.5511	0.1701	2.7100e-003	0.1027	6.5400e-003	0.1092	0.0281	6.2500e-003	0.0344		291.3042	291.3042	6.8600e-003	0.0460	305.1786
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0369**	**0.6242**	**0.4360**	**3.8000e-003**	**0.2272**	**7.4000e-003**	**0.2346**	**0.0615**	**7.0600e-003**	**0.0686**		**409.4005**	**409.4005**	**8.4700e-003**	**0.0522**	**425.1692**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.4061	0.0000	2.4061	1.2973	0.0000	1.2973			0.0000			0.0000
Off-Road	1.1003	4.3583	7.3510	0.0235		0.1675	0.1675		0.1675	0.1675	0.0000	2,357.6286	2,357.6286	0.0980		2,360.0783
Total	**1.1003**	**4.3583**	**7.3510**	**0.0235**	**2.4061**	**0.1675**	**2.5736**	**1.2973**	**0.1675**	**1.4648**	**0.0000**	**2,357.6286**	**2,357.6286**	**0.0980**		**2,360.0783**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0125	0.5511	0.1701	2.7100e-003	0.1027	6.5400e-003	0.1092	0.0281	6.2500e-003	0.0344		291.3042	291.3042	6.8600e-003	0.0460	305.1786
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0369**	**0.6242**	**0.4360**	**3.8000e-003**	**0.2272**	**7.4000e-003**	**0.2346**	**0.0615**	**7.0600e-003**	**0.0686**		**409.4005**	**409.4005**	**8.4700e-003**	**0.0522**	**425.1692**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 3. Foundation - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7550	3.9696	7.9447	0.0181		0.1009	0.1009		0.1009	0.1009		1,817.2844	1,817.2844	0.0666		1,818.9490
Total	**0.7550**	**3.9696**	**7.9447**	**0.0181**	**0.0000**	**0.1009**	**0.1009**	**0.0000**	**0.1009**	**0.1009**		**1,817.2844**	**1,817.2844**	**0.0666**		**1,818.9490**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.4000e-003	0.2818	0.0870	1.3900e-003	0.0525	3.3400e-003	0.0558	0.0144	3.2000e-003	0.0176		148.9624	148.9624	3.5100e-003	0.0235	156.0572
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0308**	**0.3549**	**0.3529**	**2.4800e-003**	**0.1771**	**4.2000e-003**	**0.1813**	**0.0477**	**4.0100e-003**	**0.0517**		**267.0587**	**267.0587**	**5.1200e-003**	**0.0297**	**276.0479**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7550	3.9696	7.9447	0.0181		0.1009	0.1009		0.1009	0.1009	0.0000	1,817.2844	1,817.2844	0.0666		1,818.9490
Total	**0.7550**	**3.9696**	**7.9447**	**0.0181**	**0.0000**	**0.1009**	**0.1009**	**0.0000**	**0.1009**	**0.1009**	**0.0000**	**1,817.2844**	**1,817.2844**	**0.0666**		**1,818.9490**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	6.4000e-003	0.2818	0.0870	1.3900e-003	0.0525	3.3400e-003	0.0558	0.0144	3.2000e-003	0.0176		148.9624	148.9624	3.5100e-003	0.0235	156.0572
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0308**	**0.3549**	**0.3529**	**2.4800e-003**	**0.1771**	**4.2000e-003**	**0.1813**	**0.0477**	**4.0100e-003**	**0.0517**		**267.0587**	**267.0587**	**5.1200e-003**	**0.0297**	**276.0479**

3.5 4. Tank Erection - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8819	6.0979	11.7617	0.0225		0.1183	0.1183		0.1183	0.1183		2,095.8759	2,095.8759	0.0787		2,097.8436
Total	**0.8819**	**6.0979**	**11.7617**	**0.0225**		**0.1183**	**0.1183**		**0.1183**	**0.1183**		**2,095.8759**	**2,095.8759**	**0.0787**		**2,097.8436**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.2700e-003	0.1863	0.0766	9.1000e-004	0.0384	1.6000e-003	0.0400	0.0111	1.5300e-003	0.0126		96.2384	96.2384	1.4500e-003	0.0140	100.4540
Worker	0.0357	0.0176	0.3847	1.2600e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479		137.6270	137.6270	1.8000e-003	2.4800e-003	138.4095
Total	**0.0420**	**0.2039**	**0.4613**	**2.1700e-003**	**0.2173**	**2.1200e-003**	**0.2194**	**0.0585**	**2.0100e-003**	**0.0605**		**233.8654**	**233.8654**	**3.2500e-003**	**0.0165**	**238.8636**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8819	6.0979	11.7617	0.0225		0.1183	0.1183		0.1183	0.1183	0.0000	2,095.8759	2,095.8759	0.0787		2,097.8436
Total	**0.8819**	**6.0979**	**11.7617**	**0.0225**		**0.1183**	**0.1183**		**0.1183**	**0.1183**	**0.0000**	**2,095.8759**	**2,095.8759**	**0.0787**		**2,097.8436**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.2700e-003	0.1863	0.0766	9.1000e-004	0.0384	1.6000e-003	0.0400	0.0111	1.5300e-003	0.0126		96.2384	96.2384	1.4500e-003	0.0140	100.4540
Worker	0.0357	0.0176	0.3847	1.2600e-003	0.1788	5.2000e-004	0.1794	0.0474	4.8000e-004	0.0479		137.6270	137.6270	1.8000e-003	2.4800e-003	138.4095
Total	**0.0420**	**0.2039**	**0.4613**	**2.1700e-003**	**0.2173**	**2.1200e-003**	**0.2194**	**0.0585**	**2.0100e-003**	**0.0605**		**233.8654**	**233.8654**	**3.2500e-003**	**0.0165**	**238.8636**

3.6 5. Coating - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.2480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4782	3.4249	7.1032	0.0121		0.0790	0.0790		0.0790	0.0790		1,142.0296	1,142.0296	0.0421		1,143.0817
Total	**22.7262**	**3.4249**	**7.1032**	**0.0121**		**0.0790**	**0.0790**		**0.0790**	**0.0790**		**1,142.0296**	**1,142.0296**	**0.0421**		**1,143.0817**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0223**	**0.0110**	**0.2404**	**7.9000e-004**	**0.1118**	**3.3000e-004**	**0.1121**	**0.0296**	**3.0000e-004**	**0.0300**		**86.0169**	**86.0169**	**1.1300e-003**	**1.5500e-003**	**86.5060**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	22.2480					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4782	3.4249	7.1032	0.0121		0.0790	0.0790		0.0790	0.0790	0.0000	1,142.0296	1,142.0296	0.0421		1,143.0817
Total	**22.7262**	**3.4249**	**7.1032**	**0.0121**		**0.0790**	**0.0790**		**0.0790**	**0.0790**	**0.0000**	**1,142.0296**	**1,142.0296**	**0.0421**		**1,143.0817**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0223**	**0.0110**	**0.2404**	**7.9000e-004**	**0.1118**	**3.3000e-004**	**0.1121**	**0.0296**	**3.0000e-004**	**0.0300**		**86.0169**	**86.0169**	**1.1300e-003**	**1.5500e-003**	**86.5060**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 6. Paving Finishing - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7122	3.4626	6.5143	0.0138		0.1467	0.1467		0.1467	0.1467		1,335.7757	1,335.7757	0.0638		1,337.3698
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7122**	**3.4626**	**6.5143**	**0.0138**		**0.1467**	**0.1467**		**0.1467**	**0.1467**		**1,335.7757**	**1,335.7757**	**0.0638**		**1,337.3698**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1900e-003	0.0906	0.0438	3.5000e-004	0.0121	7.8000e-004	0.0129	3.3200e-003	7.5000e-004	4.0700e-003		37.9488	37.9488	9.0000e-004	5.9900e-003	39.7559
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0255**	**0.1016**	**0.2842**	**1.1400e-003**	**0.1239**	**1.1100e-003**	**0.1250**	**0.0330**	**1.0500e-003**	**0.0340**		**123.9656**	**123.9656**	**2.0300e-003**	**7.5400e-003**	**126.2619**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7122	3.4626	6.5143	0.0138		0.1467	0.1467		0.1467	0.1467	0.0000	1,335.7757	1,335.7757	0.0638		1,337.3698
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7122**	**3.4626**	**6.5143**	**0.0138**		**0.1467**	**0.1467**		**0.1467**	**0.1467**	**0.0000**	**1,335.7757**	**1,335.7757**	**0.0638**		**1,337.3698**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1900e-003	0.0906	0.0438	3.5000e-004	0.0121	7.8000e-004	0.0129	3.3200e-003	7.5000e-004	4.0700e-003		37.9488	37.9488	9.0000e-004	5.9900e-003	39.7559
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0255**	**0.1016**	**0.2842**	**1.1400e-003**	**0.1239**	**1.1100e-003**	**0.1250**	**0.0330**	**1.0500e-003**	**0.0340**		**123.9656**	**123.9656**	**2.0300e-003**	**7.5400e-003**	**126.2619**

3.8 7. Cathodic Protection System - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Off-Road	0.1295	1.1415	2.3092	4.1300e-003		0.0248	0.0248		0.0248	0.0248		391.5015	391.5015	0.0117		391.7942
Total	**0.1295**	**1.1415**	**2.3092**	**4.1300e-003**		**0.0248**	**0.0248**		**0.0248**	**0.0248**		**391.5015**	**391.5015**	**0.0117**		**391.7942**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0134	6.6000e-003	0.1443	4.7000e-004	0.0671	2.0000e-004	0.0673	0.0178	1.8000e-004	0.0180		51.6101	51.6101	6.8000e-004	9.3000e-004	51.9036
Total	**0.0155**	**0.0687**	**0.1698**	**7.7000e-004**	**0.0799**	**7.3000e-004**	**0.0806**	**0.0215**	**6.9000e-004**	**0.0222**		**83.6896**	**83.6896**	**1.1600e-003**	**5.6000e-003**	**85.3883**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.1295	1.1415	2.3092	4.1300e-003		0.0248	0.0248		0.0248	0.0248	0.0000	391.5015	391.5015	0.0117		391.7942
Total	**0.1295**	**1.1415**	**2.3092**	**4.1300e-003**		**0.0248**	**0.0248**		**0.0248**	**0.0248**	**0.0000**	**391.5015**	**391.5015**	**0.0117**		**391.7942**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0134	6.6000e-003	0.1443	4.7000e-004	0.0671	2.0000e-004	0.0673	0.0178	1.8000e-004	0.0180		51.6101	51.6101	6.8000e-004	9.3000e-004	51.9036
Total	**0.0155**	**0.0687**	**0.1698**	**7.7000e-004**	**0.0799**	**7.3000e-004**	**0.0806**	**0.0215**	**6.9000e-004**	**0.0222**		**83.6896**	**83.6896**	**1.1600e-003**	**5.6000e-003**	**85.3883**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.551512	0.058170	0.178297	0.126510	0.022409	0.006479	0.011491	0.017248	0.000593	0.000271	0.022353	0.001062	0.0036

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.6702	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5940					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

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Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.5940					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.6702**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	30,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2032
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2031 Project Year Start or Later

Land Use - 1 acre site, 30,000 sf tank and paved area

Construction Phase - Typical tank construction - see assumptions worksheet

Off-road Equipment - see assumptions page

Off-road Equipment - See assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - see assumptions page

Off-road Equipment - Off-highway truck = asphalt trucks on site

Off-road Equipment - see assumptions page

Off-road Equipment - Lift -Pump Station Assumptions

Trips and VMT - See assumptions worksheet

Grading - See assumptions worksheet
2 passes grading

Architectural Coating - 36,000 square ft = pi()DH + pi*D^2/4 based on 150 ft diameter , 38-39 ft high tank
* 3 coats = 108,000 sf
meets SCAQMD =Rule 1168 specifications

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	15,000.00	108,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	45,000.00	108,000.00
tblConstructionPhase	NumDays	5.00	45.00
tblConstructionPhase	NumDays	100.00	150.00
tblConstructionPhase	NumDays	100.00	2.00
tblConstructionPhase	NumDays	2.00	15.00
tblConstructionPhase	NumDays	5.00	20.00
tblConstructionPhase	NumDays	1.00	5.00
tblConstructionPhase	NumDays	1.00	30.00
tblGrading	AcresOfGrading	7.50	2.00
tblGrading	AcresOfGrading	5.00	2.00
tblGrading	MaterialExported	0.00	700.00
tblGrading	MaterialExported	0.00	450.00
tblLandUse	LandUseSquareFeet	0.00	30,000.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	HorsePower	9.00	70.00
tblOffRoadEquipment	HorsePower	8.00	9.00
tblOffRoadEquipment	LoadFactor	0.43	0.56
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblTripsAndVMT	HaulingTripNumber	0.00	90.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	5.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	5.00	2.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	3.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2031	0.6120	0.7078	1.3501	2.8800e-003	0.0873	0.0157	0.1030	0.0400	0.0157	0.0558	0.0000	251.5220	251.5220	9.0700e-003	2.2100e-003	252.4083
Maximum	**0.6120**	**0.7078**	**1.3501**	**2.8800e-003**	**0.0873**	**0.0157**	**0.1030**	**0.0400**	**0.0157**	**0.0558**	**0.0000**	**251.5220**	**251.5220**	**9.0700e-003**	**2.2100e-003**	**252.4083**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2031	0.6120	0.7078	1.3501	2.8800e-003	0.0492	0.0157	0.0650	0.0197	0.0157	0.0354	0.0000	251.5217	251.5217	9.0700e-003	2.2100e-003	252.4081
Maximum	**0.6120**	**0.7078**	**1.3501**	**2.8800e-003**	**0.0492**	**0.0157**	**0.0650**	**0.0197**	**0.0157**	**0.0354**	**0.0000**	**251.5217**	**251.5217**	**9.0700e-003**	**2.2100e-003**	**252.4081**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**43.61**	**0.00**	**36.95**	**50.80**	**0.00**	**36.48**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2031	3-31-2031	0.1956	0.1956
2	4-1-2031	6-30-2031	0.2348	0.2348
3	7-1-2031	9-30-2031	0.2374	0.2374
		Highest	0.2374	0.2374

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2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1223	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1223**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1223	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1223**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	1. Site Prep/Clearing	Site Preparation	1/1/2031	1/7/2031	5	5	
2	2. Excavation/grading	Grading	1/8/2031	1/28/2031	5	15	
3	3. Foundation	Site Preparation	1/29/2031	3/11/2031	5	30	
4	4. Tank Erection	Building Construction	3/12/2031	10/7/2031	5	150	
5	5. Coating	Architectural Coating	10/8/2031	12/9/2031	5	45	
6	6. Paving Finishing	Paving	12/1/2031	12/26/2031	5	20	
7	7. Cathodic Protection System	Building Construction	12/29/2031	12/30/2031	5	2	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 108,000; Non-Residential Outdoor: 108,000; Striped Parking Area: 0

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
1. Site Prep/Clearing	Graders	1	8.00	187	0.41
1. Site Prep/Clearing	Off-Highway Trucks	1	4.00	402	0.38
1. Site Prep/Clearing	Rubber Tired Dozers	1	8.00	247	0.40
1. Site Prep/Clearing	Tractors/Loaders/Backhoes	1	8.00	97	0.37
2. Excavation/grading	Excavators	1	8.00	158	0.38
2. Excavation/grading	Off-Highway Trucks	1	4.00	402	0.38
2. Excavation/grading	Rubber Tired Dozers	1	8.00	247	0.40
3. Foundation	Cement and Mortar Mixers	1	4.00	70	0.56
3. Foundation	Off-Highway Trucks	1	4.00	402	0.38
3. Foundation	Plate Compactors	2	8.00	8	0.43
3. Foundation	Pumps	1	8.00	84	0.74
3. Foundation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
4. Tank Erection	Aerial Lifts	2	8.00	63	0.31
4. Tank Erection	Cranes	1	4.00	231	0.29
4. Tank Erection	Forklifts	1	8.00	89	0.20
4. Tank Erection	Generator Sets	1	8.00	84	0.74
4. Tank Erection	Tractors/Loaders/Backhoes	1	8.00	97	0.37
4. Tank Erection	Welders	1	8.00	46	0.45
5. Coating	Aerial Lifts	2	8.00	63	0.31
5. Coating	Air Compressors	2	8.00	78	0.48
6. Paving Finishing	Off-Highway Trucks	1	2.00	402	0.38
6. Paving Finishing	Pavers	1	8.00	130	0.42
6. Paving Finishing	Plate Compactors	2	8.00	9	0.56
6. Paving Finishing	Rollers	1	8.00	80	0.38
7. Cathodic Protection System	Aerial Lifts	2	8.00	63	0.31

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Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
1. Site Prep/Clearing	4	10.00	2.00	56.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
2. Excavation/grading	3	10.00	2.00	88.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
3. Foundation	6	10.00	2.00	90.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
4. Tank Erection	7	16.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
5. Coating	4	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
6. Paving Finishing	5	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT
7. Cathodic Protection System	2	6.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 1. Site Prep/Clearing - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0161	0.0000	0.0161	8.3900e-003	0.0000	8.3900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3500e-003	0.0144	0.0192	7.0000e-005		4.9000e-004	4.9000e-004		4.9000e-004	4.9000e-004	0.0000	6.5409	6.5409	2.7000e-004	0.0000	6.5476
Total	**3.3500e-003**	**0.0144**	**0.0192**	**7.0000e-005**	**0.0161**	**4.9000e-004**	**0.0166**	**8.3900e-003**	**4.9000e-004**	**8.8800e-003**	**0.0000**	**6.5409**	**6.5409**	**2.7000e-004**	**0.0000**	**6.5476**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	2.7700e-003	8.2000e-004	1.0000e-005	4.8000e-004	3.0000e-005	5.1000e-004	1.3000e-004	3.0000e-005	1.6000e-004	0.0000	1.2621	1.2621	3.0000e-005	2.0000e-004	1.3222
Vendor	1.0000e-005	1.6000e-004	6.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0728	0.0728	0.0000	1.0000e-005	0.0760
Worker	5.0000e-005	3.0000e-005	5.2000e-004	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.1810	0.1810	0.0000	0.0000	0.1822
Total	**1.2000e-004**	**2.9600e-003**	**1.4000e-003**	**1.0000e-005**	**7.8000e-004**	**3.0000e-005**	**8.2000e-004**	**2.1000e-004**	**3.0000e-005**	**2.4000e-004**	**0.0000**	**1.5160**	**1.5160**	**3.0000e-005**	**2.1000e-004**	**1.5804**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					6.3000e-003	0.0000	6.3000e-003	3.2700e-003	0.0000	3.2700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.3500e-003	0.0144	0.0192	7.0000e-005		4.9000e-004	4.9000e-004		4.9000e-004	4.9000e-004	0.0000	6.5409	6.5409	2.7000e-004	0.0000	6.5476
Total	**3.3500e-003**	**0.0144**	**0.0192**	**7.0000e-005**	**6.3000e-003**	**4.9000e-004**	**6.7900e-003**	**3.2700e-003**	**4.9000e-004**	**3.7600e-003**	**0.0000**	**6.5409**	**6.5409**	**2.7000e-004**	**0.0000**	**6.5476**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	2.7700e-003	8.2000e-004	1.0000e-005	4.8000e-004	3.0000e-005	5.1000e-004	1.3000e-004	3.0000e-005	1.6000e-004	0.0000	1.2621	1.2621	3.0000e-005	2.0000e-004	1.3222
Vendor	1.0000e-005	1.6000e-004	6.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0728	0.0728	0.0000	1.0000e-005	0.0760
Worker	5.0000e-005	3.0000e-005	5.2000e-004	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.1810	0.1810	0.0000	0.0000	0.1822
Total	**1.2000e-004**	**2.9600e-003**	**1.4000e-003**	**1.0000e-005**	**7.8000e-004**	**3.0000e-005**	**8.2000e-004**	**2.1000e-004**	**3.0000e-005**	**2.4000e-004**	**0.0000**	**1.5160**	**1.5160**	**3.0000e-005**	**2.1000e-004**	**1.5804**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 2. Excavation/grading - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0463	0.0000	0.0463	0.0250	0.0000	0.0250	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.2500e-003	0.0327	0.0551	1.8000e-004		1.2600e-003	1.2600e-003		1.2600e-003	1.2600e-003	0.0000	16.0410	16.0410	6.7000e-004	0.0000	16.0577
Total	**8.2500e-003**	**0.0327**	**0.0551**	**1.8000e-004**	**0.0463**	**1.2600e-003**	**0.0475**	**0.0250**	**1.2600e-003**	**0.0262**	**0.0000**	**16.0410**	**16.0410**	**6.7000e-004**	**0.0000**	**16.0577**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	4.3600e-003	1.2900e-003	2.0000e-005	7.6000e-004	5.0000e-005	8.1000e-004	2.1000e-004	5.0000e-005	2.6000e-004	0.0000	1.9834	1.9834	5.0000e-005	3.1000e-004	2.0778
Vendor	2.0000e-005	4.9000e-004	1.9000e-004	0.0000	9.0000e-005	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.2185	0.2185	0.0000	3.0000e-005	0.2281
Worker	1.5000e-004	9.0000e-005	1.5500e-003	1.0000e-005	8.2000e-004	0.0000	8.3000e-004	2.2000e-004	0.0000	2.2000e-004	0.0000	0.5430	0.5430	1.0000e-005	1.0000e-005	0.5465
Total	**2.6000e-004**	**4.9400e-003**	**3.0300e-003**	**3.0000e-005**	**1.6700e-003**	**5.0000e-005**	**1.7400e-003**	**4.6000e-004**	**5.0000e-005**	**5.1000e-004**	**0.0000**	**2.7449**	**2.7449**	**6.0000e-005**	**3.5000e-004**	**2.8524**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0181	0.0000	0.0181	9.7300e-003	0.0000	9.7300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.2500e-003	0.0327	0.0551	1.8000e-004		1.2600e-003	1.2600e-003		1.2600e-003	1.2600e-003	0.0000	16.0410	16.0410	6.7000e-004	0.0000	16.0577
Total	**8.2500e-003**	**0.0327**	**0.0551**	**1.8000e-004**	**0.0181**	**1.2600e-003**	**0.0193**	**9.7300e-003**	**1.2600e-003**	**0.0110**	**0.0000**	**16.0410**	**16.0410**	**6.7000e-004**	**0.0000**	**16.0577**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	4.3600e-003	1.2900e-003	2.0000e-005	7.6000e-004	5.0000e-005	8.1000e-004	2.1000e-004	5.0000e-005	2.6000e-004	0.0000	1.9834	1.9834	5.0000e-005	3.1000e-004	2.0778
Vendor	2.0000e-005	4.9000e-004	1.9000e-004	0.0000	9.0000e-005	0.0000	1.0000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.2185	0.2185	0.0000	3.0000e-005	0.2281
Worker	1.5000e-004	9.0000e-005	1.5500e-003	1.0000e-005	8.2000e-004	0.0000	8.3000e-004	2.2000e-004	0.0000	2.2000e-004	0.0000	0.5430	0.5430	1.0000e-005	1.0000e-005	0.5465
Total	**2.6000e-004**	**4.9400e-003**	**3.0300e-003**	**3.0000e-005**	**1.6700e-003**	**5.0000e-005**	**1.7400e-003**	**4.6000e-004**	**5.0000e-005**	**5.1000e-004**	**0.0000**	**2.7449**	**2.7449**	**6.0000e-005**	**3.5000e-004**	**2.8524**

3.4 3. Foundation - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0113	0.0595	0.1192	2.7000e-004		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003	0.0000	24.7292	24.7292	9.1000e-004	0.0000	24.7518
Total	**0.0113**	**0.0595**	**0.1192**	**2.7000e-004**	**0.0000**	**1.5100e-003**	**1.5100e-003**	**0.0000**	**1.5100e-003**	**1.5100e-003**	**0.0000**	**24.7292**	**24.7292**	**9.1000e-004**	**0.0000**	**24.7518**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	4.4600e-003	1.3200e-003	2.0000e-005	7.8000e-004	5.0000e-005	8.3000e-004	2.1000e-004	5.0000e-005	2.6000e-004	0.0000	2.0284	2.0284	5.0000e-005	3.2000e-004	2.1250
Vendor	3.0000e-005	9.8000e-004	3.9000e-004	0.0000	1.9000e-004	1.0000e-005	2.0000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.4370	0.4370	1.0000e-005	6.0000e-005	0.4562
Worker	3.0000e-004	1.8000e-004	3.1000e-003	1.0000e-005	1.6500e-003	0.0000	1.6500e-003	4.4000e-004	0.0000	4.4000e-004	0.0000	1.0860	1.0860	2.0000e-005	2.0000e-005	1.0929
Total	**4.2000e-004**	**5.6200e-003**	**4.8100e-003**	**3.0000e-005**	**2.6200e-003**	**6.0000e-005**	**2.6800e-003**	**7.0000e-004**	**6.0000e-005**	**7.6000e-004**	**0.0000**	**3.5515**	**3.5515**	**8.0000e-005**	**4.0000e-004**	**3.6741**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0113	0.0595	0.1192	2.7000e-004		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003	0.0000	24.7292	24.7292	9.1000e-004	0.0000	24.7518
Total	**0.0113**	**0.0595**	**0.1192**	**2.7000e-004**	**0.0000**	**1.5100e-003**	**1.5100e-003**	**0.0000**	**1.5100e-003**	**1.5100e-003**	**0.0000**	**24.7292**	**24.7292**	**9.1000e-004**	**0.0000**	**24.7518**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.0000e-005	4.4600e-003	1.3200e-003	2.0000e-005	7.8000e-004	5.0000e-005	8.3000e-004	2.1000e-004	5.0000e-005	2.6000e-004	0.0000	2.0284	2.0284	5.0000e-005	3.2000e-004	2.1250
Vendor	3.0000e-005	9.8000e-004	3.9000e-004	0.0000	1.9000e-004	1.0000e-005	2.0000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.4370	0.4370	1.0000e-005	6.0000e-005	0.4562
Worker	3.0000e-004	1.8000e-004	3.1000e-003	1.0000e-005	1.6500e-003	0.0000	1.6500e-003	4.4000e-004	0.0000	4.4000e-004	0.0000	1.0860	1.0860	2.0000e-005	2.0000e-005	1.0929
Total	**4.2000e-004**	**5.6200e-003**	**4.8100e-003**	**3.0000e-005**	**2.6200e-003**	**6.0000e-005**	**2.6800e-003**	**7.0000e-004**	**6.0000e-005**	**7.6000e-004**	**0.0000**	**3.5515**	**3.5515**	**8.0000e-005**	**4.0000e-004**	**3.6741**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 4. Tank Erection - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0661	0.4573	0.8821	1.6900e-003		8.8700e-003	8.8700e-003		8.8700e-003	8.8700e-003	0.0000	142.6010	142.6010	5.3600e-003	0.0000	142.7349
Total	**0.0661**	**0.4573**	**0.8821**	**1.6900e-003**		**8.8700e-003**	**8.8700e-003**		**8.8700e-003**	**8.8700e-003**	**0.0000**	**142.6010**	**142.6010**	**5.3600e-003**	**0.0000**	**142.7349**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.5000e-004	0.0147	5.8400e-003	7.0000e-005	2.8400e-003	1.2000e-004	2.9600e-003	8.2000e-004	1.1000e-004	9.3000e-004	0.0000	6.5550	6.5550	1.0000e-004	9.6000e-004	6.8423
Worker	2.4000e-003	1.4000e-003	0.0248	9.0000e-005	0.0132	4.0000e-005	0.0132	3.5000e-003	4.0000e-005	3.5400e-003	0.0000	8.6882	8.6882	1.2000e-004	1.8000e-004	8.7436
Total	**2.8500e-003**	**0.0161**	**0.0306**	**1.6000e-004**	**0.0160**	**1.6000e-004**	**0.0162**	**4.3200e-003**	**1.5000e-004**	**4.4700e-003**	**0.0000**	**15.2432**	**15.2432**	**2.2000e-004**	**1.1400e-003**	**15.5859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0661	0.4573	0.8821	1.6900e-003		8.8700e-003	8.8700e-003		8.8700e-003	8.8700e-003	0.0000	142.6008	142.6008	5.3600e-003	0.0000	142.7347
Total	**0.0661**	**0.4573**	**0.8821**	**1.6900e-003**		**8.8700e-003**	**8.8700e-003**		**8.8700e-003**	**8.8700e-003**	**0.0000**	**142.6008**	**142.6008**	**5.3600e-003**	**0.0000**	**142.7347**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.5000e-004	0.0147	5.8400e-003	7.0000e-005	2.8400e-003	1.2000e-004	2.9600e-003	8.2000e-004	1.1000e-004	9.3000e-004	0.0000	6.5550	6.5550	1.0000e-004	9.6000e-004	6.8423
Worker	2.4000e-003	1.4000e-003	0.0248	9.0000e-005	0.0132	4.0000e-005	0.0132	3.5000e-003	4.0000e-005	3.5400e-003	0.0000	8.6882	8.6882	1.2000e-004	1.8000e-004	8.7436
Total	**2.8500e-003**	**0.0161**	**0.0306**	**1.6000e-004**	**0.0160**	**1.6000e-004**	**0.0162**	**4.3200e-003**	**1.5000e-004**	**4.4700e-003**	**0.0000**	**15.2432**	**15.2432**	**2.2000e-004**	**1.1400e-003**	**15.5859**

3.6 5. Coating - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5006					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0108	0.0771	0.1598	2.7000e-004		1.7800e-003	1.7800e-003		1.7800e-003	1.7800e-003	0.0000	23.3107	23.3107	8.6000e-004	0.0000	23.3322
Total	**0.5113**	**0.0771**	**0.1598**	**2.7000e-004**		**1.7800e-003**	**1.7800e-003**		**1.7800e-003**	**1.7800e-003**	**0.0000**	**23.3107**	**23.3107**	**8.6000e-004**	**0.0000**	**23.3322**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	2.6000e-004	4.6400e-003	2.0000e-005	2.4700e-003	1.0000e-005	2.4800e-003	6.6000e-004	1.0000e-005	6.6000e-004	0.0000	1.6290	1.6290	2.0000e-005	3.0000e-005	1.6394
Total	**4.5000e-004**	**2.6000e-004**	**4.6400e-003**	**2.0000e-005**	**2.4700e-003**	**1.0000e-005**	**2.4800e-003**	**6.6000e-004**	**1.0000e-005**	**6.6000e-004**	**0.0000**	**1.6290**	**1.6290**	**2.0000e-005**	**3.0000e-005**	**1.6394**

WMWD Riverside FMP : Tank Construction Future - Riverside-South Coast County, Annual

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Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.5006					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0108	0.0771	0.1598	2.7000e-004		1.7800e-003	1.7800e-003		1.7800e-003	1.7800e-003	0.0000	23.3107	23.3107	8.6000e-004	0.0000	23.3322
Total	**0.5113**	**0.0771**	**0.1598**	**2.7000e-004**		**1.7800e-003**	**1.7800e-003**		**1.7800e-003**	**1.7800e-003**	**0.0000**	**23.3107**	**23.3107**	**8.6000e-004**	**0.0000**	**23.3322**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.5000e-004	2.6000e-004	4.6400e-003	2.0000e-005	2.4700e-003	1.0000e-005	2.4800e-003	6.6000e-004	1.0000e-005	6.6000e-004	0.0000	1.6290	1.6290	2.0000e-005	3.0000e-005	1.6394
Total	**4.5000e-004**	**2.6000e-004**	**4.6400e-003**	**2.0000e-005**	**2.4700e-003**	**1.0000e-005**	**2.4800e-003**	**6.6000e-004**	**1.0000e-005**	**6.6000e-004**	**0.0000**	**1.6290**	**1.6290**	**2.0000e-005**	**3.0000e-005**	**1.6394**

3.7 6. Paving Finishing - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.1200e-003	0.0346	0.0651	1.4000e-004		1.4700e-003	1.4700e-003		1.4700e-003	1.4700e-003	0.0000	12.1180	12.1180	5.8000e-004	0.0000	12.1324
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.1200e-003**	**0.0346**	**0.0651**	**1.4000e-004**		**1.4700e-003**	**1.4700e-003**		**1.4700e-003**	**1.4700e-003**	**0.0000**	**12.1180**	**12.1180**	**5.8000e-004**	**0.0000**	**12.1324**

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Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	9.5000e-004	4.4000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3449	0.3449	1.0000e-005	5.0000e-005	0.3613
Worker	2.0000e-004	1.2000e-004	2.0600e-003	1.0000e-005	1.1000e-003	0.0000	1.1000e-003	2.9000e-004	0.0000	2.9000e-004	0.0000	0.7240	0.7240	1.0000e-005	1.0000e-005	0.7286
Total	**2.3000e-004**	**1.0700e-003**	**2.5000e-003**	**1.0000e-005**	**1.2200e-003**	**1.0000e-005**	**1.2300e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0689**	**1.0689**	**2.0000e-005**	**6.0000e-005**	**1.0899**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.1200e-003	0.0346	0.0651	1.4000e-004		1.4700e-003	1.4700e-003		1.4700e-003	1.4700e-003	0.0000	12.1179	12.1179	5.8000e-004	0.0000	12.1324
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.1200e-003**	**0.0346**	**0.0651**	**1.4000e-004**		**1.4700e-003**	**1.4700e-003**		**1.4700e-003**	**1.4700e-003**	**0.0000**	**12.1179**	**12.1179**	**5.8000e-004**	**0.0000**	**12.1324**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	9.5000e-004	4.4000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3449	0.3449	1.0000e-005	5.0000e-005	0.3613
Worker	2.0000e-004	1.2000e-004	2.0600e-003	1.0000e-005	1.1000e-003	0.0000	1.1000e-003	2.9000e-004	0.0000	2.9000e-004	0.0000	0.7240	0.7240	1.0000e-005	1.0000e-005	0.7286
Total	**2.3000e-004**	**1.0700e-003**	**2.5000e-003**	**1.0000e-005**	**1.2200e-003**	**1.0000e-005**	**1.2300e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0689**	**1.0689**	**2.0000e-005**	**6.0000e-005**	**1.0899**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.8 7. Cathodic Protection System - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.3000e-004	1.1400e-003	2.3100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3552	0.3552	1.0000e-005	0.0000	0.3554
Total	**1.3000e-004**	**1.1400e-003**	**2.3100e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.3552**	**0.3552**	**1.0000e-005**	**0.0000**	**0.3554**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	7.0000e-005	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0291	0.0291	0.0000	0.0000	0.0304
Worker	1.0000e-005	1.0000e-005	1.2000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0434	0.0434	0.0000	0.0000	0.0437
Total	**1.0000e-005**	**8.0000e-005**	**1.5000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0726**	**0.0726**	**0.0000**	**0.0000**	**0.0741**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.3000e-004	1.1400e-003	2.3100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	0.3552	0.3552	1.0000e-005	0.0000	0.3554
Total	**1.3000e-004**	**1.1400e-003**	**2.3100e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.3552**	**0.3552**	**1.0000e-005**	**0.0000**	**0.3554**

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Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	7.0000e-005	3.0000e-005	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0291	0.0291	0.0000	0.0000	0.0304
Worker	1.0000e-005	1.0000e-005	1.2000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0434	0.0434	0.0000	0.0000	0.0437
Total	**1.0000e-005**	**8.0000e-005**	**1.5000e-004**	**0.0000**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0726**	**0.0726**	**0.0000**	**0.0000**	**0.0741**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.551512	0.058170	0.178297	0.126510	0.022409	0.006479	0.011491	0.017248	0.000593	0.000271	0.022353	0.001062	0.00

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1223	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	0.1223	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

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6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0139					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1084					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.1223**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0139					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1084					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**0.1223**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Western MWD - Riverside FMP

Pump/Lift Station- Future Projects (2031-2050)

Local Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
Source	**lb/day**						
Pump/Booster Station Construction	1.0	5.1	9.7	0.03	1.4	0.8	—
Regional Emissions	**ROG**	**NOX**	**CO**	**SO2**	**Total PM10**	**Total PM2.5**	**CO2e**
	lb/day, MT/yr for CO2e						
Pump/Booster Station Construction	1.0	5.1	10.0	0.032	1.5	0.8	207.87

Western MWD - Riverside FMP
Total Annual Emissions
Air Quality Construction Analysis

Regional Emissions	Total Project Emissons (ton/yr), MT/yr CO2e						
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	CO2e
	ton/yr						MT/yr
Pump/Lift Station Build/Rebuild Future Project	0.10	0.66	1.27	0.002	0.04	0.02	207.9
Project Annual Emissions	**0.10**	**0.66**	**1.27**	**0.002**	**0.04**	**0.02**	207.9

Riverside FMP
Maximum Daily Projected Emissions
Air Quality Construction Analysis

summer Regional Emissions	Onsite Emissions						Offsite Emissions					
Source	ROG	NOX	CO	SO2	Total PM10	Total PM2.5	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
	lb/day						lb/day					
1. Excavation/Grading	0.98	3.13	8.94	0.025	0.31	0.12	0.05	1.31	0.63	0.01	0.36	0.11
2. Foundation	0.80	3.68	5.16	0.017	1.40	0.78	0.03	0.20	0.30	0.00	0.15	0.04
3. Construction/Interior	0.77	5.05	9.74	0.017	0.10	0.10	0.02	0.08	0.27	0.00	0.13	0.03
4. Paving	0.82	3.54	7.06	0.017	0.15	0.15	0.02	0.10	0.19	0.00	0.08	0.02

Regional Emissions	ROG	NOX	CO	SO2	Total PM10	Total PM2.5
1. Excavation/Grading	1.0	4.4	9.6	0.0	0.7	0.2
2. Foundation	0.8	3.9	5.5	0.0	1.5	0.8
3. Construction/Interior	0.8	5.1	10.0	0.0	0.2	0.1
4. Paving	0.8	3.6	7.3	0.0	0.2	0.2
Project Daily Maximum Emissions	**1.03**	**5.13**	**10.00**	**0.03**	**1.55**	**0.82**

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Lift/Pump Station Build Future

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.25	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2032
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2031 Project Year Start or Later
Lift/Pump Station Build
Land Use - 0.25 acre site, 1000 SF structure

Construction Phase - See Lift - Pump Station Worksheet
Construction to fit in one year. Interior Electrical and Mechanical Work - 11 months; site resurfacing

Off-road Equipment - see assumptions sheet

Off-road Equipment - see assumptions sheet

Off-road Equipment - see assumptions worksheet

Off-road Equipment - see pump/lift station assumption sheet

Off-road Equipment - See assumptions sheet

Trips and VMT - see assumptions sheet - asphalt included as HHDT vendor trips

Grading -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1.00	10.00
tblConstructionPhase	NumDays	100.00	240.00
tblConstructionPhase	NumDays	2.00	5.00
tblGrading	MaterialExported	0.00	500.00
tblGrading	MaterialExported	0.00	100.00
tblLandUse	LandUseSquareFeet	0.00	1,000.00
tblLandUse	LotAcreage	0.00	0.25
tblOffRoadEquipment	HorsePower	9.00	70.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	HaulingTripNumber	63.00	62.00
tblTripsAndVMT	HaulingTripNumber	13.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	18.00	10.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	1.0284	5.1314	9.9580	0.0318	3.4230	0.1501	3.5471	1.7230	0.1500	1.8470	0.0000	3,222.4214	3,222.4214	0.1026	0.1036	3,255.8655
Maximum	**1.0284**	**5.1314**	**9.9580**	**0.0318**	**3.4230**	**0.1501**	**3.5471**	**1.7230**	**0.1500**	**1.8470**	**0.0000**	**3,222.4214**	**3,222.4214**	**0.1026**	**0.1036**	**3,255.8655**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	1.0284	5.1314	9.9580	0.0318	1.4238	0.1501	1.5479	0.6958	0.1500	0.8198	0.0000	3,222.4214	3,222.4214	0.1026	0.1036	3,255.8655
Maximum	**1.0284**	**5.1314**	**9.9580**	**0.0318**	**1.4238**	**0.1501**	**1.5479**	**0.6958**	**0.1500**	**0.8198**	**0.0000**	**3,222.4214**	**3,222.4214**	**0.1026**	**0.1036**	**3,255.8655**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.41**	**0.00**	**56.36**	**59.62**	**0.00**	**55.61**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	1. Excavation/Grading	Grading	1/1/2031	1/7/2031	5	5	
2	2. Foundation	Site Preparation	1/8/2031	1/21/2031	5	10	
3	3. Construction/Interior	Building Construction	1/22/2031	12/23/2031	5	240	Interior Upgrades
4	4. Paving	Paving	12/24/2031	12/30/2031	5	5	Pave/Restore Surface

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 2.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
1. Excavation/Grading	Excavators	1	8.00	158	0.38
1. Excavation/Grading	Graders	1	8.00	187	0.41
1. Excavation/Grading	Off-Highway Trucks	1	4.00	402	0.38
1. Excavation/Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
2. Foundation	Cement and Mortar Mixers	1	2.00	70	0.56
2. Foundation	Off-Highway Trucks	1	4.00	402	0.38
2. Foundation	Plate Compactors	2	8.00	8	0.43
2. Foundation	Pumps	1	2.00	84	0.74
2. Foundation	Rubber Tired Dozers	1	4.00	247	0.40
3. Construction/Interior	Air Compressors	1	8.00	78	0.48
3. Construction/Interior	Concrete/Industrial Saws	1	8.00	81	0.73
3. Construction/Interior	Cranes	1	2.00	231	0.29
3. Construction/Interior	Forklifts	1	4.00	89	0.20
3. Construction/Interior	Tractors/Loaders/Backhoes	1	4.00	97	0.37
3. Construction/Interior	Welders	1	8.00	46	0.45
4. Paving	Off-Highway Trucks	1	4.00	402	0.38
4. Paving	Pavers	1	8.00	130	0.42
4. Paving	Plate Compactors	2	8.00	8	0.43
4. Paving	Rollers	1	8.00	80	0.38
2. Foundation	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
1. Excavation/Grading	4	10.00	2.00	62.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
2. Foundation	7	10.00	2.00	12.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
3. Construction/Interior	6	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
4. Paving	5	6.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 1. Excavation/Grading - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5429	0.0000	0.5429	0.0592	0.0000	0.0592			0.0000			0.0000
Off-Road	0.9808	3.1258	8.9449	0.0250		0.0987	0.0987		0.0987	0.0987		2,495.5461	2,495.5461	0.0866		2,497.7111
Total	**0.9808**	**3.1258**	**8.9449**	**0.0250**	**0.5429**	**0.0987**	**0.6416**	**0.0592**	**0.0987**	**0.1579**		**2,495.5461**	**2,495.5461**	**0.0866**		**2,497.7111**

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0243	1.2351	0.3665	5.7400e-003	0.2170	0.0138	0.2308	0.0595	0.0132	0.0727		616.7079	616.7079	0.0144	0.0974	646.0779
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0476**	**1.3124**	**0.5889**	**6.7600e-003**	**0.3416**	**0.0147**	**0.3563**	**0.0928**	**0.0141**	**0.1069**		**726.8753**	**726.8753**	**0.0160**	**0.1036**	**758.1544**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2117	0.0000	0.2117	0.0231	0.0000	0.0231			0.0000			0.0000
Off-Road	0.9808	3.1258	8.9449	0.0250		0.0987	0.0987		0.0987	0.0987	0.0000	2,495.5461	2,495.5461	0.0866		2,497.7111
Total	**0.9808**	**3.1258**	**8.9449**	**0.0250**	**0.2117**	**0.0987**	**0.3104**	**0.0231**	**0.0987**	**0.1218**	**0.0000**	**2,495.5461**	**2,495.5461**	**0.0866**		**2,497.7111**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0243	1.2351	0.3665	5.7400e-003	0.2170	0.0138	0.2308	0.0595	0.0132	0.0727		616.7079	616.7079	0.0144	0.0974	646.0779
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0476**	**1.3124**	**0.5889**	**6.7600e-003**	**0.3416**	**0.0147**	**0.3563**	**0.0928**	**0.0141**	**0.1069**		**726.8753**	**726.8753**	**0.0160**	**0.1036**	**758.1544**

3.3 2. Foundation - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2774	0.0000	3.2774	1.6839	0.0000	1.6839			0.0000			0.0000
Off-Road	0.8020	3.6818	5.1554	0.0165		0.1219	0.1219		0.1219	0.1219		1,665.2844	1,665.2844	0.0712		1,667.0631
Total	**0.8020**	**3.6818**	**5.1554**	**0.0165**	**3.2774**	**0.1219**	**3.3994**	**1.6839**	**0.1219**	**1.8059**		**1,665.2844**	**1,665.2844**	**0.0712**		**1,667.0631**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.3500e-003	0.1195	0.0355	5.6000e-004	0.0210	1.3400e-003	0.0223	5.7600e-003	1.2800e-003	7.0400e-003		59.6814	59.6814	1.3900e-003	9.4200e-003	62.5237
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0257**	**0.1968**	**0.2579**	**1.5800e-003**	**0.1456**	**2.2000e-003**	**0.1478**	**0.0391**	**2.0900e-003**	**0.0412**		**169.8488**	**169.8488**	**3.0100e-003**	**0.0157**	**174.6002**

Mitigated Construction On-Site

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2782	0.0000	1.2782	0.6567	0.0000	0.6567			0.0000			0.0000
Off-Road	0.8020	3.6818	5.1554	0.0165		0.1219	0.1219		0.1219	0.1219	0.0000	1,665.2844	1,665.2844	0.0712		1,667.0631
Total	**0.8020**	**3.6818**	**5.1554**	**0.0165**	**1.2782**	**0.1219**	**1.4001**	**0.6567**	**0.1219**	**0.7787**	**0.0000**	**1,665.2844**	**1,665.2844**	**0.0712**		**1,667.0631**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.3500e-003	0.1195	0.0355	5.6000e-004	0.0210	1.3400e-003	0.0223	5.7600e-003	1.2800e-003	7.0400e-003		59.6814	59.6814	1.3900e-003	9.4200e-003	62.5237
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0257**	**0.1968**	**0.2579**	**1.5800e-003**	**0.1456**	**2.2000e-003**	**0.1478**	**0.0391**	**2.0900e-003**	**0.0412**		**169.8488**	**169.8488**	**3.0100e-003**	**0.0157**	**174.6002**

3.4 3. Construction/Interior - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7654	5.0541	9.7356	0.0174		0.1009	0.1009		0.1009	0.1009		1,612.3375	1,612.3375	0.0670		1,614.0133
Total	**0.7654**	**5.0541**	**9.7356**	**0.0174**		**0.1009**	**0.1009**		**0.1009**	**0.1009**		**1,612.3375**	**1,612.3375**	**0.0670**		**1,614.0133**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0233**	**0.0773**	**0.2224**	**1.0200e-003**	**0.1246**	**8.6000e-004**	**0.1254**	**0.0333**	**8.1000e-004**	**0.0342**		**110.1674**	**110.1674**	**1.6200e-003**	**6.2700e-003**	**112.0765**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7654	5.0541	9.7356	0.0174		0.1009	0.1009		0.1009	0.1009	0.0000	1,612.3375	1,612.3375	0.0670		1,614.0133
Total	**0.7654**	**5.0541**	**9.7356**	**0.0174**		**0.1009**	**0.1009**		**0.1009**	**0.1009**	**0.0000**	**1,612.3375**	**1,612.3375**	**0.0670**		**1,614.0133**

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9300e-003	0.0659	0.0264	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.1619	32.1619	4.8000e-004	4.6900e-003	33.5715
Worker	0.0214	0.0114	0.1960	7.2000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		78.0055	78.0055	1.1400e-003	1.5800e-003	78.5050
Total	**0.0233**	**0.0773**	**0.2224**	**1.0200e-003**	**0.1246**	**8.6000e-004**	**0.1254**	**0.0333**	**8.1000e-004**	**0.0342**		**110.1674**	**110.1674**	**1.6200e-003**	**6.2700e-003**	**112.0765**

3.5 4. Paving - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8204	3.5373	7.0621	0.0167		0.1491	0.1491		0.1491	0.1491		1,686.4832	1,686.4832	0.0732		1,688.3140
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8204**	**3.5373**	**7.0621**	**0.0167**		**0.1491**	**0.1491**		**0.1491**	**0.1491**		**1,686.4832**	**1,686.4832**	**0.0732**		**1,688.3140**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8400e-003	0.0968	0.0449	3.5000e-004	0.0121	7.9000e-004	0.0129	3.3200e-003	7.5000e-004	4.0700e-003		38.1096	38.1096	8.8000e-004	6.0100e-003	39.9239
Worker	0.0128	6.8300e-003	0.1176	4.3000e-004	0.0671	2.0000e-004	0.0673	0.0178	1.8000e-004	0.0180		46.8033	46.8033	6.8000e-004	9.5000e-004	47.1030
Total	**0.0157**	**0.1037**	**0.1625**	**7.8000e-004**	**0.0792**	**9.9000e-004**	**0.0802**	**0.0211**	**9.3000e-004**	**0.0220**		**84.9129**	**84.9129**	**1.5600e-003**	**6.9600e-003**	**87.0269**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8204	3.5373	7.0621	0.0167		0.1491	0.1491		0.1491	0.1491	0.0000	1,686.4832	1,686.4832	0.0732		1,688.3140
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8204**	**3.5373**	**7.0621**	**0.0167**		**0.1491**	**0.1491**		**0.1491**	**0.1491**	**0.0000**	**1,686.4832**	**1,686.4832**	**0.0732**		**1,688.3140**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.8400e-003	0.0968	0.0449	3.5000e-004	0.0121	7.9000e-004	0.0129	3.3200e-003	7.5000e-004	4.0700e-003		38.1096	38.1096	8.8000e-004	6.0100e-003	39.9239
Worker	0.0128	6.8300e-003	0.1176	4.3000e-004	0.0671	2.0000e-004	0.0673	0.0178	1.8000e-004	0.0180		46.8033	46.8033	6.8000e-004	9.5000e-004	47.1030
Total	**0.0157**	**0.1037**	**0.1625**	**7.8000e-004**	**0.0792**	**9.9000e-004**	**0.0802**	**0.0211**	**9.3000e-004**	**0.0220**		**84.9129**	**84.9129**	**1.5600e-003**	**6.9600e-003**	**87.0269**

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.551512	0.058170	0.178297	0.126510	0.022409	0.006479	0.011491	0.017248	0.000593	0.000271	0.022353	0.001062	0.003606

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day											lb/day				
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day											lb/day				
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

WMWD Riverside FMP : Lift/Pump Station Build Future

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.25	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2032
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2031 Project Year Start or Later
Lift/Pump Station Build
Land Use - 0.25 acre site, 1000 SF structure

Construction Phase - See Lift - Pump Station Worksheet
Construction to fit in one year. Interior Electrical and Mechanical Work - 11 months; site resurfacing

Off-road Equipment - see assumptions sheet

Off-road Equipment - see assumptions sheet

Off-road Equipment - see assumptions worksheet

Off-road Equipment - see pump/lift station assumption sheet

Off-road Equipment - See assumptions sheet

Trips and VMT - see assumptions sheet - asphalt included as HHDT vendor trips

Grading -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1.00	10.00
tblConstructionPhase	NumDays	100.00	240.00
tblConstructionPhase	NumDays	2.00	5.00
tblGrading	MaterialExported	0.00	500.00
tblGrading	MaterialExported	0.00	100.00
tblLandUse	LandUseSquareFeet	0.00	1,000.00
tblLandUse	LotAcreage	0.00	0.25
tblOffRoadEquipment	HorsePower	9.00	70.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	HaulingTripNumber	63.00	62.00
tblTripsAndVMT	HaulingTripNumber	13.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	18.00	10.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	1.0317	5.1272	10.0015	0.0318	3.4230	0.1501	3.5471	1.7230	0.1500	1.8470	0.0000	3,229.3535	3,229.3535	0.1027	0.1034	3,262.7382
Maximum	**1.0317**	**5.1272**	**10.0015**	**0.0318**	**3.4230**	**0.1501**	**3.5471**	**1.7230**	**0.1500**	**1.8470**	**0.0000**	**3,229.3535**	**3,229.3535**	**0.1027**	**0.1034**	**3,262.7382**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2031	1.0317	5.1272	10.0015	0.0318	1.4238	0.1501	1.5479	0.6958	0.1500	0.8198	0.0000	3,229.3535	3,229.3535	0.1027	0.1034	3,262.7382
Maximum	**1.0317**	**5.1272**	**10.0015**	**0.0318**	**1.4238**	**0.1501**	**1.5479**	**0.6958**	**0.1500**	**0.8198**	**0.0000**	**3,229.3535**	**3,229.3535**	**0.1027**	**0.1034**	**3,262.7382**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**58.41**	**0.00**	**56.36**	**59.62**	**0.00**	**55.61**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	1. Excavation/Grading	Grading	1/1/2031	1/7/2031	5	5	
2	2. Foundation	Site Preparation	1/8/2031	1/21/2031	5	10	
3	3. Construction/Interior	Building Construction	1/22/2031	12/23/2031	5	240	Interior Upgrades
4	4. Paving	Paving	12/24/2031	12/30/2031	5	5	Pave/Restore Surface

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 2.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
1. Excavation/Grading	Excavators	1	8.00	158	0.38
1. Excavation/Grading	Graders	1	8.00	187	0.41
1. Excavation/Grading	Off-Highway Trucks	1	4.00	402	0.38
1. Excavation/Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
2. Foundation	Cement and Mortar Mixers	1	2.00	70	0.56
2. Foundation	Off-Highway Trucks	1	4.00	402	0.38
2. Foundation	Plate Compactors	2	8.00	8	0.43
2. Foundation	Pumps	1	2.00	84	0.74
2. Foundation	Rubber Tired Dozers	1	4.00	247	0.40
3. Construction/Interior	Air Compressors	1	8.00	78	0.48
3. Construction/Interior	Concrete/Industrial Saws	1	8.00	81	0.73
3. Construction/Interior	Cranes	1	2.00	231	0.29
3. Construction/Interior	Forklifts	1	4.00	89	0.20
3. Construction/Interior	Tractors/Loaders/Backhoes	1	4.00	97	0.37
3. Construction/Interior	Welders	1	8.00	46	0.45
4. Paving	Off-Highway Trucks	1	4.00	402	0.38
4. Paving	Pavers	1	8.00	130	0.42
4. Paving	Plate Compactors	2	8.00	8	0.43
4. Paving	Rollers	1	8.00	80	0.38
2. Foundation	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
1. Excavation/Grading	4	10.00	2.00	62.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
2. Foundation	7	10.00	2.00	12.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
3. Construction/Interior	6	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
4. Paving	5	6.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 1. Excavation/Grading - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5429	0.0000	0.5429	0.0592	0.0000	0.0592			0.0000			0.0000
Off-Road	0.9808	3.1258	8.9449	0.0250		0.0987	0.0987		0.0987	0.0987		2,495.5461	2,495.5461	0.0866		2,497.7111
Total	**0.9808**	**3.1258**	**8.9449**	**0.0250**	**0.5429**	**0.0987**	**0.6416**	**0.0592**	**0.0987**	**0.1579**		**2,495.5461**	**2,495.5461**	**0.0866**		**2,497.7111**

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0265	1.1648	0.3595	5.7300e-003	0.2170	0.0138	0.2308	0.0595	0.0132	0.0727		615.7111	615.7111	0.0145	0.0972	645.0365
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0509**	**1.2379**	**0.6254**	**6.8200e-003**	**0.3416**	**0.0147**	**0.3562**	**0.0928**	**0.0140**	**0.1069**		**733.8074**	**733.8074**	**0.0161**	**0.1034**	**765.0271**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2117	0.0000	0.2117	0.0231	0.0000	0.0231			0.0000			0.0000
Off-Road	0.9808	3.1258	8.9449	0.0250		0.0987	0.0987		0.0987	0.0987	0.0000	2,495.5461	2,495.5461	0.0866		2,497.7111
Total	**0.9808**	**3.1258**	**8.9449**	**0.0250**	**0.2117**	**0.0987**	**0.3104**	**0.0231**	**0.0987**	**0.1218**	**0.0000**	**2,495.5461**	**2,495.5461**	**0.0866**		**2,497.7111**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0265	1.1648	0.3595	5.7300e-003	0.2170	0.0138	0.2308	0.0595	0.0132	0.0727		615.7111	615.7111	0.0145	0.0972	645.0365
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0509**	**1.2379**	**0.6254**	**6.8200e-003**	**0.3416**	**0.0147**	**0.3562**	**0.0928**	**0.0140**	**0.1069**		**733.8074**	**733.8074**	**0.0161**	**0.1034**	**765.0271**

3.3 2. Foundation - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2774	0.0000	3.2774	1.6839	0.0000	1.6839			0.0000			0.0000
Off-Road	0.8020	3.6818	5.1554	0.0165		0.1219	0.1219		0.1219	0.1219		1,665.2844	1,665.2844	0.0712		1,667.0631
Total	**0.8020**	**3.6818**	**5.1554**	**0.0165**	**3.2774**	**0.1219**	**3.3994**	**1.6839**	**0.1219**	**1.8059**		**1,665.2844**	**1,665.2844**	**0.0712**		**1,667.0631**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.5600e-003	0.1127	0.0348	5.5000e-004	0.0210	1.3400e-003	0.0223	5.7600e-003	1.2800e-003	7.0400e-003		59.5849	59.5849	1.4000e-003	9.4100e-003	62.4229
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0270**	**0.1858**	**0.3007**	**1.6400e-003**	**0.1456**	**2.2000e-003**	**0.1478**	**0.0391**	**2.0900e-003**	**0.0412**		**177.6813**	**177.6813**	**3.0100e-003**	**0.0156**	**182.4135**

Mitigated Construction On-Site

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2782	0.0000	1.2782	0.6567	0.0000	0.6567			0.0000			0.0000
Off-Road	0.8020	3.6818	5.1554	0.0165		0.1219	0.1219		0.1219	0.1219	0.0000	1,665.2844	1,665.2844	0.0712		1,667.0631
Total	**0.8020**	**3.6818**	**5.1554**	**0.0165**	**1.2782**	**0.1219**	**1.4001**	**0.6567**	**0.1219**	**0.7787**	**0.0000**	**1,665.2844**	**1,665.2844**	**0.0712**		**1,667.0631**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.5600e-003	0.1127	0.0348	5.5000e-004	0.0210	1.3400e-003	0.0223	5.7600e-003	1.2800e-003	7.0400e-003		59.5849	59.5849	1.4000e-003	9.4100e-003	62.4229
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0270**	**0.1858**	**0.3007**	**1.6400e-003**	**0.1456**	**2.2000e-003**	**0.1478**	**0.0391**	**2.0900e-003**	**0.0412**		**177.6813**	**177.6813**	**3.0100e-003**	**0.0156**	**182.4135**

3.4 3. Construction/Interior - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7654	5.0541	9.7356	0.0174		0.1009	0.1009		0.1009	0.1009		1,612.3375	1,612.3375	0.0670		1,614.0133
Total	**0.7654**	**5.0541**	**9.7356**	**0.0174**		**0.1009**	**0.1009**		**0.1009**	**0.1009**		**1,612.3375**	**1,612.3375**	**0.0670**		**1,614.0133**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0244**	**0.0731**	**0.2660**	**1.0900e-003**	**0.1246**	**8.6000e-004**	**0.1254**	**0.0333**	**8.1000e-004**	**0.0342**		**118.0963**	**118.0963**	**1.6100e-003**	**6.2200e-003**	**119.9906**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7654	5.0541	9.7356	0.0174		0.1009	0.1009		0.1009	0.1009	0.0000	1,612.3375	1,612.3375	0.0670		1,614.0133
Total	**0.7654**	**5.0541**	**9.7356**	**0.0174**		**0.1009**	**0.1009**		**0.1009**	**0.1009**	**0.0000**	**1,612.3375**	**1,612.3375**	**0.0670**		**1,614.0133**

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0900e-003	0.0621	0.0255	3.0000e-004	0.0128	5.3000e-004	0.0133	3.6900e-003	5.1000e-004	4.2000e-003		32.0795	32.0795	4.8000e-004	4.6700e-003	33.4847
Worker	0.0223	0.0110	0.2404	7.9000e-004	0.1118	3.3000e-004	0.1121	0.0296	3.0000e-004	0.0300		86.0169	86.0169	1.1300e-003	1.5500e-003	86.5060
Total	**0.0244**	**0.0731**	**0.2660**	**1.0900e-003**	**0.1246**	**8.6000e-004**	**0.1254**	**0.0333**	**8.1000e-004**	**0.0342**		**118.0963**	**118.0963**	**1.6100e-003**	**6.2200e-003**	**119.9906**

3.5 4. Paving - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8204	3.5373	7.0621	0.0167		0.1491	0.1491		0.1491	0.1491		1,686.4832	1,686.4832	0.0732		1,688.3140
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8204**	**3.5373**	**7.0621**	**0.0167**		**0.1491**	**0.1491**		**0.1491**	**0.1491**		**1,686.4832**	**1,686.4832**	**0.0732**		**1,688.3140**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1900e-003	0.0906	0.0438	3.5000e-004	0.0121	7.8000e-004	0.0129	3.3200e-003	7.5000e-004	4.0700e-003		37.9488	37.9488	9.0000e-004	5.9900e-003	39.7559
Worker	0.0134	6.6000e-003	0.1443	4.7000e-004	0.0671	2.0000e-004	0.0673	0.0178	1.8000e-004	0.0180		51.6101	51.6101	6.8000e-004	9.3000e-004	51.9036
Total	**0.0166**	**0.0972**	**0.1881**	**8.2000e-004**	**0.0792**	**9.8000e-004**	**0.0801**	**0.0211**	**9.3000e-004**	**0.0220**		**89.5589**	**89.5589**	**1.5800e-003**	**6.9200e-003**	**91.6595**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8204	3.5373	7.0621	0.0167		0.1491	0.1491		0.1491	0.1491	0.0000	1,686.4832	1,686.4832	0.0732		1,688.3140
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8204**	**3.5373**	**7.0621**	**0.0167**		**0.1491**	**0.1491**		**0.1491**	**0.1491**	**0.0000**	**1,686.4832**	**1,686.4832**	**0.0732**		**1,688.3140**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1900e-003	0.0906	0.0438	3.5000e-004	0.0121	7.8000e-004	0.0129	3.3200e-003	7.5000e-004	4.0700e-003		37.9488	37.9488	9.0000e-004	5.9900e-003	39.7559
Worker	0.0134	6.6000e-003	0.1443	4.7000e-004	0.0671	2.0000e-004	0.0673	0.0178	1.8000e-004	0.0180		51.6101	51.6101	6.8000e-004	9.3000e-004	51.9036
Total	**0.0166**	**0.0972**	**0.1881**	**8.2000e-004**	**0.0792**	**9.8000e-004**	**0.0801**	**0.0211**	**9.3000e-004**	**0.0220**		**89.5589**	**89.5589**	**1.5800e-003**	**6.9200e-003**	**91.6595**

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4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.551512	0.058170	0.178297	0.126510	0.022409	0.006479	0.011491	0.017248	0.000593	0.000271	0.022353	0.001062	0.003606

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day											lb/day				
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day											lb/day				
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0224	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	2.5400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0198					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**0.0224**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	0.25	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2032
Utility Company	Riverside Public Utilities/City of Riverside				
CO2 Intensity (lb/MWhr)	789.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Run is for Construction Only - 2031 Project Year Start or Later
Lift/Pump Station Build
Land Use - 0.25 acre site, 1000 SF structure

Construction Phase - See Lift - Pump Station Worksheet
Construction to fit in one year. Interior Electrical and Mechanical Work - 11 months; site resurfacing

Off-road Equipment - see assumptions sheet

Off-road Equipment - see assumptions sheet

Off-road Equipment - see assumptions worksheet

Off-road Equipment - see pump/lift station assumption sheet

Off-road Equipment - See assumptions sheet

Trips and VMT - see assumptions sheet - asphalt included as HHDT vendor trips

Grading -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1.00	10.00
tblConstructionPhase	NumDays	100.00	240.00
tblConstructionPhase	NumDays	2.00	5.00
tblGrading	MaterialExported	0.00	500.00
tblGrading	MaterialExported	0.00	100.00
tblLandUse	LandUseSquareFeet	0.00	1,000.00
tblLandUse	LotAcreage	0.00	0.25
tblOffRoadEquipment	HorsePower	9.00	70.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	4.00	2.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblTripsAndVMT	HaulingTripNumber	63.00	62.00
tblTripsAndVMT	HaulingTripNumber	13.00	12.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorTripNumber	0.00	2.00
tblTripsAndVMT	VendorVehicleClass	HDT_Mix	HHDT
tblTripsAndVMT	WorkerTripNumber	18.00	10.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00
tblTripsAndVMT	WorkerTripNumber	13.00	6.00

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2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2031	0.1033	0.6553	1.2652	2.4200e-003	0.0342	0.0135	0.0477	0.0130	0.0135	0.0265	0.0000	207.3692	207.3692	8.2100e-003	1.0100e-003	207.8746
Maximum	**0.1033**	**0.6553**	**1.2652**	**2.4200e-003**	**0.0342**	**0.0135**	**0.0477**	**0.0130**	**0.0135**	**0.0265**	**0.0000**	**207.3692**	**207.3692**	**8.2100e-003**	**1.0100e-003**	**207.8746**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2031	0.1033	0.6553	1.2652	2.4200e-003	0.0234	0.0135	0.0369	7.7500e-003	0.0135	0.0212	0.0000	207.3690	207.3690	8.2100e-003	1.0100e-003	207.8744
Maximum	**0.1033**	**0.6553**	**1.2652**	**2.4200e-003**	**0.0234**	**0.0135**	**0.0369**	**7.7500e-003**	**0.0135**	**0.0212**	**0.0000**	**207.3690**	**207.3690**	**8.2100e-003**	**1.0100e-003**	**207.8744**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**31.64**	**0.00**	**22.70**	**40.29**	**0.00**	**19.76**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2031	3-31-2031	0.1831	0.1831
2	4-1-2031	6-30-2031	0.1923	0.1923
3	7-1-2031	9-30-2031	0.1944	0.1944
		Highest	0.1944	0.1944

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.0800e-003**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.0800e-003**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	1. Excavation/Grading	Grading	1/1/2031	1/7/2031	5	5	
2	2. Foundation	Site Preparation	1/8/2031	1/21/2031	5	10	
3	3. Construction/Interior	Building Construction	1/22/2031	12/23/2031	5	240	Interior Upgrades
4	4. Paving	Paving	12/24/2031	12/30/2031	5	5	Pave/Restore Surface

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 2.5

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
1. Excavation/Grading	Excavators	1	8.00	158	0.38
1. Excavation/Grading	Graders	1	8.00	187	0.41
1. Excavation/Grading	Off-Highway Trucks	1	4.00	402	0.38
1. Excavation/Grading	Tractors/Loaders/Backhoes	1	8.00	97	0.37
2. Foundation	Cement and Mortar Mixers	1	2.00	70	0.56
2. Foundation	Off-Highway Trucks	1	4.00	402	0.38
2. Foundation	Plate Compactors	2	8.00	8	0.43
2. Foundation	Pumps	1	2.00	84	0.74
2. Foundation	Rubber Tired Dozers	1	4.00	247	0.40
3. Construction/Interior	Air Compressors	1	8.00	78	0.48
3. Construction/Interior	Concrete/Industrial Saws	1	8.00	81	0.73
3. Construction/Interior	Cranes	1	2.00	231	0.29
3. Construction/Interior	Forklifts	1	4.00	89	0.20
3. Construction/Interior	Tractors/Loaders/Backhoes	1	4.00	97	0.37
3. Construction/Interior	Welders	1	8.00	46	0.45
4. Paving	Off-Highway Trucks	1	4.00	402	0.38
4. Paving	Pavers	1	8.00	130	0.42
4. Paving	Plate Compactors	2	8.00	8	0.43
4. Paving	Rollers	1	8.00	80	0.38
2. Foundation	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
1. Excavation/Grading	4	10.00	2.00	62.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
2. Foundation	7	10.00	2.00	12.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
3. Construction/Interior	6	10.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
4. Paving	5	6.00	2.00	0.00	14.70	6.90	20.00	LD_Mix	HHDT	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 1. Excavation/Grading - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3600e-003	0.0000	1.3600e-003	1.5000e-004	0.0000	1.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4500e-003	7.8100e-003	0.0224	6.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	5.6598	5.6598	2.0000e-004	0.0000	5.6647
Total	**2.4500e-003**	**7.8100e-003**	**0.0224**	**6.0000e-005**	**1.3600e-003**	**2.5000e-004**	**1.6100e-003**	**1.5000e-004**	**2.5000e-004**	**4.0000e-004**	**0.0000**	**5.6598**	**5.6598**	**2.0000e-004**	**0.0000**	**5.6647**

Unmitigated Construction Off-Site

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	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	3.0700e-003	9.1000e-004	1.0000e-005	5.3000e-004	3.0000e-005	5.7000e-004	1.5000e-004	3.0000e-005	1.8000e-004	0.0000	1.3974	1.3974	3.0000e-005	2.2000e-004	1.4639
Vendor	1.0000e-005	1.6000e-004	6.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0728	0.0728	0.0000	1.0000e-005	0.0760
Worker	5.0000e-005	3.0000e-005	5.2000e-004	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.1810	0.1810	0.0000	0.0000	0.1822
Total	**1.2000e-004**	**3.2600e-003**	**1.4900e-003**	**1.0000e-005**	**8.3000e-004**	**3.0000e-005**	**8.8000e-004**	**2.3000e-004**	**3.0000e-005**	**2.6000e-004**	**0.0000**	**1.6512**	**1.6512**	**3.0000e-005**	**2.3000e-004**	**1.7221**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.3000e-004	0.0000	5.3000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.4500e-003	7.8100e-003	0.0224	6.0000e-005		2.5000e-004	2.5000e-004		2.5000e-004	2.5000e-004	0.0000	5.6598	5.6598	2.0000e-004	0.0000	5.6647
Total	**2.4500e-003**	**7.8100e-003**	**0.0224**	**6.0000e-005**	**5.3000e-004**	**2.5000e-004**	**7.8000e-004**	**6.0000e-005**	**2.5000e-004**	**3.1000e-004**	**0.0000**	**5.6598**	**5.6598**	**2.0000e-004**	**0.0000**	**5.6647**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	6.0000e-005	3.0700e-003	9.1000e-004	1.0000e-005	5.3000e-004	3.0000e-005	5.7000e-004	1.5000e-004	3.0000e-005	1.8000e-004	0.0000	1.3974	1.3974	3.0000e-005	2.2000e-004	1.4639
Vendor	1.0000e-005	1.6000e-004	6.0000e-005	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0728	0.0728	0.0000	1.0000e-005	0.0760
Worker	5.0000e-005	3.0000e-005	5.2000e-004	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.1810	0.1810	0.0000	0.0000	0.1822
Total	**1.2000e-004**	**3.2600e-003**	**1.4900e-003**	**1.0000e-005**	**8.3000e-004**	**3.0000e-005**	**8.8000e-004**	**2.3000e-004**	**3.0000e-005**	**2.6000e-004**	**0.0000**	**1.6512**	**1.6512**	**3.0000e-005**	**2.3000e-004**	**1.7221**

3.3 2. Foundation - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0164	0.0000	0.0164	8.4200e-003	0.0000	8.4200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0100e-003	0.0184	0.0258	8.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	7.5536	7.5536	3.2000e-004	0.0000	7.5617
Total	**4.0100e-003**	**0.0184**	**0.0258**	**8.0000e-005**	**0.0164**	**6.1000e-004**	**0.0170**	**8.4200e-003**	**6.1000e-004**	**9.0300e-003**	**0.0000**	**7.5536**	**7.5536**	**3.2000e-004**	**0.0000**	**7.5617**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	5.9000e-004	1.8000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2705	0.2705	1.0000e-005	4.0000e-005	0.2833
Vendor	1.0000e-005	3.3000e-004	1.3000e-004	0.0000	6.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1457	0.1457	0.0000	2.0000e-005	0.1521
Worker	1.0000e-004	6.0000e-005	1.0300e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.3620	0.3620	1.0000e-005	1.0000e-005	0.3643
Total	**1.2000e-004**	**9.8000e-004**	**1.3400e-003**	**0.0000**	**7.1000e-004**	**1.0000e-005**	**7.3000e-004**	**2.0000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.7781**	**0.7781**	**2.0000e-005**	**7.0000e-005**	**0.7997**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category	tons/yr										MT/yr					
Fugitive Dust					6.3900e-003	0.0000	6.3900e-003	3.2800e-003	0.0000	3.2800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0100e-003	0.0184	0.0258	8.0000e-005		6.1000e-004	6.1000e-004		6.1000e-004	6.1000e-004	0.0000	7.5536	7.5536	3.2000e-004	0.0000	7.5617
Total	**4.0100e-003**	**0.0184**	**0.0258**	**8.0000e-005**	**6.3900e-003**	**6.1000e-004**	**7.0000e-003**	**3.2800e-003**	**6.1000e-004**	**3.8900e-003**	**0.0000**	**7.5536**	**7.5536**	**3.2000e-004**	**0.0000**	**7.5617**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	5.9000e-004	1.8000e-004	0.0000	1.0000e-004	1.0000e-005	1.1000e-004	3.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2705	0.2705	1.0000e-005	4.0000e-005	0.2833
Vendor	1.0000e-005	3.3000e-004	1.3000e-004	0.0000	6.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.1457	0.1457	0.0000	2.0000e-005	0.1521
Worker	1.0000e-004	6.0000e-005	1.0300e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.3620	0.3620	1.0000e-005	1.0000e-005	0.3643
Total	**1.2000e-004**	**9.8000e-004**	**1.3400e-003**	**0.0000**	**7.1000e-004**	**1.0000e-005**	**7.3000e-004**	**2.0000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.7781**	**0.7781**	**2.0000e-005**	**7.0000e-005**	**0.7997**

3.4 3. Construction/Interior - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0919	0.6065	1.1683	2.0900e-003		0.0121	0.0121		0.0121	0.0121	0.0000	175.5226	175.5226	7.3000e-003	0.0000	175.7050
Total	**0.0919**	**0.6065**	**1.1683**	**2.0900e-003**		**0.0121**	**0.0121**		**0.0121**	**0.0121**	**0.0000**	**175.5226**	**175.5226**	**7.3000e-003**	**0.0000**	**175.7050**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4000e-004	7.8200e-003	3.1100e-003	4.0000e-005	1.5200e-003	6.0000e-005	1.5800e-003	4.4000e-004	6.0000e-005	5.0000e-004	0.0000	3.4960	3.4960	5.0000e-005	5.1000e-004	3.6492
Worker	2.4000e-003	1.4000e-003	0.0248	9.0000e-005	0.0132	4.0000e-005	0.0132	3.5000e-003	4.0000e-005	3.5400e-003	0.0000	8.6882	8.6882	1.2000e-004	1.8000e-004	8.7436
Total	**2.6400e-003**	**9.2200e-003**	**0.0279**	**1.3000e-004**	**0.0147**	**1.0000e-004**	**0.0148**	**3.9400e-003**	**1.0000e-004**	**4.0400e-003**	**0.0000**	**12.1842**	**12.1842**	**1.7000e-004**	**6.9000e-004**	**12.3928**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0919	0.6065	1.1683	2.0900e-003		0.0121	0.0121		0.0121	0.0121	0.0000	175.5224	175.5224	7.3000e-003	0.0000	175.7048
Total	**0.0919**	**0.6065**	**1.1683**	**2.0900e-003**		**0.0121**	**0.0121**		**0.0121**	**0.0121**	**0.0000**	**175.5224**	**175.5224**	**7.3000e-003**	**0.0000**	**175.7048**

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4000e-004	7.8200e-003	3.1100e-003	4.0000e-005	1.5200e-003	6.0000e-005	1.5800e-003	4.4000e-004	6.0000e-005	5.0000e-004	0.0000	3.4960	3.4960	5.0000e-005	5.1000e-004	3.6492
Worker	2.4000e-003	1.4000e-003	0.0248	9.0000e-005	0.0132	4.0000e-005	0.0132	3.5000e-003	4.0000e-005	3.5400e-003	0.0000	8.6882	8.6882	1.2000e-004	1.8000e-004	8.7436
Total	**2.6400e-003**	**9.2200e-003**	**0.0279**	**1.3000e-004**	**0.0147**	**1.0000e-004**	**0.0148**	**3.9400e-003**	**1.0000e-004**	**4.0400e-003**	**0.0000**	**12.1842**	**12.1842**	**1.7000e-004**	**6.9000e-004**	**12.3928**

3.5 4. Paving - 2031

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0500e-003	8.8400e-003	0.0177	4.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	3.8249	3.8249	1.7000e-004	0.0000	3.8290
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0500e-003**	**8.8400e-003**	**0.0177**	**4.0000e-005**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**3.8249**	**3.8249**	**1.7000e-004**	**0.0000**	**3.8290**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	2.4000e-004	1.1000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0862	0.0862	0.0000	1.0000e-005	0.0903
Worker	3.0000e-005	2.0000e-005	3.1000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1086	0.1086	0.0000	0.0000	0.1093
Total	**4.0000e-005**	**2.6000e-004**	**4.2000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1948**	**0.1948**	**0.0000**	**1.0000e-005**	**0.1996**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0500e-003	8.8400e-003	0.0177	4.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	3.8249	3.8249	1.7000e-004	0.0000	3.8290
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0500e-003**	**8.8400e-003**	**0.0177**	**4.0000e-005**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**3.8249**	**3.8249**	**1.7000e-004**	**0.0000**	**3.8290**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0000e-005	2.4000e-004	1.1000e-004	0.0000	3.0000e-005	0.0000	3.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0862	0.0862	0.0000	1.0000e-005	0.0903
Worker	3.0000e-005	2.0000e-005	3.1000e-004	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1086	0.1086	0.0000	0.0000	0.1093
Total	**4.0000e-005**	**2.6000e-004**	**4.2000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1948**	**0.1948**	**0.0000**	**1.0000e-005**	**0.1996**

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.551512	0.058170	0.178297	0.126510	0.022409	0.006479	0.011491	0.017248	0.000593	0.000271	0.022353	0.001062	0.003606

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Unmitigated	4.0800e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**4.0700e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	3.0000e-005
Total	**4.0700e-003**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**3.0000e-005**

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

WMWD Riverside FMP : Lift/Pump Station Build Future - Riverside-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

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Biological Resources Technical Report

RIVERSIDE FACILITIES MASTER PLAN

Biological Resources Assessment

Prepared for
Western Municipal Water District

September 2026

ESA



RIVERSIDE FACILITIES MASTER PLAN

Biological Resources Assessment

Prepared for
Western Municipal Water District

September 2026

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RIVERSIDE FACILITIES MASTER PLAN

Biological Resources Assessment

1.0 Introduction

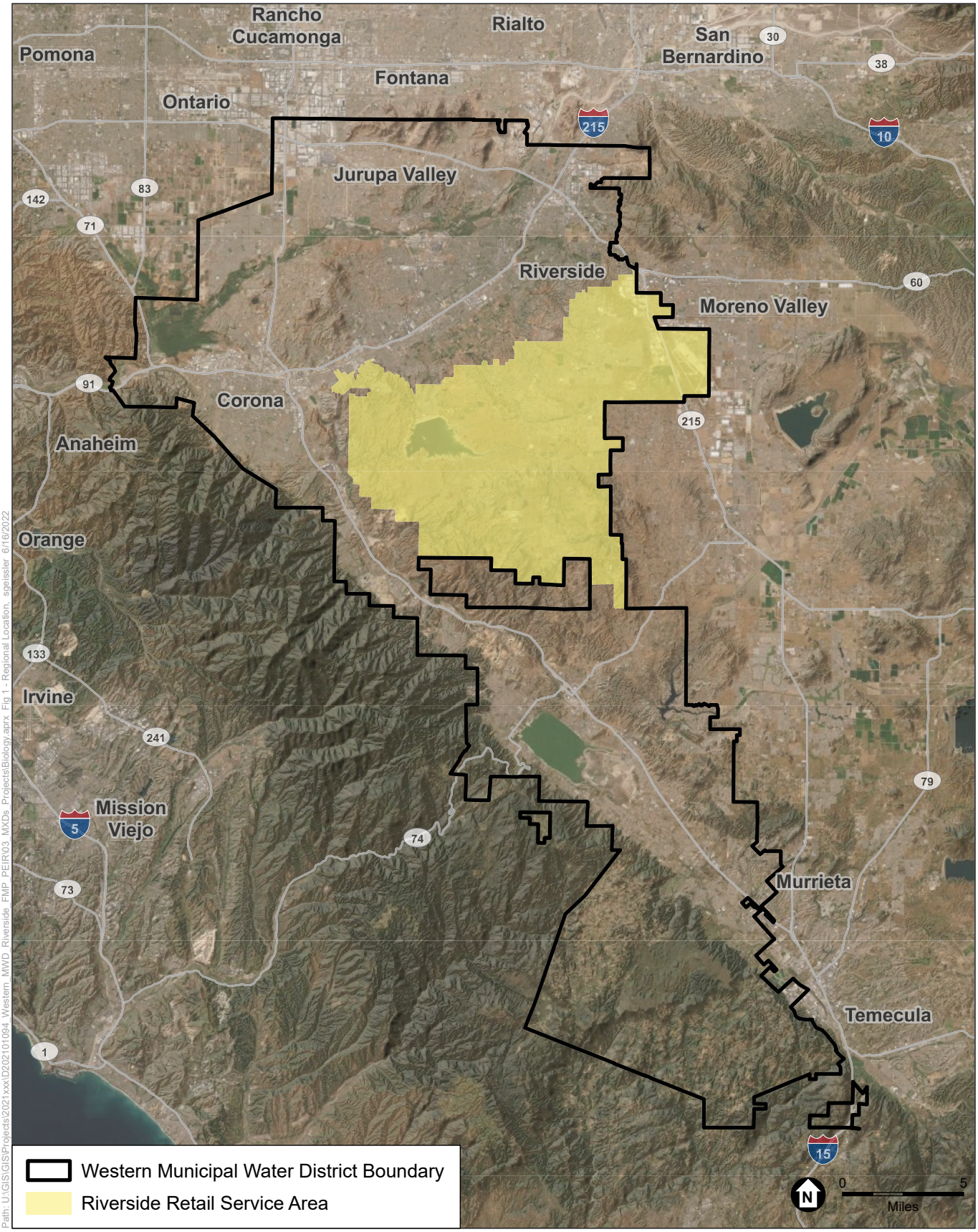
Environmental Science Associates (ESA) has prepared this biological resources assessment for Western Municipal Water District (WMWD, Western) in support of the Riverside Facilities Master Plan (Riverside FMP, project). The purpose of this biological resources assessment is to provide an overview of the project, survey methodology, applicable regulatory framework, existing biological conditions, potential impacts, and mitigation measures to address potential impacts resulting from implementation of the project.

1.1 Project Description

WMWD provides water, wastewater, and recycled water services to nearly one million people within its 527-square-mile service area in western Riverside County. WMWD has prepared the Riverside FMP that outlines the existing and proposed potable water, wastewater, and recycled water systems within the Riverside Retail Service Area, which is a subset of the larger district boundary as shown in **Figure 1 – Regional Location**. The Riverside FMP outlines system capacity requirements and provides a list of recommended capital improvement projects to support future demands within the Riverside Retail Service Area both in the near-term and in the future to facilitate buildout conditions.

The Riverside FMP has been developed to accommodate existing demand and planned growth within the Riverside Retail Service Area for potable water, recycled water and wastewater services. The projects include upsizing existing pipelines as well as installing new pipelines; new storage tanks; new booster pump stations; new pumps at existing pump stations; capacity upgrades at existing lift stations; and potential expansion of the Western Water Recycling Facility (WWRF). Projects are categorized into two planning stages including: priority and near-term projects to be implemented before 2030 and future projects to be implemented from 2030 to 2050. In total, there are fifty-four (54) recommended projects: fourteen (14) water, nine (9) recycled water, and six (6) wastewater priority and near-term projects; and eleven (11) water, seven (7) recycled water, and seven (7) wastewater future projects. The project locations are shown in **Figure 2 – Riverside FMP Projects**.

For all priority and near-term projects, ESA defined biological study areas (BSAs) as each project footprint plus a 500-foot buffer. The combined acreage of these BSAs is approximately 2,900 acres. Future projects were evaluated qualitatively and were not assigned BSAs.

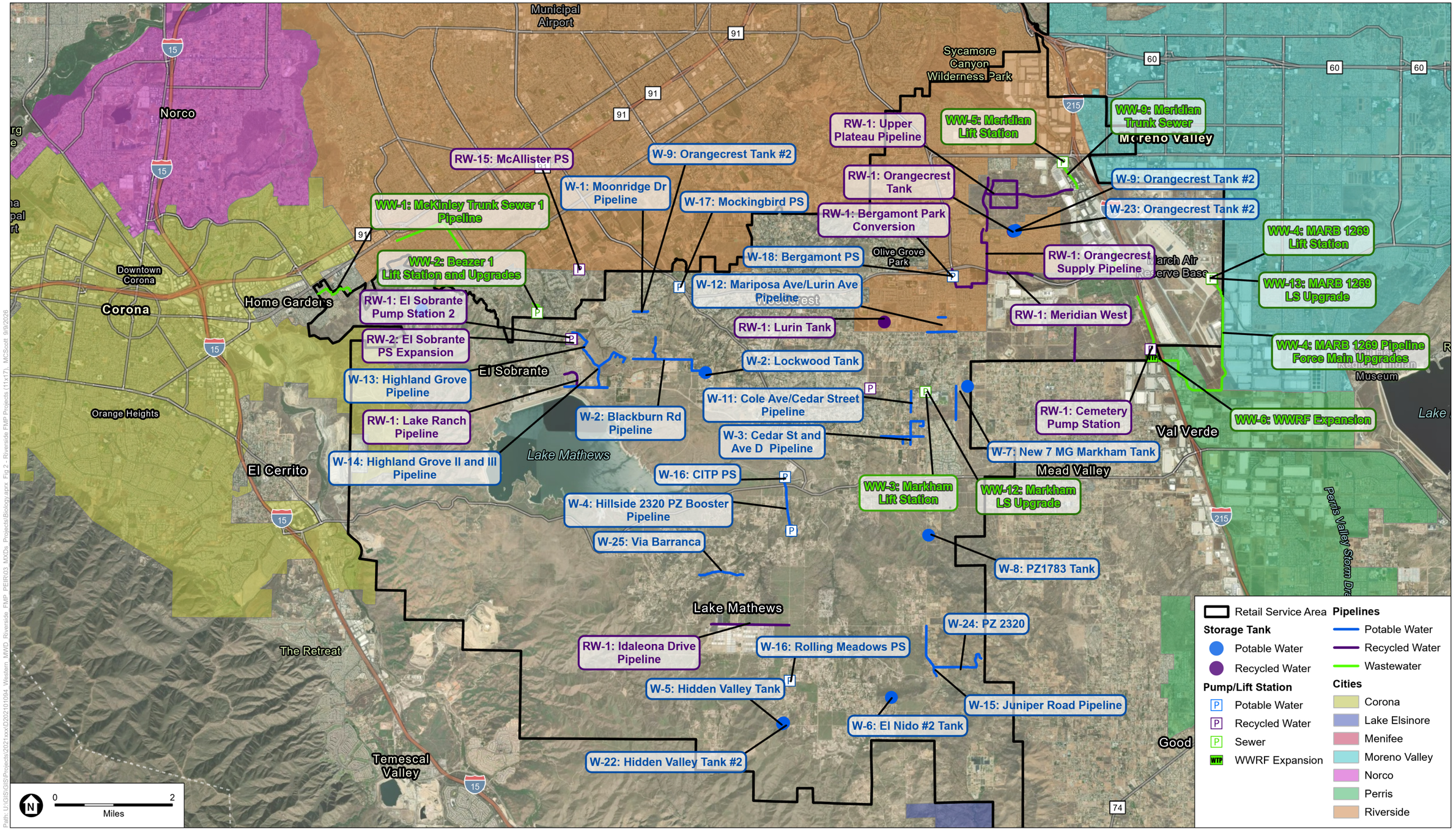


SOURCE: ESRI, 2022; WMWD, 2022; ESA, 2022.

Riverside Facilities Master Plan

Figure 1
Regional Location

ESA



Path: U:\GIS\GIS\Projects\2021xxx\D20210109 4_Western_MWD_Riverside_FMP_PEIR\03_MXDs_Projects\Biology.aprx Fig 2 - Riverside FMP Projects (11x17), MCScott 9/9/2026

SOURCE: ESA, 2025

Riverside Facilities Master Plan

Figure 2
Riverside FMP Projects

ESA

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1.1.1 Priority Facility Upgrade Projects

The Riverside FMP identifies projects needed to address existing water and wastewater system deficiencies that critically affect the ability of WMWD to provide reliable service. These projects are assigned highest priority and are listed in **Table 1**.

TABLE 1
PRIORITY FACILITY UPGRADE PROJECTS

Type	CIP Project	Project Type	Project Name	Description
Water	W-1	Pipeline Upsize	Moonridge Dr. Pipeline Upsizing	Upsize 1,200 linear feet (LF) of 6-inch pipe to 12 inches.
Water	W-2	Pipeline Upsize	Blackburn Rd. Pipeline Upsizing	Upsize 8,000 LF of 6-inch pipe to 24 inches; Upsize 2,100 LF of 6-inch pipe to 8 inches.
Water	W-3	Pipeline Upsize	Cedar St. and Avenue D Pipeline Upsizing	Upsize 4,000 LF of 6-inch pipe to 8 inches.
Wastewater	WW-1	Pipeline Upsize	McKinley Trunk Sewer 1 (WCWRA)	Upsize 390 LF of existing 8-inch to 10-inch to accommodate existing wet weather flow conditions within Western design criteria.
Wastewater	WW-2	Beazer 1 Lift Station and Forcemain Upgrades (WRCWRA)	Beazer Lift Station Upgrade	Confirm influent flows based on known wet weather events. If peak wet weather flows (PWWFs) exceed capacity, upgrade Lift Station (LS) firm capacity to 0.25 million gallons per day (MGD) and upsize the existing 3 inch forcemain to 4 inch (1,300 LF).
Wastewater	WW-3	Lift Station Upgrade	Markham Lift Station Upgrade (WWRF)	Confirm influent flows based on known wet weather events. If PWWFs exceed capacity, upgrade LS firm capacity to 2.2 MGD.

1.1.2 Near-Term Projects

Near-term projects include water, recycled water, and wastewater infrastructure improvements to occur before the year 2030. These near-term projects listed in **Table 2** involve either the construction of new facilities to accommodate planned development or the improvement of existing facilities that require replacement or upgrades due to system deficiencies.

TABLE 2
NEAR-TERM PROJECTS (BY 2030)

Type	CIP Project	Project Type	Project Name	Description
Water	W-4	Pump Station	Hillside 2320 PZ Booster Pump Station and Pipeline	Add pumping capacity into PZ2320 of 3,700 gallons per minute (gpm) in near-term, and ultimately 6,700 gpm; Upsize 4,700 LF existing 20-in to 30-in from the CITP Intake PS to Hillside PS.
Water	W-5	Storage Tank	New 3 MG Hidden Valley Tank	Build 3 million gallon (MG) of water storage tank in PZ 2320.
Water	W-6	Storage Tank	New 1.5 MG El Nido Tank	Build 1.5 MG of water storage tank in PZ 2320.
Water	W-7	Storage Tank	New 7 MG Markham Tank	Build 7 MG of water storage tank in PZ 2450.
Water	W-9	Storage Tank	New 12.5 MG Orangecrest Tank	Build 12.5 MG of water storage tank in PZ 1837.

Type	CIP Project	Project Type	Project Name	Description
Water	W-10	Pressure Reducing Valve	Highland Grove Pressure Reducing Valve	Add one pressure reducing valve (PRV) to supplement flow from PZ1650R to Highland Grove
Water	W-11	Pipeline Upsize	Cole Ave/Cedar Street Upsize	Upsize 460 feet of 16-in to 20-in and 2,600 feet 12-in to 20-in in Cole Ave between Markham St and Avenue C; upsize 2,000-LF 8-in to 12-in in Cedar St, just south of Markham St.
Water	W-12	Pipeline Upsize	Mariposa Ave/Lurin Avenue Upsize	Upsize 670-LF 6-in to 12-in on Lurin between Mission Ranch Rd and 50 ft west of Dant St; Upsize 2,700-LF 8-in to 12-in on Mariposa Ave between Cole Ave and Wood Rd
Water	W-13	Pipeline	Highland Grove Pipeline III 18-Inch Pipeline	At the Greentree (Highland Grove III) development, build approximately 4,000 LF of 18-inch pipeline along El Sobrante Road, and 5,000 LF of 18-inch backbone pipeline going south to north across HG II and III.
Water	W-14	Pipeline	Highland Grove II and III 12-inch Pipeline	Build 4,000-LG 12-in in Highland Grove IV.
Water	W-15	Pipeline Upsize	Juniper Road Pipeline Upsizing	Build 4,800 LF new 12-in pipeline along Juniper Rd and 2,600 LF 12-in pipeline along Blue Sky Rd in PZ2320.
Recycled Water	RW-1	Storage Tank	New Orangecrest Tank	Install new 5 MG Orangecrest Tank in the Lurin Irrigation zone.
Recycled Water	RW-1	Pipeline	Orangecrest Tank Supply Pipelines	New 18-inch pipeline (1,300 feet); New 24-inch pipeline (3,500 feet) , from the tank and south on Barton Street to the existing 12-inch pipeline on Gless Ranch Road at Barton Street.
Recycled Water	RW-1	Pipeline	Bergamont Park Conversion to RW	Install approximately 1,600 LF of 8-inch pipeline on Cole Avenue from Van Buren Boulevard to Citrus Grove Road, to convert Bergamont Park to recycled water (RW).
Recycled Water	RW-1	Storage Tank Upgrade	Lurin Irrigation Tank Improvements	Reconstruct a new 10 MG storage tank
Recycled Water	RW-1	Pipeline	Meridian West Pipelines	New 16-inch pipeline (4,400 feet) along Van Buren Boulevard from Barton Street to the existing 12-inch pipeline on Van Buren east of Orange Terrance Parkway.
Recycled Water	RW-1	Pipeline Upsize	Idaleona Drive Upsizing	Upsize approximately 7,100 LF of existing 14-inch pipeline on Idaleona Drive in the Jim Jack (2250) Zone to 16 inches.
Recycled Water	RW-1	Pump Station Upgrade	Cemetery PS Expansion	Expand dedicated Cemetery pump station and parallel supply line to accommodate increased RW supply from WWRF to the onside RNC ponds.
Recycled Water	RW-1	Pipeline	Lake Ranch Pipelines	Install 2,400 LF of 8-inch pipelines in Lake Ranch development, near McAlister Street and El Sobrante Road.
Recycled Water	RW-1	Pump Station Upgrade	El Sobrante PS Expansion (150 HP)	Install additional pump at the El Sobrante PS sized at 1,100 gpm at 325 feet.
Wastewater	WW-4	Lift Station and Pipeline Upgrade	MARB 1269 Lift Station and Pipeline Upgrade 1269 Expansion	Increase the firm capacity of MARB 1269 lift station from 1.3 MGD to 1.9 MGD.
Wastewater	WW-5	Lift Station Upgrade	Meridian Lift Station Upgrade (WWRF)	Increase capacity to 1.1 MGD.

1.1.3 Future Projects

The Riverside FMP identifies projects needed in the future to meet buildout service demands. The construction of these projects would start after 2030 and continue through 2050. Projects currently anticipated are listed in **Table 3**.

TABLE 3
FUTURE PROJECTS (BY 2050)

Type	CIP Project	Project Type	Project Name	Description
Water	W-16	Pump Station Upgrade	CITP (Intake PS)	Increase the firm capacity of CITP (Intake) PS that feeds PZ 1783 from 6,400 gpm to 9,500 gpm.
Water	W-17	Pump Station Upgrade	Increase Capacity of Mockingbird PS	Add 5,000 gpm capacity at Mockingbird PS that feeds PZ 1650 to meet Buildout demands, increasing the firm.
Water	W-18	Pump Station Upgrade	Bergamont PS	Increase the firm capacity of Bergamont PS that feeds PZ 1900 from 12,000 gpm to 14,600 gpm
Water	W-19	Pump Station Upgrade	Rolling Meadows PS	Increase the firm capacity of Rolling Meadows PS that feeds PZ 2450 from 1,165 gpm to 2,000 gpm
Water	W-20	Storage Tank	New 2 MG PZ2116 Tank	Build 2 MG of water storage in PZ 2116 in Buildout to cover storage deficiencies. Potential sites could be at the Existing Onaknoll Tank site, or at the site approximately 1,700 LF north of Idaleona Road and west of Rolling Meadows Drive.
Water	W-21	Storage Tank	New 4 MG PZ1550 Tank	Build 4 MG of water storage in PZ 1550 in Buildout phase to accommodate the increased demand with adjacent undeveloped parcels. Potential site is between Old Lake tank and Lake Hills tank where elevation is approximately 1,600 feet.
Water	W-22	Storage Tank	New 3 MG Hidden Valley Tank	Build additional 3 MG of water storage at the Existing Hidden Valley Tank site.
Water	W-23	Storage Tank	New 13 MG Orangecrest Tank	Build additional 13 MG of water storage at the Existing Orangecrest Tank site.
Water	W-24	Pipeline Upsize	PZ 2320 12-Inch Pipelines	New 6,700-LF 12-inch pipelines from PZ2320 to PZ2116 near Blue Sky Rd.
Water	W-25	Pipeline Upsize	Via Barranca Pipeline Upsizing	Upsize 4,200 LF of 8-inch on Via Barranca to 12-inch.
Recycled Water	RW-1	Pipeline	Upper Plateau Development Pipelines	Install 4.4 miles of Upper Plateau Development Pipelines. (While this project is included in the FMP as a near-term project, recent delays and inactivity have resulted in moving the project past 2030 and thus moving it into the future projects list.)
Recycled Water	RW-2	Pipeline Upsize	RNC Pipeline Upsize to 24"	Upsize approximately 3,000 LF of existing 16-inch pipeline to 24 inches on Village West Drive from Nandina Avenue to Lemay Drive.
Recycled Water	RW-2	Storage Tank	Additional 7-MG Storage in PZ1815	Install additional 7 MG of storage in PZ 1815.
Recycled Water	RW-2	Pipeline Upsizing	RNC Pipeline Upsize to 18"	Upsize approximately 3,000 LF of existing 12-inch pipeline to 18 inches on Gless Ranch Road between Barton Street and Cole Avenue.
Recycled Water	RW-2	Pump Station Upgrade	Oleander PS Expansion (200 HP)	Install additional pump at the Oleander PS sized at 3,100 gpm at 183 feet.

Type	CIP Project	Project Type	Project Name	Description
Recycled Water	RW-2	Pump Station Upgrade	McAllister PS Expansion (200 HP)	Additional 200 HP pump; upsize capacity
Recycled Water	RW-2	Pump Station Upgrade	El Sobrante PS Expansion (150 HP)	Upsize El Sobrante PS firm capacity from 2,400 gpm to 4,600 gpm.
Wastewater	WW-6	WWRF Expansion Study	WWRF Expansion Study	This study should investigate the potential for either purchasing additional land and/or maximizing the footprint such that up to 6.0 MGD rated capacity could be achieved.
Wastewater	WW-7	Pipeline	McKinley Trunk Sewer 2 (WRCWRA)	Upsize 1,060 LF of existing 8” to 10” as well as 3,420 LF of existing 8” and 10” to 12”
Wastewater	WW-8	Pipeline	La Sierra Trunk Sewer (WRCWRA)	Upsize 8,345 LF of existing 18” and 21” to 24”.
Wastewater	WW-9	Pipeline	Meridian Trunk Sewer North (WWRF)	Upsize 3,610 LF of existing 18” to 21”
Wastewater	WW-10	Pipeline	Arnold Heights Trunk Sewer (WWRF)	Upsize 2,375 LF of existing 15” to 18”
Wastewater	WW-11	Pipeline	Meridian Trunk Sewer South at RNC (WWRF)	Upsize 500 LF of existing 24” to 30”
Wastewater	WW-12	Lift Station Upgrade	Markham Lift Station Ultimate Upgrades	Upgrade lift station to a firm capacity of2.8 MGD
Wastewater	WW-13	Lift Station Upgrade	MARB 1269 Lift Station Upgrade Study	Study required firm capacity increase of the MARB 1269 lift station to accommodate Ultimate flows
Water	W-8	Storage Tank	New 2 MG PZ1783 Tank	Build 2 MG of water storage tank in PZ 1783. (This project also includes approximately 7,000 LF of new piping, however the pipeline portion of project would not be constructed in conjunction with the tank and will be moved to future projects.)

2.0 Methodology

2.1 Literature Review

ESA queried available resource inventory databases to analyze the potential for sensitive biological resources to occur, including the following:

- California Natural Diversity Data Base (CNDDB) (CDFW 2026a)
  - Database was queried for special-status species records in USGS 7.5-minute quadrangles Riverside East, Steele Peak, Perris and Lake Mathews, as well as fourteen surrounding quadrangles, including Lakeview, Corona North, Fontana, San Bernardino South, Redlands, Sunnymead, El Casco, Winchester, Romoland, Lake Elsinore, Alberhill, Santiago Peak, Corona South, and Riverside West.
- California Natural Community List (CDFW 2026b)
- Inventory of Rare and Endangered Vascular Plants of California (CNPS 2026).
  - Database was queried for special-status species records in USGS 7.5-minute quadrangles Riverside East, Steele Peak, Perris and Lake Mathews, as well as fourteen surrounding

quadrangles including Lakeview, Corona North, Fontana, San Bernardino South, Redlands, Sunnymead, El Casco, Winchester, Romoland, Lake Elsinore, Alberhill, Santiago Peak, Corona South, and Riverside West.

- Web Soil Survey (NRCS 2026)
- Critical Habitat Portal (USFWS 2026a)
- National Wetlands Inventory (NWI) (USFWS 2026b)
- Information for Planning and Consultation (IPaC) (USFWS 2026c)

2.2 Biological Resources Reconnaissance

A reconnaissance-level biological resources assessment was conducted by Ryan Gilmore and Amanda French on May 9, 2022. Following the identification of several additional priority and near-term projects, a second reconnaissance-level biological resources assessment was conduct by Amanda French and Anna Weber on June 25, 26, and 30, 2025. Continued project identification led to a third reconnaissance-level biological resources assessment that was conducted by Amanda French and Anna Weber on February 24, 26 and March 5, 2026. The assessment consisted of walking throughout the BSAs of all priority and near-term project sites to characterize and map vegetation and habitats, and to determine the potential for special-status plants and wildlife to occur. All incidental, visual observations of flora and fauna, including sign (e.g., presence of scat, tracks) as well as any audible detections, were noted during the assessment. Potential jurisdictional features within the BSAs were identified during the assessment and described below; however, a formal jurisdictional delineation was not conducted. The existing conditions of the BSAs, including all native and non-native natural communities, were characterized and delineated on aerial photographs during the field assessment, and subsequently digitized using ArcGIS. Most descriptions of vegetation were characterized in accordance with *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009); however, some communities not recognized in this publication were characterized based on species dominance. A detailed description of each natural community and land use within the BSAs is provided below. Biological reconnaissance surveys were not conducted for future project locations. Future project site locations were analyzed for biological resources via desktop aerial review. No focused rare plant surveys or focused wildlife surveys were conducted for project BSAs.

3.0 Regulatory Framework

This section provides a summary of the federal, state, and local environmental regulations that govern the biological resources applicable to the Project site.

3.1 Federal

3.1.1 Federal Endangered Species Act

The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the National Environmental Protection Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend. FESA prohibits the "take" of endangered or threatened wildlife species. "Take" is defined to include harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting wildlife species or any attempt to engage in such conduct (FESA

Section 3 [(3)(19)]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 Code of Federal Regulations [CFR] Section 17.3). "Harass" is defined as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns (50 CFR Section 17.3). Actions that result in take can result in civil or criminal penalties.

All references to federally protected species in this report include the most current published status or candidate category to which each species has been assigned by USFWS. For purposes of this report, the following acronyms are used for federal status species, as applicable:

FE Federally-listed as Endangered

FT Federally-listed as Threatened

FPE Federally proposed for listing as Endangered

FPT Federally proposed for listing as Threatened

FPD Federally proposed for delisting

FC Federal candidate species (former C1 species)

3.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) protects individuals, as well as any part, nest, or eggs, of any bird listed as migratory. The MBTA prohibits the take of native birds "by any means or manner to pursue, hunt, take, capture (or) kill" any migratory birds except as permitted by regulations issued by the USFWS. The term "take" is defined by USFWS regulation to mean to "pursue, hunt, shoot, wound, kill, trap, capture or collect" any migratory bird or any part, nest, or egg of any migratory bird covered by the conventions, or to attempt those activities.

In practice, federal permits issued for activities that potentially impact migratory birds typically have conditions that require pre-disturbance surveys for nesting birds. In the event nesting is observed, a buffer area with a specified radius must be established, within which no disturbance or intrusion is allowed until the young have fledged and left the nest, or it has been determined that the nest has failed. If not otherwise specified in the permit, the size of the buffer area varies with species and local circumstances (e.g., presence of busy roads, intervening topography, etc.) and is based on the professional judgment of a monitoring biologist. A list of migratory bird species protected under the MBTA is published by USFWS.

3.1.3 Federal Clean Water Act (CWA)

The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. The basis of the CWA was enacted in 1948 and was called the Federal Water Pollution Control Act, but the law was significantly reorganized and expanded in 1972. "Clean Water Act" became the law's common name with amendments in 1972.

Section 404 of the CWA establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Activities in waters of the United States regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports), and mining projects. Section 404 requires

that a permit be issued before dredged or fill material may be discharged into waters of the United States, unless the activity is exempt from regulation under Section 404 (e.g., certain farming and forestry activities).

"Wetlands" are defined by USACE as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33 CFR 328.3[c][1]; 40 CFR 120.2[c][1]). Indicators of three wetland parameters (hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by site investigation, must be present at a site for USACE to classify the site as a wetland (Environmental Laboratory 1987).

Section 401 of the CWA gives the state authority to grant, deny, or waive certification of proposed federally licensed or permitted activities resulting in discharge to waters of the United States. The State Water Resources Control Board (State Water Board) directly regulates multi-regional projects and supports the Section 401 certification and wetlands program statewide. The regional water quality control board (RWQCB) regulates activities pursuant to Section 401(a)(1) of the federal CWA, which specifies that certification from the state is required for any applicant requesting a federal license or permit to conduct any activity including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters. The certification shall originate from the state or appropriate interstate water pollution control agency in/where the discharge originates or will originate. Any such discharge will comply with the applicable provisions of CWA Sections 301, 302, 303, 306, and 307.

3.1.4 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act was originally enacted in 1940 as the Bald Eagle Protection Act to protect bald eagles and was later amended to include golden eagles. The Act prohibits the taking, possession, or commerce of bald and golden eagles, parts, feathers, nests, or eggs with limited exceptions. Take is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb", and includes both direct taking of individuals and take due to disturbance. "Disturb" is defined as:

> *"to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to any eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."*[1]

The definition of "disturb" is further defined by USFWS as follows:

> *"In addition to immediate impacts, this definition also covers impacts that result from human-caused alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagles return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering."* [2]

1 *50 CFR 22.3.*

2 *USFWS. 2007.* National Bald Eagle Management Guidelines.

Bald eagles may not be taken for any purpose unless a permit is issued prior to the taking. Activities which can be authorized by permit include scientific collection/research, exhibition, tribal religious, depredation, falconry, and the taking of inactive golden eagle nests, which interfere with resource development or recovery operations. Currently, USFWS has a permitting process proposed for other activities that would allow disturbance to bald eagles or take of an eagle nest where their location poses a risk to human or eagle safety.

3.2 State

3.2.1 California Fish and Game Code

The California Fish and Game Code (CFGC) regulates the taking or possession of birds, mammals, fish, amphibians, and reptiles, as well as natural resources such as wetlands and waters of the state. These sections are described in detail below.

CFGC Sections 1600-1616 (Aquatic Resources)

Pursuant to Section 1600 et seq. of the CFGC, the CDFW regulates activities of an applicant's project that would substantially alter the flow, bed, channel, or banks of streams or lakes, unless certain conditions outlined by CDFW are met by the applicant. The limits of CDFW jurisdiction are defined in CFGC Section 1600 et seq. as the "bed, channel, or bank of any river, stream,[3] or lake designated by CDFW in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit."[4] However, in practice, CDFW usually extends its jurisdictional limit and assertion to the top of a bank of a stream, the bank of a lake, or outer edge of the riparian vegetation, whichever is wider.

CFGC Sections 1900-1913 (Native Plants)

The California Native Plant Protection Act of 1977 (CFGC Sections 1900–1913) directs state agencies to exercise their authorities in a manner that supports the conservation of endangered, rare, and otherwise sensitive native plant species. The Act restricts the removal of protected native plants from their natural locations and requires that the CDFW be notified at least 10 days prior to a non-agricultural land use change. This notification provides CDFW the opportunity to rescue or relocate listed plant species that could otherwise be lost as a result of project activities.

CFGC Section 2050 et seq (California Endangered Species Act [CESA])

CESA defines an endangered species as:

> *…a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease.*

[3] Title 14 California Code of Regulations (CCR) 1.72 defines a stream as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation."

[4] This also includes the habitat upon which they depend for continued viability (CFGC Division 5, Chapter 1, Section 45, and Division 2, Chapter 1, Section 711.2[a]).

The State defines a threatened species as:

> *...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened species.*

Candidate species are defined as:

> *...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list.*

Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Wildlife Commission. Unlike the FESA, CESA does not include listing provisions for invertebrate species.

Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened or endangered species by stating:

> *...no person shall import into this State, export out of this State, or take, possess, purchase, or sell within this State, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided.*

Under the CESA, "take" is defined as, "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

Additionally, some special-status birds, mammals, reptiles and amphibians, and fish are protected by the State as Fully Protected Mammals or Fully Protected Birds, as described in the CFGC Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish). Senate Bill (SB) 147, which became effective on July 10, 2023, revised CFGC Sections 395, 3511, 4700, 5050, and 5515, and added Section 2081.15. Under the CFGC, fully protected species are generally prohibited from being taken or possessed, and take authorizations are not issued unless a project qualifies for a take authorization pursuant to Section 2081.35. Limited exceptions are allowed for scientific research or for relocation necessary to protect livestock. The take authorization provisions established under SB 147 are applicable to the proposed Project because it falls within an eligible project category, specifically a solar photovoltaic development.

California Species of Special Concern are species designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. Informally listed species are not protected per se but warrant consideration in the preparation of biological assessments. For some species, the CNDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest areas.

For the purposes of this report, the following acronyms are used for State status species, as applicable:

SE State-listed as Endangered

ST State-listed as Threatened

SR State-listed as Rare

SCE State candidate for listing as Endangered

SCT State candidate for listing as Threatened

FP State Fully Protected

SSC California Species of Special Concern

CFGC Sections 2080 and 2081

Section 2080 of the CFGC states that "No person shall import into this state [California], export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the Commission [State Fish and Game Commission] determines to be an endangered species or threatened species, or attempt any of those acts, except as otherwise provided in this chapter, or the Native Plant Protection Act, or the California Desert Native Plants Act." Pursuant to Section 2081, CDFW may authorize individuals or public agencies to import, export, take, or possess state-listed endangered, threatened, or candidate species. These otherwise prohibited acts may be authorized through Incidental Take permits or Memoranda of Understanding if the take is incidental to an otherwise lawful activity, impacts of the authorized take are minimized and fully mitigated, the permit is consistent with any regulations adopted pursuant to any recovery plan for the species, and the project operator ensures adequate funding to implement the measures required by CDFW, which makes this determination based on available scientific information and considers the ability of the species to survive and reproduce.

CFGC Sections 3503, 3503.5, and 3513 (Birds)

Under these sections of the CFGC, the project operator is not allowed to conduct activities that would result in the taking, possessing, or destroying of any birds of prey; the taking or possessing of any migratory nongame bird; the taking, possessing, or needlessly destroying of the nest or eggs of any raptors or nongame birds; or the taking of any nongame bird pursuant to CFGC Section 3800. CFGC Section 3513 adopts the federal migratory bird take provisions under the MBTA that prohibit the intentional take or possession of birds designated by the MBTA as migratory nongame birds except as allowed by federal rules and regulations pursuant to the MBTA. CFGC Section 3513 does not prohibit the incidental take of birds if the underlying purpose of the activity is not to take birds.

CFGC Section 4150 (Mammals)

CFGC Section 4150 classifies nongame mammals as all mammal species native to California that are not designated as game mammals, fully protected mammals, or fur-bearing mammals. In general, nongame mammals and their parts may not be taken or possessed unless such take is specifically authorized by the CFGC or by regulations adopted by the California Fish and Game Commission. Species for which take is allowed are typically those identified as causing agricultural or crop-related damage.

3.2.2 California Environmental Quality Act Guidelines, Section 15380

Although threatened and endangered species are protected by specific federal and state statutes, California Environmental Quality Act (CEQA) Guidelines Section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specified criteria. These criteria have been modeled after the definition in FESA and the section of the CFGC dealing with rare or endangered plants or animals. This section was included in CEQA primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on, for example, a candidate species that has not been listed by either USFWS or CDFW. Thus, CEQA provides an agency with the ability to protect a species from the potential impacts of a project until the respective government agencies have an opportunity to designate the species as protected, if warranted. CEQA also calls for the protection of other locally or regionally significant resources, including natural communities. Although natural communities do not at present have legal protection of any kind, CEQA calls for an assessment of whether any such resources would be affected and requires findings of significance if there would be substantial losses. Natural communities listed by CNDDB as sensitive are considered by CDFW to be significant resources and fall under the State CEQA Guidelines for addressing impacts. Local planning documents such as General Plans often identify these resources as well.

3.2.3 California Water Quality Control Act (Porter-Cologne California Water Code Section 13260)

The State Water Resources Control Board (SWRCB) and the RWQCB (together "Boards") are the principal State agencies with primary responsibility for the coordination and control of water quality. The Boards regulate activities pursuant to Section 401(a)(1) of the federal CWA as well as the Porter-Cologne Water Quality Control Act (Porter-Cologne) (Water Code Section 13260). Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit to conduct any activity including but not limited to the construction or operation of facilities that may result in any discharge into navigable waters. The certification shall originate from the State in which the discharge originates or will originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the navigable water at the point where the discharge originates or will originate. Any such discharge will comply with the applicable provisions of Sections 301, 302, 303, 306, and 307 of the CWA.

In Porter-Cologne, the Legislature declared that the "State must be prepared to exercise its full power and jurisdiction to protect the quality of the waters in the State from degradation..." (California Water Code Section 13000). Porter-Cologne grants the Boards the authority to implement and enforce the water quality laws, regulations, policies and plans to protect the groundwater and surface waters of the State. It is important to note that enforcement of the State's water quality requirements is not solely the purview of the Boards and their staff. Other agencies (e.g., CDFW) have the ability to enforce certain water quality provisions in state law.

3.3 Regional or Local

The proposed project sites are located within unincorporated county land (County of Riverside) and one incorporated city (City of Riverside), which have ordinances governing the protection of biological resources, as described below.

3.3.1 Western Riverside County Multiple Species Habitat Conservation Plan

Per CFGC Sections 2800-2840, the Natural Community Conservation Plan (NCCP) Act (the Act), authorized the preparation of NCCPs to protect natural communities and species while allowing a reasonable amount of economic development.

The MSHCP, adopted by the County of Riverside on June 17, 2003, serves as a Habitat Conservation Plan (HCP) pursuant to the Act and pursuant to Section 10 (a)(1)(B) of the FESA. The Implementation Agreement (IA) sets forth the implementation requirements for the MSHCP as well as procedures and minimization measures related to take of habitats and species considered for conservation. Implementation of the MSHCP authorizes participating jurisdictions to "take" specified plant and wildlife species within the MSHCP Plan Area. In addition, the wildlife agencies, namely USFWS and CDFW, allow take of habitat or individual species outside of the MSHCP Conservation Area in exchange for the assembly and management of a coordinated MSHCP Conservation Area. The assembly and long-term management of the MSHCP Conservation Area is the responsibility of the Riverside County, Federal, and State governments; cities within the western portion of Riverside County; and private and public entities that conduct activities which would potentially impact the habitats and species considered for conservation under the MSHCP (RCA 2003).

The Riverside FMP is located with the MSHCP plan area. However, WMWD is not a signatory of the MSHCP; thus, although the MSHCP is discussed within this report as a regional NCCP/HCP, the project is not required to demonstrate consistency with the MSHCP.

3.3.2 Stephen's Kangaroo Rat Habitat Conservation Plan

The Stephen's Kangaroo Rat HCP (SKRHCP) is a comprehensive, multi-jurisdictional HCP focusing on conservation of the Stephens' kangaroo rat (*Dipodomys stephensi*; SKR) and its associated habitats in western Riverside County. Approximately 41,221 acres of occupied and potentially suitable SKR habitat within the HCP plan area were organized into 7 core reserves deemed most important for the preservation of the species, which would be preserved in perpetuity. The Riverside FMP is located with the SKRHCP Plan Area and several projects are situated within SKR core reserves (RCHCA 1996).

The SKRHCP and the County of Riverside – Ordinance No. 663 – requires development proposed outside of a core reserve but within the Plan Area be reviewed to determine the most appropriate course of action to ensure the survival of the species and provide a method to mitigate for impacts resulting from said development. The Riverside County Habitat Conservation Agency (RCHCA) has obtained a Section 10A permit granted by the USFWS that allows for the incidental "take" of SKR.

3.3.3 County of Riverside – Ordinance No. 559: Regulating the Removal of Trees

The County of Riverside (County) Ordinance No. 559 regulates native trees that occur on parcels or properties greater than one-half acre in size, located in areas above 5,000 feet in elevation and within unincorporated areas. All portions of the BSAs are located below 5,000 feet in elevation. Therefore, the County Ordinance No. 559 does not apply to the project.

3.3.4 County of Riverside – Oak Tree Management Guidelines

The County of Riverside passed the Riverside County Oak Tree Management Guidelines on March 2, 1993, to address oak woodlands preservation within zoning and general plan density restrictions. The management guidelines require biological studies consisting of an inventory of all individual oak trees that are at least 2 inches in diameter at breast height (DBH) and an assessment of impacts by proposed development (RCPD 2026).

3.3.5 City of Riverside – Chapter 13.25 – Tree and Shrub Supervision

The City of Riverside (City) Tree and Shrub Supervision ordinance (Chapter – 13.25 of the Municipal Code) prohibits the trimming or removal of City managed trees located within the public right-of-way. The care, supervision, and selection of trees are to be approved by the City Council and Park, Recreation and Community Services Commission. The City Council has the authority to remove any tree it deems necessary for removal.

3.3.6 City of Riverside - Urban Forestry Policy

The Urban Forestry Policy Manual was revised by the City of Riverside's Public Works Department in 2007 and provides best management practices regarding urban forestry and tree care. This includes guidance for watering, pest control, maintenance, preservation, removal, and planting. The removal of any street tree must be authorized by the Public Works Department and fall within specific removal criteria outlined in the manual (CRPW 2024).

4.0 Existing Conditions

4.1 Soils

The soils that occur within the BSAs include 31 types, the majority which are characterized as well-drained, sandy loam. These soil types are listed in **Appendix A – Soils**, with relevance to the priority and near-term BSAs indicated as applicable and shown in **Figures 3-A through 3-O – Soils**. Soils for future projects are anticipated to be similar to those identified for the priority and near-term projects.

4.2 Natural Communities and Land Uses

The natural communities and land uses located within the priority and near-term BSAs were characterized and mapped during the field reconnaissance and are depicted in **Figures 4-A through 4-O – Natural Communities and Land Uses for Priority and Near-Term Projects**. Each natural community and land use is described in detail below. A complete list of plant species observed during the site assessment is provided in **Appendix B – Floral and Faunal Compendia**. Photographs taken during the field reconnaissance of existing conditions within the BSAs are provided in **Appendix C – Representative Photographs**. A summary of the acreages of natural communities and land uses within each of the priority BSAs are presented in **Table 4** and the near-term BSAs are presented in **Table 5, 6, and 7**. A description of the general vegetation types and land uses at the future project locations based on desktop aerial review is also provided below.

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TABLE 4
NATURAL COMMUNITIES AND LAND COVER TYPES WITHIN THE PRIORITY PROJECTS BIOLOGICAL STUDY AREAS

Natural Community/Land Cover Type	W-1: Moonridge Drive Pipeline Upsizing			W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank			W-3: Cedar Street and Avenue D Pipeline Upsizing			WW-1: McKinley Trunk Sewer 1 (WCWRA)			WW-2: Beazer 1 Lift Station and Forcemain Upgrade (WRCWRA)			WW-3: Markham Lift Station Upgrade (WWRF)		
	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total
Aquatic/Riparian Communities																		
Fan Palm – Tamarisk Woodland	--	--	--	--	0.53	0.53	--	--	--	--	--	--	--	--	--	--	--	--
Goodding's Willow Riparian Woodland	--	--	--	--	--	--	--	--	--	--	--	--	--	1.02	1.02	--	1.96	1.96
Willow Riparian Woodland	--	0.13	0.13	--	--	--	--	--	--	--	--	--	--	0.49	0.49	--	--	--
Terrestrial Communities																		
Brittle Bush Scrub	--	--	--	0.11	13.33	13.44	--	--	--	--	--	--	--	5.31	5.31	--	--	--
California Buckwheat Scrub	--	--	--	--	--	--	0.01	2.20	2.21	--	--	--	--	--	--	--	--	--
California Sagebrush – California Buckwheat Scrub	--	--	--	--	--	--	--	0.68	0.68	--	--	--	--	0.76	0.76	--	--	--
Cheeseweed Fields	--	--	--	0.08	3.27	3.35	--	--	--	--	--	--	--	--	--	--	--	--
Eucalyptus Groves	--	--	--	--	--	--	--	--	--	--	--	--	--	1.39	1.39	--	--	--
Shamel Ash Woodland	--	--	--	--	1.19	1.19	--	--	--	--	--	--	--	--	--	--	--	--
Stinknet – Fiddleneck Fields	--	--	--	--	--	--	<0.01	10.85	10.85	--	--	--	--	--	--	--	--	--
Stinknet Fields	--	--	--	--	--	--	--	2.23	2.23	--	--	--	--	--	--	--	--	--
Upland Mustard Fields	--	--	--	--	--	--	--	4.35	4.35	--	--	--	--	--	--	--	--	--
Wild Oats and Annual Brome Grassland	--	--	--	1.38	105.67	107.05	0.17	22.67	22.84	--	--	--	--	1.43	1.43	--	1.80	1.80
Land Cover Types																		
Developed	0.97	49.43	50.40	1.47	82.45	83.92	2.45	141.11	143.56	0.28	26.76	27.04	0.97	37.60	38.57	0.02	14.23	14.25
Disturbed	--	--	--	3.53	13.03	16.56	3.25	11.41	14.66	--	--	--	--	0.51	0.51	--	--	--
Orchard	--	--	--	0.03	17.40	17.43	--	--	--	--	--	--	--	--	--	--	--	--
Ornamental	--	--	--	--	--	--	--	--	--	--	--	--	0.01	0.54	0.55	--	--	--
Total	**0.97**	**49.56**	**50.53**	**6.60**	**236.86**	**243.46**	**5.88**	**195.49**	**201.37**	**0.28**	**26.76**	**27.04**	**0.98**	**49.06**	**50.04**	**0.02**	**17.99**	**18.01**

TABLE 5
NATURAL COMMUNITIES AND LAND COVER TYPES WITHIN THE WATER NEAR-TERM PROJECTS BIOLOGICAL STUDY AREAS

Natural Community/ Land Cover Type	W-4: Hillside 2320 PZ Booster PS and Pipeline			W-5: New 3 MG Hidden Valley Tank			W-6: New 1.5 MG El Nido Tank			W-7: New 7 MG Markham Tank			W-9: New 12.5 MG Orangecrest Tank			W-11: Cole Ave/ Cedar Street Upsize			W-12: Mariposa Ave/ Lurin Ave Upsize			W-13: Highland Grove Pipeline & W-10: Highland Grove Pressure Reducing Valve			W-14: Highland Grove II and III 12-inch Pipeline			W-15: Juniper Road Pipeline Upsizing		
	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total
Aquatic/Riparian Communities																														
Goodding's Willow – Arroyo Willow Riparian Woodland	--	0.33	0.33	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Goodding's Willow – Red Willow Riparian Woodland	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	4.13	4.13	0.49	6.42	6.91	--	--	--
Goodding's Willow Riparian Woodland	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.85	2.85	--	0.11	0.11	--	--	--	--	--	--	--	--	--
Open Water	--	0.71	0.71	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Willow Riparian Woodland	<0.01	1.20	1.20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Terrestrial Communities																														
Blue Elderberry Patches	--	1.56	1.56	--	--	--	--	--	--	--	0.38	0.38	--	--	--	--	--	--	--	--	--	--	2.31	2.31						
Brittle Bush – California Brittle Bush – Fourwing Saltbush	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	--	--	--	--	--	--
Brittle Bush – California Brittle Bush Scrub	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	<0.01	--	0.50	0.50	--	--	--
Brittle Bush Scrub	--	--	--	--	--	--	--	0.33	0.33	0.01	10.63	10.64	--	1.06	1.06	--	--	--	--	--	--	--	5.20	5.20	--	--	--	--	--	--
California Buckwheat Scrub	--	--	--	--	--	--	--	3.17	3.17	--	2.08	2.08	--	--	--	--	0.12	0.12	--	--	--	--	--	--	--	--	--	--	--	--
California Sagebrush – Brittle Bush Scrub	0.25	14.63	14.88	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
California Sagebrush – California Brittle Bush Scrub	--	0.65	0.65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
California Sagebrush – California Buckwheat Scrub	--	12.87	12.87	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.12	30.02	30.14
California Sagebrush Scrub	0.49	13.05	13.54	--	--	--	--	1.27	1.27	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
California Juniper Woodland	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.10	8.15	8.25
Castor Bean Patches	--	0.16	0.16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chamise Chaparral	--	--	--	--	12.50	12.50	--	5.36	5.36	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.28	23.36	23.64
Chamise – Sage Chaparral	--	--	--	--	--	--	--	1.30	1.30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Eucalyptus Groves	--	2.77	2.77	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.59	0.59	--	0.43	0.43	--	--	--
Fourwing Saltbush – California Buckwheat Scrub	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.08	0.08	--	--	--	--	--	--
Fourwing Saltbush Scrub	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.27	2.27	--	1.06	1.06	--	--	--
Needle Goldfields Fields	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01	2.36	2.37
Pepper Tree Woodland	0.08	3.95	4.03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.01	1.09	1.10	--	--	--
Pinebush – Brittle Bush – California Brittle Bush Scrub	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.04	0.04	--	--	--	--	--	--
Pinebush Scrub	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.11	0.11	--	--	--

Natural Community/ Land Cover Type	W-4: Hillside 2320 PZ Booster PS and Pipeline			W-5: New 3 MG Hidden Valley Tank			W-6: New 1.5 MG El Nido Tank			W-7: New 7 MG Markham Tank			W-9: New 12.5 MG Orangecrest Tank			W-11: Cole Ave/ Cedar Street Upsize			W-12: Mariposa Ave/ Lurin Ave Upsize			W-13: Highland Grove Pipeline & W-10: Highland Grove Pressure Reducing Valve			W-14: Highland Grove II and III 12-inch Pipeline			W-15: Juniper Road Pipeline Upsizing		
	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total
Tree Tobacco – Peruvian Pepper Tree Woodland	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.28	0.28	--	--	--	--	--	--
Tree Tobacco Woodland	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<0.01	1.20	1.20	0.01	4.51	4.52	--	--	--
Upland Mustard Fields	--	0.27	0.27	--	--	--	--	1.44	1.44	0.01	14.49	14.50	--	--	--	--	--	--	--	--	--	--	--	--	--	0.74	0.74	<0.01	2.23	2.23
Wild Oats and Annual Brome Grassland	0.36	23.63	23.99	--	--	--	--	3.24	3.24	0.18	34.88	35.06	--	2.25	2.25	0.01	5.73	5.74	0.13	9.74	9.87	0.39	58.97	59.36	2.50	68.63	71.13	0.09	3.71	3.80
Land Cover Types																														
Agriculture	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.59	1.59	--	--	--	--	--	--
Developed	0.63	36.00	36.63	0.02	3.55	3.57	0.02	1.89	1.91	0.41	20.08	20.49	0.02	9.20	9.22	0.08	48.85	48.93	2.22	102.96	105.18	6.97	131.61	138.58	0.03	24.23	24.26	0.41	104.83	105.24
Disturbed	1.20	7.52	8.72	--	1.99	1.99	--	--	--	1.56	12.22	13.78	--	--	--	1.29	5.08	6.37	0.14	8.84	8.98	0.07	13.52	13.59	0.14	8.84	8.98	4.14	12.65	16.79
Grazed Land	--	--	--	--	--	--	--	--	--	--	11.79	11.79	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Orchard	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	3.50	3.50	--	5.32	5.32	--	--	--
Ornamental	--	0.76	0.76	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2.34	2.34	--	0.62	0.62	--	--	--
Total	**3.01**	**120.04**	**123.05**	**0.02**	**18.03**	**18.05**	**0.02**	**18.00**	**18.02**	**2.16**	**106.54**	**108.70**	**0.02**	**12.51**	**12.53**	**1.38**	**62.62**	**64.00**	**2.35**	**112.81**	**115.16**	**7.43**	**227.65**	**235.08**	**3.19**	**122.50**	**125.69**	**5.14**	**187.32**	**192.46**

TABLE 6
NATURAL COMMUNITIES AND LAND COVER TYPES WITHIN THE RECYCLED WATER NEAR-TERM PROJECTS BIOLOGICAL STUDY AREAS

Natural Community/ Land Cover Type	RW-1: New Orangecrest Tank			RW-1: Orangecrest Supply Pipelines			RW-1: Bergamont Park Conversion to RW			RW-1: Lurin Irrigation Tank Improvements			RW-1: Meridian West Pipelines			RW-1: Idaleona Drive Upsizing			RW-1: Cemetery PS Expansion			RW-1: Lake Ranch Pipelines			RW-1:El Sobrante PS Expansion (150 HP)		
	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total
Aquatic/Riparian Communities																											
Goodding's Willow – Arroyo Willow Riparian Woodland	--	--	--	--	--	--	--	--	--	--	--	--	--	1.36	1.36	--	--	--	--	--	--	--	--	--	--	--	--
Goodding's Willow – Red Willow Riparian Woodland	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.96	1.96	--	--	--
Goodding's Willow Riparian Woodland	--	--	--	--	--	--	--	--	--	--	--	--	--	0.61	0.61	--	--	--	--	--	--	--	--	--	--	--	--
Open Water	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.37	0.37	--	--	--	--	--	--	--	--	--
Willow Riparian Woodland	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Terrestrial Communities																											
Annual Yellow Sweetclover – Stinknet Fields	--	--	--	--	10.13	10.13	--	--	--	--	--	--	--	10.13	10.13	--	--	--	--	--	--	--	--	--	--	--	--
Blue Elderberry Patches	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.24	1.24	--	--	--
Brittle Bush Scrub	--	1.14	1.14	--	--	--	--	--	--	--	--	--	--	--	--	0.04	8.68	8.72	--	--	--	--	0.06	0.06	--	--	--
Fiddleneck Fields	--	--	--				--	--	--	--	--	--	--	0.48	0.48	--	--	--	--	--	--	--	--	--	--	--	--
Stinket Fields	--	--	--	--	--	--	--	--	--	--	0.15	0.15	--	--	--	0.04	2.28		--	--	--	--	--	--	--	--	--
Upland Mustard Fields	--	--	--	--	0.30	0.30	--	--	--	--	--	--	--	--	--	--	13.85	13.85	--	--	--	--	--	--	--	--	--
Wild Oats and Annual Brome Grassland	--	3.09	3.09	--	0.16	0.16	--	0.17	0.17	--	4.18	4.18	--	12.31	12.31	0.37	65.97	66.34	--	6.29	6.29	--	6.53	6.53	--	5.86	5.86
Land Cover Types																											
Developed	0.02	13.76	13.78	3.74	117.26	121.00	1.15	55.19	56.34	0.02	11.83	11.85	2.91	78.96	2.91	0.23	71.32	71.55	0.02	11.50	11.52	1.59	61.05	62.64	0.02	9.54	9.56
Disturbed	--	--	--	--	--	--	--	--	--	--	1.85	1.85	--	--	--	4.17	9.62	13.79	--	--	--	--	1.53	1.53	--	0.19	0.19
Grazed Land	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.09	0.09	--	--	--	--	--	--	--	--	--
Orchard	--	--	--	--	11.93	11.93	--	--	--	--	--	--	--	4.15	4.15	0.03	7.42	7.45	--	--	--	--	--	--	--	1.29	1.29
Ornamental	--	--	--	--	--	--	--	0.52	0.52	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	1.12	1.12
Total	**0.02**	**17.99**	**18.01**	**3.74**	**139.79**	**143.53**	**1.15**	**55.88**	**57.03**	**0.02**	**18.00**	**18.02**	**2.91**	**114.88**	**117.79**	**4.89**	**179.60**	**184.49**	**0.02**	**17.79**	**17.81**	**0.02**	**72.38**	**72.40**	**0.02**	**17.99**	**18.01**

TABLE 7
NATURAL COMMUNITIES AND LAND COVER TYPES WITHIN THE WASTEWATER NEAR-TERM PROJECTS BIOLOGICAL STUDY AREAS

Natural Community/Land Cover Type	WW-4: MARB 1269 LS and Pipeline Upgrade			WW-5: Meridian Lift Station Upgrades (WWRF)			WW-6: WWRF Expansion Study		
	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total	Project Site	500-foot Buffer	Total
Aquatic/Riparian Communities									
Cattail Marsh	--	0.03	0.03	--	--	--	--	--	--
Goodding's Willow – Arroyo Willow Riparian Woodland	--	--	--	--	0.84	0.84	--	--	--
Open Water				--	0.16	0.16	--	--	--
Terrestrial Communities									
Wild Oats and Annual Brome Grassland	--	4.37	4.37	--	0.79	0.79	--	<0.01	<0.01
Land Cover Types									
Developed	0.02	13.91	13.93	0.02	15.60	15.62	0.02	17.01	17.03
Disturbed	--	--	--	--	0.62	0.62	--	--	--
Total	**0.02**	**18.31**	**18.33**	**0.02**	**18.01**	**18.03**	**0.02**	**17.01**	**17.03**

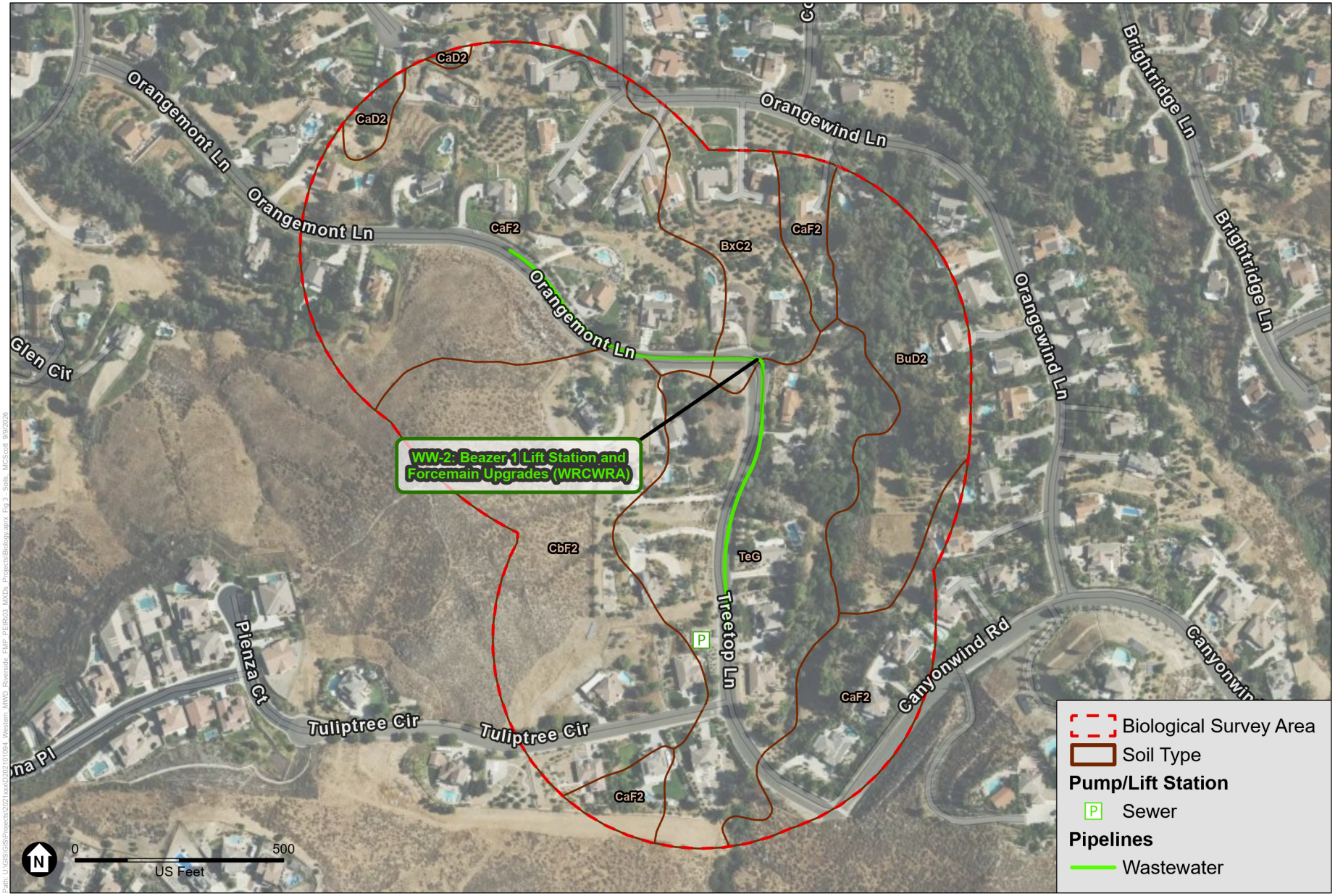


SOURCE: Mapbox, 2026; NRCS, 2026; ESA, 2026

Riverside Facilities Master Plan

Figure 3-A
Soils
WW-1: McKinley Pipeline Upgrade

ESA

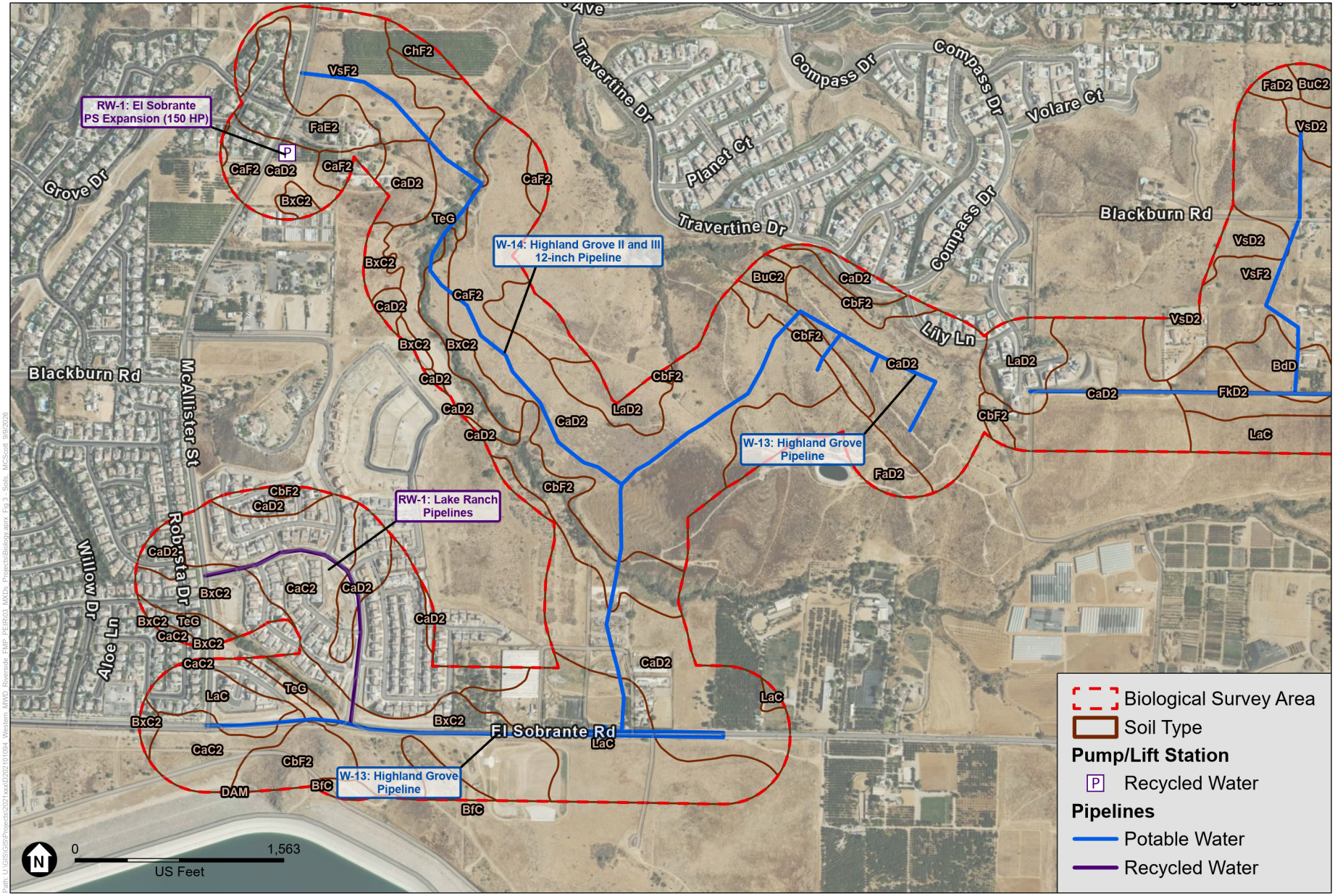


SOURCE: Mapbox, 2026; NRCS, 2026; ESA, 2026

Riverside Facilities Master Plan

Figure 3-B
Soils
WW-2: Beazer Lift Station 1 and Forcemain Upgrades

ESA

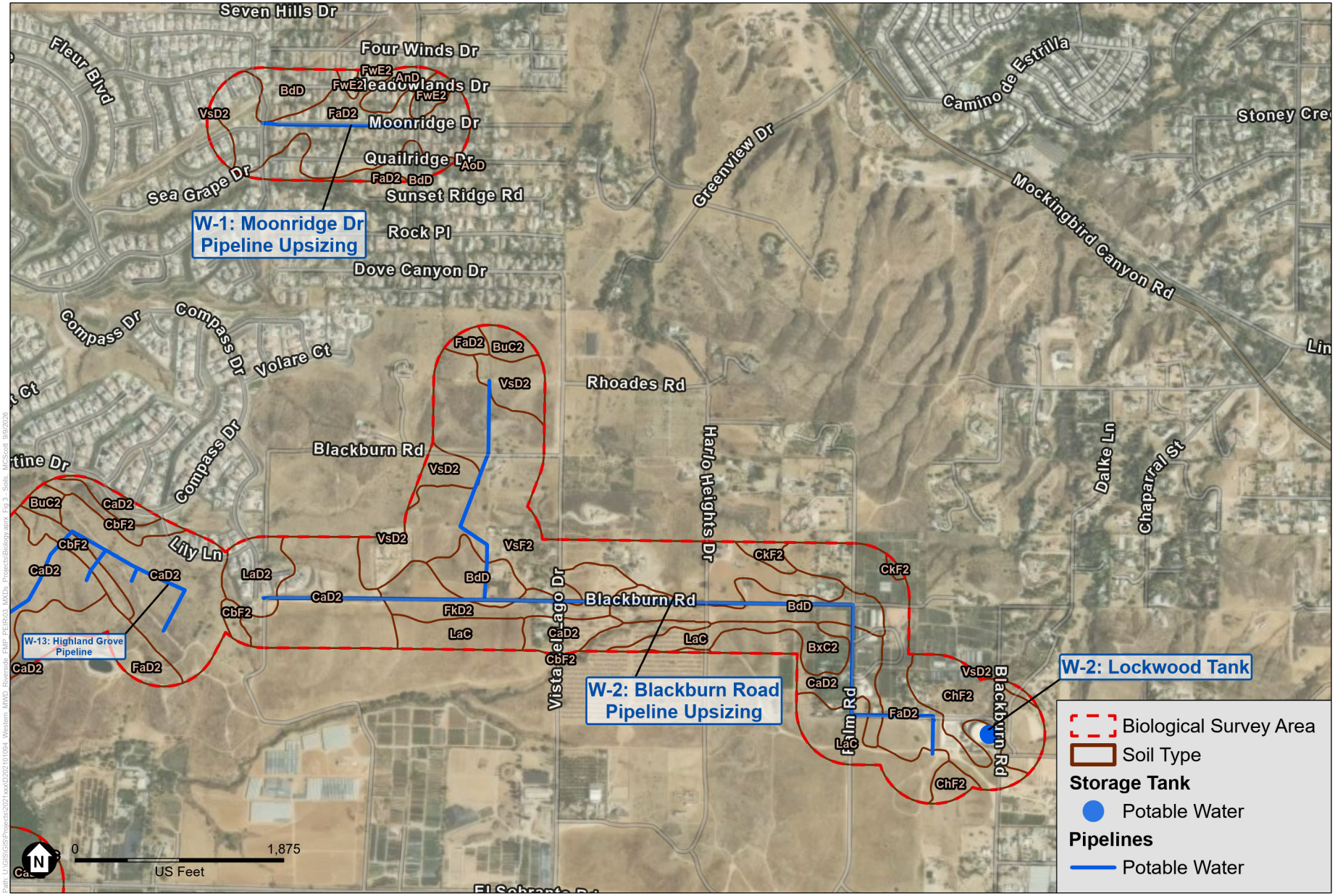


SOURCE: Mapbox, 2026; NRCS, 2026; ESA, 2026

Riverside Facilities Master Plan

Figure 3-C
Soils
W-13/14: Highland Grove I, II, and III Pipelines
RW-1: El Sobrante Pump Station/Lake Ranch Pipelines

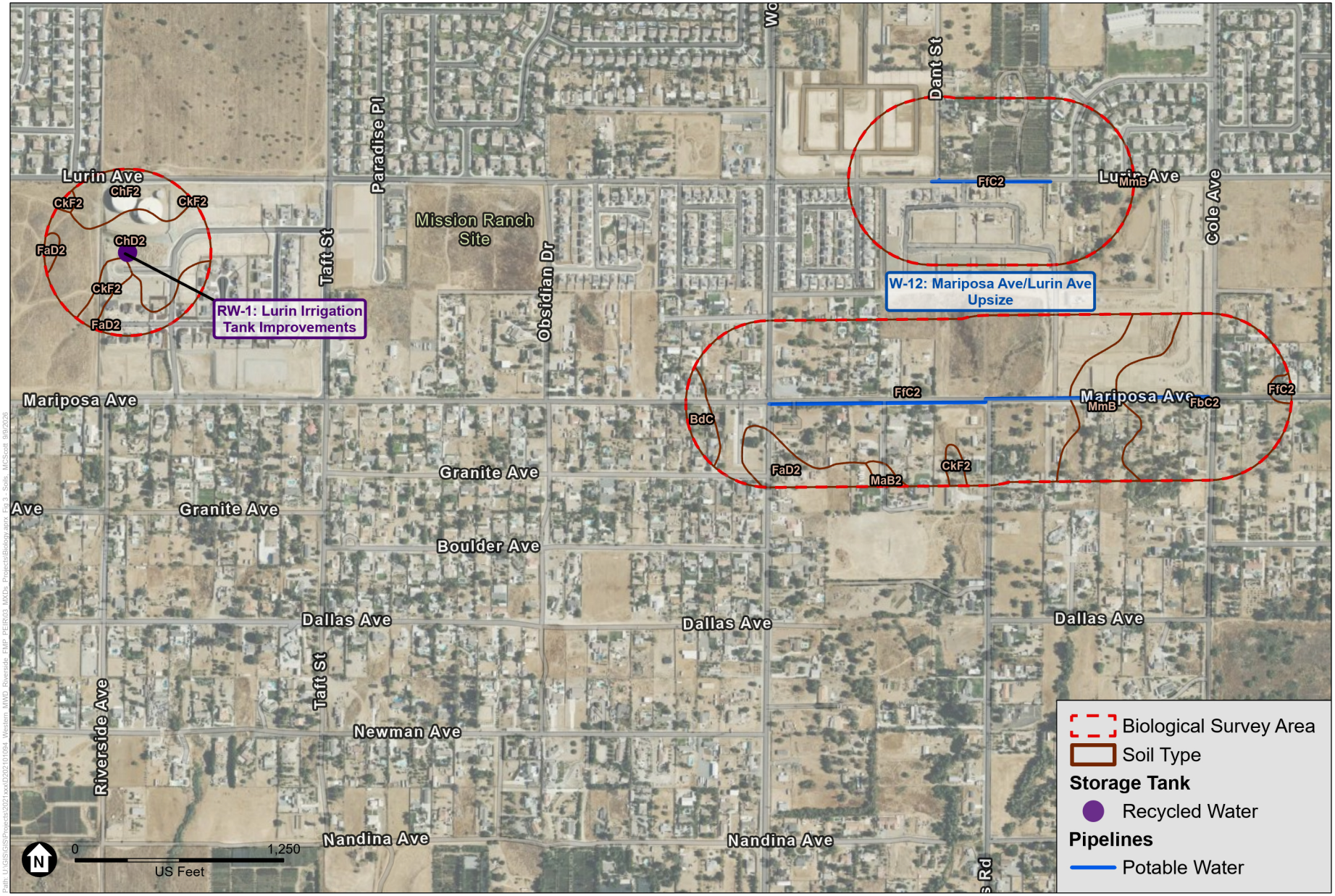
ESA



SOURCE: Mapbox, 2026; NRCS, 2026; ESA, 2026

Riverside Facilities Master Plan

Figure 3-D
Soils
W-1: Moonridge Drive Pipeline
W-2: Blackburn Road Pipeline Upsizing

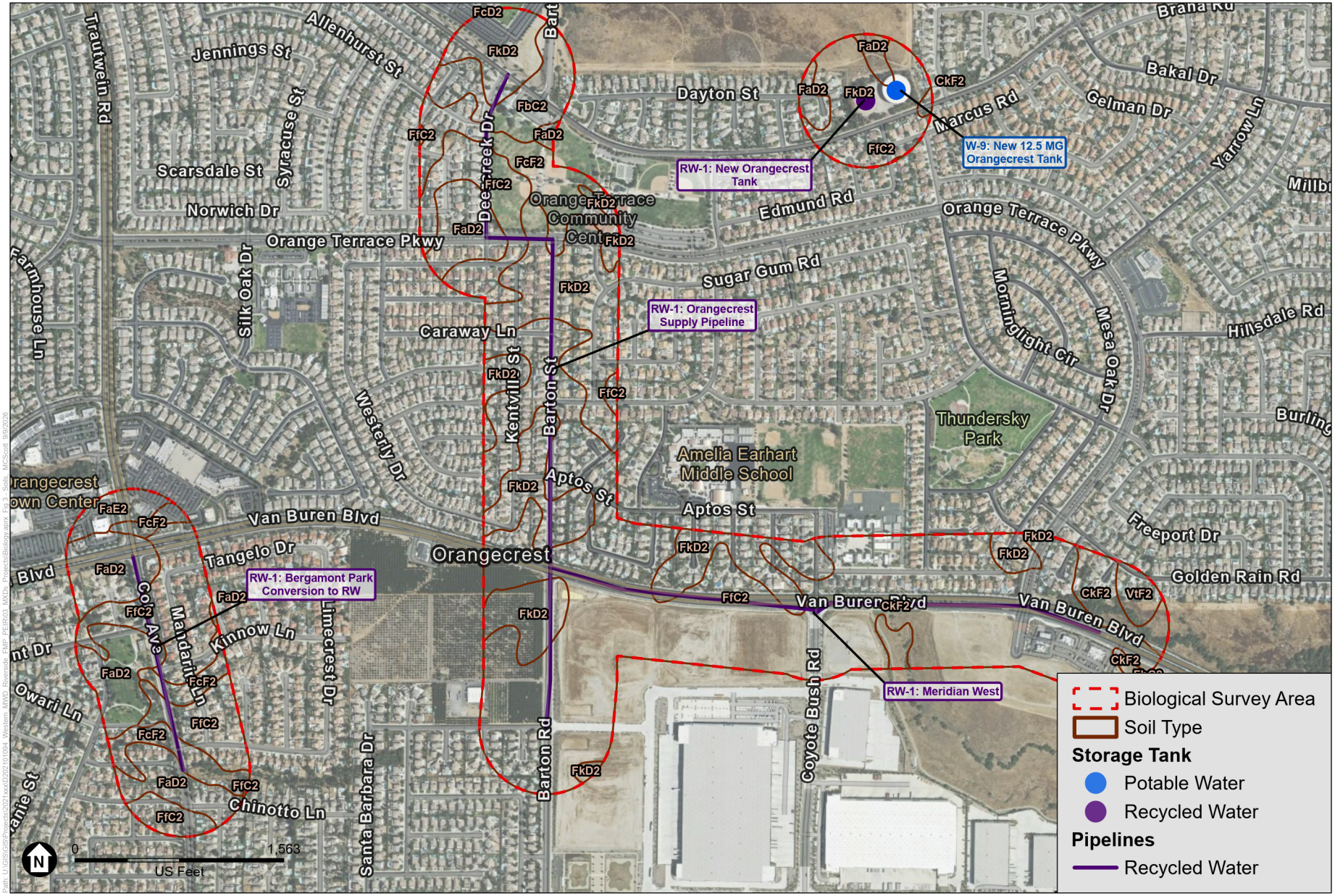


SOURCE: Mapbox, 2026; NRCS, 2026; ESA, 2026

Riverside Facilities Master Plan

Figure 3-E
Soils
RW-1: Lurin Tank
W-12: Mariposa Ave/Lurin Ave Upsizing

ESA



SOURCE: Mapbox, 2026; NRCS, 2026; ESA, 2026

Riverside Facilities Master Plan

Figure 3-F
Soils
W-9: Orangecrest Tank #1
RW-1: Orangecrest Supply Pipelines/Meridian West

ESA

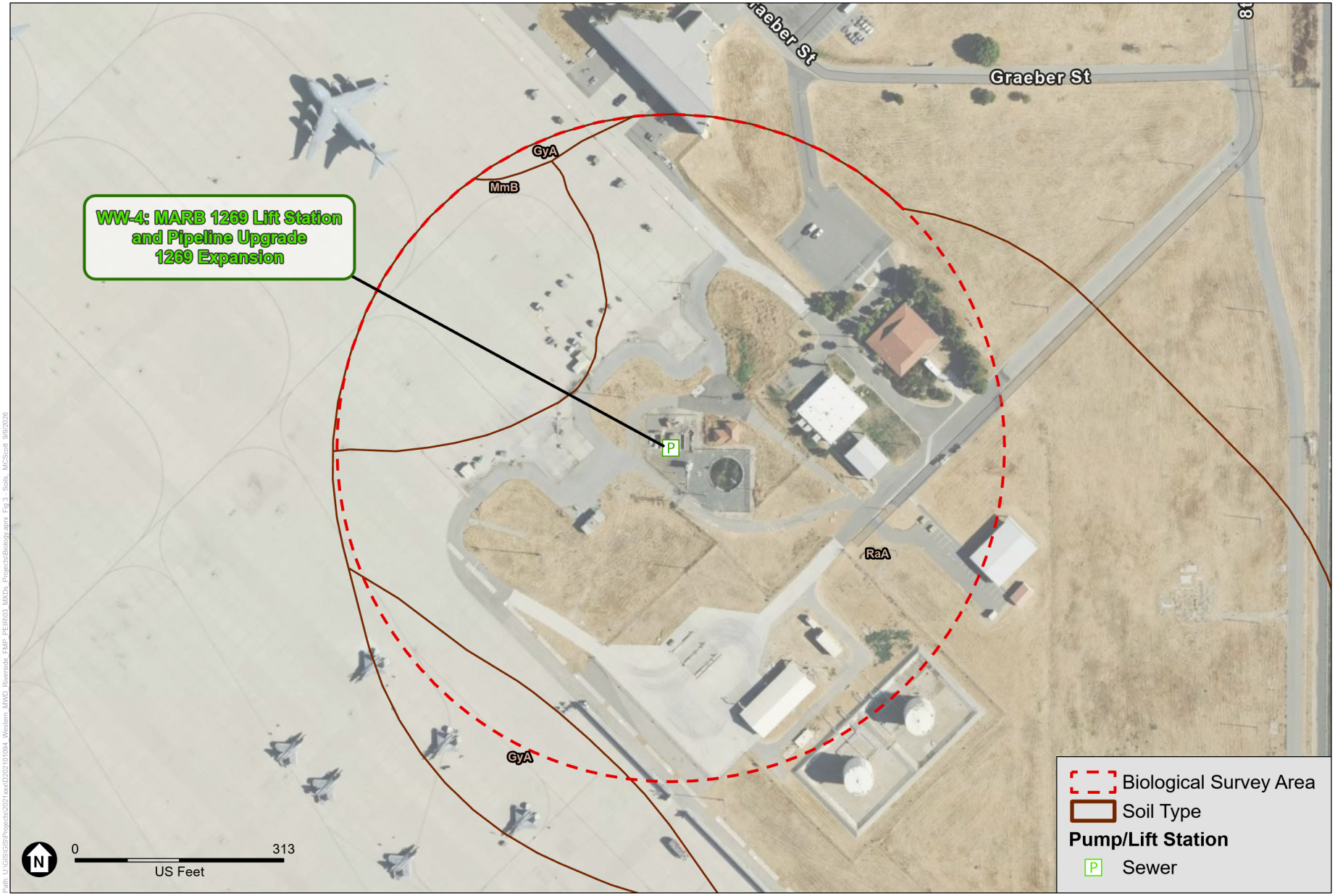


SOURCE: Mapbox, 2026; NRCS, 2026; ESA, 2026

Riverside Facilities Master Plan

Figure 3-G
Soils
WW-5 Meridian Lift Station

ESA



SOURCE: Mapbox, 2026; NRCS, 2026; ESA, 2026

Riverside Facilities Master Plan

Figure 3-H
Soils
WW-4: MARB 1269 Lift Station

ESA

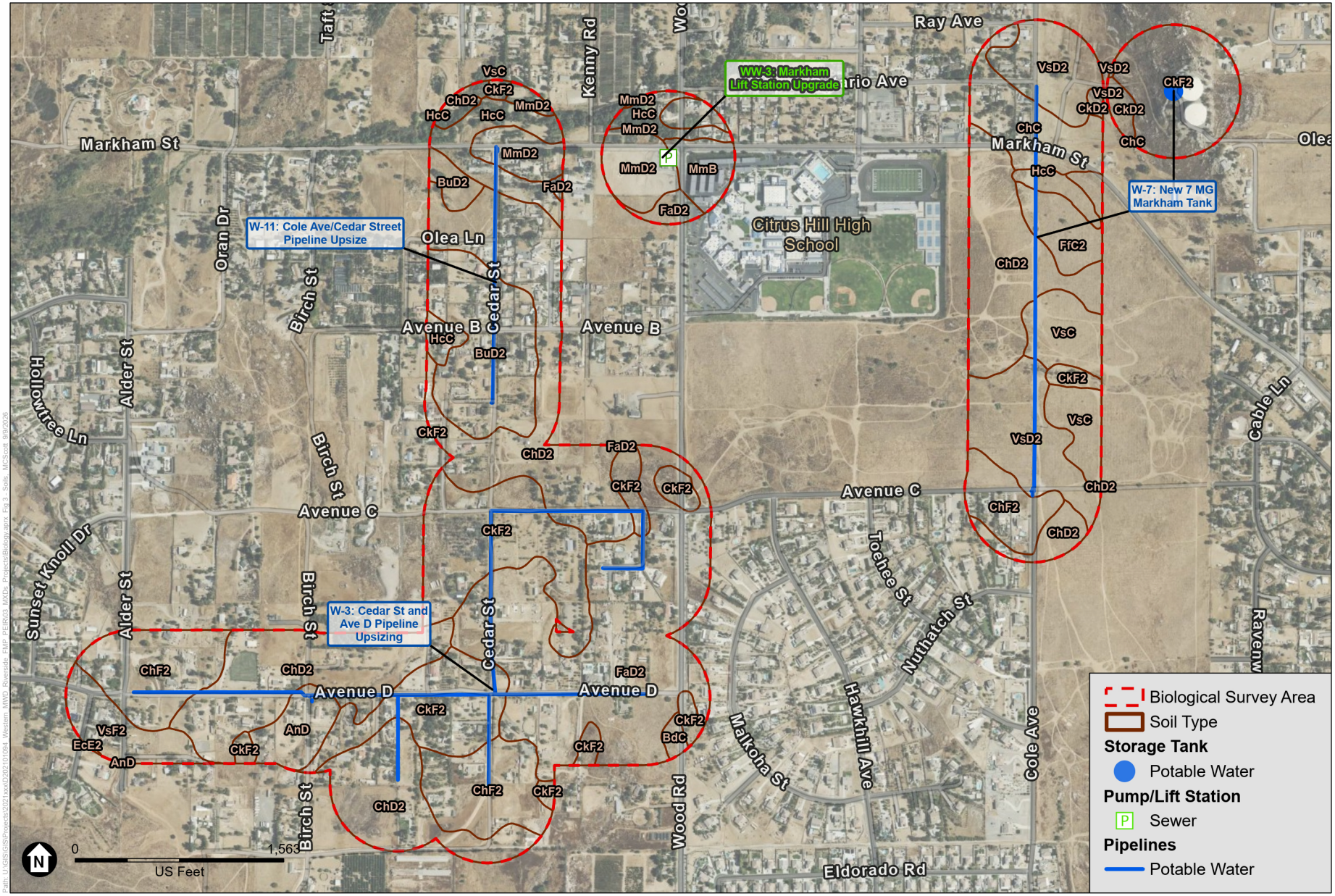


SOURCE: Mapbox, 2026; NRCS, 2026; ESA, 2026

Riverside Facilities Master Plan

Figure 3-I
Soils
RW-1: Riverside National Cemetery Pump Station
WW-6: WWRF Expansion

ESA



SOURCE: Mapbox, 2026; NRCS, 2026; ESA, 2026

Riverside Facilities Master Plan

Figure 3-J
Soils
W-3: Cedar Street and Ave D Pipeline Upsizing
W-7: New 7MG Markham Tank
W-11: Cole Ave/Cedar Street Upsize
WW-3: Markham Lift Station

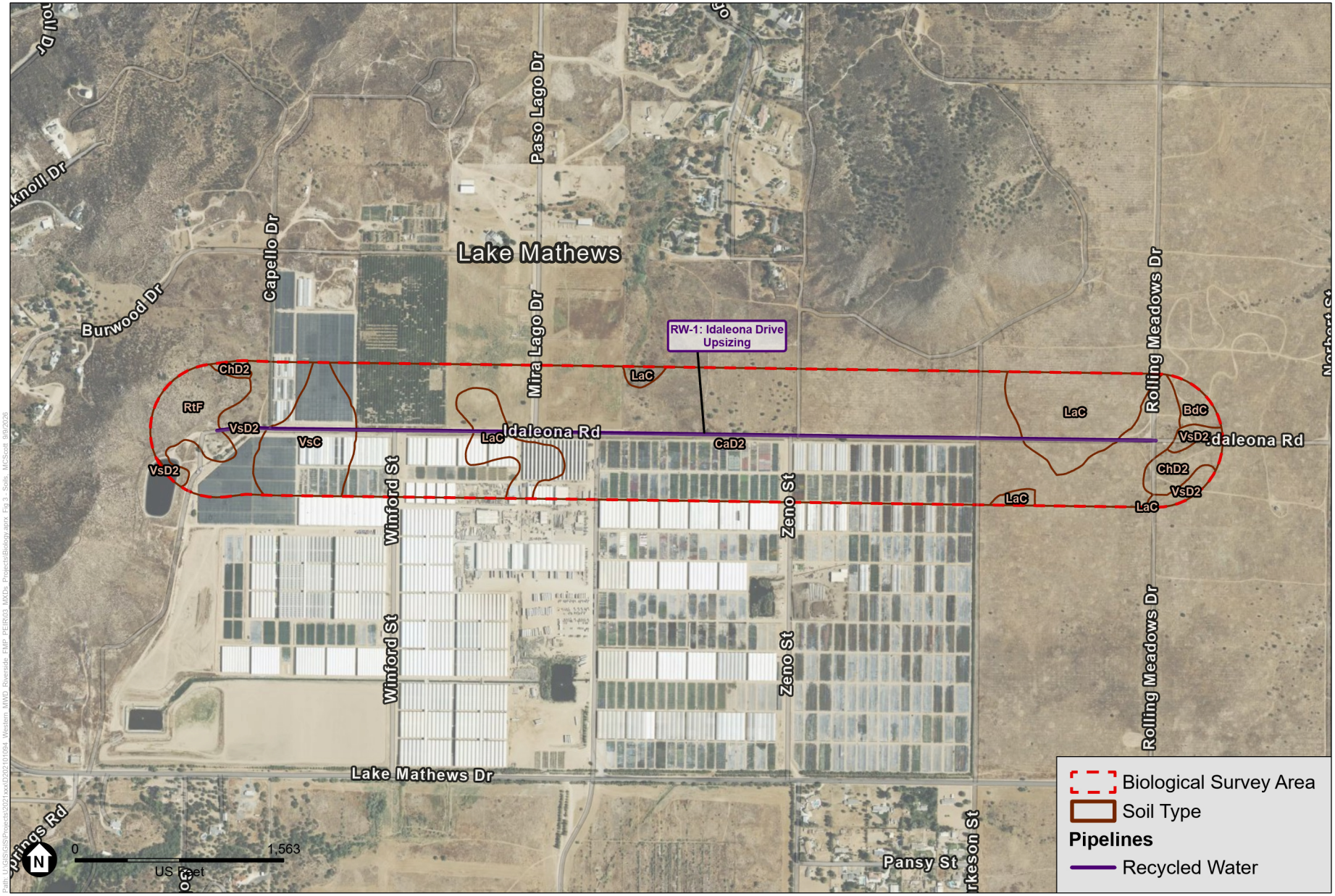


SOURCE: Mapbox, 2026; NRCS, 2026; ESA, 2026

Riverside Facilities Master Plan

Figure 3-K
Soils
W-4: Hillside 2320 PZ Booster Pump Station and Pipeline

ESA

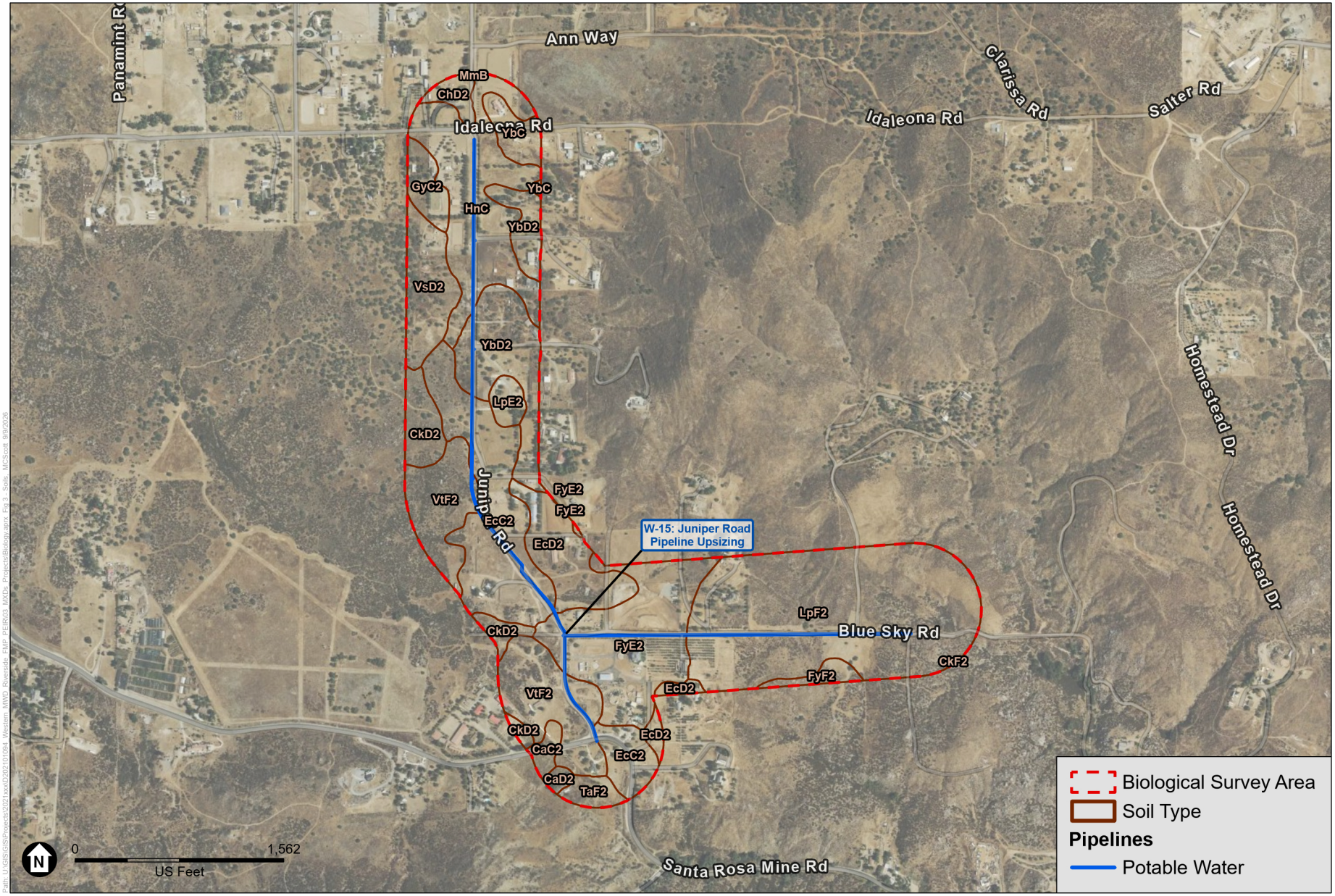


SOURCE: Mapbox, 2026; NRCS, 2026; ESA, 2026

Riverside Facilities Master Plan

Figure 3-L
Soils
RW-1: Idaleona Drive Upsizing

ESA



SOURCE: Mapbox, 2026; NRCS, 2026; ESA, 2026

Riverside Facilities Master Plan

Figure 3-M
Soils
W-15: Juniper Road Pipeline Upsizing

ESA



SOURCE: Mapbox, 2026; NRCS, 2026; ESA, 2026

Riverside Facilities Master Plan

Figure 3-N
Soils
W-6: El Nido Tank

ESA



SOURCE: Mapbox, 2026; NRCS, 2026; ESA, 2026

Riverside Facilities Master Plan

Figure 3-O
Soils
W-5: Hidden Valley Tank

ESA

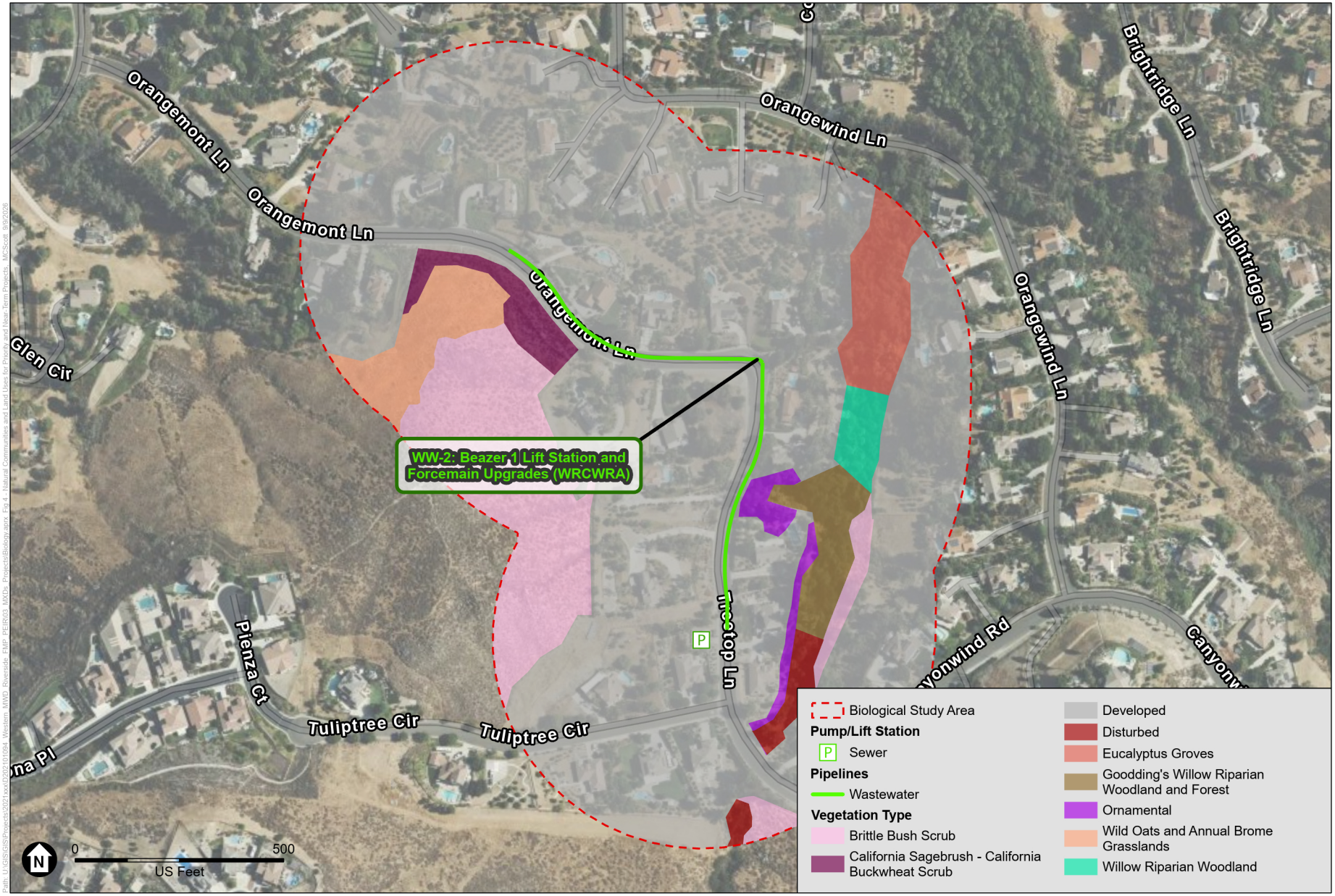


SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 4-A
Natural Communities and Land Uses for Priority and Near-Term Projects
WW-1: McKinley Pipeline Upgrade

ESA

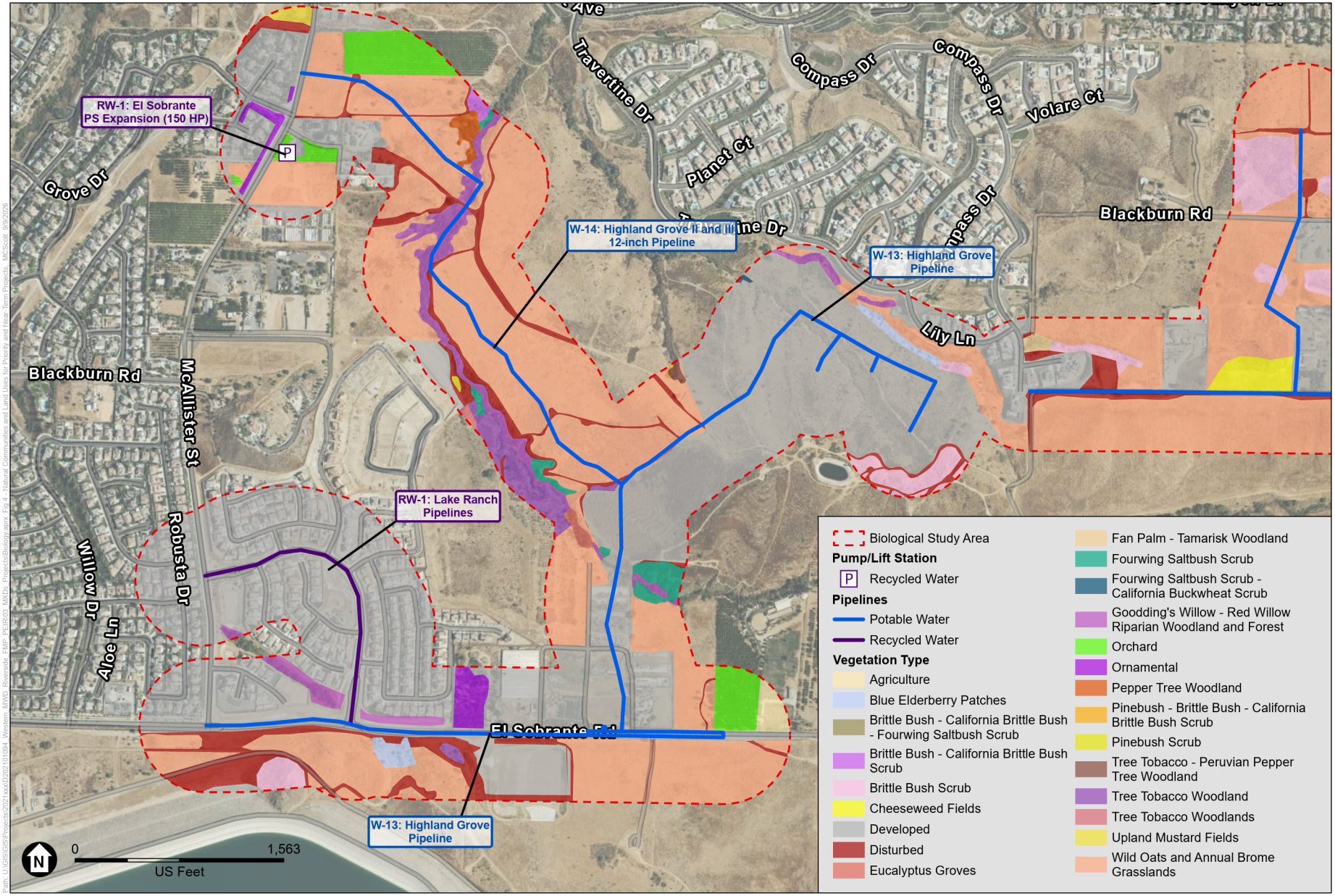


SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 4-B
Natural Communities and Land Uses for Priority and Near-Term Projects
WW-2: Beazer Lift Station 1 and Forcemain Upgrades

ESA

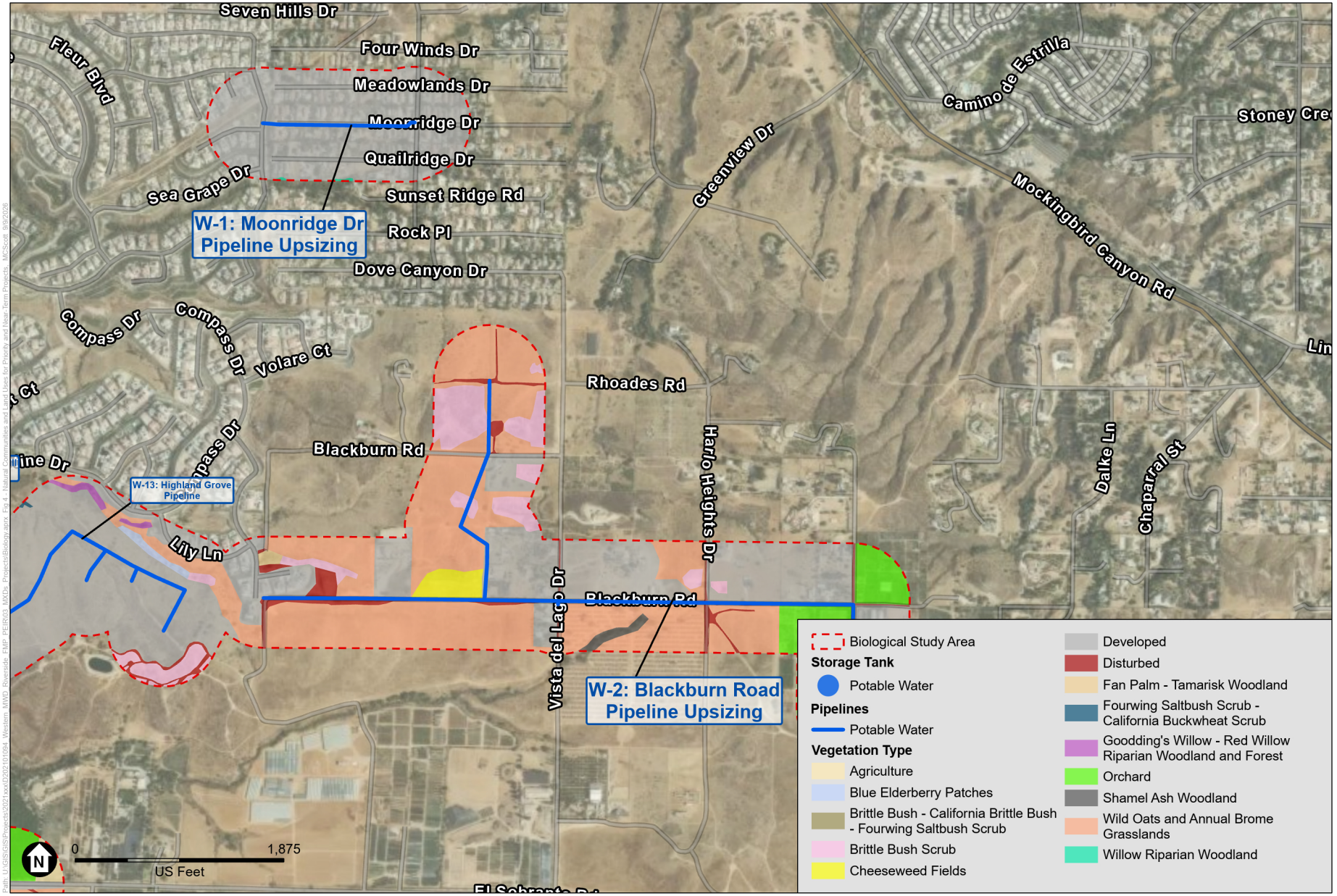


SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 4-C
Natural Communities and Land Uses for Priority and Near-Term Projects
W-13/14: Highland Grove I, II, and III Pipelines
RW-1: El Sobrante Pump Station/Lake Ranch Pipelines

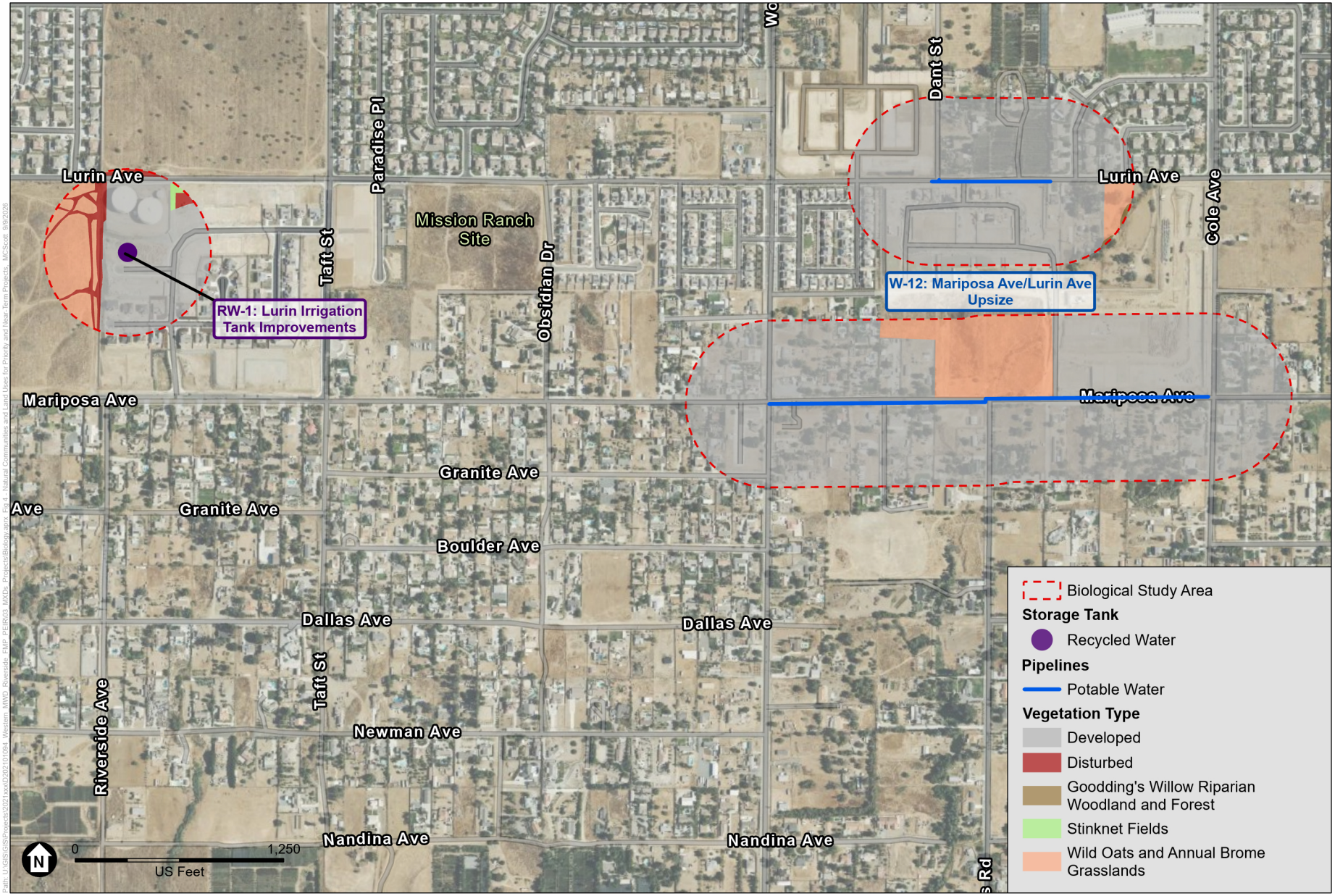
ESA



SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 4-D
Natural Communities and Land Uses for Priority and Near-Term Projects
W-1: Moonridge Drive Pipeline
W-2: Blackburn Road Pipeline Upsizing

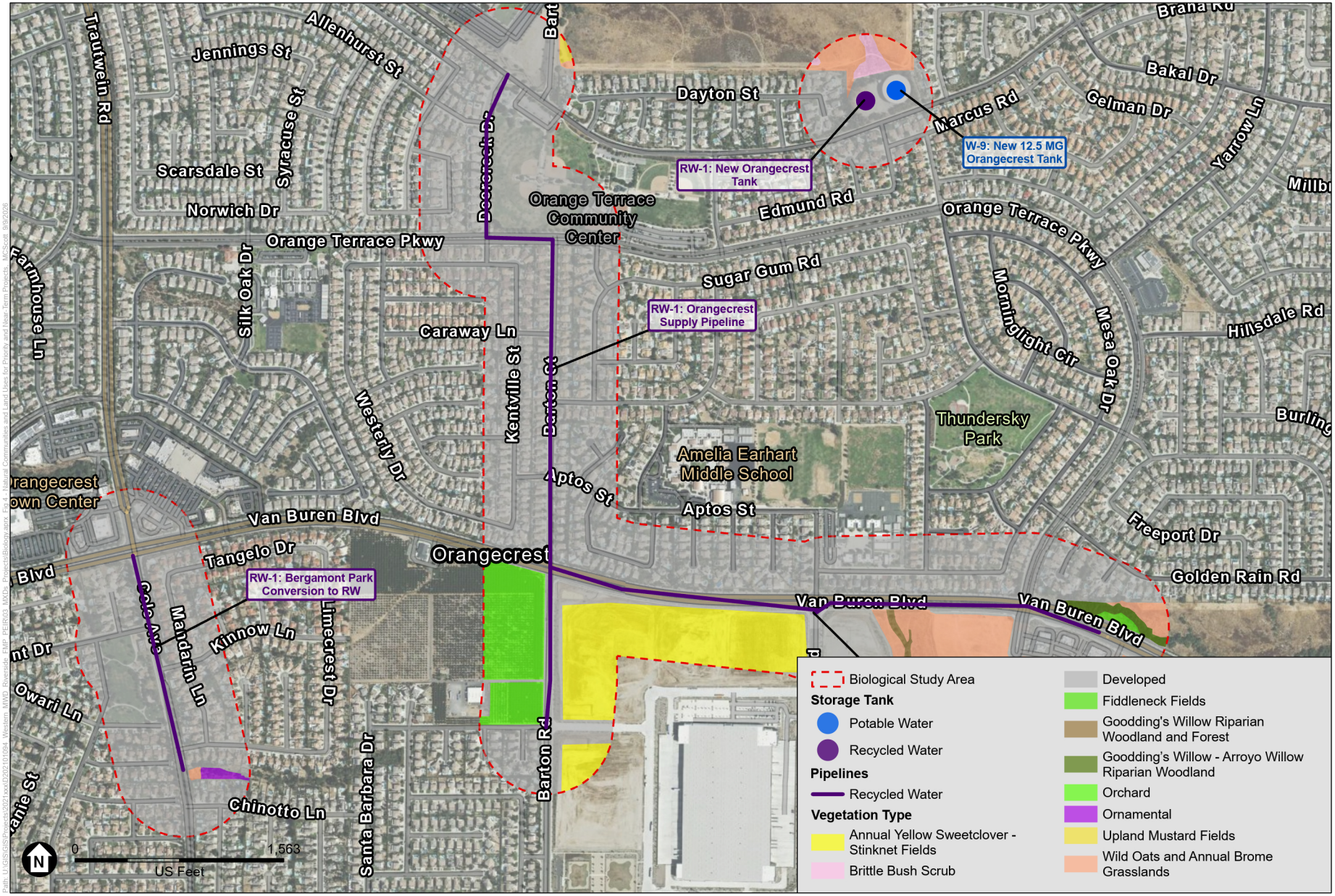


SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 4-E
Natural Communities and Land Uses for Priority and Near-Term Projects
RW-1: Lurin Tank
W-12: Mariposa Ave/Lurin Ave Upsizing

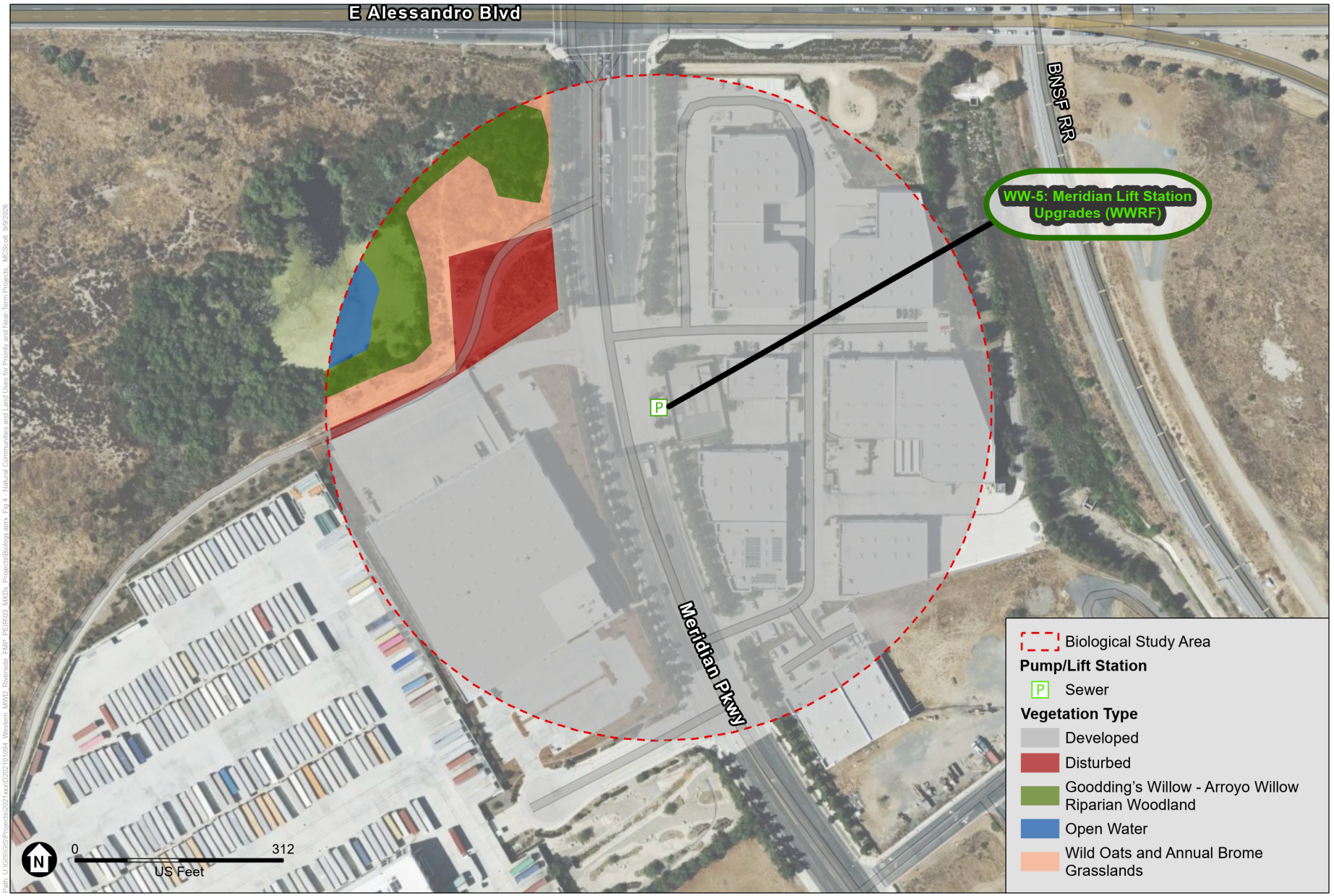
ESA



SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 4-F
Natural Communities and Land Uses for Priority and Near-Term Projects
W-9: Orangecrest Tank #1
RW-1: Orangecrest Supply Pipelines/Meridian West

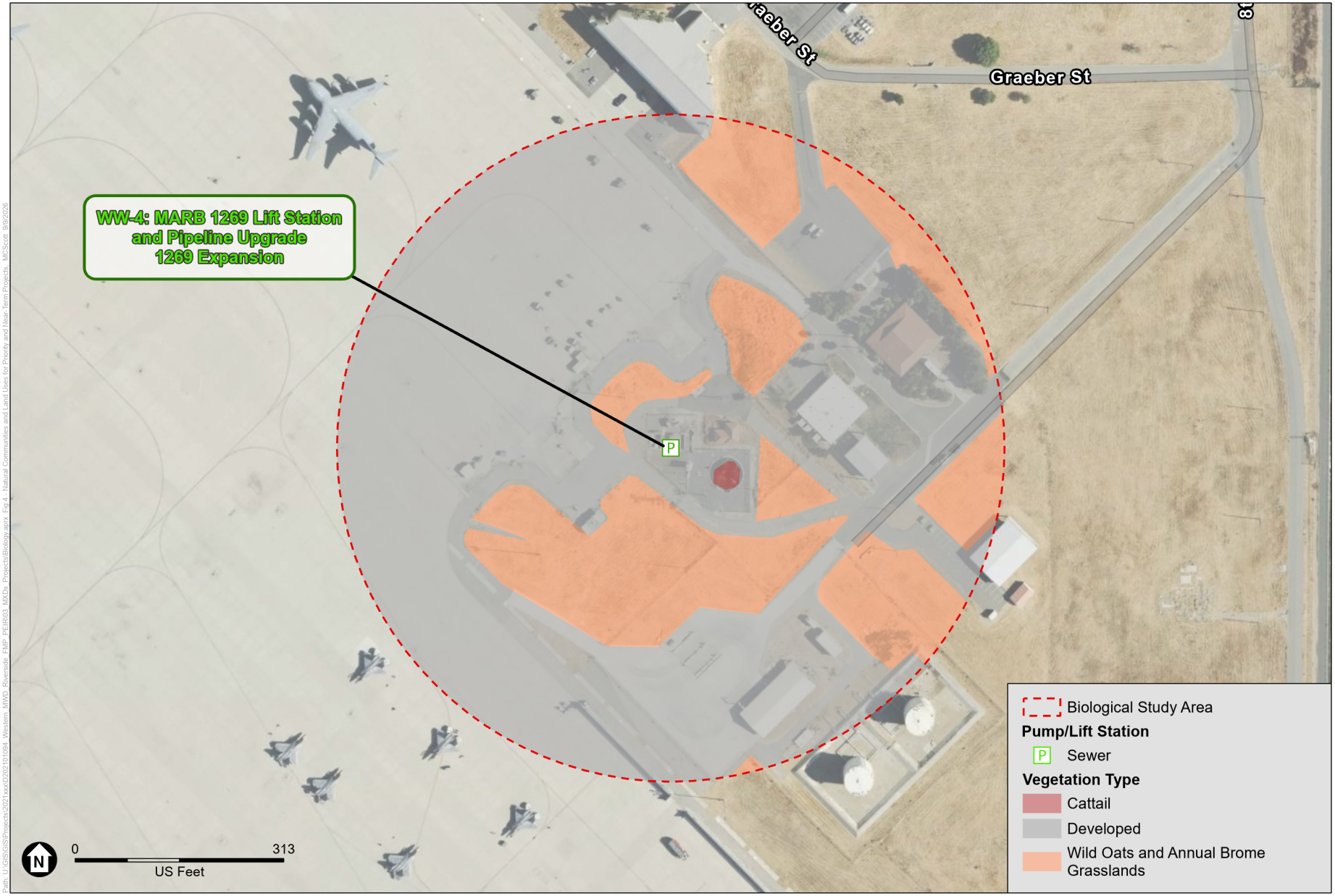


SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 4-G
Natural Communities and Land Uses for Priority and Near-Term Projects
WW-5 Meridian Lift Station

ESA

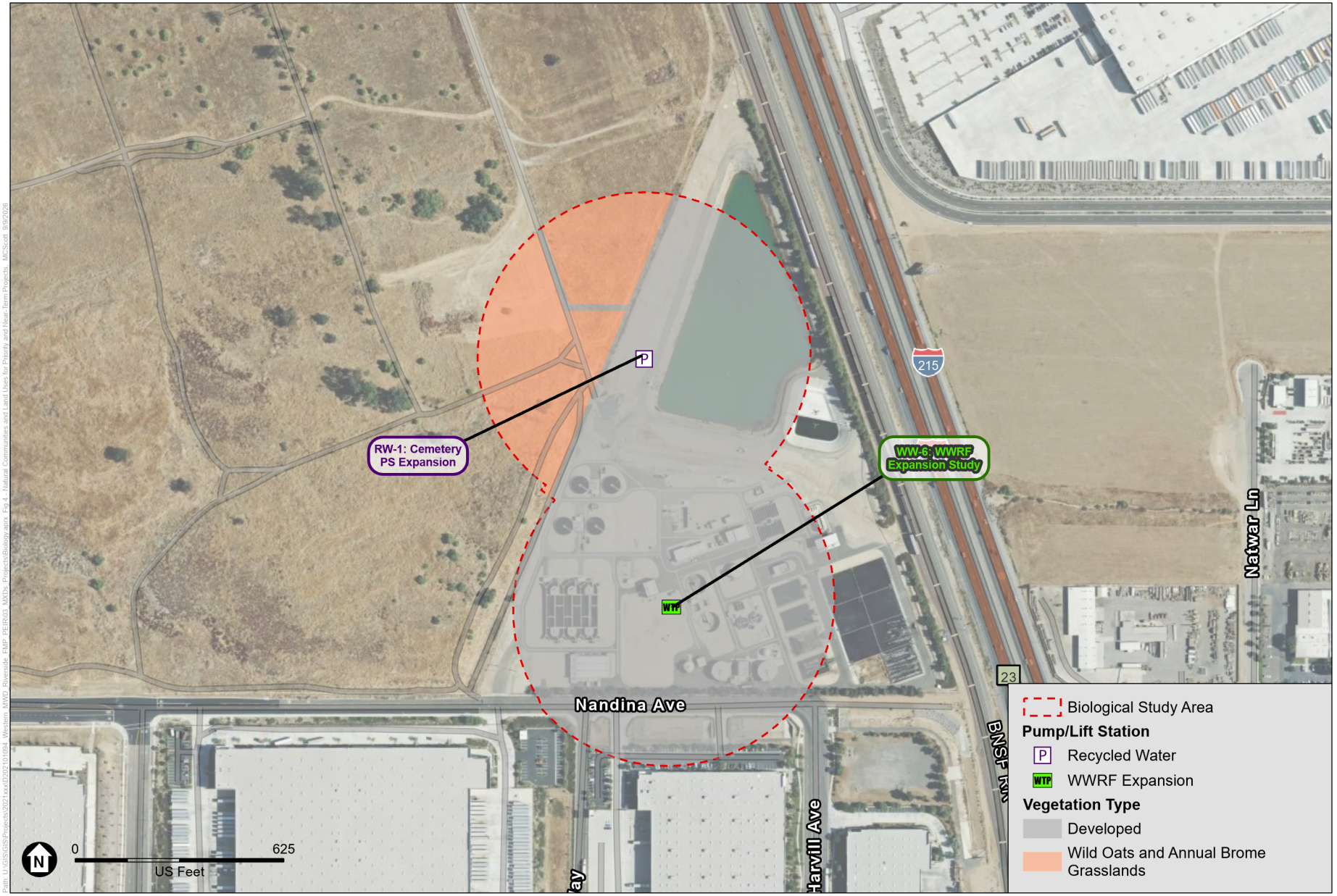


SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 4-H
Natural Communities and Land Uses for Priority and Near-Term Projects
WW-4: MARB 1269 Lift Station

ESA

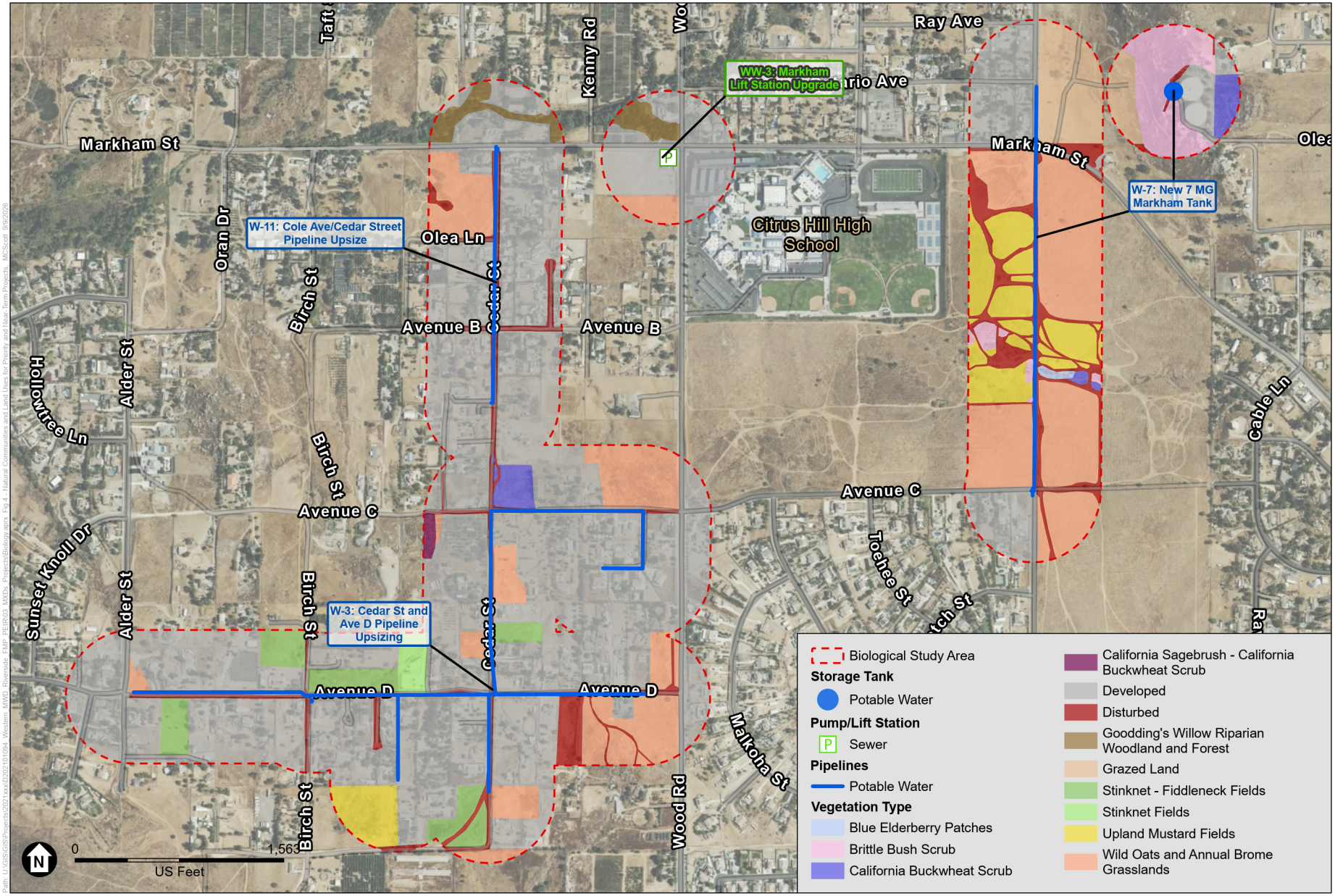


SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 4-I
Natural Communities and Land Uses for Priority and Near-Term Projects
RW-1: Riverside National Cemetery Pump Station
WW-6: WWRF Expansion

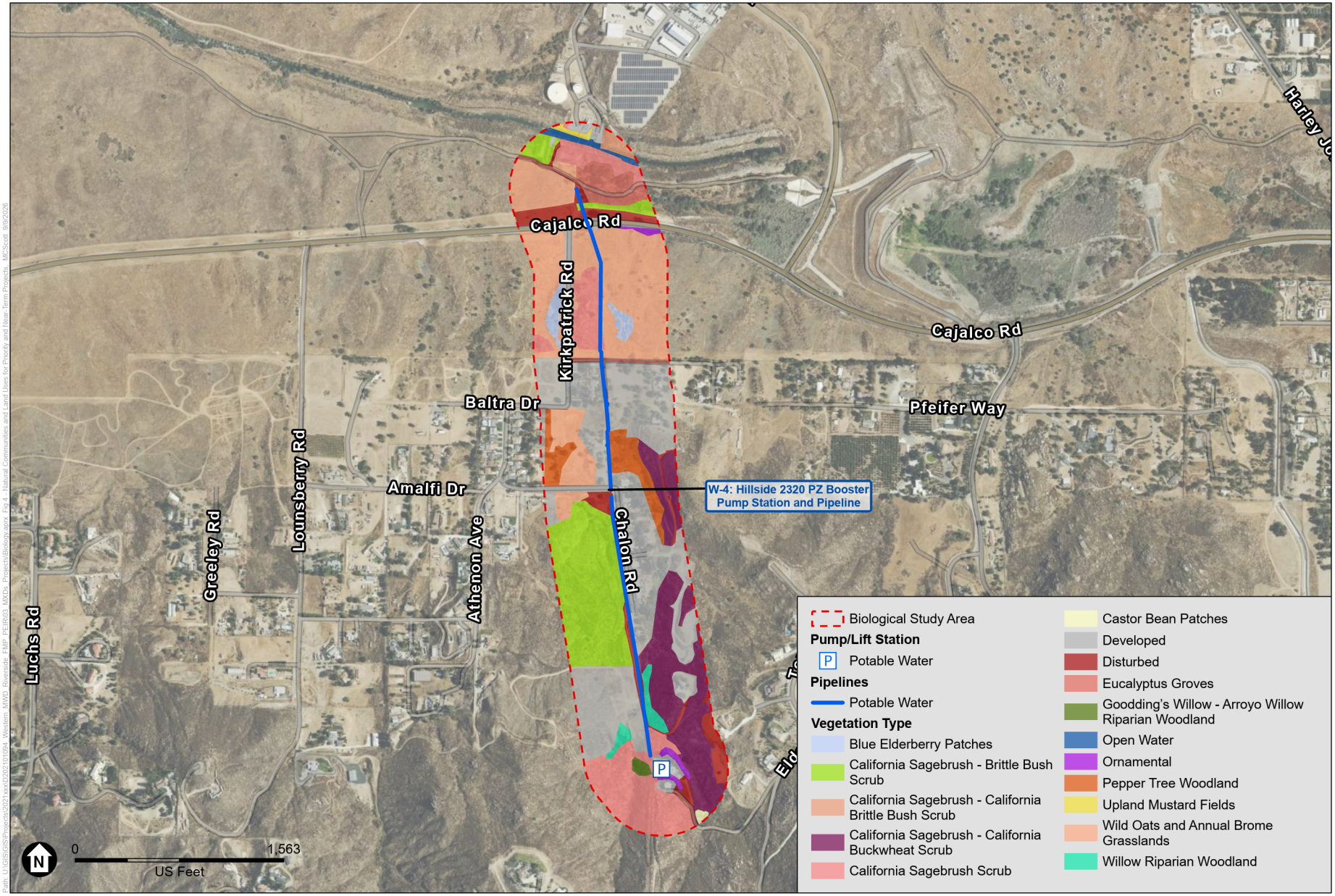
ESA



SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 4-J
Natural Communities and Land Uses for Priority and Near-Term Projects
W-3: Cedar Street and Ave D Pipeline Upsizing
W-7: New 7MG Markham Tank
W-11: Cole Ave/Cedar Street Upsize
WW-3: Markham Lift Station

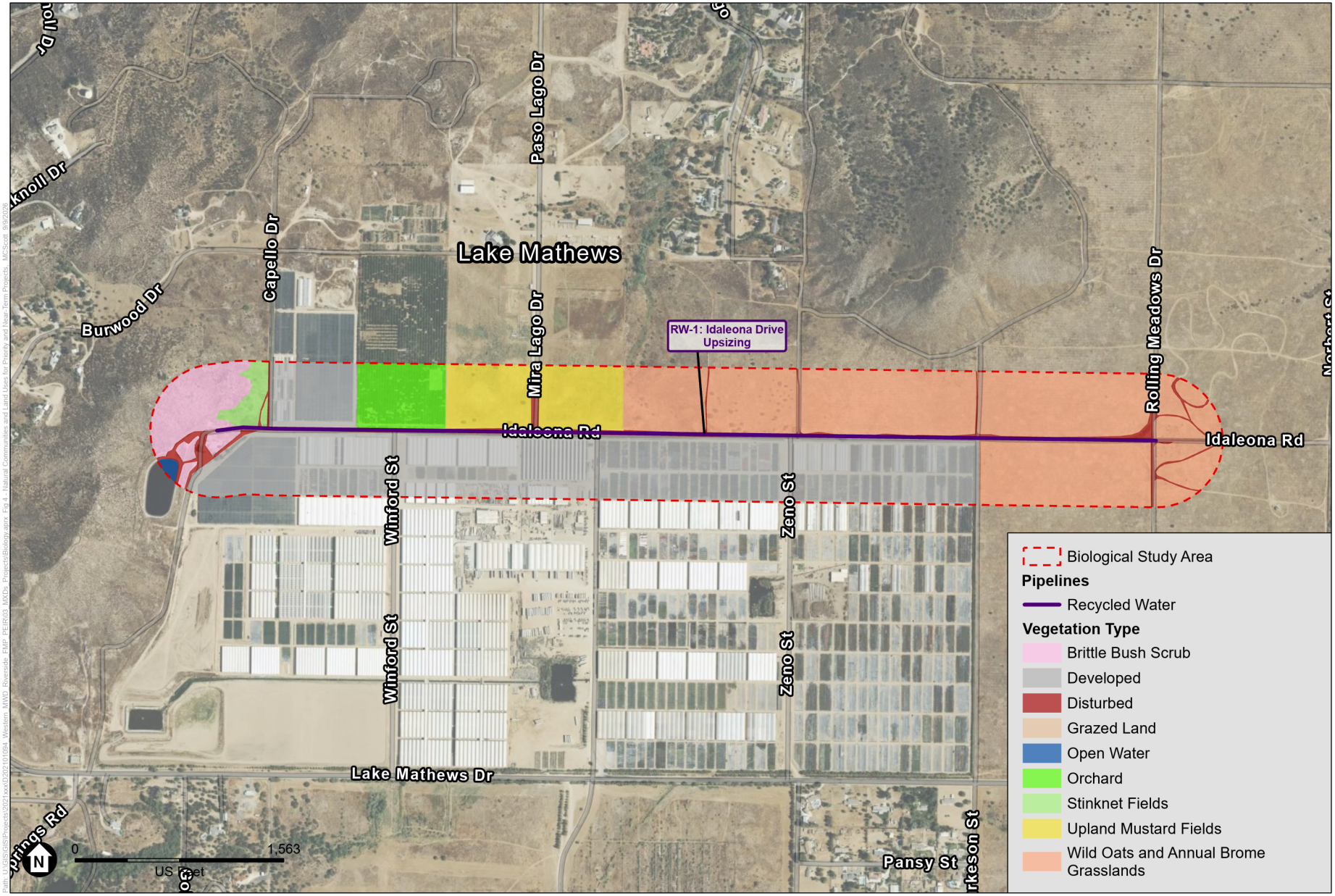


SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 4-K
Natural Communities and Land Uses for Priority and Near-Term Projects
W-4: Hillside 2320 PZ Booster Pump Station and Pipeline

ESA

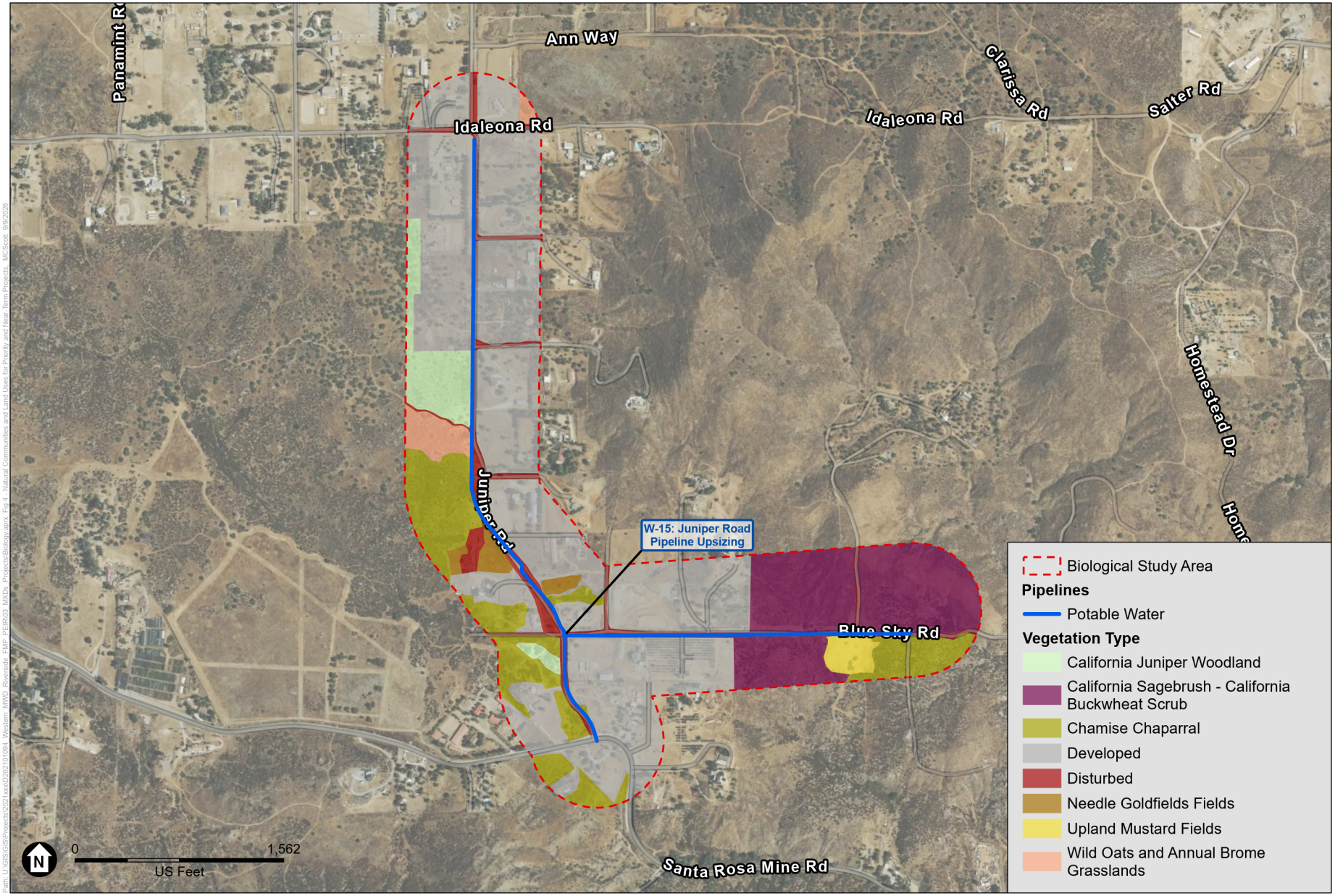


SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 4-L
Natural Communities and Land Uses for Priority and Near-Term Projects
RW-1: Idaleona Drive Upsizing

ESA

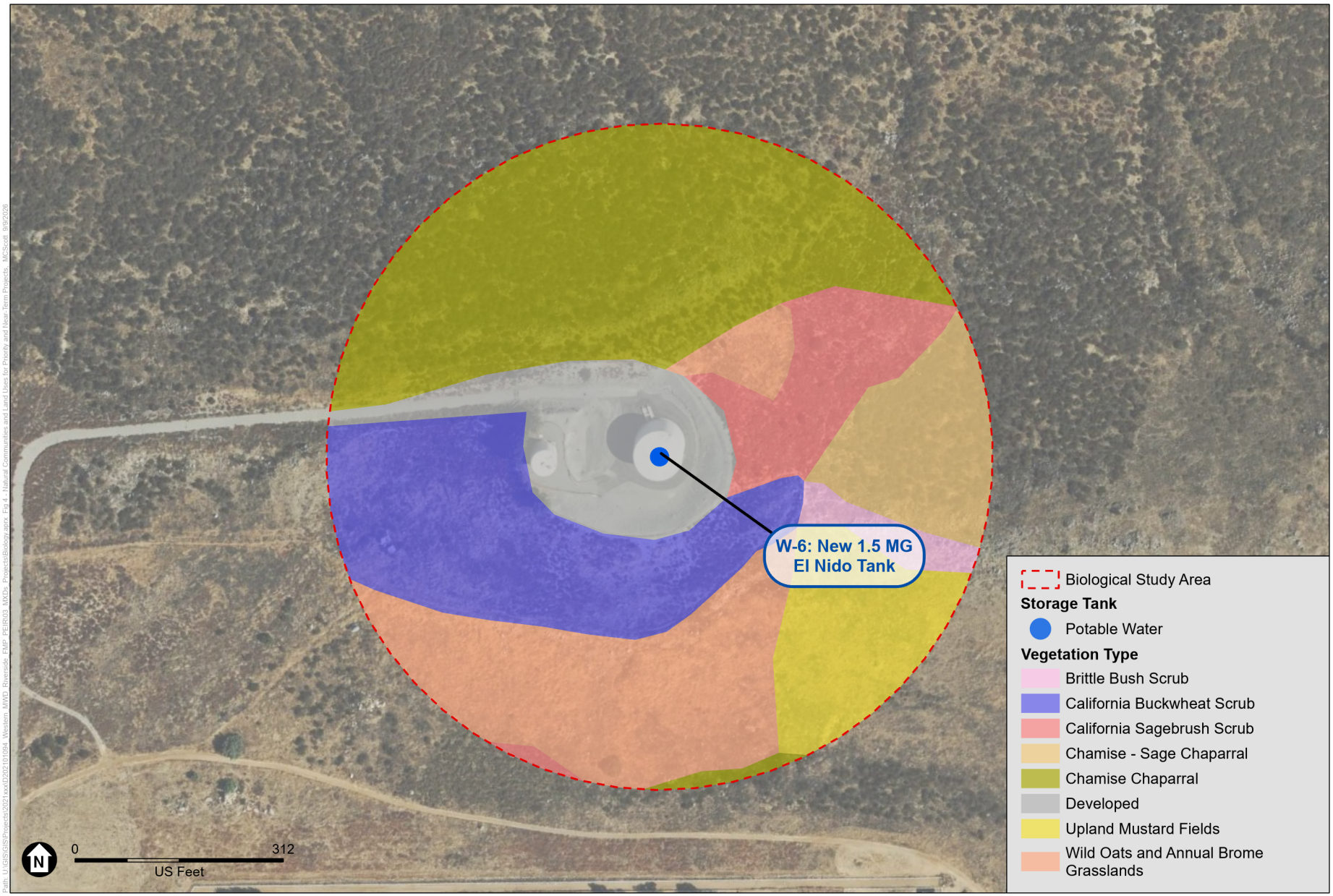


SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 4-M
Natural Communities and Land Uses for Priority and Near-Term Projects
W-15: Juniper Road Pipeline Upsizing

ESA

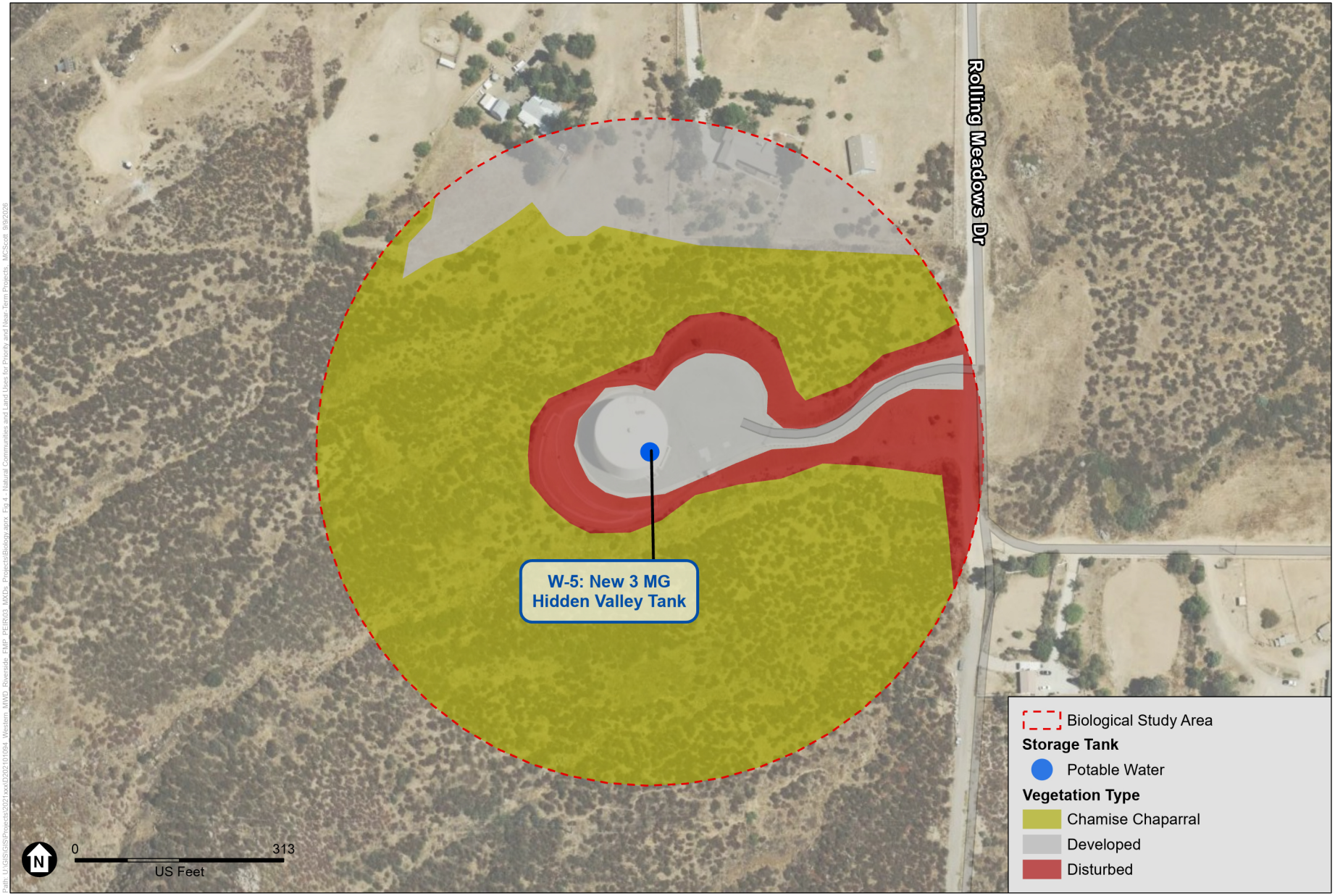


SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 4-N
Natural Communities and Land Uses for Priority and Near-Term Projects
W-6: El Nido Tank

ESA



SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 4-O
Natural Communities and Land Uses for Priority and Near-Term Projects
W-5: Hidden Valley Tank

ESA

4.2.1 Aquatic/Riparian Communities

Cattail Marshes

Cattail marshes is an herbaceous community that is dominated by cattails (*Typha* spp.) accompanied by other herbaceous vegetation such as rushes (*Juncus* spp.) and sedges (*Cyperus* spp.)

Fan Palm – Tamarisk Woodland

Fan palm – tamarisk woodland is a non-native woodland that is typically found within riparian areas and is co-dominated by Mexican fan palm (*Washingtonia robusta*) and tamarisk (*Tamarix* spp.).

Goodding's Willow - Arroyo Willow Riparian Woodland

Goodding's willow – arroyo willow riparian woodland is a form of riparian woodland, which are typically characterizes by a moderately dense woodland dominated by small trees or shrubs, with scattered taller riparian trees and is dependent on the presence of water. It is co-dominated by Goodding's willow (*Salix gooddingii*) and arroyo willow (*Salix lasiolepis*).

Goodding's Willow - Red Willow Riparian Woodland

Goodding's willow – red willow riparian woodland is a form of riparian woodland, which are typically characterizes by a moderately dense woodland dominated by small trees or shrubs, with scattered taller riparian trees and is dependent on the presence of water. It is co-dominated by Goodding's willow and red willow (*Salix laevigata*).

Goodding's Willow Riparian Woodland

Goodding's willow riparian woodland is a form of riparian woodland, which is typically characterized by a moderately dense woodland dominated by small trees or shrubs, with scattered taller riparian trees. This community is dominated by Goodding's willow and contains other riparian shrubs and herbaceous species.

Open Water

This land cover type is characterized by an area of open water associated with basins and canals.

Willow Riparian Woodland

Willow riparian woodland is a natural community dominated by willows (*Salix* spp.) in the tree canopy and includes other riparian shrubs and herbaceous species. These natural communities were not accessible during the biological surveys and thus the willows could not be identified to a species level.

4.2.2 4.2.2 Terrestrial Communities

Annual Yellow Sweetclover – Stinknet Fields

Annual yellow sweetclover – stinknet fields is a vegetation community that is co-dominated by yellow sweetclover (*Melilotus officinalis*) and stinknet (*Oncosiphon pilulifer*). These areas were previously disturbed and contained a variety of other non-native herbaceous species.

Blue Elderberry Patches

Blue elderberry patches are typically characterized by a moderately dense shrub layer dominated by broad-leaved deciduous species dominated by blue elderberry (*Sambucus mexicana*).

Brittle Bush - California Brittle Bush Scrub – Fourwing Saltbush

Brittle bush – California brittle bush scrub is a form of coastal sage scrub cover that is co-dominated by brittle bush (*Encelia farinosa*), California brittle bush (*Encelia californica*), and fourwing saltbush (*Atriplex canescens*).

Brittle Bush - California Brittle Bush Scrub

Brittle bush – California brittle bush scrub is a form of coastal sage scrub cover that is co-dominated by brittle bush and California brittle bush.

Brittle Bush Scrub

Brittle bush scrub is a form of shrub cover that is dominated by brittle bush. This vegetation community is generally associated with alluvial fans, bajadas, colluvium, rocky hillsides, slopes of small washes and rills.

California Buckwheat Scrub

California buckwheat scrub is a form of shrub cover that is dominated by California buckwheat (*Eriogonum fasciculatum*). This vegetation community is generally associated with upland slopes, intermittently flooded arroyos, channels and washes. It is rarely flooded and has low-gradient deposits.

California Brittle Bush Scrub

California brittle bush scrub is characterized by an open to moderately dense shrubland dominated by drought-deciduous shrubs. This community was dominated by California brittle bush, accompanied by herbaceous species.

California Juniper Woodland

California juniper woodland is a form of woodland which is characterized by a dominance of California juniper (*Juniperus californica*) within the shrub and/or tree layers. Other associated species include chaparral yucca (*Hesperoyucca whipplei*).

California Sagebrush – Brittle Bush Scrub

California sagebrush – brittle bush scrub is a form of coastal sage scrub, which is typically characterized by a moderately open shrubland dominated by drought-deciduous and aromatic shrubs. This community was co-dominated by California sagebrush (*Artemisia californica*) and brittle bush.

California Sagebrush – California Brittle Bush Scrub

California sagebrush – California brittle bush scrub is a form of coastal sage scrub, which is typically characterized by a moderately open shrubland dominated by drought-deciduous and aromatic shrubs. This community was co-dominated by California sagebrush and California brittle bush.

California Sagebrush – California Buckwheat Scrub

California sagebrush – California buckwheat scrub is a form of coastal sage scrub, which is typically characterized by a moderately open shrubland dominated by drought-deciduous and aromatic shrubs. This community was co-dominated by California sagebrush and California buckwheat.

California Sagebrush Scrub

California sagebush scrub is a form of coastal sage scrub, which is typically characterized by a moderately open shrubland dominated by drought-deciduous and aromatic shrubs. This community was dominated by California sagebrush.

Castor Bean Patches

Castor bean patches are a form of disturbed ruderal vegetation, typically characterized by dense stands of tall, fast growing weedy herbaceous species. These patches are generally associated with highly disturbed areas such as road edges and graded sites.

Chamise Chaparral

Chamise chaparral is characterized by a dense, evergreen shrubland dominated by sclerophyllous drought adapted species. Chaparral communities are associated with well-drained, often rocky spoils in foothill and montane environments. This community was dominated by chamise (*Adenostoma fasciculatum*).

Chamise – Sage Chaparral Shrubland

Chamise – sage chaparral shrubland is a form of chaparral which is characterized by a dense, evergreen shrubland dominated by sclerophyllous drought adapted species. This community was dominated by chamise and sage species (*Salvia* spp.).

Eucalyptus Groves

Eucalyptus groves are a form of non-native woodland that is characterized by dense stands of tall, evergreen trees. These groves are generally associated with previously disturbed or developed areas where eucalyptus has been intentionally planted or has naturalized, often occurring in upland and occasionally near riparian settings. This community was dominated by eucalyptus species (*Eucalyptus* spp.).

Fourwing Saltbush – California Buckwheat Scrub

Fourwing saltbush – California buckwheat scrub is a natural community co-dominated by fourwing saltbush and California buckwheat scrub.

Fourwing Saltbush Scrub

Fourwing saltbush scrub is a natural community dominated by fourwing saltbush.

Fiddleneck Fields

Fiddleneck fields are a form of annual grassland or ruderal herbaceous vegetation that is characterized by open areas dominated by seasonal wildflowers and grasses. These communities are generally associated with disturbed or previously cleared soils where seasonal precipitation supports the rapid growth of annual forbs and grasses. This community was dominated by fiddleneck (*Amsinckia* spp.).

Needle Goldfields Fields

Needle goldfields fields are a form of annual herbaceous vegetation characterized by open areas dominated by seasonal wildflowers and sparse grasses. These communities are generally associated with

well-drained, often sandy or rocky soils in disturbed or open upland areas. This community was dominated by needle goldfields (*Lasthenia californica*).

Pepper Tree Woodland

Pepper tree groves are a form of non-native woodland that is characterized by dense stands of medium to large evergreen trees with a relatively open or sparse understory. This community is generally associated with disturbed or landscaped areas, often near roads and developed sites, where this species has been intentionally planted or have naturalized. This community was dominated by Peruvian pepper tree (*Schinus molle*).

Pinebush – Brittle Bush – California Brittle Bush Scrub

Pinebush – brittle bush – California brittle bush scrub is a natural community co-dominated by pinebush (*Ericameria pinifolia*), brittle bush, and California brittle bush scrub.

Pinebush Scrub

Pinebush scrub is a natural community dominated by pinebush.

Stinknet – Fiddleneck Fields

Stinket – fiddleneck fields is a vegetation community co-dominated by stinket and fiddleneck fields, accompanied by non-native herbaceous vegetation.

Stinknet Fields

Stinket fields is a vegetation community dominated by stinket and other non-native vegetation.

Tree Tobacco – Peruvian Pepper Tree Woodland

Tree tobacco woodland is a vegetation community co-dominated by tree tobacco (*Nicotiana glauca*) and Peruvian pepper tree in its tree layer with accompanying non-native herbaceous vegetation such as bromes (*Bromus* spp.).

Tree Tobacco Woodland

Tree tobacco woodland is a vegetation community dominated by tree tobacco in its tree layer with accompanying non-native herbaceous vegetation such as bromes (*Bromus* spp.).

Upland Mustard Fields

Upland mustard fields is a vegetation community dominated by either shortpod mustard (*Hirschfeldia incana*) or black mustard (*Brassica nigra*), accompanied by non-native bromes and grasses.

Wild Oats and Annual Brome Grasslands

Wild oats and annual brome grassland consists of primarily non-native grasses and ruderal (weedy) forbs such as red brome (*Bromus madritensis* ssp. *rubens*) occurring in areas that have been significantly disturbed from previous grading and urban development, as well as in areas where weed abatement and fuel modification have occurred. This community occurs throughout the BSA in areas that are undeveloped and adjacent to developed land.

4.2.3 Land Cover Types

Agriculture

Agriculture is a land cover that is characterized by horticultural crops.

Developed

The majority of the BSA occurs within developed lands associated with existing public rights-of-way and private property. Developed lands consist of areas that have been built over with permanent infrastructure, landscaped areas, and generally include areas devoid of native plant cover. Vegetation within the BSA includes landscaped trees, ornamental shrubs, and grass sod associated with residences, parks, and other infrastructure developments.

Disturbed

Disturbed land cover includes areas regularly disturbed by human activities and include large portions of bare ground and/or ruderal vegetation, often non-native species.

Grazed Land

Grazed land cover includes areas that are currently grazed by livestock and are mostly devoid of all vegetation.

Orchard

Orchard is a land cover type that primarily consists of horticultural trees. These areas within the BSA are highly maintained and kept mostly devoid of all other vegetation except for orange (*Citrus* × *sinensis*).

Ornamental

Ornamental land cover consists of non-native horticultural plants surrounding the existing facilities and occur elsewhere in the BSA. Ornamental tree species identified include: eucalyptus (*Eucalyptus* spp.), Afghan pine (*Pinus eldarica*), stone pine (*Pinus pinea*), Peruvian pepper (*Schinus molle*), and Mexican fan palms. Although the vegetation is not native to the region, it still provides value as foraging and nesting habitat to some avian species. This vegetation was primarily associated with developed areas.

4.3 Sensitive Biological Resources

Special-status species identified in the database review were assessed for their potential to occur within the BSA. A list of each special-status species assessed for potential to occur within the BSA is included in **Appendix D – Special-Status Plant Species** and **Appendix E – Special-Status Wildlife Species**, and sensitive biological resources observed during reconnaissance surveys or known to be present based on biological surveys are shown in **Figures 5-A through 5-O – Sensitive Biological Resources**. Varying levels of potential to occur were assigned based on the following criteria:

- **Not Expected/Low:** Species known to occur in the region but deemed absent because the BSA is outside their known range or elevation and/or suitable habitat is lacking or marginal within the BSA.
- **Moderate/High:** Species identified in the literature search and/or known to occur in the region and suitable habitat is present within the BSA. There may be nearby known occurrences near the BSA.
- **Present:** The species was observed within the BSA during the habitat assessment.

4.3.1 Special-Status Plant Species

Special-status plants are defined as those plants that, because of their recognized rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, state, or other agencies as under threat from human-associated developments. Some of these species receive specific protection that is defined by federal or state endangered species legislation. Others have been designated as special-status based on adopted policies and expertise of state resource agencies or organizations with acknowledged expertise, or policies adopted by local governmental agencies, such as counties, cities, and special districts, to meet local conservation objectives. Special-status plants are defined as follows:

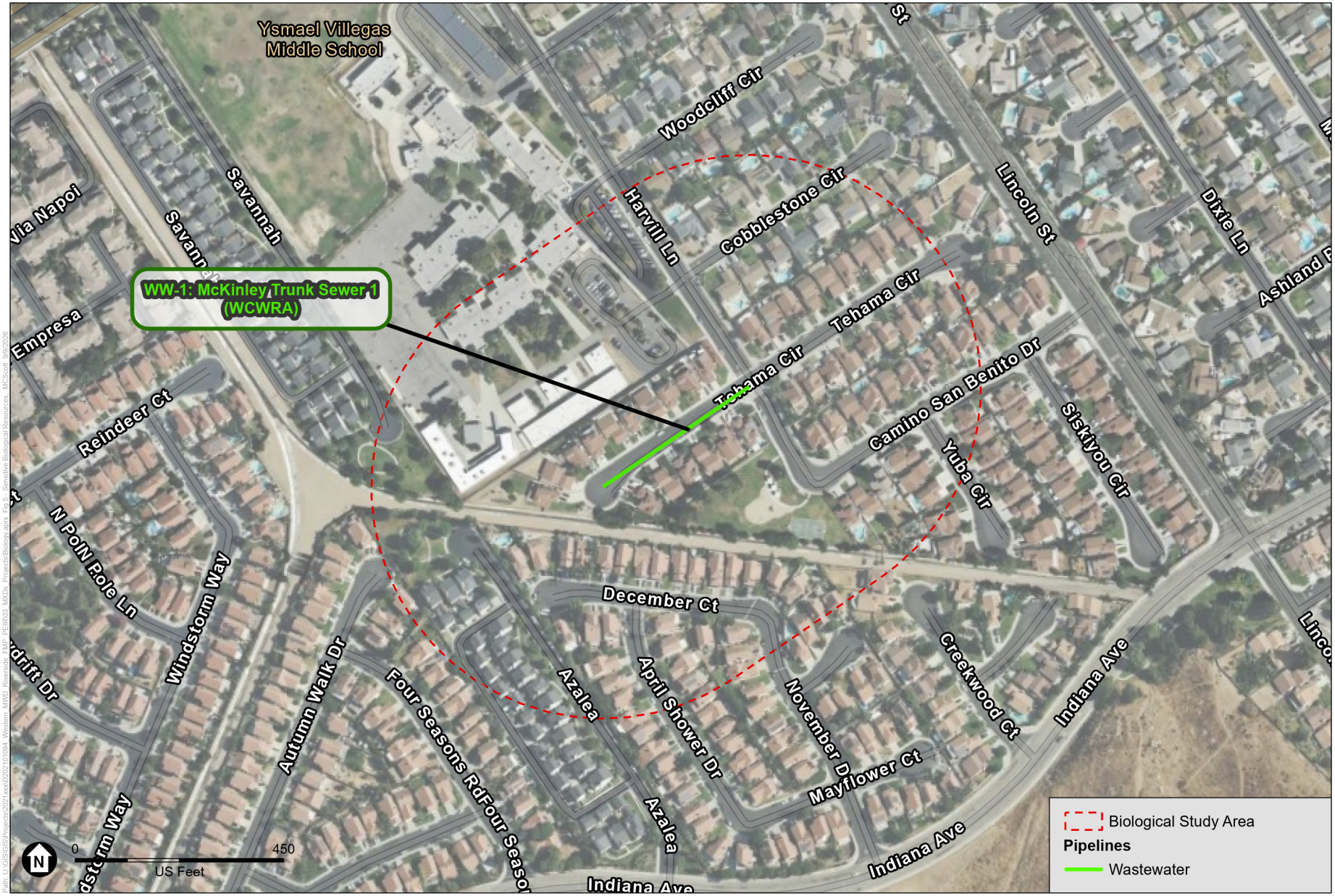
- Plants that are listed, or proposed for listing, as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under the FESA or the CESA.
- Plants that meet the definitions of rare or endangered under State CEQA Guidelines Section 15380.
- Plants covered under an adopted NCCP/HCP.
- Plants considered by the CNPS to be rare, threatened, or endangered (Rank 1A, 1B, 2A and 2B plants) in California.
- Plants listed as rare under the California Native Plant Protection Act (Fish and Game Code 1900 et seq.).

A review of the CDFW CNDDB, CNPS RPI, and USFWS IPaC databases revealed that 64 special-status plant species have previously been recorded within the USGS 18-quadrangle search (CDFW 2026a, CNPS 2026, USFWS 2026c). The potential for special-status plant species to occur is based on an assessment of on-site vegetation and habitat quality, topography, elevation, soils, surrounding land uses, habitat preferences, geographic ranges, and visual observations made during the site visit.

Of the numerous special-status plant species identified during the database review, 60 plant species are not expected to occur or have low potential to occur within the BSA due to lack of suitable habitat and/or the BSA being outside of the species' range. These species are not analyzed further in this report, but are included in **Appendix D**.

Species determined to have a moderate to high potential to occur within the BSA include chaparral sand-verbena (*Abronia villosa* var. *aurita*), San Diego ambrosia (*Ambrosia pumila*), Yucaipa onion (*Allium marvinii*), Munz's onion (*Allium munzii*), intermediate mariposa lily (*Calochortus weedii* var. *intermedius*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*), many-stemmed dudleya (*Dudleya multicaulis*), and rigid fringepod (*Thysanocarpus rigidus*).

Paniculate tarplant (*Deinandra paniculata*; CNPR 4.2) was observed within the RW-1: Cemetery PS Expansion BSA (Figure 5-I) and the W-15: Juniper Road Pipeline Upsizing BSA (Figure 5-M).



SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 5-A
Sensitive Biological Resources for Priority and Near-Term Projects
WW-1: McKinley Pipeline Upgrade

ESA

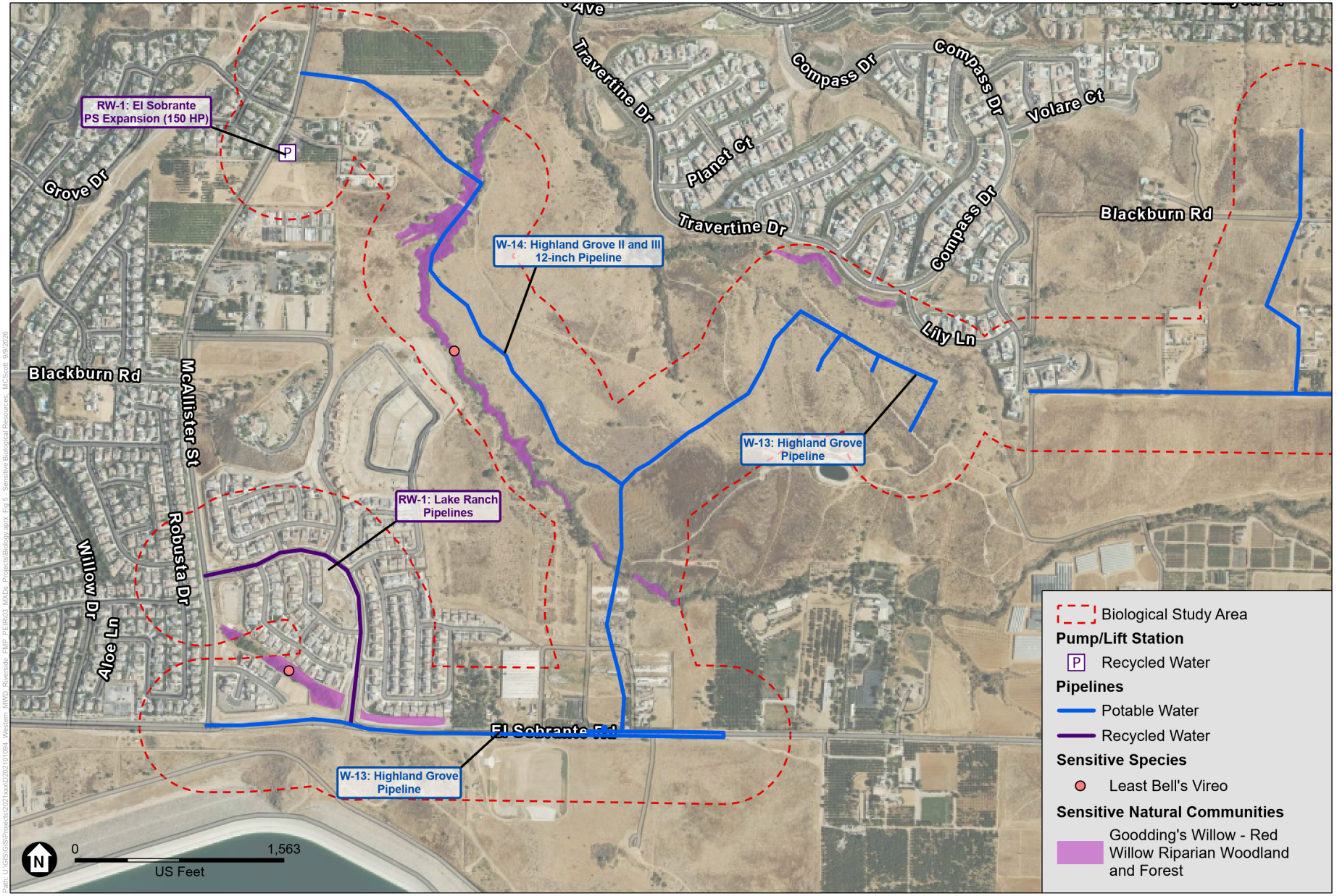


SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 5-B
Sensitive Biological Resources for Priority and Near-Term Projects
WW-2: Beazer Lift Station 1 and Forcemain Upgrades

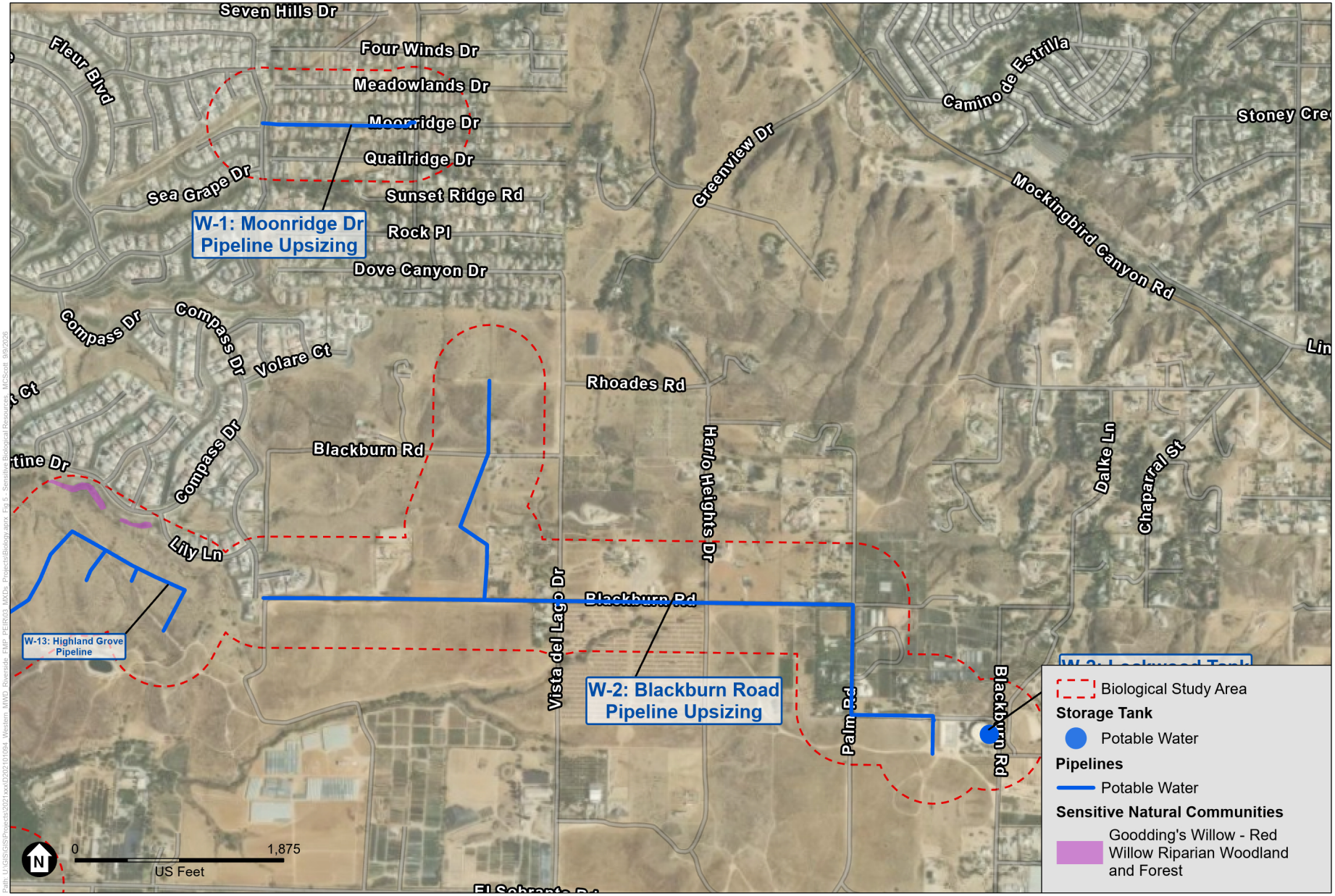
ESA



SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 5-C
Sensitive Biological Resources for Priority and Near-Term Projects
W-13/14: Highland Grove I, II, and III Pipelines
RW-1: El Sobrante Pump Station/Lake Ranch Pipelines

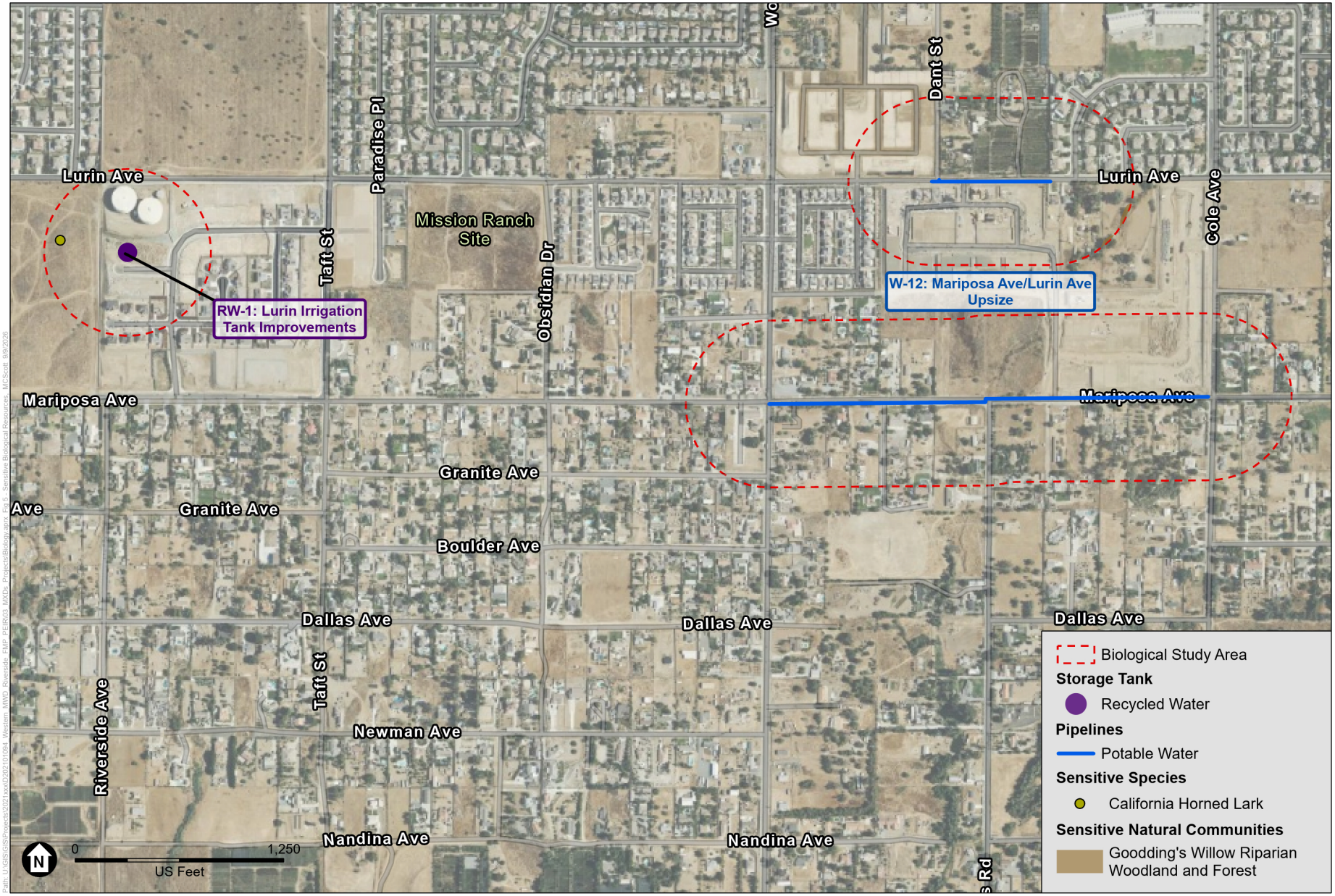


SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 5-D
Sensitive Biological Resources for Priority and Near-Term Projects
W-1: Moonridge Drive Pipeline
W-2: Blackburn Road Pipeline Upsizing

ESA



SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 5-E
Sensitive Biological Resources for Priority and Near-Term Projects
RW-1: Lurin Tank
W-12: Mariposa Ave/Lurin Ave Upsizing



SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 5-F
Sensitive Biological Resources for Priority and Near-Term Projects
W-9: Orangecrest Tank #1
RW-1: Orangecrest Supply Pipelines/Meridian West

ESA



SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 5-G
Sensitive Biological Resources for Priority and Near-Term Projects
WW-5 Meridian Lift Station

ESA



SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 5-H
Sensitive Biological Resources for Priority and Near-Term Projects
WW-4: MARB 1269 Lift Station

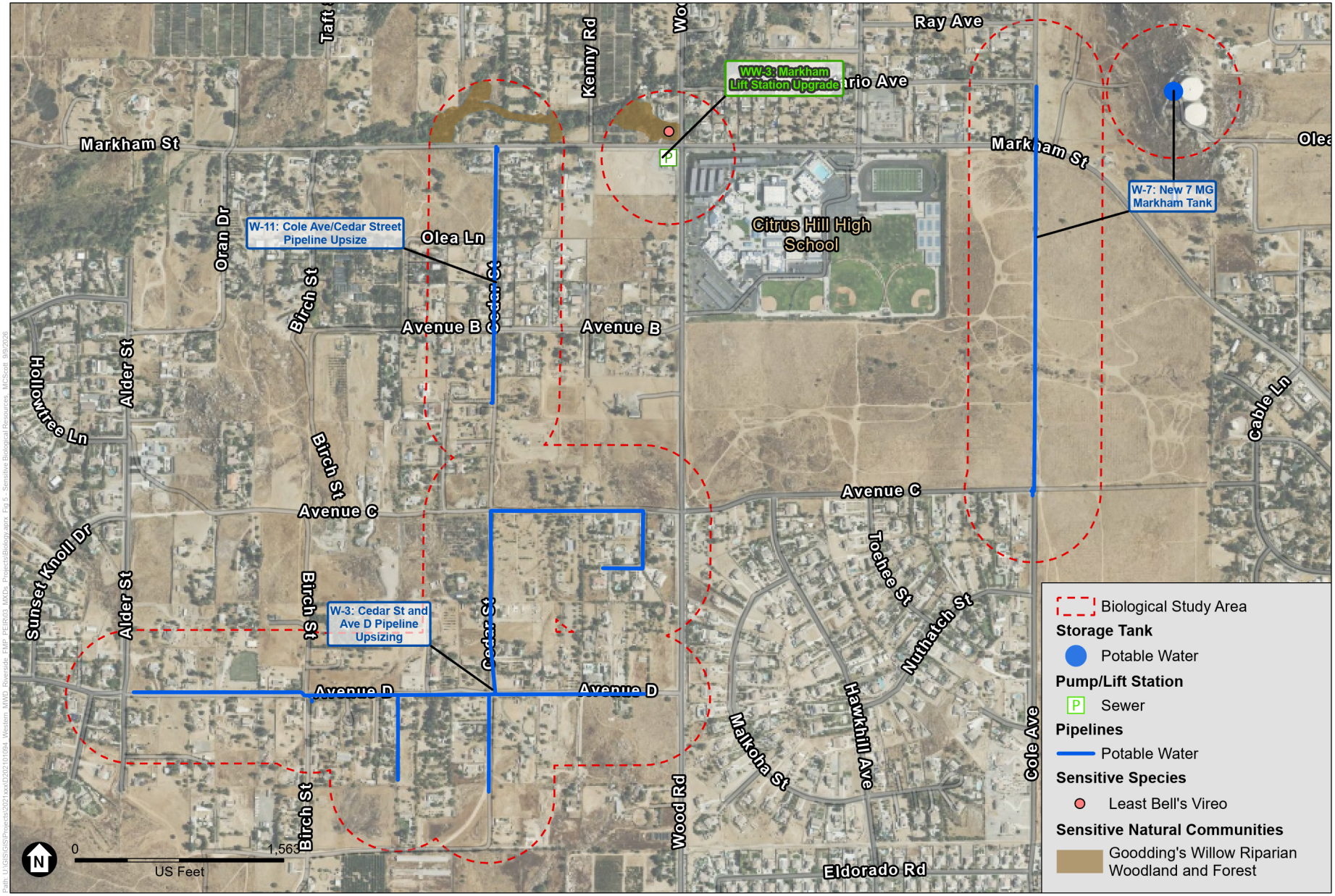
ESA



SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 5-I
Sensitive Biological Resources for Priority and Near-Term Projects
RW-1: Riverside National Cemetery Pump Station
WW-6: WWRF Expansion



SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 5-J
Sensitive Biological Resources for Priority and Near-Term Projects
W-3: Cedar Street and Ave D Pipeline Upsizing
W-7: New 7MG Markham Tank
W-11: Cole Ave/Cedar Street Upsize
WW-3: Markham Lift Station

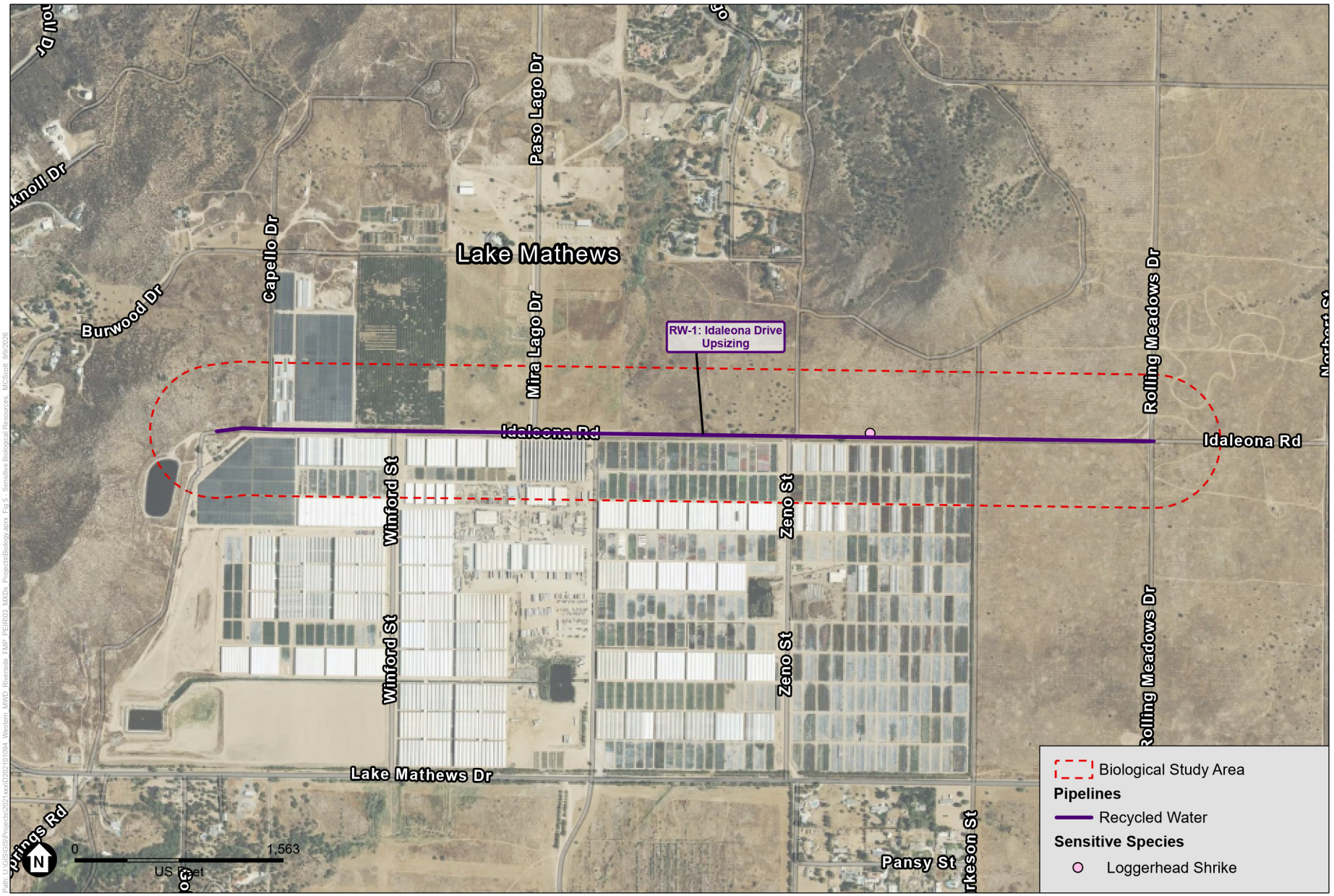


SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 5-K
Sensitive Biological Resources for Priority and Near-Term Projects
W-4: Hillside 2320 PZ Booster Pump Station and Pipeline

ESA

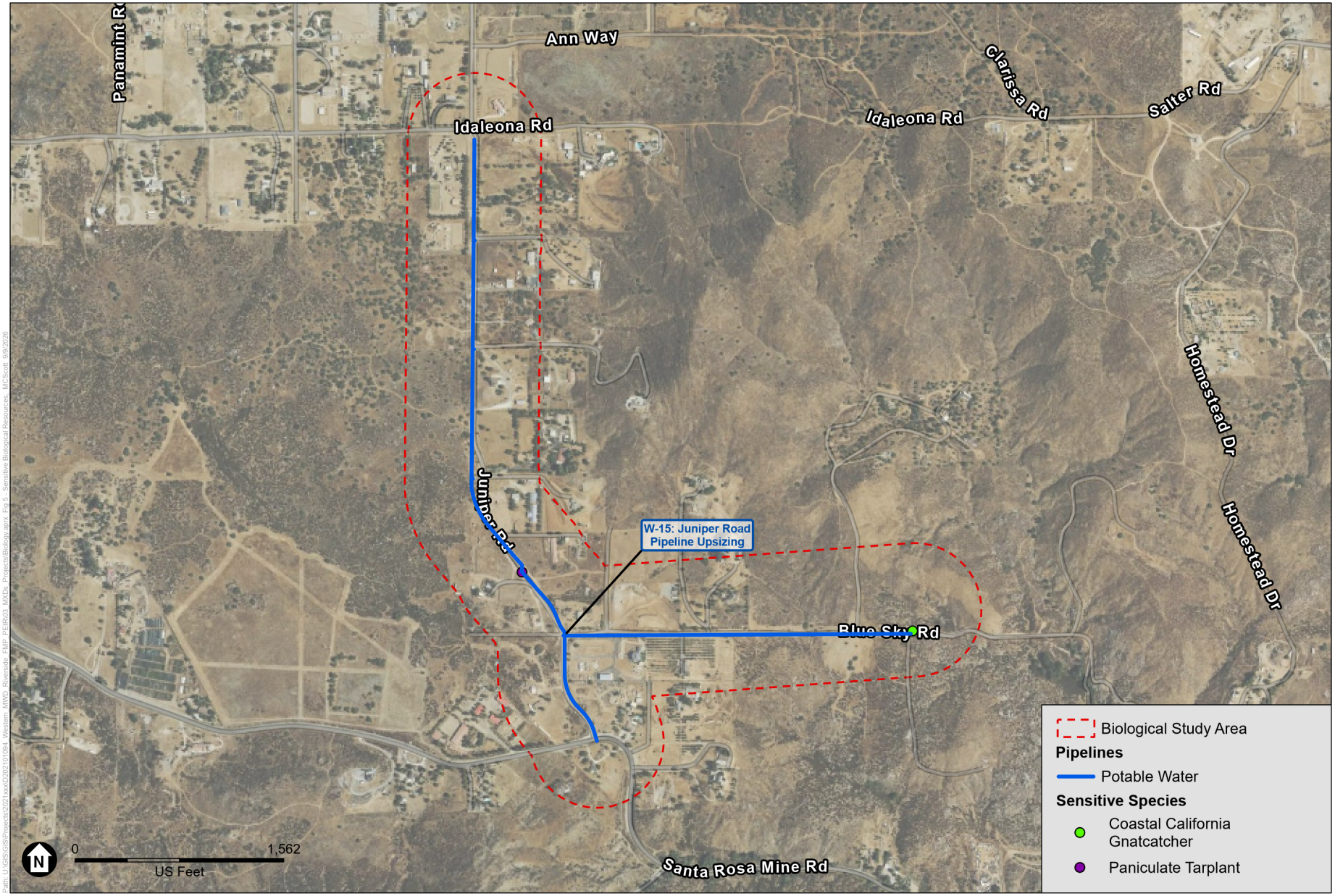


SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 5-L
Sensitive Biological Resources for Priority and Near-Term Projects
RW-1: Idaleona Drive Upsizing

ESA



SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 5-M
Sensitive Biological Resources for Priority and Near-Term Projects
W-15: Juniper Road Pipeline Upsizing

ESA



SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 5-N
Sensitive Biological Resources for Priority and Near-Term Projects
W-6: El Nido Tank

ESA



SOURCE: Nearmap, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 5-O
Sensitive Biological Resources for Priority and Near-Term Projects
W-5: Hidden Valley Tank

ESA

Federally and/or State-Listed Plant Species

Munz's Onion

Munz's onion is federally listed as endangered and state listed as threatened. This perennial bulb-forming species occurs in coastal sage scrub, chaparral, and grassland habitats and is strongly associated with fine-textured soils, including clay and clay loam substrates. It is typically found in areas with localized soil moisture, such as swales or other low-lying areas, but is not restricted to vernal pool habitats. The species generally occurs in open areas or within gaps in shrub-dominated communities. Within the BSAs, suitable habitat includes coastal sage scrub and chaparral communities, as well as grasslands where appropriate soil conditions are present.

San Diego Ambrosia

San Diego ambrosia is federally listed as endangered. This perennial herb occurs within coastal sage scrub and, less commonly, chaparral landscapes, where it is typically associated with disturbed or degraded areas that provide open conditions with reduced vegetative cover. The species is often found in grasslands, ruderal habitats, and other disturbance-associated areas within the coastal sage scrub matrix, including roadsides, graded areas, and previously disturbed sites. It most frequently occurs on fine-textured soils, such as clay or loam, but is not restricted to a specific soil type. Within the BSAs, suitable habitat includes coastal sage scrub–adjacent grasslands, wild oats and annual brome grasslands, upland mustard fields, and other disturbed or ruderal habitats that provide appropriate soil conditions and open vegetation structure.

Non-Listed Special-Status Plant Species

Chaparral sand-verbena, intermediate mariposa lily, long-spined spineflower, many-stemmed dudleya, Parry's spineflower, paniculate tarplant, rigid fringepod, and Yucaipa onion are generally associated with coastal sage scrub, chaparral, grassland, and disturbance-associated habitats that provide open conditions and suitable soil characteristics. Within the BSAs, suitable habitat for these species includes California buckwheat scrub, California sagebrush scrub, California sagebrush–California buckwheat scrub, brittle bush scrub, pinebush scrub, chamise chaparral, chamise–sage chaparral, wild oats and annual brome grasslands, upland mustard fields, fiddleneck fields, needle goldfields fields, annual yellow sweetclover–stinknet fields, stinknet fields, as well as disturbed, grazed, and agricultural lands where appropriate soil conditions and vegetation structure are present.

4.3.2 Special-Status Wildlife

Special-status wildlife consists of those animals that, because of their recognized rarity or vulnerability to habitat loss or population decline, are considered by federal, state, or other agencies to be under threat from human-associated development. Some of these species receive specific protection that is defined by federal or state endangered species legislation and others have been designated as special-status based on adopted local policies (i.e., city and county) or the educated opinion of respected resource interest groups. Special-status wildlife is defined as follows:

- Wildlife listed, or proposed for listing, as threatened or endangered, or are candidates for possible future listing as threatened or endangered, under the FESA or the CESA.
- Wildlife that meet the definitions of rare or endangered under CEQA Guidelines Section 15380.

- Wildlife designated by CDFW as species of special concern (SSC) or watch list (WL).
- Wildlife covered under an adopted NCCP/HCP.
- Wildlife "fully protected" in California (FGC Sections 3511, 4700, and 5050).
- Bird species protected by the MBTA.

A review of the CDFW CNDDB and USFWS IPaC databases revealed that 69 special-status wildlife species were recorded within the USGS 18-quadrangle search (CDFW 2026a, USFWS 2026c). The determination of potential for special-status wildlife species to occur is based on on-site vegetation and habitat quality, topography, elevation, soils, surrounding land uses, habitat preferences, geographic ranges, and visual observations made during the site visit.

Of the special-status wildlife identified during the database review, 37 wildlife species are not expected to occur or have a low potential to occur within the BSA due to lack of suitable habitat and/or the BSA being outside of the species' range. These species are not analyzed further in this report, but are included in **Appendix E**.

A total of 31 special-status wildlife species have moderate to high potential to occur in the BSA, or were observed during reconnaissance surveys, including Cooper's hawk (*Astur cooperi*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), southern California legless lizard (*Anniella stebbinsi*), California glossy snake (*Arizona elegans occidentalis*), Bell's sage sparrow (*Artemisiospiza belli belli*), orange-throated whiptail (*Aspidoscelis tigris stejnegeri*), western burrowing owl (*Athene cunicularia hypugaea*), Crotch's bumble bee (*Bombus crotchii*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), northern harrier (*Circus hudsonius*), red-diamond rattlesnake (*Crotalus ruber*), San Bernardino ringneck snake (*Diadophis punctatus modestus*), Stephens' kangaroo rat (*Dipodomys stephensi*), white-tailed kite (*Elanus leucurus*), California horned lark (*Eremophila alpestris actia*), merlin (*Falco columbarius*), yellow-breasted chat (*Icteria virens*), loggerheaded shrike (*Lanius ludovicianus*), San Diego black-tailed jackrabbit (*Lepus californicus bennetii*), western yellow bat (*Lasiurus xanthinus*), Yuma myotis (*Myotis yumanensis*), San Diego desert woodrat (*Neotoma lepida intermedia*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), coast horned lizard (*Phrynosoma blainvillii*), white-faced ibis (*Plegadis chihi*), coastal California gnatcatcher (*Polioptila californica californica*), coast patch-nosed snake (*Salvadora hexalepis virgultea*), northern yellow warbler (*Setophaga aestiva*), western spadefoot (*Spea hammondii*), American badger (*Taxidea taxus*), and least Bell's vireo (*Vireo belli pusillus*).

Least Bell's vireo was observed or known to be present within the W-13: Highland Grove Pipeline BSA, W-14: Highland Grove II and III 12-inch Pipeline BSA, RW-1: Lake Ranch Pipeline BSA (Figure 5-C), and the WW-3: Markham Lift Station Upgrade BSA (Figure 5-J).

California horned lark was observed in the RW-1: Lurin Irrigation Tank Improvements BSA (Figure 5-E).

San Diego black-tailed jackrabbit was observed within the RW-1: Meridian West BSA (Figure 5-F).

Coastal California gnatcatcher was observed within the W-15: Juniper Road Pipeline Upsizing BSA (Figure 5-M). This species was also observed adjacent to the north of the W-4: Hillside 2320 PZ Booster

Pump Station and Pipeline BSA near the Cajalco Intake Plant (Figure 5-K). Although coastal California gnatcatcher was not observed within the W-13: Highland Grove Pipeline BSA, the species has been observed in this area during biological surveys for nearby projects (Figure 5-C).

Least Bell's vireo and San Diego black-tailed jackrabbit were observed over 500 feet southwest of the WW-5: Meridian West Upgrades (WWRF) BSA during a reconnaissance survey conducted in 2025 (Figure 5-G).

Federally and/or State-Listed Wildlife Species

Coastal California Gnatcatcher

Coastal California gnatcatcher is a federally threatened and state species of special concern utilizes brittle bush – California buckwheat scrub, brittle bush scrub, California buckwheat scrub, California brittle bush scrub, California sagebrush – brittle bush scrub, California sagebrush – California brittle bush scrub, California sagebrush – California buckwheat scrub, California sagebrush scrub, and pinebush – brittle bush – California brittle bush scrub. The species was observed within the BSAs of W-4: Hillside 2320 PZ Booster Pump Station and Pipeline and W-15: Juniper Road Pipeline Upsizing.

Crotch's Bumble Bee

Crotch's bumble bee is a state candidate for endangered listing and is expected to utilize a range of open upland habitats within the BSAs that support abundant flowering resources. Suitable habitats include coastal sage scrub communities such as California buckwheat scrub, California sagebrush scrub, California sagebrush–California buckwheat scrub, California sagebrush–brittle bush scrub, pinebush scrub, and pinebush–brittle bush scrub, as well as other shrub-dominated communities like brittle bush scrub, California brittle bush scrub, and fourwing saltbush scrub. The species is also likely to occur in herbaceous and ruderal habitats with high floral diversity, including fiddleneck fields, needle goldfields fields, upland mustard fields, wild oats and annual brome grasslands, and annual yellow sweetclover–stinknet fields. Disturbed and grazed lands may provide suitable nesting and foraging opportunities where flowering plants are present, and more managed or edge habitats such as blue elderberry patches, orchards, and ornamental areas may be used opportunistically where nectar sources occur.

Least Bell's Vireo

Least Bell's vireo is federally and state listed as endangered. Least Bell's vireo is an obligate riparian breeder that typically inhabits structurally diverse woodlands along watercourses (USFWS 1998). Commonly associated vegetation includes cottonwood-willow woodlands, oak woodlands, and mule fat scrub (USFWS 1998). This species is expected to utilize Goodding's willow – arroyo willow riparian woodland, Goodding's willow – red willow riparian woodland, Goodding's willow riparian woodland, and willow riparian woodland habitat within the BSAs. The species was detected within the BSAs for W-13: Highland Grove Pipeline III 18-inch Pipeline, RW-1: Lake Ranch Pipeline, WW-3: Markham Lift Station Upgrade (WWRF), and W-14: Highland Grove II and III 120-inch Pipeline.

Stephens' Kangaroo Rat

Stephens' kangaroo rat is federally and state-listed as a threatened species. This species inhabits annual and perennial grassland habitats but may occur in coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas. It is known to occur in sparse perennial vegetation with firm soil, "neither hard nor sandy." Stephens' kangaroo rat is expected to utilize open upland habitats within the BSAs that provide

sparse vegetation and suitable soils. Suitable habitats include wild oats and annual brome grasslands, upland mustard fields, fiddleneck fields, needle goldfields fields, and annual yellow sweetclover–stinknet fields, as well as more open scrub communities such as California buckwheat scrub, California sagebrush scrub, California sagebrush–California buckwheat scrub, and fourwing saltbush scrub (including fourwing saltbush–California buckwheat scrub). Disturbed and grazed lands may also provide suitable habitat where vegetation remains relatively sparse and soils are firm, supporting burrowing and foraging opportunities.

Western Burrowing Owl

Western burrowing owl is a state candidate for endangered listing and is currently a species of special concern. It is expected to utilize open upland habitats within the BSAs that support low vegetation structure and suitable burrowing conditions. Suitable habitats include wild oats and annual brome grasslands, upland mustard fields, fiddleneck fields, needle goldfields fields, and annual yellow sweetclover–stinknet fields, as well as disturbed, grazed, and agricultural lands where vegetation remains sparse. These habitats provide appropriate conditions for burrowing mammals and support foraging opportunities for the species.

Western Spadefoot

Western spadefoot is a state species of special concern that is also proposed to be federally threatened. It utilizes grasslands and other open habitats for foraging and breeds in seasonal pools. It may utilize areas such as vernal pools, but also roadside ditches—if they hold water for long enough. Western spadefoot is expected to utilize open upland habitats within the BSAs that provide suitable soils for burrowing, particularly grasslands and disturbance-associated habitats such as wild oats and annual brome grasslands, fiddleneck fields, needle goldfields fields, annual yellow sweetclover–stinknet fields, and disturbed or grazed lands. These habitats may support the species where seasonal aquatic features, such as ephemeral pools or ponded depressions, are present to provide breeding habitat.

White-tailed Kite

White-tailed kite is a fully protected species in California. It is expected to utilize open habitats within the BSAs for foraging and adjacent woodland or riparian habitats for nesting. Suitable foraging habitats include wild oats and annual brome grasslands, upland mustard fields, fiddleneck fields, needle goldfields fields, and other open or disturbed areas that support small mammal prey. Nesting habitat is typically associated with trees located within riparian woodland, eucalyptus groves, pepper tree woodland, or other woodland features adjacent to open foraging areas. These habitat types provide suitable conditions for both hunting and nesting activities.

Non-Listed Special-Status Wildlife Species

Coastal sage scrub and chaparral habitats within the BSAs may support a variety of non-listed special-status wildlife species, including Bell’s sage sparrow, California glossy snake, coast horned lizard, coast patch-nosed snake, Los Angeles pocket mouse, northwestern San Diego pocket mouse, orange-throated whiptail, red-diamond rattlesnake, San Bernardino ringneck snake, San Diego desert woodrat, southern California legless lizard, and southern California rufous-crowned sparrow. These habitats provide suitable conditions for foraging, shelter, and reproduction due to their relatively open structure and diversity of native vegetation.

Open and semi-open habitats, including grasslands, disturbed areas, and agricultural lands, may support additional species, such as American badger, California horned lark, ferruginous hawk, loggerhead shrike, northern harrier, San Diego black-tailed jackrabbit, and white-tailed kite, as well as small mammals, including Los Angeles pocket mouse and northwestern San Diego pocket mouse. These habitats provide suitable foraging opportunities, support small mammal prey populations, and in some cases, provide nesting or denning habitat.

Riparian communities within the BSAs may support species associated with surface water and dense vegetation, including northern yellow warbler, white-faced ibis, yellow-breasted chat, and Yuma myotis. These habitats provide important resources such as water, cover, and nesting opportunities.

Open woodlands and scattered tree habitats (e.g., blue elderberry patches and juniper woodlands) may support species such as Cooper's hawk, merlin, and western yellow bat, which utilize trees for nesting and perching while foraging in adjacent open habitats.

4.4 Sensitive Natural Communities

"Sensitive" natural communities and habitats are defined by CDFW as those natural communities that have a reduced range and/or are imperiled because of various forms of development and other anthropogenic stressors, including residential and commercial expansion, various forms of agriculture, energy production, mining, etc. These communities are evaluated using NatureServe's Heritage Methodology (NatureServe 2022), which is based on the knowledge of range and distribution of a specific vegetation type and the proportion of occurrences that are of good ecological integrity. Evaluation is done at both a global level (natural range within and outside of California [G]) and subnational level (State level for California [S]), with each ranked from 1 ("critically imperiled" or very rare and threatened) to 5 (demonstrably secure). A community or habitat with a State rank of S1 through S3 are considered "sensitive" natural communities and may require review when evaluating environmental impacts (CDFW 2025).

The following natural communities are ranked S3 by the State and are considered sensitive natural communities: Goodding's willow riparian woodland, Goodding's willow – mulefat riparian woodland, Goodding's willow – arroyo willow riparian woodland, and willow riparian woodland. The following project BSAs contain at least one of these sensitive natural communities: WW-2: Beazer Lift Station and Forcemain Upgrade, WW-3: Markham Lift Station Upgrade, W-1: Moonridge Drive Pipeline Upsizing, W-4: Hillside 2320 PZ Booster PS and Pipeline, WW-5: Meridian Lift Station Upgrades (WWRF), RW-1: Meridian West Pipelines, W-14: Highland Grove II and III 12-inch Pipeline, W-13: Highland Grove Pipeline, RW-1: Lake Ranch Pipelines, W-11: Cole Ave/Cedar Street Upsize, and W-12: Mariposa Ave/Lurin Ave Upsize.

4.5 Critical Habitat

Under FESA, the USFWS and National Marine Fisheries Service (NMFS) are required to designate Critical Habitat for endangered and threatened species. Critical Habitat is defined as areas of land, water, and air space containing the physical and biological features essential for the survival and recovery of endangered and threatened species. Designated Critical Habitat includes sites for breeding and rearing, movement or migration, feeding, roosting, cover, and shelter. Designated Critical Habitats require special management and protection of existing resources, including water quality and quantity, host animals and

plants, food availability, pollinators, sunlight, and specific soil types. Critical Habitat delineates all suitable habitats, occupied or not, essential to the survival and recovery of the species.

The closest USFWS-designated critical habitat is for coastal California gnatcatcher is located approximately 1.7 miles west of the RW-1: Idaleona Drive Upsizing (USFWS 2026a).

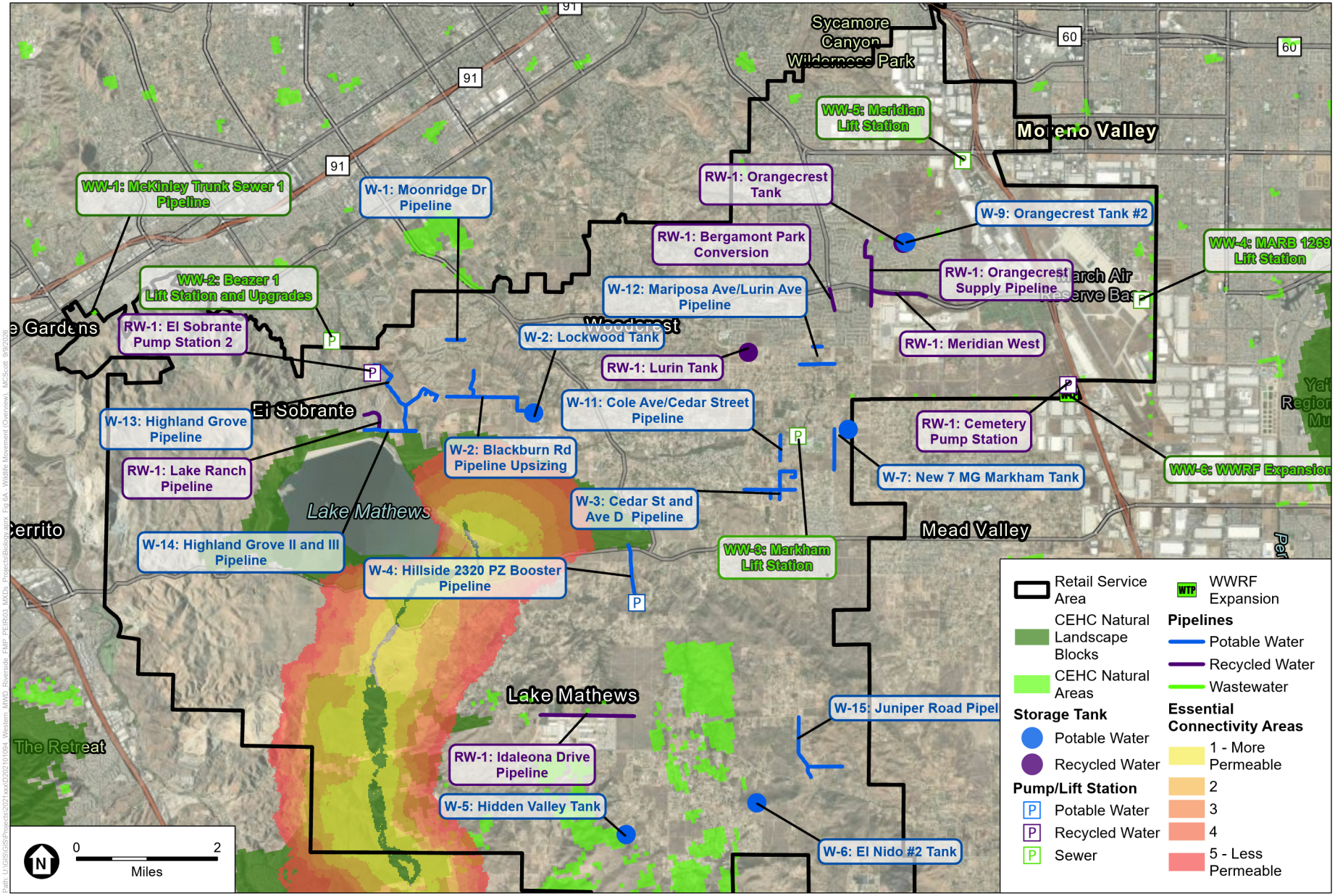
4.6 Wildlife Movement

Wildlife movement occurs through areas of habitat linkages and movement corridors. Habitat linkages are contiguous areas of open space that connect two larger habitat areas. Linkages provide for both diffusion and dispersal for a variety of species within the landscape. In addition, linkages can serve as primary habitat for some smaller species. Corridors are linear linkages between two or more habitat patches. Corridors provide for movement and dispersal, but do not necessarily include habitat capable of supporting all life history requirements of a species.

Wildlife movement corridors and habitat linkages are critical for the survivorship of ecological systems for several reasons. Corridors and linkages can connect water, food, and cover sources, spatially linking these three resources with wildlife in different areas. In addition, wildlife movement between habitat areas provides for the potential of genetic exchange between wildlife species populations, thereby maintaining genetic variability and adaptability to maximize the success of wildlife responses to changing environmental conditions. This is especially critical for small populations subject to loss of variability from genetic drift and effects of inbreeding. The nature of corridor use and wildlife movement patterns varies among species.

Although WMWD is not a permittee under the Western Riverside County MSHCP, the MSHCP provides a regional framework for identifying important habitat areas that support wildlife movement and connectivity. Based on a review of MSHCP mapping, portions of the W-2: Blackburn Road Pipeline Upsizing, RW-1: Meridian West Pipeline, WW-5: Meridian Lift Station Upgrades (WWRF), W-4: Hillside 2320 PZ Booster Pump Station and Pipeline, and W-15: Juniper Road Pipeline Upsizing project sites are located within or adjacent to designated core areas and wildlife linkages. Core areas are intended to support large, contiguous blocks of habitat that provide for long-term conservation of species, while linkages are areas that facilitate wildlife movement between habitat blocks and allow for dispersal and genetic exchange.

Additionally, the Riverside Retail Service Area is not located within a missing linkage identified by South Coast Wildlands (South Coast Wildlands 2008). However, the Riverside Retail Service Area intersects with areas identified within the California Essential Habitat Connectivity (CEHC) database (CDFW 2026b), which are areas of wildlands that support ecological connectivity between natural habitat blocks. Wildlife movement areas are shown on **Figure 6A** through **Figure 6F.**



SOURCE: CDFW, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 6A
Wildlife Movement Overview

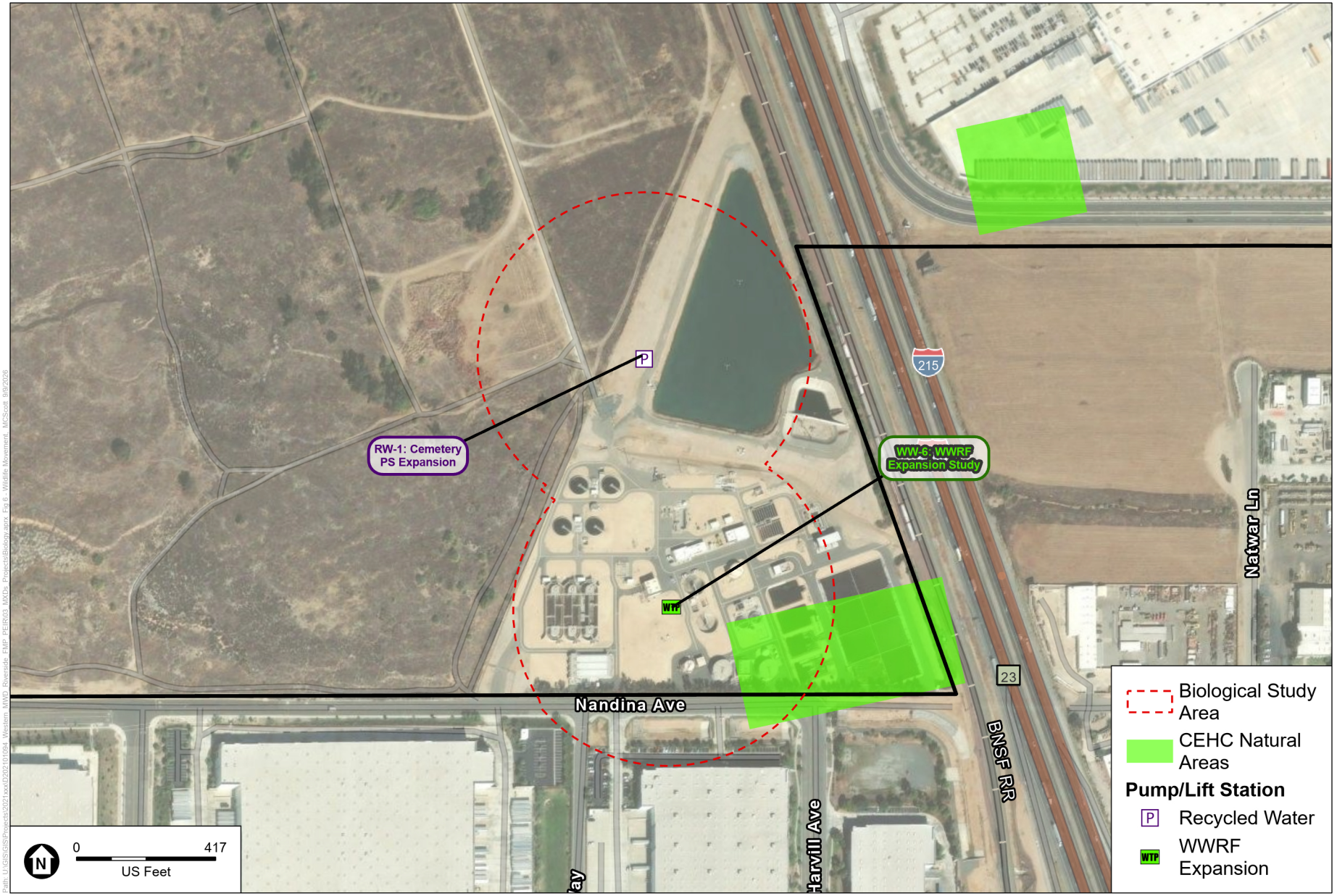
ESA



SOURCE: CDFW, 2026; CEHC, 2026; ESA, 2026.

Riverside Facilities Master Plan

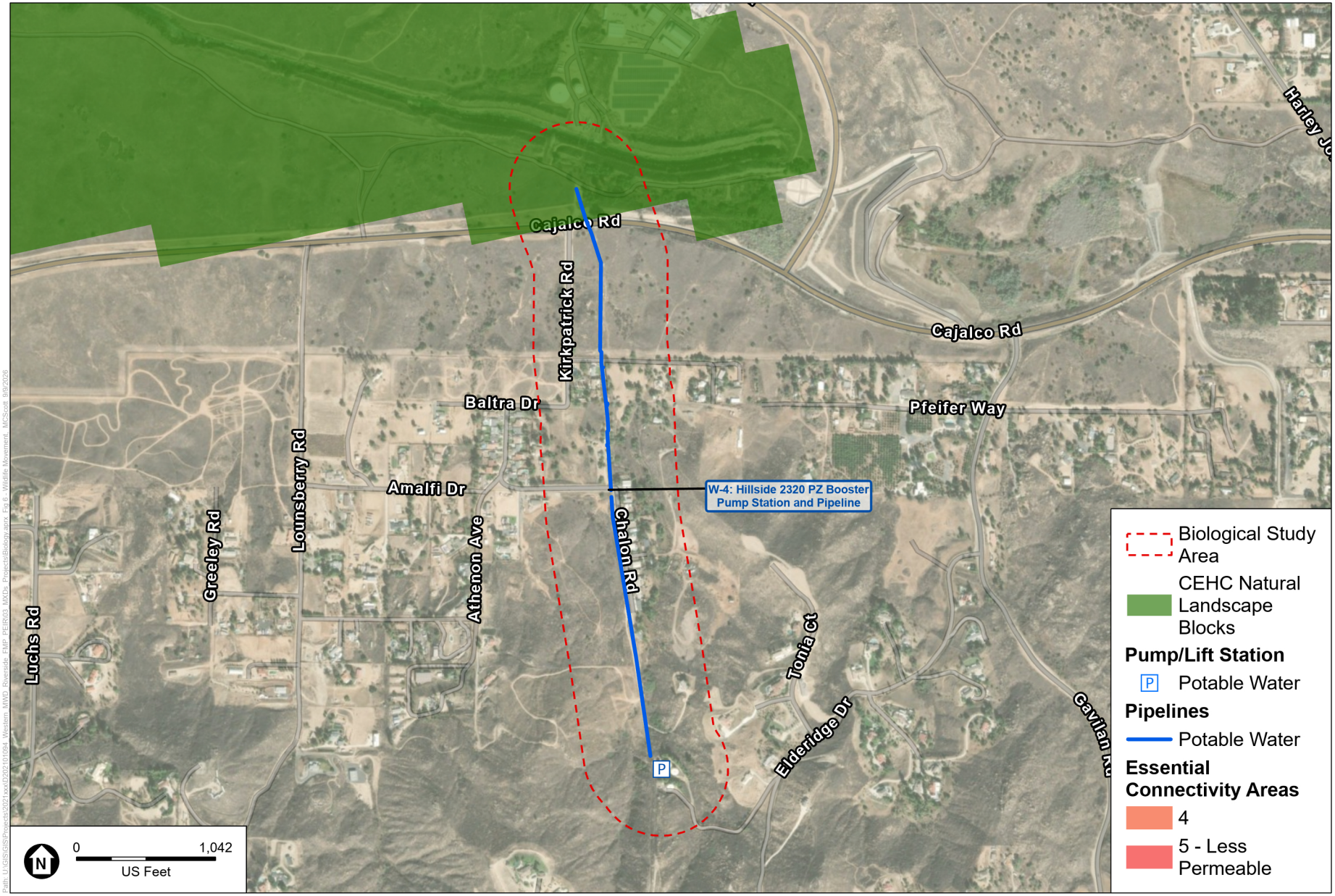
Figure 6B
Wildlife Movement
W-13/14: Highland Grove I, II, and III Pipelines
RW-1: El Sobrante Pump Station/Lake Ranch Pipelines



SOURCE: CDFW, 2026; CEHC, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 6C
Wildlife Movement
RW-1: Riverside National Cemetery Pump Station
WW-6: WWRF Expansion

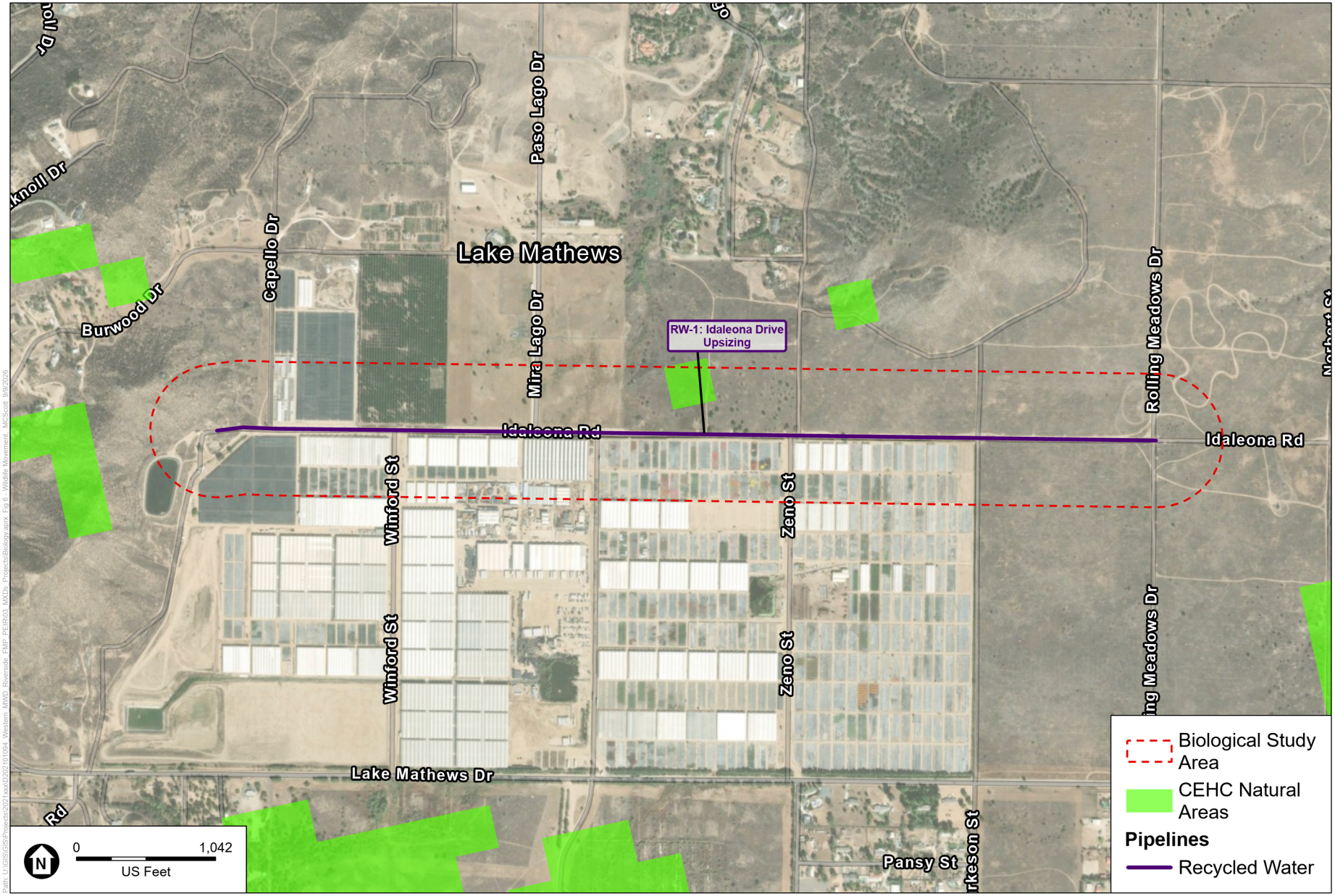


SOURCE: CDFW, 2026; CEHC, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 6D
Wildlife Movement
W-4: Hillside 2320 PZ Booster Pump Station and Pipeline

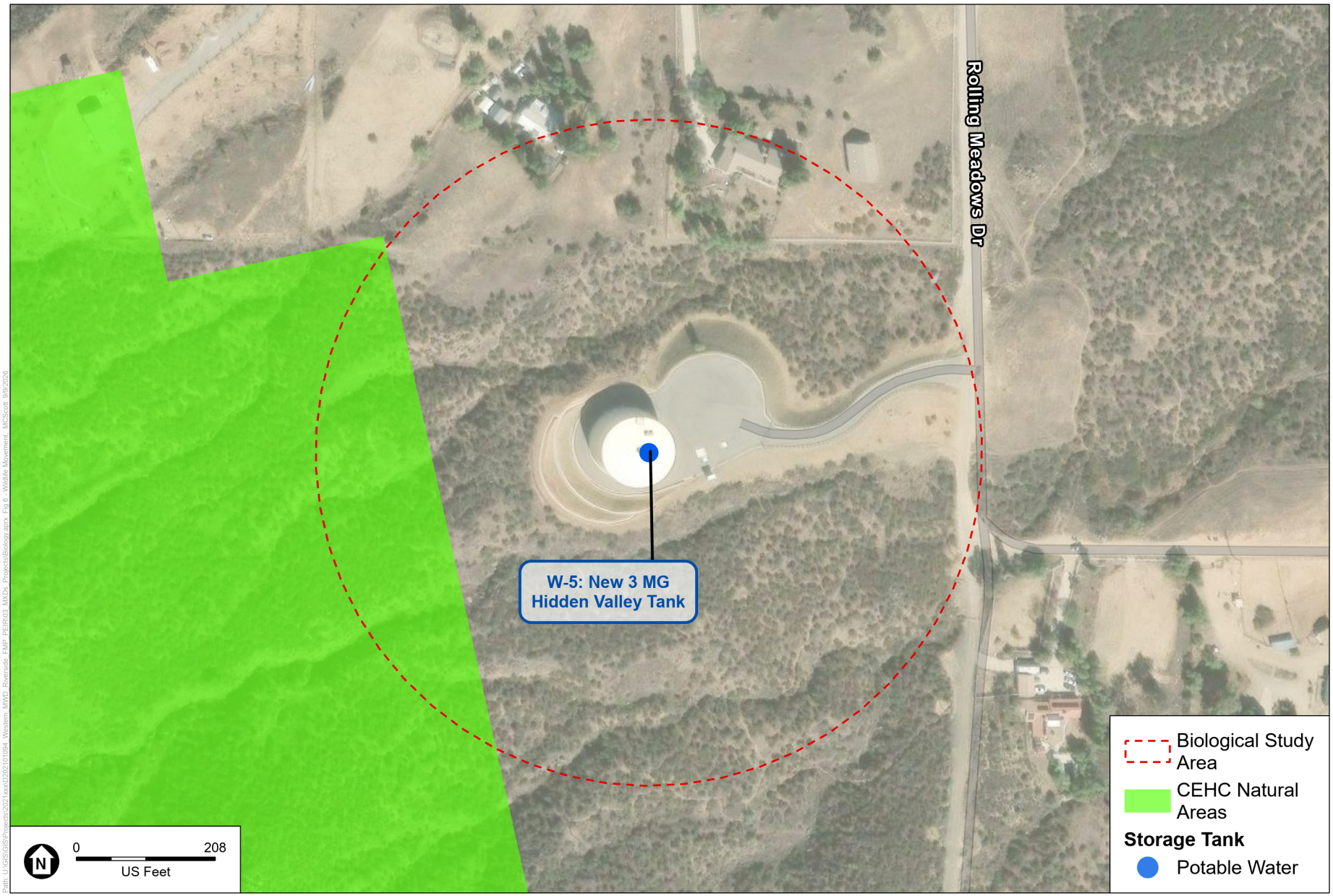
ESA



SOURCE: CDFW, 2026; CEHC, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 6E
Wildlife Movement
RW-1: Idaleona Drive Upsizing



SOURCE: CDFW, 2026; CEHC, 2026; ESA, 2026.

Riverside Facilities Master Plan

Figure 6F
Wildlife Movement
W-5: Hidden Valley Tank

ESA

4.7 Aquatic Resources

Wetlands and permanent and intermittent drainages, creeks, and streams may be subject to the jurisdiction of the USACE under Section 404 of the Federal Clean Water Act, RWQCB under Section 401 of the Federal Clean Water Act or Porter-Cologne Water Quality Control Act, and/or Section 1602 of the California Fish and Game Code.

A formal aquatic resources delineation was not conducted as part of the biological field reconnaissance; however, a number of potentially jurisdictional aquatic resource features were identified within the BSAs and are shown in **Figure 7-A through 7-O – Hydrology and National Wetlands Inventory**. Specifically, NWI mapped features cross the priority and near-term project locations for the W-13: Highland Grove Pipeline, W-14: Highland Grove II and III 12-inch Pipeline, RW-1: Lake Ranch Pipelines, W-2: Blackburn Road Pipeline Upsizing, RW-1: Orangecrest Supply Pipeline, RW-1: Meridan West, RW-1: Bergamont Park Conversion to RW, W-7: New 7 MG Markham Tank, RW-1: Idaleona Drive Upsizing, and W-15: Juniper Road Pipeline Upsizing.



SOURCE: NWI, 2025; ESA, 2026.

Riverside Facilities Master Plan

Figure 7-A
Hydrology and National Wetlands Inventory
WW-1: McKinley Pipeline Upgrade

ESA

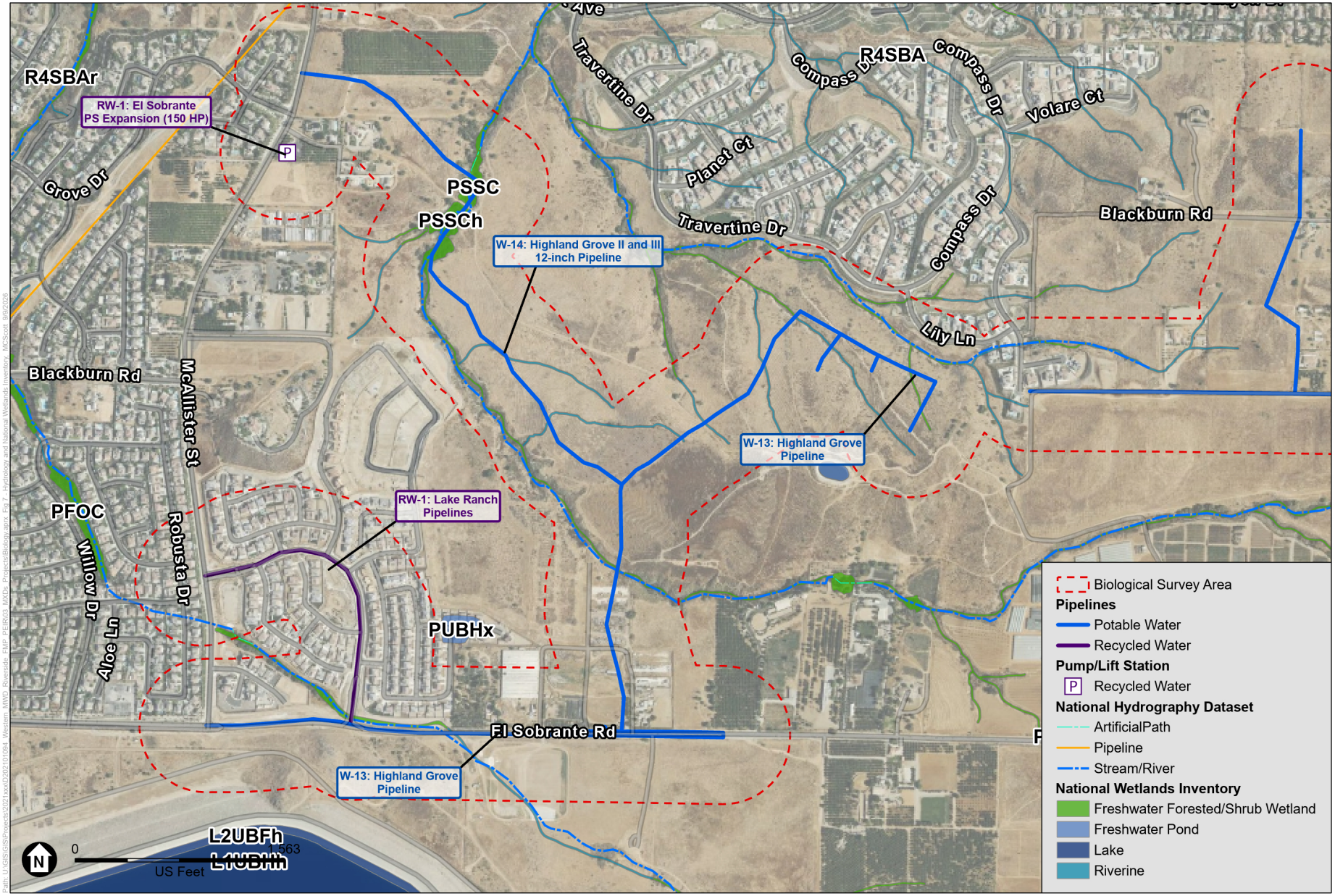


SOURCE: NWI, 2025; ESA, 2026.

Riverside Facilities Master Plan

Figure 7-B
Hydrology and National Wetlands Inventory
WW-2: Beazer Lift Station 1 and Forcemain Upgrades

ESA

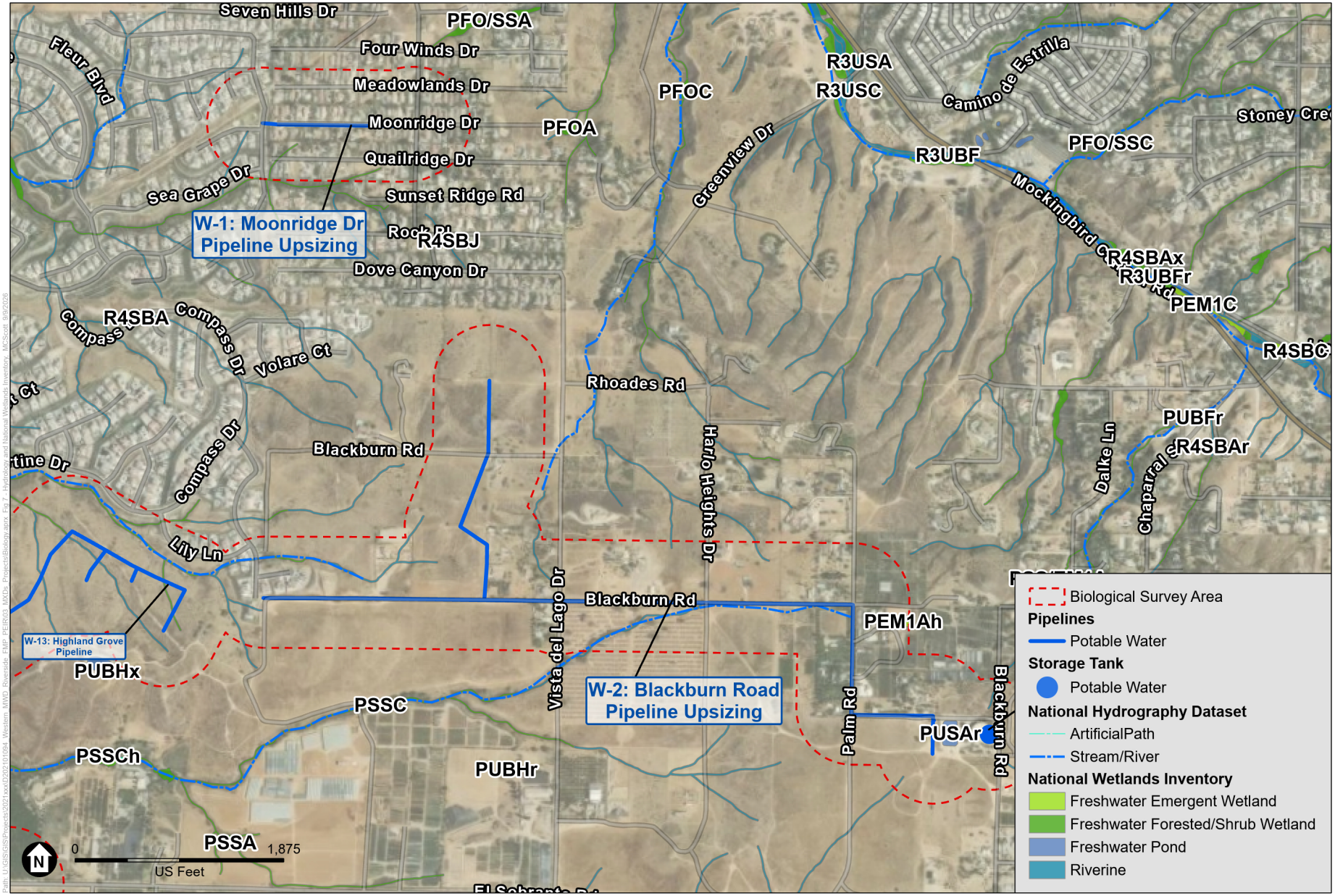


SOURCE: NWI, 2025; ESA, 2026.

Riverside Facilities Master Plan

Figure 7-C
Hydrology and National Wetlands Inventory
W-13/14: Highland Grove I, II, and III Pipelines
RW-1: El Sobrante Pump Station/Lake Ranch Pipelines

ESA

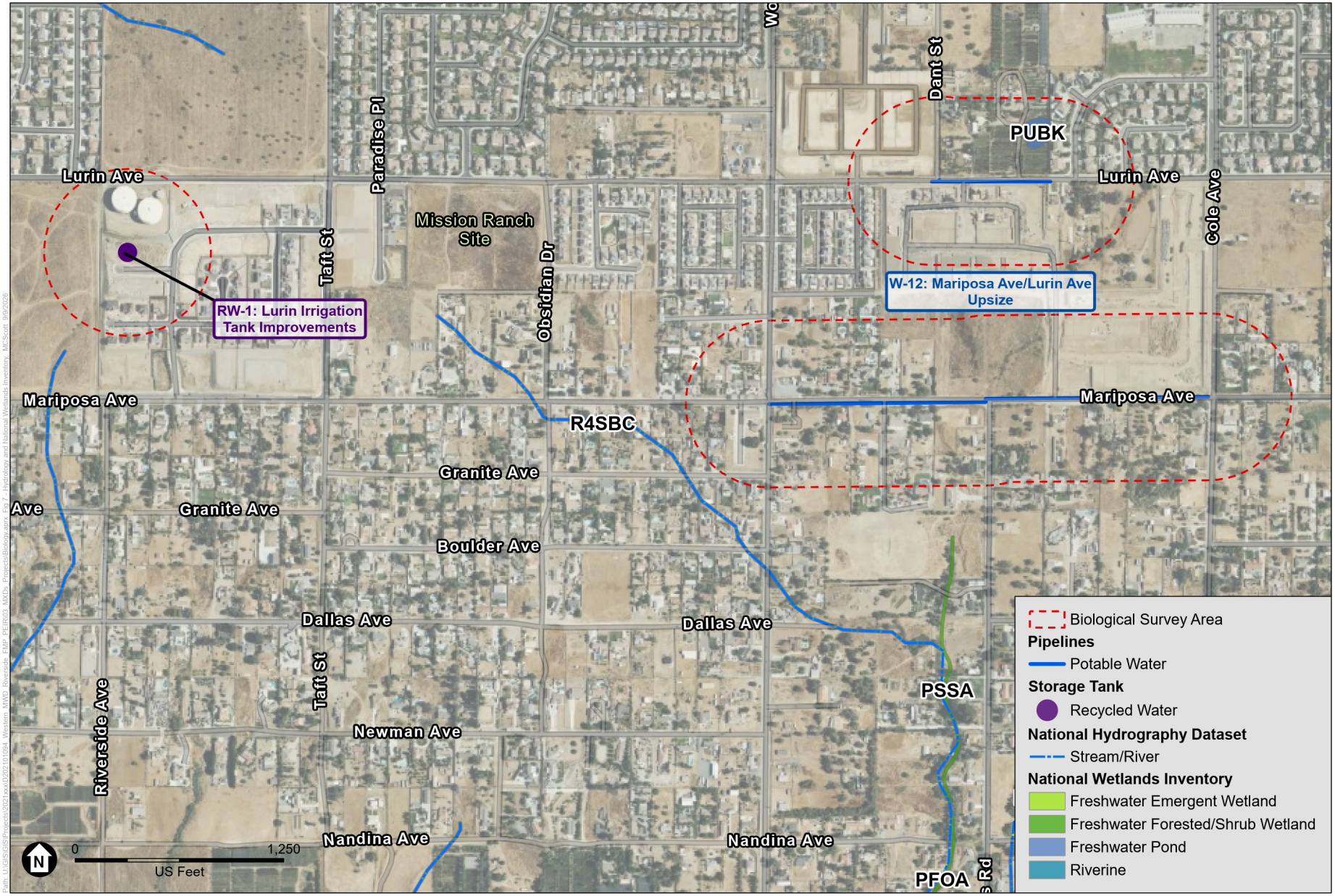


SOURCE: NWI, 2025; ESA, 2026.

Riverside Facilities Master Plan

Figure 7-D
Hydrology and National Wetlands Inventory
W-1: Moonridge Drive Pipeline
W-2: Blackburn Road Pipeline Upsizing

ESA

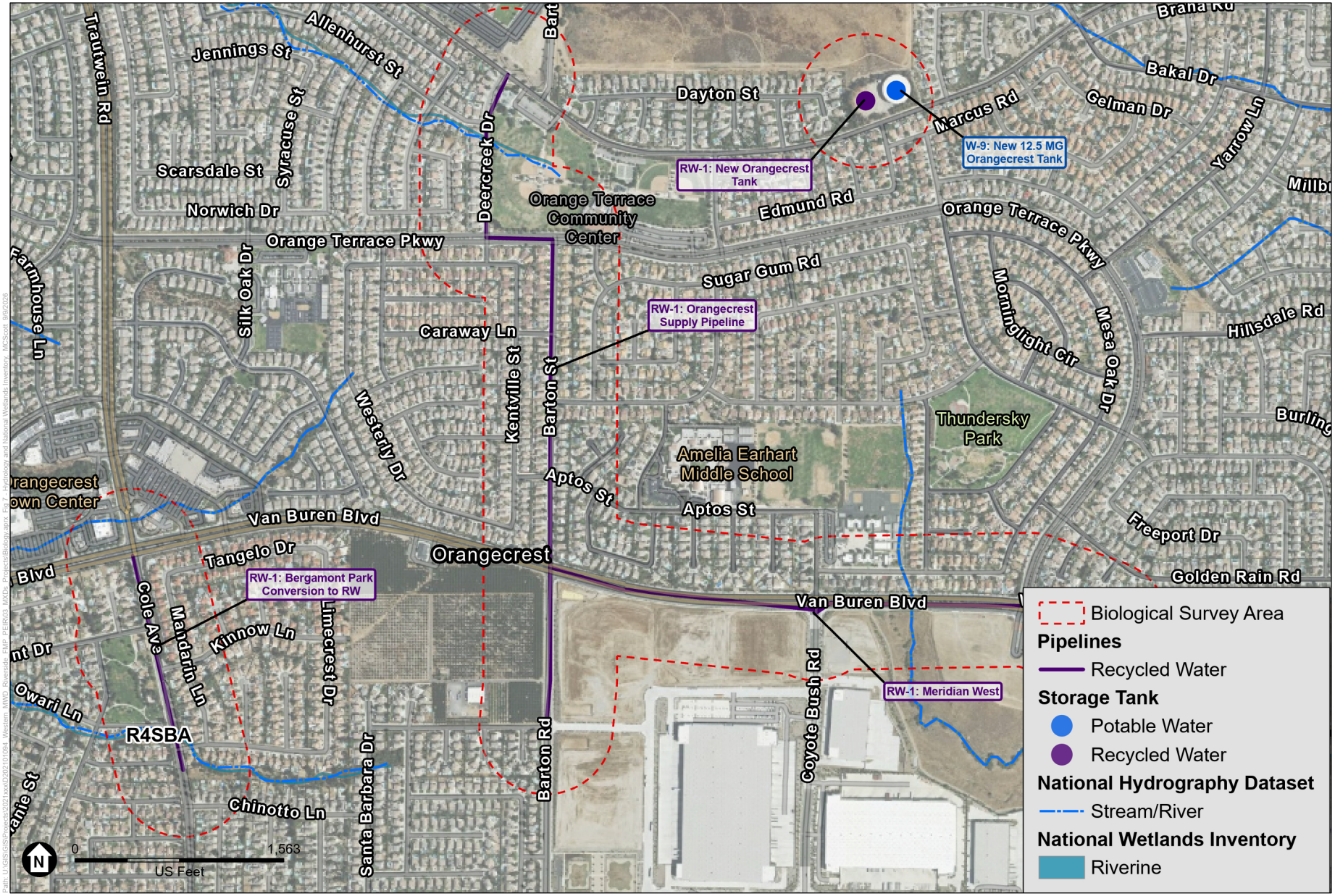


SOURCE: NWI, 2025; ESA, 2026.

Riverside Facilities Master Plan

Figure 7-E
Hydrology and National Wetlands Inventory
RW-1: Lurin Tank
W-12: Mariposa Ave/Lurin Ave Upsizing

ESA



SOURCE: NWI, 2025; ESA, 2026.

Riverside Facilities Master Plan

Figure 7-F
Hydrology and National Wetlands Inventory
W-9: Orangecrest Tank #1
RW-1: Orangecrest Supply Pipelines/Meridian West

ESA

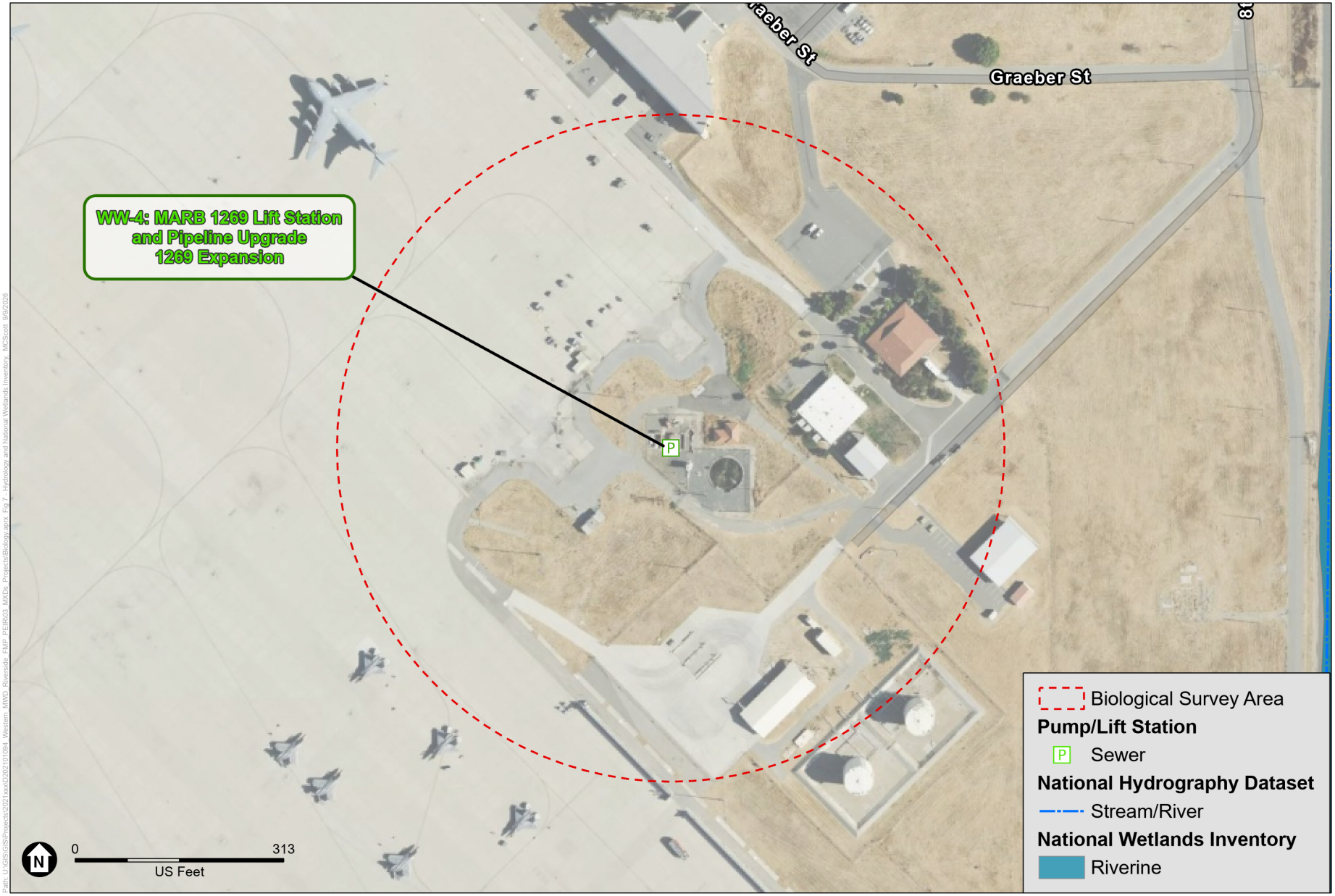


SOURCE: NWI, 2025; ESA, 2026.

Riverside Facilities Master Plan

Figure 7-G
Hydrology and National Wetlands Inventory
WW-5 Meridian Lift Station

ESA

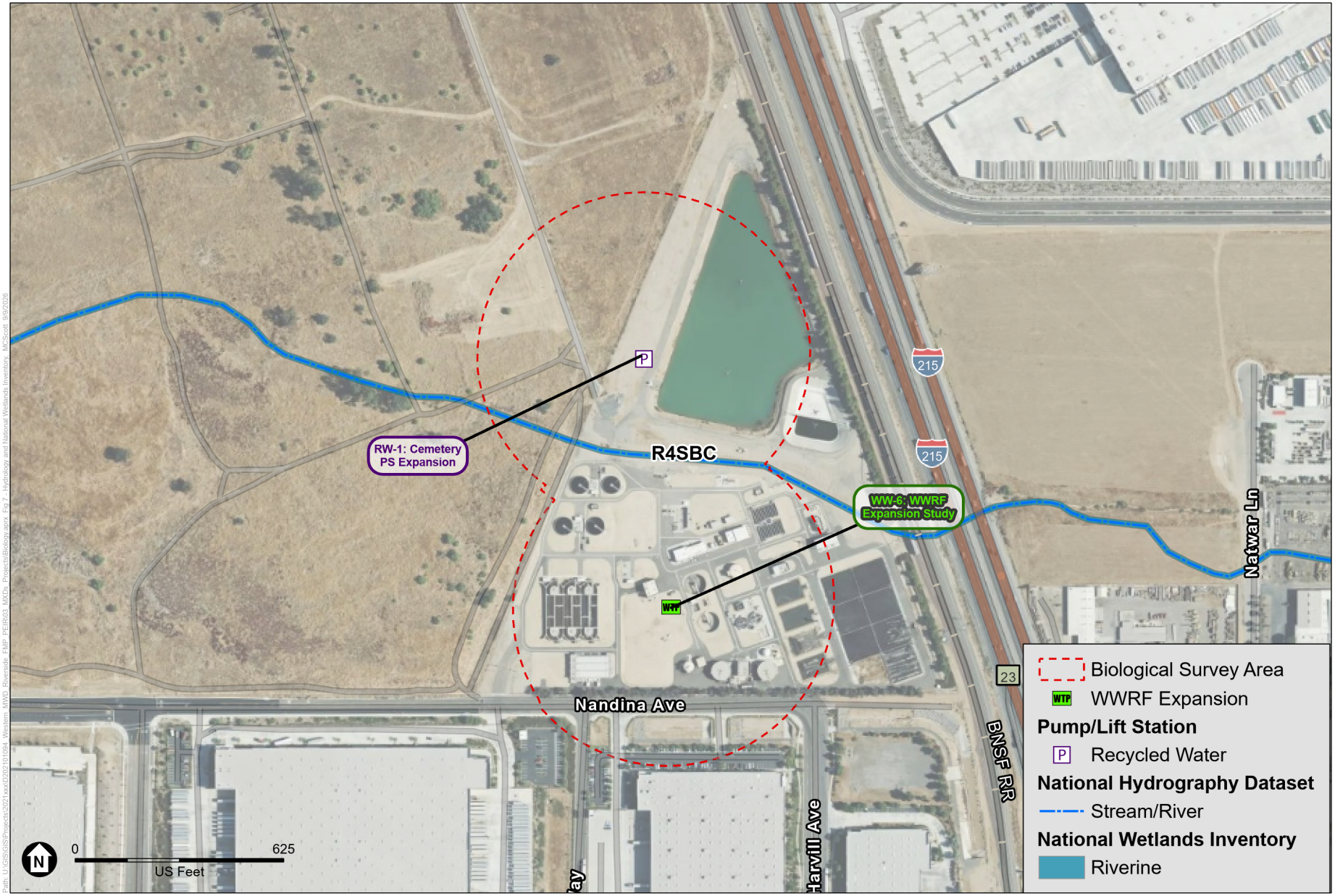


SOURCE: NWI, 2025; ESA, 2026.

Riverside Facilities Master Plan

Figure 7-H
Hydrology and National Wetlands Inventory
WW-4: MARB 1269 Lift Station

ESA

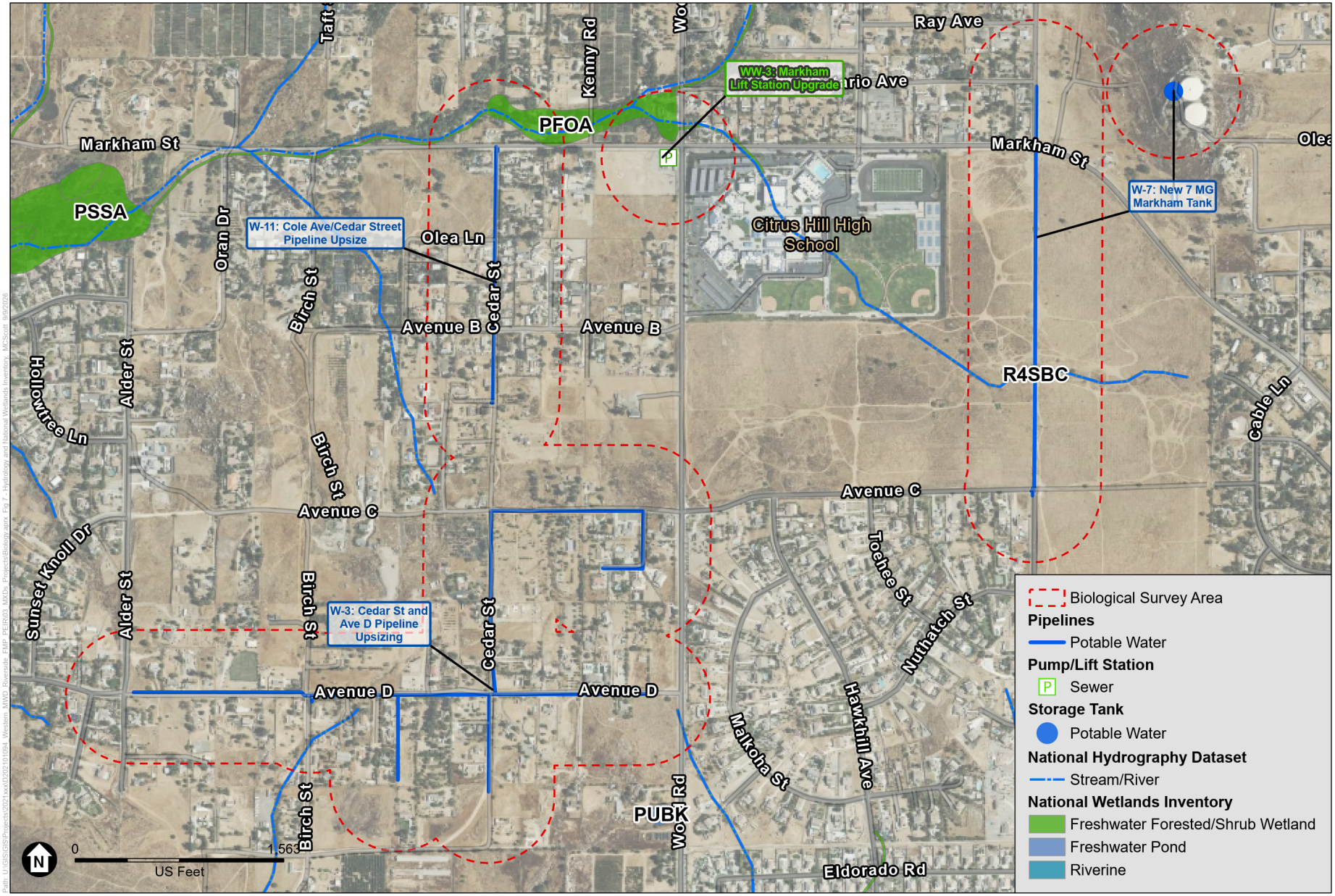


SOURCE: NWI, 2025; ESA, 2026.

Riverside Facilities Master Plan

Figure 7-I
Hydrology and National Wetlands Inventory
RW-1: Riverside National Cemetery Pump Station
WW-6: WWRF Expansion

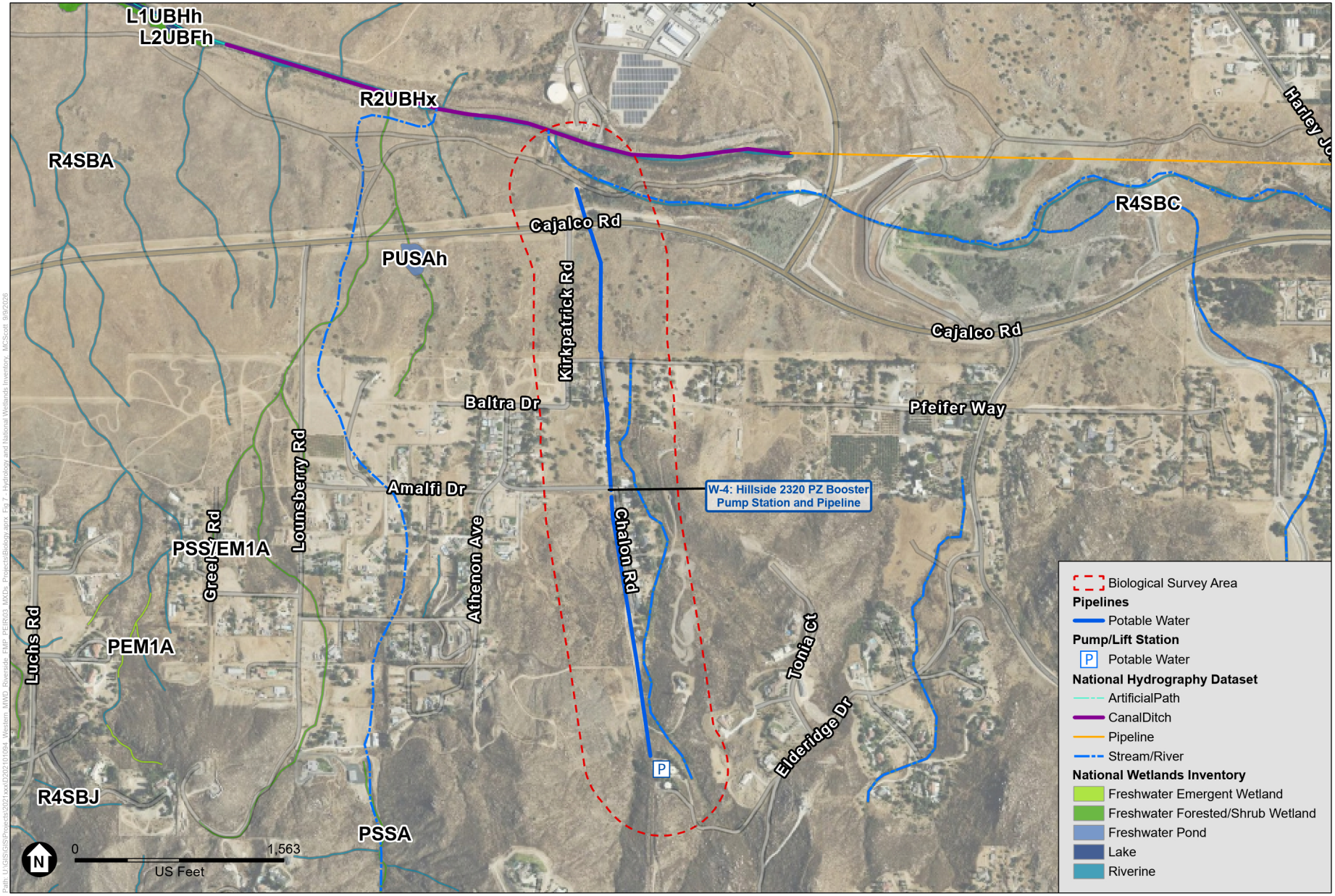
ESA



SOURCE: NWI, 2025; ESA, 2026.

Riverside Facilities Master Plan

Figure 7-J
Hydrology and National Wetlands Inventory
W-3: Cedar Street and Ave D Pipeline Upsizing
W-7: New 7MG Markham Tank
W-11: Cole Ave/Cedar Street Upsize
WW-3: Markham Lift Station

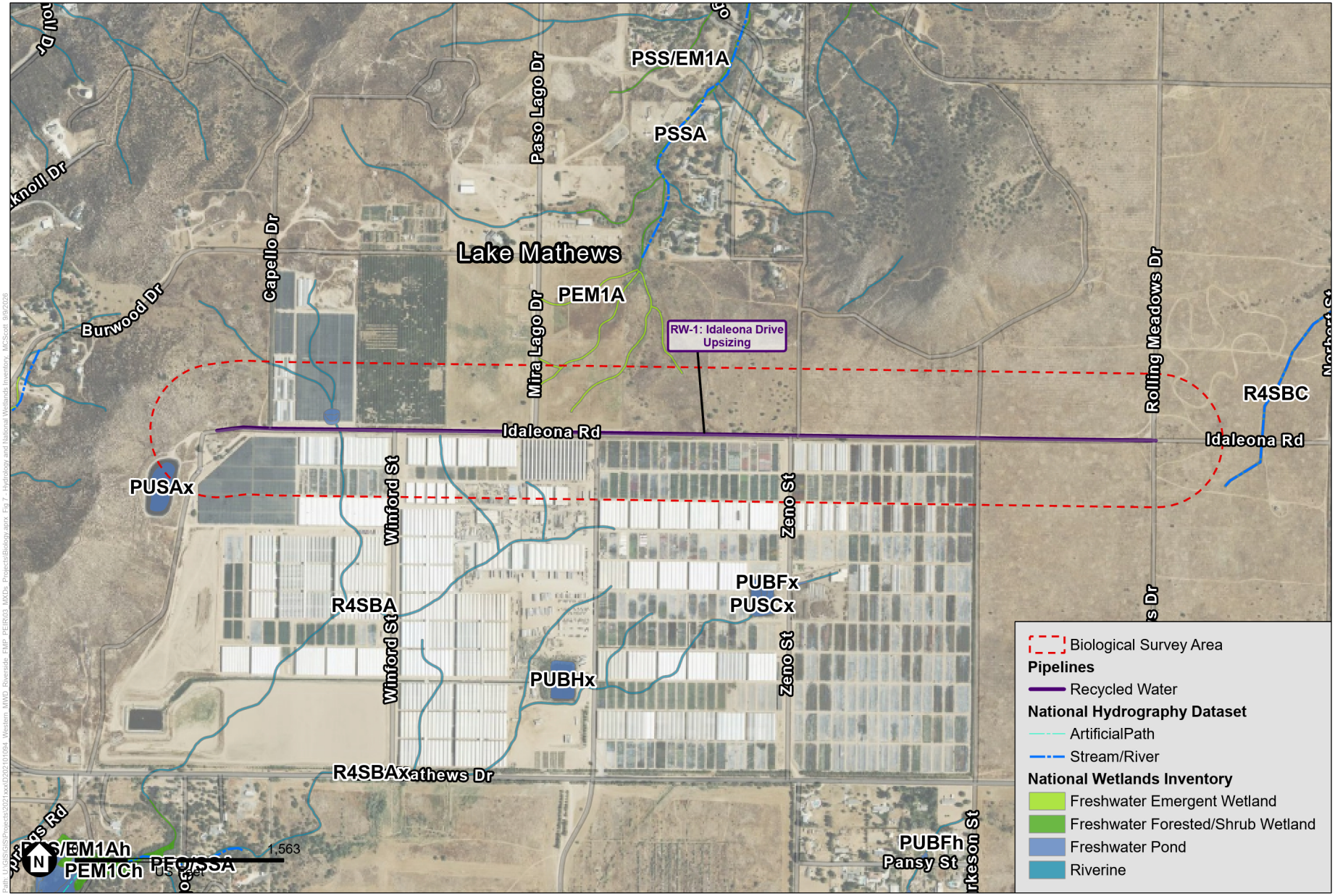


SOURCE: NWI, 2025; ESA, 2026.

Riverside Facilities Master Plan

Figure 7-K
Hydrology and National Wetlands Inventory
W-4: Hillside 2320 PZ Booster Pump Station and Pipeline

ESA

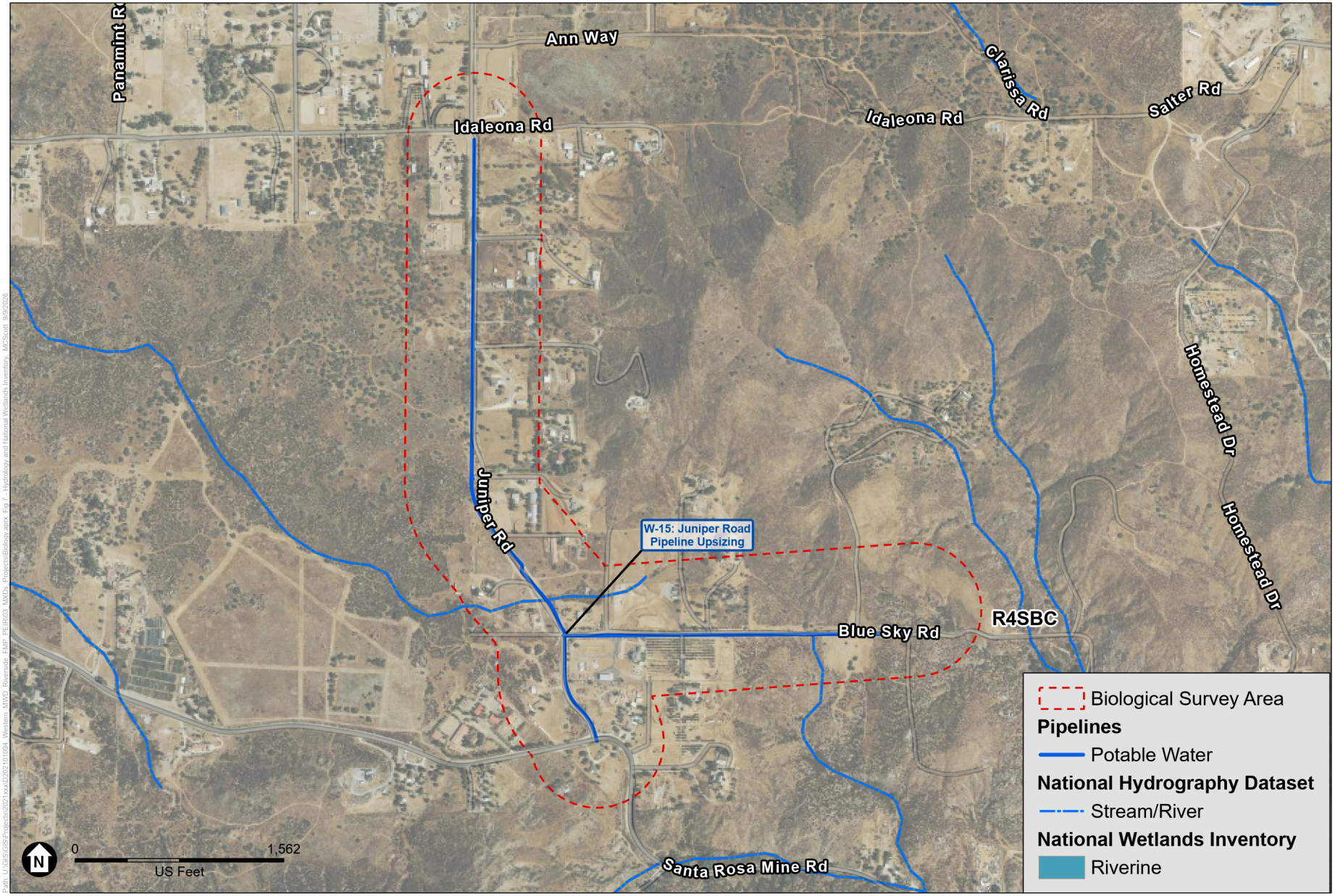


SOURCE: NWI, 2025; ESA, 2026.

Riverside Facilities Master Plan

Figure 7-L
Hydrology and National Wetlands Inventory
RW-1: Idaleona Drive Upsizing

ESA



SOURCE: NWI, 2025; ESA, 2026.

Riverside Facilities Master Plan

Figure 7-M
Hydrology and National Wetlands Inventory
W-15: Juniper Road Pipeline Upsizing

ESA



SOURCE: NWI, 2025; ESA, 2026.

Riverside Facilities Master Plan

Figure 7-N
Hydrology and National Wetlands Inventory
W-6: El Nido Tank

ESA



SOURCE: NWI, 2025; ESA, 2026.

Riverside Facilities Master Plan

Figure 7-O
Hydrology and National Wetlands Inventory
W-5: Hidden Valley Tank

ESA

5.0 Impacts Analysis

An analysis of potential impacts to biological resources and corresponding recommendations for avoidance, minimization, and mitigation are discussed in this section. It should be noted that because the overall proposed project footprint is conceptual at this time, project impacts may need to be confirmed upon completion of a more finalized project design, particularly for future projects.

5.1 Approach to Analysis

Generally, impacts may be defined as direct or indirect, permanent or temporary. Definitions of these impact types are provided below.

- **Direct Impacts:** Any alteration, disturbance, or destruction of biological resources that would result from project-related activities is considered a direct impact. Examples include loss of individual species and/or their associated plant communities, diversion of surface water flows, and encroachment into wetlands. Under the FESA, direct impacts are defined as the immediate impacts of a project on a species or its habitat, including construction noise disturbance, sedimentation, or habitat loss.
- **Indirect Impacts:** As a result of project-related activities, biological resources may also be affected in an indirect manner. Under the FESA, indirect impacts are defined as those impacts that are caused by, or would result from, a proposed project but occur later in time and are reasonably certain to occur [50 C.F.R. Section 402-02]. An example of indirect impacts may include irrigation runoff from a developed area into surrounding natural vegetation. Indirect impacts could also include increased wildfire frequency as a result of power line failures.
- **Temporary Impacts:** Any impacts to biological resources that are considered reversible can be viewed as temporary. Examples include the generation of fugitive dust during construction activities and temporary access or staging areas that will be returned to pre-project conditions.
- **Permanent Impacts:** All impacts that result in the irreversible removal of biological resources are considered permanent. Examples include constructing a building or permanent road on an area with native vegetation, such that the native vegetation is permanently removed and replaced with a developed structure.

5.2 Thresholds of Significance

Based on 2026 CEQA Guidelines Appendix G, the Program would result in a significant impact on biological resources if it would:

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

3. Have a substantial adverse effect on state or federally protected wetlands (including but not limited to marsh, vernal pool, coastal) through direct removal, filling, hydrological interruption, or other means.
4. 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.
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.
7. Result in cumulatively considerable impacts to biological resources.

5.3 Impacts and Mitigation Measures

5.3.1 Special-Status Species

Impact 3.4 1: Would the proposed program 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 Game or U.S. Fish and Wildlife Service?

Potential impacts to special-status species that have moderate to high potential to occur within the BSA, and/or species that were documented during the reconnaissance surveys, are evaluated below.

Priority and Near-Term Projects

Pipelines, Pump/Lift Stations, Storage Tanks, and WWRF Expansion

Special-Status Plants

Munz's Onion

Implementation of the Riverside FMP could result in impacts to Munz's onion. Suitable habitat for Munz's onion is present within multiple Priority and Near-Term project BSAs: W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-5: New 3 MG Hidden Valley Tank, W-6: New 1.5 MG El Nido Tank, W-15: Juniper Road Pipeline Upsizing, and RW-1: Idaleona Drive Upsizing. It should be noted that the W-5: New 3 MG Hidden Valley Tank and W-6: New 1.5 MG El Nido Tank project sites would remain entirely within the existing developed footprints, thereby avoiding disturbance of suitable habitat and resulting in no impacts to Munz's onion.

Project activities such as pipeline installation, grading, vegetation clearing, and construction of aboveground facilities could result in the removal or degradation of suitable habitat. Direct impacts could include the loss of individuals through ground-disturbing activities, particularly where bulbs are present below the soil surface and may not be visible during construction. **Table 8** outlines potential permanent and temporary impacts to suitable habitat for Munz's onion resulting from implementation of the Riverside FMP. Because Munz's onion is a perennial bulb-forming species, individuals may be especially vulnerable to soil disturbance that disrupts underground structures essential for survival and reproduction.

TABLE 8
POTENTIAL IMPACTS TO SUITABLE HABITAT FOR SPECIAL-STATUS PLANT SPECIES WITH POTENTIAL TO OCCUR WITHIN PRIORITY AND NEAR-TERM PROJECT SITES

Project	Chaparral Sand-verbena	Intermediate Mariposa Lily	Long-spined Spineflower	Many-stemmed Dudleya	Munz's Onion	Paniculate Tarplant	Parry's Spineflower	Rigid Fringepod	San Diego Ambrosia	Yucaipa Onion
Priority										
W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank	Temporary: 1.49 acres				Temporary: 1.49 acres					
W-3: Cedar Street and Avenue D Pipeline Upsizing						Temporary: 0.18 acre				
Near-Term										
W-4: Hillside 2320 PZ Booster PS and Pipeline	Temporary: 1.11 acres		Temporary: 1.11 acres	Temporary: 1.11 acres	Temporary: 1.11 acres	Temporary: 1.11 acres	Temporary: 1.11 acres		Temporary: 1.11 acres	
W-7: New 7 MG Markham Tank	Permanent: 0.18 acre			Permanent: 0.18 acre		Permanent: 0.18 acre				
W-11: Cole Ave/Cedar Street Upsize						Temporary: 0.01 acre				
W-15: Juniper Road Pipeline Upsizing	Temporary: 0.59 acre	Temporary: 0.59 acre	Temporary: 0.59 acre	Temporary: 0.59 acre	Temporary: 0.59 acre	Temporary: 0.59 acre	Temporary: 0.59 acre	Temporary: 0.59 acres	Temporary: 0.59 acre	Temporary: 0.59 acre
RW-1: Idaleona Drive Upsizing	Temporary: 0.42 acre		Temporary: 0.42 acre	Temporary: 0.42 acre	Temporary: 0.42 acre	Temporary: 0.42 acre	Temporary: 0.42 acre		Temporary: 0.42 acre	

Indirect impacts may include soil compaction, alteration of surface and subsurface hydrology, and the introduction or spread of invasive plant species that could modify habitat conditions and reduce habitat suitability over time. Dust generated during construction activities could settle on vegetation, potentially reducing photosynthetic capacity and plant vigor for aboveground portions during the growing season. Maintenance activities such as vegetation management could also affect individuals if present.

Implementation of **Mitigation Measure BIO-1 (Special-Status Plant Surveys)** would require surveys to be conducted during the appropriate blooming period to determine if special-status plant species are present/absent within the project site for W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-15: Juniper Road Pipeline Upsizing, and RW-1: Idaleona Drive Upsizing. If surveys verify absence of the species, no further action would be required. If Munz's onion is identified and impacts can be avoided through project redesign or other avoidance measures, impacts to the species would be less than significant. If impacts to Munz's onion cannot be avoided, the project applicant shall obtain all applicable permits and implement a species-specific mitigation plan in accordance with Mitigation Measure BIO-1, which may include salvage and transplantation of bulbs, seed collection, restoration, and long-term monitoring. Additionally, implementation of **Mitigation Measure BIO 2 (General Best Management Practices [BMPs] and Worker Environmental Awareness Program [WEAP])** and **Mitigation Measure BIO-3 (Invasive Plant Species Control Measures)**, would further reduce direct and/or indirect impacts to special-status plants by requiring environmental training for all personnel, implementing invasive plant species control measures, and using best management practices to manage trash and dust. The implementation of **Mitigation Measure BIO-4 (Revegetation Plan)** would reduce impacts to species habitat in the proposed project sites by requiring the restoration of temporarily impacted areas to pre-construction conditions. Together with the avoidance, permitting, and species-specific mitigation requirements of Mitigation Measure BIO-1, impacts to Munz's onion would be reduced to less than significant with mitigation incorporated.

San Diego Ambrosia

Implementation of the Riverside FMP could result in impacts to San Diego ambrosia. Suitable habitat for the species is present within multiple Priority and Near-Term project BSAs: W-4: Hillside 2320 PZ Booster PS and Pipeline, W-5: New 3 MG Hidden Valley Tank, W-6: New 1.5 MG El Nido Tank, W-15: Juniper Road Pipeline Upsizing, and RW-1: Idaleona Drive Upsizing. It should be noted that the W-5: New 3 MG Hidden Valley Tank and W-6: New 1.5 MG El Nido Tank project sites remain entirely within the existing developed footprints, thereby avoiding disturbance of suitable habitat and resulting in no impacts to San Diego ambrosia.

Project activities such as pipeline installation, grading, vegetation clearing, and construction of aboveground facilities could result in the removal or degradation of suitable habitat. Direct impacts could include the loss of individuals through ground-disturbing activities, particularly where the species occurs in open or previously disturbed areas that may be targeted for construction or staging. Because San Diego ambrosia can spread clonally and may occur in patches that are not readily identifiable outside of the growing season, individuals could be inadvertently impacted if present within the disturbance footprint. Table 8 outlines potential temporary impacts to suitable habitat for San Diego ambrosia resulting from implementation of the Riverside FMP.

Indirect impacts may include soil compaction, changes in hydrology, and the introduction or spread of invasive plant species that could alter habitat conditions and reduce habitat suitability over time. Dust generated during construction activities could settle on vegetation, potentially reducing photosynthetic capacity and plant vigor, particularly for individuals located adjacent to active construction areas.

Implementation of **Mitigation Measure BIO-1 (Special-Status Plant Surveys)** would require surveys to be conducted during the appropriate blooming period to determine if special-status plant species are present within the project site at-4: Hillside 2320 PZ Booster PS and Pipeline, W-15: Juniper Road Pipeline Upsizing, and RW-1: Idaleona Drive Upsizing. If surveys verify absence of the species, no further action would be required. If San Diego ambrosia is identified and impacts can be avoided through project redesign or other avoidance measures, impacts to the species would be less than significant. If impacts to San Diego ambrosia cannot be avoided, the project applicant shall obtain all applicable permits and implement a species-specific mitigation plan in accordance with Mitigation Measure BIO-1, which may include salvage and transplantation of bulbs, seed collection, restoration, and long-term monitoring. Additionally, implementation of Mitigation Measure BIO-2 (General BMPs and WEAP) and **Mitigation Measure BIO-3 (Invasive Plant Species Control Measures)**, would further reduce direct and/or indirect impacts to special-status plants by requiring environmental training for all personnel, implementing invasive plant species control measures, and using best management practices to manage trash and dust. The implementation of **Mitigation Measure BIO-4 (Revegetation Plan)** would reduce impacts to species habitat in the proposed project sites by requiring the restoration of temporarily impacted areas to pre-construction conditions. Together with the avoidance, permitting, and species-specific mitigation requirements of Mitigation Measure BIO-1, impacts to San Diego ambrosia would be reduced to less than significant with mitigation incorporated.

Non-Listed Special-Status Plants

Implementation of the Riverside FMP could result in impacts to other special-status plant species, including chaparral sand-verbena, intermediate mariposa lily, long-spined spineflower, many-stemmed dudleya, Parry's spineflower, paniculate tarplant, rigid fringepod, and Yucaipa onion. Suitable habitat for these species is present within multiple Priority and Near-Term project BSAs, particularly within coastal sage scrub, chaparral, grassland, and disturbance-associated habitats that provide open conditions and appropriate soil characteristics. Priority and Near-Term project BSAs where special-status plants could be impacted could include: W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, W-3: Cedar Street and Avenue D Pipeline Upsizing, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-5: New 3 MG Hidden Valley Tank, W-6: New 1.5 MG El Nido Tank, W-7: New 7 MG Markham Tank, W-11: Cole Ave/Cedar Street Upsize, W-15: Juniper Road Pipeline Upsizing, RW-1: Idaleona Drive Upsizing, and RW-1: Cemetery PS Expansion. It should be noted that the W-5: New 3 MG Hidden Valley Tank, W-6: New 1.5 MG El Nido Tank, and RW-1: Cemetery PS would remain entirely within existing developed footprints, thereby avoiding disturbance of suitable habitat and resulting in no impacts to special-status plant species.

Project activities such as pipeline installation, grading, vegetation clearing, and construction of aboveground facilities could result in the removal or degradation of suitable habitat. Direct impacts could include the loss of individuals through ground-disturbing activities, particularly for annual or short-lived perennial species that may be present only during certain times of year and may not be readily identifiable outside of the blooming period. For species with belowground structures (e.g., bulbs or taproots), individuals may be impacted through soil disturbance even when not visible at the surface. Table 8

outlines potential permanent and temporary impacts to suitable habitat for non-listed special-status plant species resulting from implementation of the Riverside FMP.

Indirect impacts may include soil compaction, alteration of drainage patterns, and the introduction or spread of invasive plant species that could outcompete native vegetation and reduce habitat suitability over time. Dust generated during construction activities could settle on vegetation, potentially reducing photosynthetic capacity and plant vigor, particularly for individuals located adjacent to active construction areas. Maintenance activities such as vegetation management could also result in localized impacts to individuals if present.

Implementation of **Mitigation Measure BIO-1 (Special-Status Plant Surveys)** would require surveys to be conducted during the appropriate blooming period to determine if special-status plant species are present/absent within the project site at W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, W-3: Cedar Street and Avenue D Pipeline Upsizing, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-7: New 7 MG Markham Tank, WW-11: Cole Ave/Cedar Street Upsize, W-15: Juniper Road Pipeline Upsizing, and RW-1: Idaleona Drive Upsizing. If surveys verify absence of the species, no further action would be required. If special-status plant species are identified and impacts can be avoided through project redesign or other avoidance measures, impacts to the species would be less than significant. If impacts to special-status plant species cannot be avoided, the project applicant shall implement a species-specific mitigation plan in accordance with Mitigation Measure BIO-1, which may include salvage and transplantation of bulbs, seed collection, restoration, and long-term monitoring. Additionally, implementation of **Mitigation Measure BIO 2 (General BMPs and WEAP)** and **Mitigation Measure BIO-3 (Invasive Plant Species Control Measures)**, would further reduce direct and/or indirect impacts to special-status plants by requiring environmental training for all personnel, implementing invasive plant species control measures, and using best management practices to manage trash and dust. The implementation of **Mitigation Measure BIO-4 (Revegetation Plan)** would reduce impacts to species habitat in the proposed project site by requiring the restoration of temporarily impacted areas to pre-construction conditions. Together with the avoidance, permitting, and species-specific mitigation requirements of Mitigation Measure BIO-1, impacts to special-status plants would be reduced to less than significant with mitigation incorporated.

Special-Status Wildlife

Coastal California Gnatcatcher

Implementation of the Riverside FMP could result in impacts to coastal California gnatcatcher. Suitable habitat for coastal California gnatcatcher is present within multiple Priority and Near-Term project BSAs: W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, W-3: Cedar Street and Avenue D Pipeline Upsizing, WW-2: Beazer 1 Lift Station and Forcemain Upgrade, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-5: New 3 MG Hidden Valley Tank, W-6: New 1.5 MG El Nido Tank, W-7: New 7 MG Markham Tank, W-9: New 12.5 MG Orangecrest Tank, W-10: Highland Grove Pressure Reducing Valve, W-13: Highland Grove Pipeline, W-14: Highland Grove II and III 12-inch Pipeline, W-15: Juniper Road Pipeline Upsizing, RW-1: New Orangecrest Tank, RW-1: Idaleona Drive Upsizing, and RW-1: Lake Ranch Pipelines.

For projects that remain entirely within existing developed footprints, avoid disturbance of suitable coastal sage scrub habitat, and avoid construction activities within 500 feet of suitable habitat during the

coastal California gnatcatcher breeding season (March 1 through August 15), no direct or indirect impacts to coastal California gnatcatcher would occur. The projects that are expected to remain within existing developed footprints include WW-2: Beazer 1 Lift Station and Forcemain Upgrade, W-5: New 3 MG Hidden Valley Tank, W-6: New 1.5 MG El Nido Tank, W-7: New 7 MG Markham Tank, W-9: New 12.5 MG Orangecrest Tank, W-10: Highland Grove Pressure Reducing Valve, W-13: Highland Grove Pipeline, W-14: Highland Grove II and III 12-inch Pipeline, RW-1: New Orangecrest Tank, and RW-1: Lake Ranch Pipelines. Therefore, protocol surveys and species-specific mitigation measures would not be required for those project sites.

Project activities such as pipeline installation, grading, vegetation clearing, and construction of aboveground facilities could result in direct impacts to coastal California gnatcatcher through the removal of suitable coastal sage scrub habitat and potential injury or mortality if individuals or active nests are present within the impact area during ground-disturbing activities. **Table 9** outlines potential temporary impacts to suitable habitat for coastal California gnatcatcher resulting from implementation of the Riverside FMP. Indirect impacts could occur from construction-related noise, vibration, lighting, human activity, and equipment use near occupied habitat, particularly during the breeding season (generally March 1 through August 15). These disturbances could disrupt normal breeding behavior, resulting in nest abandonment or reduced reproductive success. Additional indirect impacts may include habitat degradation from dust, erosion, and the introduction or spread of invasive plant species that reduce habitat quality over time.

However, for projects that would disturb suitable coastal sage scrub habitat, including W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, W-3: Cedar Street and Avenue D Pipeline Upsizing, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-15: Juniper Road Pipeline Upsizing, and RW-1: Idaleona Drive Upsizing, or conduct construction activities within 500 feet of suitable habitat during the breeding season, implementation of the Riverside FMP could result in the direct and indirect impacts described above. Therefore, impacts to coastal California gnatcatcher would be potentially significant.

Implementation of **Mitigation Measure BIO-5 (Coastal California Gnatcatcher)** would require protocol surveys to determine presence/absence within 500 feet of the project sites if a project cannot be confined entirely to existing developed footprints, would result in disturbance of suitable coastal sage scrub habitat, or would involve construction activities within 500 feet of suitable habitat during the coastal California gnatcatcher breeding season (March 1 through August 15). If a project remains entirely within existing developed footprints, avoids disturbance of suitable coastal sage scrub habitat, and all construction within 500 feet of suitable habitat occurs outside the breeding season, protocol surveys would not be required. If surveys verify absence of the species, no further action would be required. If protocol surveys confirm occupancy but project activities would avoid direct impacts to occupied habitat, a minimum 500-foot avoidance buffer would be established around occupied habitat during the breeding season, or if construction must occur within the avoidance buffer, additional avoidance measures, such as noise attenuation and biological monitoring, would be implemented to minimize disturbance and any potential indirect impacts. If direct impacts to occupied habitat or indirect impacts may occur, which may result in take of coastal California gnatcatcher, then the project proponent would obtain the appropriate federal take authorization under the FESA, which may include participation as a Participating Special Entity under the Western Riverside County MSHCP, where applicable.

TABLE 9
POTENTIAL IMPACTS TO SPECIAL-STATUS WILDLIFE SPECIES WITH POTENTIAL TO OCCUR WITHIN PRIORITY AND NEAR-TERM PROJECT SITES

Project	Coastal California Gnatcatcher	Crotch's Bumble Bee	Least Bell's Vireo	Stephens' Kangaroo Rat	Western Burrowing Owl	Western Spadefoot	White-Tailed Kite	Non-listed Bats
Priority								
W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank	Temporary: 0.11 acre	Temporary: 1.52 acres		Temporary: 1.52 acres	Temporary: 1.60 acres		Temporary: 1.60 acres	Temporary: 1.60 acres
W-3: Cedar Street and Avenue D Pipeline Upsizing	Temporary: 0.01 acre	Temporary: 0.18 acre		Temporary: 0.18 acre	Temporary: 0.19 acre	Temporary: 0.19 acre		
Near-Term								
W-4: Hillside 2320 PZ Booster PS and Pipeline	Temporary: 0.74 acre	Temporary: 1.11 acres	Temporary: <0.01 acre	Temporary: 1.11 acres	Temporary: 1.11 acres	Temporary: 1.11 acres	Temporary: 1.11 acres	Temporary: 1.19 acres
W-7: New 7 MG Markham Tank		Permanent: 0.19 acre			Permanent: 0.19 acre		Permanent: 0.19 acre	
W-11: Cole Ave/Cedar Street Upsize		Temporary: 0.01 acre		Temporary: 0.01 acre		Temporary: 0.01 acre		Temporary: 0.01 acre
W-12: Mariposa Ave/Lurin Avenue Upsize					Temporary: 0.13 acre			
W-13: Highland Grove Pipeline		Temporary: 0.39 acre		Temporary: 0.39 acre			Temporary: 0.39 acre	Temporary: 0.39 acre
W-14: Highland Grove II and III 12-inch Pipeline		Temporary: 2.99 acres	Temporary: 0.49 acre	Temporary: 2.50 acres			Temporary: 2.50 acres	Temporary: 2.99 acres
W-15: Juniper Road Pipeline Upsizing	Temporary: 0.40 acre	Temporary: 0.59 acre		Temporary: 0.59 acre	Temporary: 0.59 acre	Temporary: 0.59 acre	Temporary: 0.59 acre	Temporary: 0.59 acre
RW-1: Idaleona Drive Upsizing	Temporary: 0.04 acre	Temporary: 0.42 acre		Temporary: 0.45 acre	Temporary: 0.49 acre	Temporary: 0.49 acre	Temporary: 0.49 acre	Temporary: 0.49 acre

Additionally, implementation of **Mitigation Measure BIO 2 (General BMPs and WEAP)** and **Mitigation Measure BIO-3 (Invasive Plant Species Control Measures)**, would further reduce direct and/or indirect impacts to special-status wildlife by requiring environmental training for all personnel, implementing invasive plant species control measures, and using best management practices to manage trash and dust. The implementation of **Mitigation Measure BIO-4 (Revegetation Plan)** would reduce impacts to species habitat in the proposed project site by requiring the restoration of temporarily impacted areas to pre-construction conditions. With implementation of these mitigation measures, impacts to coastal California gnatcatcher would be reduced to less than significant with mitigation incorporated.

Crotch's Bumble Bee

Implementation of the Riverside FMP could result in impacts to Crotch's bumble bee. Suitable habitat for the species is present within multiple Priority and Near-Term project BSAs: W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, W-3: Cedar Street and Avenue D Pipeline Upsizing, WW-2: Beazer 1 Lift Station and Forcemain Upgrade, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-5: New 3 MG Hidden Valley Tank, W-6: New 1.5 MG El Nido Tank, W-7: New 7 MG Markham Tank, W-9: New 12.5 MG Orangecrest Tank, W-10: Highland Grove Pressure Reducing Valve, W-11: Cole Ave/Cedar Street Upsize, W-13: Highland Grove Pipeline, W-14: Highland Grove II and III 12-inch Pipeline, W-15: Juniper Road Pipeline Upsizing, RW-1: New Orangecrest Tank, RW-1: Orangecrest Tank Supply Pipelines, RW-1: Meridian West Pipelines, RW-1: Idaleona Drive Upsizing, RW-1: Cemetery PS Expansion, and RW-1: Lake Ranch Pipelines.

For projects that remain entirely within existing developed footprints and avoid disturbance of suitable habitat, no direct or indirect impacts to Crotch's bumble bee would occur. These projects include WW-2: Beazer 1 Lift Station and Forcemain Upgrade, W-5: New 3 MG Hidden Valley Tank, W-6: New 1.5 MG El Nido Tank, W-7: New 7 MG Markham Tank, W-9: New 12.5 MG Orangecrest Tank, W-10: Highland Grove Pressure Reducing Valve, RW-1: New Orangecrest Tank, RW-1: Orangecrest Tank Supply Pipelines, RW-1: Meridian West Pipelines, and RW-1: Cemetery PS Expansion.

Project activities such as pipeline installation, grading, vegetation clearing, and construction of aboveground facilities could result in direct impacts to Crotch's bumble bee through the removal of suitable foraging habitat and potential impacts to nesting sites that may occur in small mammal burrows or other underground cavities. Direct impacts, including injury or mortality, could occur if individuals are present within the impact area during construction activities. Table 9 outlines potential permanent and temporary impacts to suitable habitat for Crotch's bumble bee resulting from implementation of the Riverside FMP.

Indirect impacts to flowering plant species that provide nectar and pollen resources could result from vegetation clearing, grading, soil compaction, dust generated during construction, temporary staging or equipment access, and the introduction or spread of invasive plant species following ground disturbance.

However, for projects that would disturb suitable habitat, including W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, W-3: Cedar Street and Avenue D Pipeline Upsizing, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-7: New 7 MG Markham Tank, W-11: Cole Ave/Cedar Street Upsize, W-14: Highland Grove II and III 12-inch Pipeline, W-15: Juniper Road Pipeline Upsizing, and RW-1: Idaleona Drive Upsizing, implementation of the Riverside FMP could result in the direct and indirect impacts described above. Therefore, impacts to Crotch's bumble bee would be potentially significant.

Implementation of **Mitigation Measure BIO-6 (Crotch's Bumble Bee)** would be required for these projects listed above that cannot be confined entirely to existing developed footprints or would result in disturbance of suitable habitat for Crotch's bumble bee. If surveys verify absence of the species, no further action would be required. If protocol surveys confirm the presence of Crotch's bumble bee but project activities would avoid direct impacts to suitable foraging and nesting habitat, avoidance buffers and other avoidance measures, as determined by the qualified biologist based on site-specific conditions, would be established around occupied habitat. If construction must occur within the avoidance area, additional avoidance measures, such as biological monitoring, minimization of vegetation disturbance, and restoration of temporarily impacted habitat, would be implemented to minimize disturbance and any potential indirect impacts. If direct impacts to occupied habitat or indirect impacts may occur, which may result in take of Crotch's bumble bee, then the project proponent would obtain the appropriate state authorizations, as required, and implement species-specific mitigation in accordance with Mitigation Measure BIO-6.

Additionally, implementation of **Mitigation Measure BIO 2 (General BMPs and WEAP)** and **Mitigation Measure BIO-3 (Invasive Plant Species Control Measures)**, would further reduce direct and/or indirect impacts to special-status wildlife by requiring environmental training for all personnel, implementing invasive plant species control measures, and using best management practices to manage trash and dust. The implementation of **Mitigation Measure BIO-4 (Revegetation Plan)** would reduce impacts to species habitat in the proposed project site by requiring the restoration of temporarily impacted areas to pre-construction conditions. With implementation of these mitigation measures, impacts to Crotch's bumble bee would be reduced to less than significant with mitigation incorporated.

Least Bell's Vireo

Implementation of the Riverside FMP could result in impacts to least Bell's vireo. Suitable habitat for the species is present within a limited number of Priority and Near-Term project BSAs, primarily in areas that support riparian vegetation. These habitats are present in the following project BSA: W-1: Moonridge Drive Pipeline Upsizing, WW-2: Beazer 1 Lift Station and Forcemain Upgrade, WW-3: Markham Lift Station Upgrade, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-10: Highland Grove Pressure Reducing Valve, W-11: Cole Ave/Cedar Street Upsize, W-13: Highland Grove Pipeline, W-14: Highland Grove II and III 12-inch Pipeline, RW-1: Lake Ranch Pipelines, and WW-5: Meridian Lift Station Upgrade (WWRF).

For projects that remain entirely within existing developed footprints, are located more than 500 feet from suitable riparian habitat, and avoid construction activities within 500 feet of suitable riparian habitat during the least Bell's vireo breeding season (March 15 through September 15), no direct or indirect impacts to least Bell's vireo would occur. These projects include W-1: Moonridge Drive Pipeline Upsizing, WW-2: Beazer 1 Lift Station and Forcemain Upgrade, WW-3: Markham Lift Station Upgrade, W-10: Highland Grove Pressure Reducing Valve, W-11: Cole Ave/Cedar Street Upsize, W-13: Highland Grove Pipeline, RW-1: Lake Ranch Pipelines, and WW-5: Meridian Lift Station Upgrade (WWRF).

Project activities such as pipeline installation, grading, vegetation clearing, and construction of aboveground facilities could result in direct impacts to least Bell's vireo through the removal of riparian habitat used for nesting and foraging. Direct impacts, including injury or mortality, could occur if individuals or active nests are present within the impact area during vegetation removal or other ground-

disturbing activities. Vegetation trimming or removal adjacent to work areas may also reduce nesting cover and foraging opportunities. Table 9 outlines potential temporary impacts to suitable habitat for least Bell's vireo resulting from implementation of the Riverside FMP.

Indirect impacts could occur from construction-related noise, vibration, lighting, human activity, and equipment use near occupied habitat, particularly during the breeding season (generally February 15 through September 15). These disturbances could disrupt normal breeding behavior, including courtship, nest building, incubation, and feeding of nestlings, potentially resulting in nest abandonment or reduced reproductive success. Repeated disturbance near occupied habitat could also reduce habitat suitability by discouraging continued use of otherwise suitable nesting areas. Additional indirect impacts may include degradation of riparian habitat quality from dust, erosion, vegetation trimming adjacent to work areas, and the introduction or spread of invasive plant species over time.

However, for projects that would disturb suitable riparian habitat, including W-4: Hillside 2320 PZ Booster PS and Pipeline and W-14: Highland Grove II and III 12-inch Pipeline, or that would involve construction activities within 500 feet of suitable riparian habitat during the breeding season (February 15 through September 15), implementation of the Riverside FMP could result in the direct and indirect impacts described above. Therefore, impacts to least Bell's vireo would be potentially significant. Implementation of **Mitigation Measure BIO-7 (Least Bell's Vireo)** would apply to projects listed above that cannot be confined entirely to existing developed footprints, would result in disturbance of suitable riparian habitat, or would involve construction activities within 500 feet of suitable riparian habitat during the least Bell's vireo breeding season (February 15 through September 15). If surveys verify absence of the species, no further action would be required. If protocol surveys confirm occupancy but project activities would avoid direct impacts to occupied habitat, a minimum 500-foot avoidance buffer would be established around occupied habitat during the breeding season, or if construction must occur within the avoidance buffer, additional avoidance measures, such as noise attenuation and biological monitoring, would be implemented to minimize disturbance and any potential indirect impacts. If direct impacts to occupied habitat or indirect impacts may occur, which may result in take of least Bell's vireo, then the project proponent would obtain the appropriate federal take authorization under the FESA, which may include participation as a Participating Special Entity under the Western Riverside County MSHCP, where applicable.

Additionally, implementation of **Mitigation Measure BIO 2 (General BMPs and WEAP)** and **Mitigation Measure BIO-3 (Invasive Plant Species Control Measures)**, would further reduce direct and/or indirect impacts to special-status wildlife by requiring environmental training for all personnel, implementing invasive plant species control measures, and using best management practices to manage trash and dust. The implementation of **Mitigation Measure BIO-4 (Revegetation Plan)** would reduce impacts to species habitat in the proposed project site by requiring the restoration of temporarily impacted areas to pre-construction conditions. With implementation of these mitigation measures, impacts to least Bell's vireo would be reduced to less than significant with mitigation incorporated.

Stephens' Kangaroo Rat

Implementation of the Riverside FMP could result in impacts to Stephens' kangaroo rat. Suitable habitat for the species is present within multiple Priority and Near-Term project BSAs, particularly in areas that support open grassland and sparse coastal sage scrub habitats with suitable soils. These habitat types are

present in the following project BSAs: W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, W-3: Cedar Street and Avenue D Pipeline Upsizing, WW-2: Beazer 1 Lift Station and Forcemain Upgrade, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-5: New 3 MG Hidden Valley Tank, W-6: New 1.5 MG El Nido Tank, W-7: New 7 MG Markham Tank, New 12.5 MG Orangecrest Tank, W-10: Highland Grove Pressure Reducing Valve, W-11: Cole Ave/Cedar Street Upsize, W-13: Highland Grove Pipeline, W-14: Highland Grove II and III 12-inch Pipeline, W-15: Juniper Road Pipeline Upsizing, RW-1: New Orangecrest Tank, RW-1: Orangecrest Tank Supply Pipelines, RW-1: Meridian West Pipelines, RW-1: Idaleona Drive Upsizing, RW-1: Cemetery PS Expansion, RW-1: Lake Ranch Pipelines, WW-4: MARB 1269 Lift Station, and WW-5: Meridian Lift Station Upgrade (WWRF).

For projects that remain entirely within existing developed footprints and avoid disturbance of suitable Stephens' kangaroo rat habitat, no direct or indirect impacts to Stephens' kangaroo rat would occur. These projects include: WW-2: Beazer 1 Lift Station and Forcemain Upgrade, W-5: New 3 MG Hidden Valley Tank, W-6: New 1.5 MG El Nido Tank, W-7: New 7 MG Markham Tank, New 12.5 MG Orangecrest Tank, W-10: Highland Grove Pressure Reducing Valve, RW-1: New Orangecrest Tank, RW-1: Orangecrest Tank Supply Pipelines, RW-1: Meridian West Pipelines, RW-1: Cemetery PS Expansion, RW-1: Lake Ranch Pipelines, WW-4: MARB 1269 Lift Station, and WW-5: Meridian Lift Station Upgrade (WWRF).

Project activities such as pipeline installation, grading, vegetation clearing, and construction of aboveground facilities could result in direct impacts to Stephens' kangaroo rat through the removal or degradation of suitable habitat and the collapse or destruction of burrows used for shelter and reproduction. Direct impacts, including injury or mortality, could occur if individuals are present within the impact area during construction activities. Table 9 outlines potential temporary impacts to suitable habitat for Stephen's kangaroo rat resulting from implementation of the Riverside FMP.

Indirect impacts could occur from repeated vehicle access, construction-related noise and disturbance, soil compaction, and habitat fragmentation, which could reduce habitat suitability over time. Additional indirect impacts may include the introduction or spread of invasive plant species that alter vegetation structure and reduce the quality of suitable habitat.

However, for projects that would disturb suitable Stephens' kangaroo rat habitat, including W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, W-3: Cedar Street and Avenue D Pipeline Upsizing, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-11: Cole Ave/Cedar Street Upsize, W-13: Highland Grove Pipeline, W-14: Highland Grove II and III 12-inch Pipeline, W-15: Juniper Road Pipeline Upsizing, RW-1: Idaleona Drive Upsizing, implementation of the Riverside FMP could result in the direct and indirect impacts described above. Therefore, impacts to Stephens' kangaroo rat would be potentially significant. Implementation of **Mitigation Measure BIO-8 (Stephens' Kangaroo Rat)** would apply to the projects listed above that cannot be confined entirely to existing developed footprints or would result in disturbance of suitable Stephens' kangaroo rat habitat. If trapping surveys verify absence of the species, no further action would be required. If trapping surveys confirm the presence of Stephens' kangaroo rat but project activities would avoid direct impacts to occupied habitat, occupied areas would be protected through establishment of avoidance buffers, installation of exclusion fencing, and biological monitoring during construction. If direct impacts to occupied habitat or indirect impacts that could result in take of Stephens' kangaroo rat cannot be avoided, the project proponent shall obtain all applicable state

authorizations prior to construction. Where applicable, take coverage may be obtained through the Stephens' Kangaroo Rat Habitat Conservation Plan or other applicable regulatory mechanism.

Additionally, implementation of Mitigation Measure BIO 2 (General BMPs and WEAP) and Mitigation Measure BIO-3 (Invasive Plant Species Control Measures), would further reduce direct and/or indirect impacts to special-status wildlife by requiring environmental training for all personnel, implementing invasive plant species control measures, and using best management practices to manage trash and dust. The implementation of Mitigation Measure BIO-4 (Revegetation Plan) would reduce impacts to species habitat in the proposed project site by requiring the restoration of temporarily impacted areas to pre-construction conditions. With implementation of these mitigation measures, impacts to Stephens' kangaroo rat would be reduced to less than significant with mitigation incorporated.

Western Burrowing Owl

Implementation of the Riverside FMP could result in impacts to western burrowing owl. Suitable habitat for the species is present within multiple Priority and Near-Term project BSAs, particularly in areas that support open grasslands, agricultural lands, and other habitats with low vegetation structure. These habitat types are present in the following BSAs: W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, W-3: Cedar Street and Avenue D Pipeline Upsizing, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-5: New 3 MG Hidden Valley Tank, W-6: New 1.5 MG El Nido Tank, W-7: New 7 MG Markham Tank, W-12: Mariposa Ave/Lurin Avenue Upsize, W-15: Juniper Road Pipeline Upsizing, RW-1: Lurin Irrigation Tank Improvements, RW-1: Idaleona Drive Upsizing, and RW-1: Cemetery PS Expansion.

For projects that remain entirely within existing developed footprints and avoid disturbance of suitable western burrowing owl habitat, no direct or indirect impacts to western burrowing owl would occur. These projects include W-5: New 3 MG Hidden Valley Tank, W-6: New 1.5 MG El Nido Tank, RW-1: Lurin Irrigation Tank Improvements, and RW-1: Cemetery PS Expansion.

Project activities such as pipeline installation, grading, vegetation clearing, and construction of aboveground facilities could result in direct impacts to western burrowing owl through the removal or degradation of suitable habitat and the collapse or destruction of burrows used for nesting, shelter, and reproduction. Direct impacts, including injury or mortality, could occur if individuals or active burrows are present within the impact area during construction activities. Table 9 outlines potential permanent and temporary impacts to suitable habitat for western burrowing owl resulting from implementation of the Riverside FMP.

Indirect impacts could occur from construction-related noise, vibration, lighting, human activity, and equipment use near occupied habitat, particularly during the breeding season (generally February 1 through August 31). These disturbances could disrupt normal behavior and potentially result in burrow abandonment or reduced reproductive success. Additional indirect impacts may include habitat degradation from dust, increased human disturbance, and the introduction or spread of invasive plant species that reduce habitat suitability over time.

However, for projects that would disturb suitable western burrowing owl habitat, including W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, W-3: Cedar Street and Avenue D Pipeline Upsizing, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-7: New 7 MG Markham Tank, W-12: Mariposa Ave/Lurin Avenue Upsize, W-15: Juniper Road Pipeline Upsizing, and RW-1: Idaleona Drive

Upsizing, implementation of the Riverside FMP could result in the direct and indirect impacts described above. Therefore, impacts to western burrowing owl would be potentially significant. Implementation of **Mitigation Measure BIO-9 (Western Burrowing Owl)** would apply to the projects listed above that cannot be confined entirely to existing developed footprints or would result in disturbance of suitable western burrowing owl habitat. If surveys verify absence of western burrowing owl, no further action would be required. If occupied burrows are identified but project activities would avoid direct impacts, an appropriate avoidance buffer, as determined by the qualified biologist based on site-specific conditions, would be established around occupied burrows. If construction activities must occur within the avoidance buffer, additional avoidance measures, including biological monitoring, construction timing restrictions, and other measures recommended by the qualified biologist, would be implemented to minimize indirect disturbance. If direct impacts to occupied burrows or indirect impacts that could result in take of western burrowing owl cannot be avoided, the project proponent shall obtain all applicable state authorizations prior to construction and implement species-specific mitigation in accordance with Mitigation Measure BIO-9.

Additionally, implementation of **Mitigation Measure BIO 2 (General BMPs and WEAP)** and **Mitigation Measure BIO-3 (Invasive Plant Species Control Measures)**, would further reduce direct and/or indirect impacts to special-status wildlife by requiring environmental training for all personnel, implementing invasive plant species control measures, and using best management practices to manage trash and dust. The implementation of **Mitigation Measure BIO-4 (Revegetation Plan)** would reduce impacts to species habitat in the proposed project site by requiring the restoration of temporarily impacted areas to pre-construction conditions. With implementation of these mitigation measures, impacts to western burrowing owl would be reduced to less than significant with mitigation incorporated.

Western Spadefoot

Implementation of the Riverside FMP could result in impacts to western spadefoot. Suitable habitat for the species is present within multiple Priority and Near-Term project BSAs, particularly in areas that support open upland habitats with suitable soils for burrowing and the potential for seasonal ponding that provides breeding habitat. These habitat types are present in the following BSAs: W-3: Cedar Street and Avenue D Pipeline Upsizing, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-6: New 1.5 MG El Nido Tank, W-7: New 7 MG Markham Tank, New 12.5 MG Orangecrest Tank, W-11: Cole Ave/Cedar Street Upsize, W-15: Juniper Road Pipeline Upsizing, RW-1: New Orangecrest Tank, RW-1: Meridian West Pipelines, RW-1: Idaleona Drive Upsizing, RW-1: Cemetery PS Expansion, WW-4: MARB 1269 Lift Station, and WW-5: Meridian Lift Station Upgrade (WWRF).

For projects that remain entirely within existing developed footprints and avoid disturbance of suitable western spadefoot habitat, including suitable upland habitat and potential breeding habitat, no direct or indirect impacts to western spadefoot would occur. These projects include W-6: New 1.5 MG El Nido Tank, W-7: New 7 MG Markham Tank, New 12.5 MG Orangecrest Tank, RW-1: New Orangecrest Tank, RW-1: Meridian West Pipelines, RW-1: Cemetery PS Expansion, WW-4: MARB 1269 Lift Station, and WW-5: Meridian Lift Station Upgrade (WWRF).

Project activities such as pipeline installation, grading, vegetation clearing, and construction of aboveground facilities could result in direct impacts to western spadefoot through the removal or degradation of suitable upland habitat and the collapse or destruction of burrows used for shelter during

non-breeding periods. Direct impacts, including injury or mortality, could occur if individuals are present within the impact area during ground-disturbing activities, particularly during or following rainfall events when individuals may be moving between upland and breeding habitats. Table 9 outlines potential temporary impacts to suitable habitat for western spadefoot resulting from implementation of the Riverside FMP.

Indirect impacts could occur from alterations to surface hydrology, soil compaction, and increased erosion or sedimentation, which could reduce the suitability of ephemeral pools or depressions used for breeding. Additional indirect impacts may include disruption of movement between upland and breeding habitats, habitat fragmentation, and the introduction or spread of invasive plant species that degrade habitat quality over time.

However, for projects that would disturb suitable western spadefoot habitat, including W-3: Cedar Street and Avenue D Pipeline Upsizing, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-11: Cole Ave/Cedar Street Upsize, W-15: Juniper Road Pipeline Upsizing, and RW-1: Idaleona Drive Upsizing, implementation of the Riverside FMP could result in the direct and indirect impacts described above. Therefore, impacts to western spadefoot would be potentially significant. Implementation of **Mitigation Measure BIO-10 (Western Spadefoot)** would apply to the projects listed above that cannot be confined entirely to existing developed footprints or would result in disturbance of suitable western spadefoot habitat, including suitable upland habitat and potential breeding habitat. If habitat assessments determine that suitable western spadefoot habitat is absent, no further action would be required. If suitable habitat is present, focused surveys shall be conducted in accordance with Mitigation Measure BIO-10. If surveys verify absence of western spadefoot, no further action would be required. If western spadefoot is detected but project activities would avoid direct impacts to individuals and suitable habitat, occupied habitat shall be protected through establishment of avoidance buffers, biological monitoring, and other avoidance measures recommended by the qualified biologist. If direct impacts to western spadefoot or occupied habitat cannot be avoided, the project proponent shall comply with all applicable state and federal regulations in effect at the time of project implementation and implement species-specific mitigation in accordance with Mitigation Measure BIO-10. Should western spadefoot become listed under CESA or FESA prior to project implementation, all applicable consultations, permits, and take authorizations shall be obtained before construction activities that could result in take.

Additionally, implementation of **Mitigation Measure BIO 2 (General BMPs and WEAP)** and **Mitigation Measure BIO-3 (Invasive Plant Species Control Measures)**, would further reduce direct and/or indirect impacts to special-status wildlife by requiring environmental training for all personnel, implementing invasive plant species control measures, and using best management practices to manage trash and dust. The implementation of **Mitigation Measure BIO-4 (Revegetation Plan)** would reduce impacts to species habitat in the proposed project site by requiring the restoration of temporarily impacted areas to pre-construction conditions. With implementation of these mitigation measures, impacts to western spadefoot would be reduced to less than significant with mitigation incorporated.

White-tailed Kite

Implementation of the Riverside FMP could result in impacts to white-tailed kite. suitable habitat for the species is present within multiple Priority and Near-Term project BSAs, including open upland habitats used for foraging and adjacent woodland or riparian areas that provide nesting opportunities. These

habitat types are present within the following BSAs: W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-7: New 7 MG Markham Tank, W-10: Highland Grove Pressure Reducing Valve, W-13: Highland Grove Pipeline, W-14: Highland Grove II and III 12-inch Pipeline, W-15: Juniper Road Pipeline Upsizing, RW-1: Idaleona Drive Upsizing, RW-1: Cemetery PS Expansion, and RW-1: Lake Ranch Pipelines.

For projects that remain entirely within existing developed footprints, avoid disturbance of suitable nesting habitat, and avoid construction activities within 500 feet of suitable nesting habitat during the white-tailed kite breeding season (generally February 1 through August 31), no direct or indirect impacts to white-tailed kite would occur. The projects include W-10: Highland Grove Pressure Reducing Valve, RW-1: Cemetery PS Expansion, and RW-1: Lake Ranch Pipelines.

Project activities such as pipeline installation, grading, vegetation clearing, and construction of aboveground facilities could result in direct impacts to white-tailed kite through the removal of suitable foraging habitat and potential nesting sites. Direct impacts, including injury or mortality, could occur if individuals or active nests are present within the impact area during ground-disturbing activities or vegetation removal. Table 9 outlines potential permanent and temporary impacts to suitable habitat for white-tailed kite resulting from implementation of the Riverside FMP.

Indirect impacts could occur from construction-related noise, vibration, human activity, and equipment use near occupied habitat, particularly during the breeding season (generally February 1 through August 31). These disturbances could disrupt normal breeding behavior and potentially result in nest abandonment or reduced reproductive success. Additional indirect impacts may include temporary reductions in prey availability, increased human disturbance, and degradation of habitat quality from dust or the introduction or spread of invasive plant species over time.

However, for projects that would disturb suitable nesting habitat, including W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-7: New 7 MG Markham Tank, W-14: Highland Grove II and III 12-inch Pipeline, W-15: Juniper Road Pipeline Upsizing, and RW-1: Idaleona Drive Upsizing, or that would involve construction activities within 500 feet of suitable nesting habitat during the breeding season, implementation of the Riverside FMP could result in the direct and indirect impacts described above. Because white-tailed kite is designated as a California Fully Protected species, disturbance that results in take of individuals is prohibited under the California Fish and Game Code. Therefore, impacts to the species would be potentially significant. Implementation of **Mitigation Measure BIO-11 (Nesting Birds)** would require preconstruction surveys to determine if white-tailed kite is nesting within or near the project site. If surveys verify absence of white-tailed kite, no further action would be required. If active white-tailed kite nests are identified, species-specific avoidance buffers and construction restrictions would be implemented, and project activities would be modified or rescheduled, as necessary, to avoid take of this California Fully Protected Species.

Other Migratory Birds and Raptors

In addition to the special-status bird species discussed previously, all of the priority and near-term project BSAs support a diversity of other migratory birds, including special-status non-listed bird species, protected under the federal Migratory Bird Treaty Act of 1918 and Sections 3503.5, 3505, and 3511 of the California Fish and Game Code. Special-status non-listed birds with potential to nest on site include

Bell's sparrow, California horned lark, Cooper's hawk, ferruginous hawk, loggerhead shrike, merlin northern yellow warbler, southern California rufous-crowned sparrow, white-faced ibis, and yellow-breasted chat. Nesting migratory birds and raptors have the potential to nest on bridges, structures, power poles, and vegetation (i.e., trees, shrubs, and on the ground) throughout the proposed project BSAs. Potential impacts to nesting birds may occur if project activities are conducted during the active nesting season (February 15 through August 31 for songbirds, and as early as January 15 for raptors).

Construction activities associated with the proposed projects could result in direct impacts to migratory birds and raptors through injury or mortality of adults, eggs, or young if active nests are present within the impact area during vegetation removal or other ground-disturbing activities. Construction activities could also result in nest abandonment or reproductive failure. Indirect impacts could occur from increased noise, vibration, lighting, human presence, and equipment use near occupied habitat during the nesting season. In addition, construction activities could temporarily reduce habitat quality through vegetation disturbance, dust, or the introduction or spread of invasive plant species within or adjacent to the project site. Therefore, impacts to nesting migratory birds and raptors from construction of the proposed projects would be potentially significant.

Implementation of **Mitigation Measure BIO-11 (Nesting Birds)** would require preconstruction nesting bird surveys at all of the Priority and Near-Term projects to determine if migratory birds or raptors are nesting within or near the project site. If active nests are found, they would be avoided by establishing buffers and restricting construction activities near nesting areas until nesting is complete. Additionally, implementation of **Mitigation Measure BIO 2 (General BMPs and WEAP)**, would further reduce direct and/or indirect impacts to migratory birds and raptors by requiring environmental training for all personnel and using best management practices to manage trash and dust. With implementation of these mitigation measures, impacts to other migratory birds and raptors would be reduced to less than significant with mitigation incorporated.

Non-Listed Special-Status Ground-Dwelling Wildlife

Implementation of the Riverside FMP could result in impacts to special-status ground-dwelling wildlife, including reptiles such as California glossy snake, coast horned lizard, coast patch-nosed snake, red-diamond rattlesnake, San Bernardino ringneck snake, southern California legless lizard, and orange-throated whiptail, as well as small mammals including Los Angeles pocket mouse, northwestern San Diego pocket mouse, and San Diego desert woodrat), and American badger.

These species are associated with a broad range of upland and disturbance-associated habitats that provide suitable soils, cover, and refuge opportunities. Within the BSAs, these habitat types include coastal sage scrub communities (e.g., California buckwheat scrub, California sagebrush scrub, California sagebrush–California buckwheat scrub, California sagebrush–brittle bush scrub, brittle bush scrub, and pinebush scrub), chaparral communities (e.g., chamise chaparral and chamise–sage chaparral), grasslands (e.g., wild oats and annual brome grasslands), herbaceous and ruderal habitats (e.g., upland mustard fields, fiddleneck fields, needle goldfields fields, annual yellow sweetclover–stinknet fields, and stinknet fields), as well as disturbed, grazed, and agricultural lands. In some cases, these species may also occur in edge habitats associated with open woodlands (e.g., blue elderberry patches, juniper woodlands, and eucalyptus groves) where suitable ground cover and soils are present.

Project activities such as pipeline installation, grading, vegetation clearing, and construction of aboveground facilities could result in direct impacts to non-listed special-status ground-dwelling wildlife through the removal or degradation of suitable habitat, including loss of vegetative cover and soil conditions necessary for shelter, foraging, and reproduction. Ground-disturbing activities could also result in the collapse or destruction of burrows, dens, nests, or other refugia (e.g., small mammal burrows, loose soils, and cover objects such as rocks and woody debris) used by these species. Direct impacts, including injury or mortality, could occur if individuals are present within the impact area during construction activities.

Indirect impacts could occur from construction-related noise, vibration, human activity, repeated vehicle access, and habitat fragmentation, which could disrupt normal movement, sheltering, and foraging behavior. Additional indirect impacts may include dust, soil compaction, and the introduction or spread of invasive plant species that alter vegetation structure and reduce habitat suitability over time. For American badger, which requires larger home ranges and utilizes extensive burrow systems, indirect impacts could also include disruption of foraging behavior and reduced connectivity between suitable habitat areas.

Because the proposed Riverside FMP includes projects located in areas that support suitable habitat for special-status ground-dwelling wildlife, and because implementation could result in habitat loss, disturbance, and potential direct impacts to individuals and burrows or dens, impacts to these species would be potentially significant. Implementation of **Mitigation Measure BIO-12 (Non-Listed Special-Status Ground-Dwelling Wildlife)** would require preconstruction surveys at all of the Priority and Near-Term projects to determine if ground-dwelling species are present within the project site. If found, individuals would be avoided where feasible by allowing them to move out of the area on their own or by implementing exclusion fencing or other measures to prevent them from entering active work areas. With implementation of these mitigation measures, impacts to non-listed special-status ground-dwelling wildlife would be reduced to less than significant with mitigation incorporated.

Non-Listed Special-Status Bats

Implementation of the Riverside FMP could result in impacts to special-status bat species, including western yellow bat and Yuma myotis. Foraging habitat includes a wide range of open and semi-open habitat types present within the BSAs, including coastal sage scrub communities (e.g., California buckwheat scrub, California sagebrush scrub, California sagebrush–California buckwheat scrub, California sagebrush–brittle bush scrub, brittle bush scrub, and pinebush scrub), chaparral communities (e.g., chamise chaparral and chamise–sage chaparral), grasslands (e.g., wild oats and annual brome grasslands), and herbaceous or ruderal habitats (e.g., upland mustard fields, fiddleneck fields, needle goldfields fields, annual yellow sweetclover–stinknet fields, and stinknet fields), as well as disturbed, grazed, and agricultural lands. Aquatic and riparian-associated features, including open water, drainage features, Goodding's willow riparian woodland, Goodding's willow–arroyo willow riparian woodland, Goodding's willow–red willow riparian woodland, and willow riparian woodland, provide important foraging habitat, particularly for Yuma myotis, which forages over water where insect prey is abundant. These habitat types are present in the following BSAs: W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, WW-2: Beazer 1 Lift Station and Forcemain Upgrade, WW-3: Markham Lift Station Upgrade, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-11: Cole Ave/Cedar Street Upsize, W-13: Highland Grove Pipeline, W-14: Highland Grove II and III 12-inch Pipeline, W-15: Juniper Road

Pipeline Upsizing, RW-1: Idaleona Drive Upsizing, RW-1: El Sobrante PS Expansion (150 HP), and WW-5: Meridian Lift Station Upgrade (WWRF).

Project activities such as vegetation clearing, grading, and construction of aboveground facilities could result in the removal or disturbance of roosting habitat, including trees and anthropogenic structures that may support day or night roosts. Direct impacts, including injury or mortality, could occur if roosting individuals are present during tree removal or structure modification. In addition, construction-related noise, vibration, and human activity could disturb roosting bats and result in temporary displacement. Table 9 outlines potential temporary impacts to suitable habitat for non-listed bats resulting from implementation of the Riverside FMP.

Indirect impacts may include degradation of foraging habitat through vegetation removal, reduction in insect prey availability, and disturbance of water sources used for foraging, particularly for species such as Yuma myotis that forage over open water.

Because the proposed Riverside FMP includes multiple projects located in areas that support suitable roosting and foraging habitat for special-status bats, and because implementation could result in roost disturbance, habitat loss, and potential direct impacts to individuals, impacts to these species would be potentially significant. Implementation of **Mitigation Measure BIO-13 (Special-Status Bats)** would require preconstruction surveys at W-2: Blackburn Road Pipeline Upsizing & Lockwood Tank, WW-2: Beazer 1 Lift Station and Forcemain Upgrade, WW-3: Markham Lift Station Upgrade, W-4: Hillside 2320 PZ Booster PS and Pipeline, W-11: Cole Ave/Cedar Street Upsize, W-13: Highland Grove Pipeline, W-14: Highland Grove II and III 12-inch Pipeline, W-15: Juniper Road Pipeline Upsizing, RW-1: Idaleona Drive Upsizing, RW-1: El Sobrante PS Expansion (150 HP), and WW-5: Meridian Lift Station Upgrade (WWRF) to identify potential roosting habitat within or near the project site. If active roosts are identified, they would be avoided where feasible through establishment of buffers or seasonal restrictions on construction activities, particularly during the maternity roost season (generally April 1 through August 31). Additionally, implementation of **Mitigation Measure BIO 2 (General BMPs and WEAP)** would further reduce direct and/or indirect impacts to bats by requiring environmental training for all personnel and using best management practices to manage trash and dust. With implementation of these mitigation measures, impacts to special-status bats would be reduced to less than significant with mitigation incorporated.

Mitigation Measures

BIO-1: Special-Status Plant Surveys. If suitable habitat for special-status plant species is identified to be present within work areas and/or a 500-foot buffer, a special-status plant survey of the work area and 500-foot buffer, focusing on the special-status plant species with a moderate to high potential to occur within the project site BSAs, shall be conducted by a qualified biologist(s) prior to construction. The surveys shall take place during the appropriate blooming period for each species in accordance with CDFW's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities* (2018).

Target species include San Diego ambrosia, Munz’s onion, chaparral sand-verbena, Yucaipa onion, paniculate tarplant, rigid fringepod, intermediate mariposa lily, long-spined spineflower, Parry’s spineflower, and many-stemmed dudleya. Appropriate survey timing generally includes:

- March–May: rigid fringepod
- April–June: chaparral sand-verbena, Parry's spineflower, Yucaipa onion
- April–July: long-spined spineflower
- May–July: intermediate mariposa lily, many-stemmed dudleya
- May–June: Munz's onion
- May–November: paniculate tarplant
- May–October: San Diego ambrosia

If any special-status plant species are observed during the focused surveys, the qualified biologist(s) shall map all occurrences and establish avoidance buffers. Buffers of shall be a minimum of 50 feet unless a larger buffer is determined by a qualified botanist based on species sensitivity, topography, hydrology, construction methods, or other site-specific conditions. Buffer areas shall be clearly delineated in the field prior to construction and shall remain in place for the duration of construction. No vegetation clearing, grading, staging, equipment operation, or other ground disturbing activities shall occur within the buffer areas.

Avoidance of special-status plant populations shall be the preferred mitigation approach. If avoidance is not feasible for non-listed special-status plant species, the applicant shall prepare and implement a Special-Status Plant Mitigation Plan (SSPMP). The SSPMP shall be prepared by a qualified botanist and shall identify species-specific avoidance, minimization, and compensatory mitigation measures commensurate with the conservation status of the affected species and the extent of impacts. The SSPMP may include seed collection, salvage, transplantation, restoration, habitat enhancement, monitoring, adaptive management, or other measures, as appropriate to reduce impacts to a less-than-significant level. If avoidance is not feasible for Munz's onion and/or San Diego ambrosia, the applicant shall obtain all applicable state and federal authorizations prior to construction, as required. Where applicable, a SSPMP shall also be prepared to satisfy permit requirements and shall include species-specific mitigation measures sufficient to offset project impacts. The SSPMP shall demonstrate that impacts to special-status species will be reduced to a less-than-significant level and shall include, at a minimum:

- A description and quantification of direct and indirect impacts to special-status plant species and occupied habitat;
- Documentation demonstrating why complete avoidance is infeasible;
- Mitigation measures sufficient to achieve no net loss of occupied habitat, population viability, or ecological function, which may include preservation, restoration, enhancement, establishment, seed collection, transplantation, and/or other measures, as appropriate to the affected species;
- Mitigation at a minimum ratio of 1:1 for permanent impacts to special-status plant populations (e.g., based on area, number of individuals, or as determined appropriate by a qualified restoration ecologist based on species-specific ecology);
- Permanent protection of mitigation lands through conservation easements, deed restrictions, dedications to a resource agency, or another long-term protection mechanism;
- Success criteria, including target survival, cover, density, recruitment, and habitat function metrics appropriate for the affected species;

- A monitoring and reporting program to document progress towards meeting clearly defined biological performance standards;
- A minimum monitoring period of five years to demonstrate achievement of performance standards; and
- Adaptive management and contingency measures, which may include supplemental planting, reseeding, weed control, irrigation, erosion control, habitat enhancement, or additional mitigation acreage if performance standards are not achieved.

If performance standards are not met at any monitoring milestone, the applicant shall implement the contingency measures identified in the approved SSPMP and continue monitoring until the performance standards have been achieved.

If construction activities have the potential to result in take of a species protected under the Federal Endangered Species Act and/or California Endangered Species Act, all required consultations, permits, consistency determinations, biological opinions, incidental take authorizations, and associated mitigation measures shall be obtained and implemented prior to commencement of activities that could result in take.

BIO-2: General BMPs and WEAP. The following measures shall be incorporated into construction contracts and implemented during all ground-disturbing activities to avoid and minimize impacts to sensitive biological resources, including special-status species and sensitive habitats. The objective of this measure is to avoid direct mortality, injury, harassment, and habitat degradation and to reduce impacts to biological resources to the maximum extent feasible.

- Prior to the start of construction, a qualified biologist shall prepare and conduct a Worker Environmental Awareness Program (WEAP) for all construction personnel. The WEAP shall describe sensitive biological resources known or with the potential to occur in the project site, applicable avoidance and minimization measures, reporting requirements, and procedures to be followed if biological resources are encountered. All personnel shall complete the WEAP before performing work on the project, and records of attendance shall be maintained by WMWD.
- To minimize the risk of vehicle collisions with wildlife and minimize dust, construction vehicles shall limit speed to 10 miles per hour within the unpaved limits of construction.
- All open trenches or excavations shall be fenced and/or sloped to prevent entrapment of wildlife species or have wildlife ramps available to allow for escape.
- All food-related trash items such as wrappers, cans, bottles, and food scraps generated during construction activities shall be disposed of in closed containers only and removed daily from the work area.
- No deliberate feeding of wildlife shall occur.
- No pets shall be allowed within work areas.
- No firearms shall be allowed within work areas.
- Storage and staging areas shall be located outside of sensitive habitat and sensitive biological resources areas. All vehicle and equipment maintenance shall be performed in designated staging areas.
- Access to the construction area shall be limited to established work hours.

- Construction activities shall not be conducted at night (i.e., between dusk and dawn) within 500 feet of sensitive biological resources. Any nighttime lighting needed (e.g., security lighting) shall be shielded and directed downwards to minimize light spillover and/or glare.
- All construction equipment used within work areas shall be properly maintained to avoid leaks of oil, fuel, or residues.
- Construction contractors shall equip construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards to reduce construction equipment noise to the maximum extent possible. The construction contractor will place all stationary construction equipment so that noise emitted is directed away from sensitive biological resources, and stage equipment in areas that will create the greatest distance between construction-related noise sources and sensitive biological resources.
- Provisions shall be in place to remediate accidental spills from construction equipment or other construction activities. All vehicle maintenance/fueling/staging shall occur a minimum of 100 feet away from any riparian habitat or water body. Suitable containment procedures shall be implemented to prevent spills. A minimum of one spill kit shall be available at each work location near riparian habitat or water bodies.
- No equipment shall be permitted to enter wetted portions of any affected drainage channel unless authorized by a permit from USACE, RWQCB, and/or CDFW.
- If the construction has the potential to degrade water quality, water sampling shall be implemented to identify the pre-construction baseline, and to monitor during construction for comparison to the baseline.
- Any worker who inadvertently injures or kills a special-status species or finds one dead, injured, or entrapped shall immediately report the incident to the construction foreman or biological monitor. The construction foreman or biological monitor shall immediately notify Western, who then shall immediately inform CDFW.
- The qualified biologist or biological monitor shall have authority to stop or redirect construction activities if necessary to prevent unauthorized impacts to special-status species or sensitive habitats and shall verify implementation of all applicable biological resource protection measures throughout construction.

MM BIO-3: Invasive Plant Species Control Measures. WMWD shall require construction contractors to implement measures to prevent the introduction, transfer, and spread of invasive plant species during construction activities. Prevention best practices and guidelines for controlling the spread of invasive plants can be found on the California Invasive Plant Council's website (https://www.cal-ipc.org/). The objective of this measure is to avoid the transport of invasive plant propagules between work areas and prevent the expansion of invasive plant infestations within or adjacent to sensitive habitats.

WMWD shall require construction contractors to ensure that equipment is free of invasive plant seeds, propagules, and any material which may contain them (e.g., soil). For purposes of this mitigation measure, invasive plant species shall include all species with a Cal-IPC rating of moderate or high. Prior to entering the work areas, equipment shall be inspected to confirm it is free of mud, dirt, and debris. For larger work areas that would be accessed via non-paved roads, tire track stations shall be installed at the work area entrances and exits, where appropriate. Staging areas and access routes shall avoid weed infestations, and infestations within the work area(s) shall be flagged and avoided to the maximum extent feasible. Only certified weed-free materials (e.g., fiber rolls, straw, and fill) shall be used during construction of future facilities. If

invasive plant infestations are introduced or expanded as a result of project construction activities, WMWD shall implement appropriate control measures, which may include manual removal, targeted treatment, revegetation, monitoring, or other measures recommended by a qualified biologist. Following completion of construction, WMWD shall prepare a compliance report documenting implementation of the invasive plant species control measures and any corrective actions undertaken. The memorandum shall be maintained in the project file and provided to the County upon request.

Mitigation Measure BIO-4: Revegetation Plan. Prior to commencement of ground-disturbing activities, for areas subject to temporary impacts on natural communities, a qualified biologist shall prepare a Revegetation Plan. The plan shall identify measures necessary to restore temporarily disturbed areas to pre-project conditions or equivalent biological function and habitat value. The plan shall be implemented following completion of construction and shall include, at a minimum, the following:

- A description and map of all temporary disturbance areas requiring restoration.
- Baseline documentation of existing vegetation communities, habitat conditions, and dominant plant species within areas to be restored.
- A native planting palette appropriate for each vegetation community being restored and suitable for local conditions, including information regarding seed sources, plant materials, and installation methods.
- Performance standards and success criteria, such as vegetation cover, species richness, native species establishment, survival rates, and invasive species control targets, sufficient to demonstrate successful restoration of habitat functions and values.
- A monitoring program conducted by a qualified biologist for a minimum of three years, or longer if necessary, to demonstrate achievement of performance standards.
- Adaptive management and contingency measures to be implemented if performance standards are not achieved, including supplemental planting, reseeding, weed control, erosion repair, irrigation adjustments, or extension of the monitoring period.
- Annual monitoring reports documenting restoration progress, compliance with performance standards, corrective actions taken, and recommendations for additional measures if necessary.

Temporary impact areas shall be considered successfully restored only upon written determination by a qualified biologist that the approved performance standards have been achieved.

BIO-5: Coastal California Gnatcatcher. Prior to commencement of ground-disturbing habitat, a qualified biologist shall determine whether suitable coastal California gnatcatcher habitat (e.g., coastal sage scrub and/or chaparral habitat) is present within the project site, or within 500 feet of the project site. If suitable habitat is present, California gnatcatcher protocol surveys shall be conducted in accordance with the most current USFWS guidance, including *Coastal California Gnatcatcher (Polioptila californica californica) Presence/Absence Survey Protocol* (USFWS 1997), or any successor guidance. Protocol surveys shall not be required if construction activities are confined to existing developed or previously disturbed areas that do not support suitable habitat and construction occurs outside the breeding season (March 1 through August 15).

If surveys verify the absence of coastal California gnatcatcher, no further species-specific avoidance or mitigation measures shall be required.

If California gnatcatcher are detected within 500 feet of the project site, direct impacts to occupied habitat shall be avoided to the maximum extent practicable. During the breeding season, a qualified biologist shall establish avoidance buffers sufficient to avoid direct or indirect impacts to the species and occupied habitat. Buffers shall be based on site-specific conditions, including habitat quality, topography, construction methods, noise levels, and location of occupied habitat. Buffer areas shall be clearly delineated in the field prior to construction, and no construction activities, staging, parking, or other disturbances shall occur within the buffer areas.

Avoidance of occupied habitat shall be the preferred mitigation approach. If impacts cannot be feasibly avoided and construction could result in potential direct or indirect impacts to California gnatcatcher and/or occupied habitats, the applicant shall consult with USFWS prior to project approval and commencement of construction activities and shall obtain all required authorizations under FESA. Such authorization may include, but are not limited to, a Biological Opinion issued pursuant to FESA Section 7 if there is a federal nexus (e.g., federal permits are being obtained), a Habitat Conservation Plan issued pursuant to FESA Section 10, or other applicable authorization. Alternatively, WMWD may seek coverage as a Participating Special Entity (PSE) of the Western Riverside County MSHCP, subject to all applicable requirements. If MSHCP take coverage is obtained, it would provide for regional conservation of the species, and no further mitigation is required. However, if project-specific take permits are obtained, mitigation for permanent impacts to occupied habitat would be proposed at a minimum mitigation-to-impact ratio of 2:1, or as approved by USFWS, and may include the purchase of mitigation credits at an agency-approved off-site mitigation bank or in-lieu fee program. If mitigation is to occur on-site and/or off-site (i.e., not at a mitigation bank or in-lieu fee program), then prior to any activity that could result in the loss or degradation of occupied habitat, WMWD shall prepare and implement a USFWS-approved Coastal California Gnatcatcher Habitat Mitigation Plan. The Mitigation Plan shall identify measures necessary to necessary to minimize, avoid, and compensate for impacts and shall include, at a minimum:

- A description and quantification of direct and indirect impacts to California coastal Gnatcatchers and occupied habitat;
- Documentation demonstrating why complete avoidance is infeasible;
- Measures to avoid and minimize impacts during construction;
- Mitigation at a minimum of 2:1 for permanent impacts to occupied habitat; which may include habitat preservation, restoration, enhancement, and/or establishment measures sufficient to achieve no net loss of occupied habitat functions and values; Permanent protection of mitigation lands through conservation easements, deed restrictions, or other long-term protection mechanisms;
- A monitoring and reporting program with clearly defined biological performance standards and success criteria;
- Annual monitoring reports documenting compliance with mitigation requirements and progress toward achievement of performance standards; and
- Adaptive management and contingency measures to be implemented if performance standards are not achieved.

BIO-6: Crotch's Bumble Bee. Prior to commencement of ground-disturbing activities, a qualified biologist shall determine whether suitable Crotch's bumble bee habitat is present within the project site or within 500 feet of the project site. If suitable habitat is present and may be affected by project activities, protocol surveys shall be conducted in accordance with the most current CDFW guidance, including the *Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species* (CDFW 2023), or any successor guidance. Surveys shall be conducted during the appropriate survey period and under suitable environmental conditions to maximize detectability. At a minimum three surveys shall be conducted during the species' peak activity period (generally April through August), unless otherwise approved by CDFW.

If surveys verify absence of Crotch's bumble bee within the project site and adjacent habitat that could be affected by construction activities, no further species-specific mitigation shall be required.

If Crotch's bumble bees, occupied habitat, nesting habitat, or other important habitat features are identified within or adjacent to the project site, a qualified biologist shall establish avoidance buffers sufficient to avoid direct and indirect impacts to species and its habitat. Buffer distances shall be based on site-specific conditions, including the location nests, foraging habitat, construction methods, topography, and nature of the anticipated disturbance. Unless otherwise approved by CDFW, a minimum 15-meter (approximately 50-foot) no disturbance buffer shall be established around occupied habitat or active nest locations. Buffer areas shall be clearly marked in the field prior to construction, and no ground disturbance, staging, parking, equipment operation, or other construction activities shall occur within the designated buffer areas.

Avoidance of occupied habitat shall be the preferred mitigation approach. If impacts cannot be feasibly avoided and construction could result in potential direct or indirect impacts to Crotch's bumble bees and/or occupied habitats, the applicant shall consult with CDFW prior to commencement of construction and obtain any required authorizations pursuant to the California Endangered Species Act, which may include obtaining a "take" permit (e.g., CESA Section 2081 Incidental Take Permit from CDFW). Mitigation for permanent impacts to occupied habitat would be proposed at a minimum mitigation-to-impact ratio of 2:1, or as approved by CDFW, and may include the purchase of mitigation credits at an agency-approved off-site mitigation bank or in-lieu fee program. If mitigation is to occur on-site and/or off-site (i.e., not at a mitigation bank or in-lieu fee program), then prior to any activity that could result in direct or indirect impacts to Crotch's bumble bee or occupied habitat, WMWD shall prepare and implement a CDFW-approved Crotch's Bumble Bee Mitigation Plan that includes, at a minimum:

- A description and quantification of direct and indirect impacts to Crotch's bumble bee and occupied habitat;
- Documentation demonstrating why complete avoidance is infeasible;
- Measures to avoid and minimize impacts during construction;
- Mitigation at a minimum of 2:1 for permanent impacts to occupied habitat, which may include habitat preservation, restoration, enhancement, and/or establishment measures sufficient to achieve no net loss of occupied habitat functions and values;
- Permanent protection of mitigation lands through conservation easements, deed restrictions, or other approved long-term protection mechanisms;
- A monitoring and reporting program with clearly defined biological performance standards and success criteria;

- Annual monitoring reports documenting compliance with mitigation requirements and progress toward achievement of performance standards; and
- Adaptive management and contingency measures to be implemented if performance standards are not achieved.

BIO-7: Least Bell's Vireo. Prior to commencement of ground-disturbing activities, a qualified biologist shall determine whether suitable riparian habitat for the least Bell's vireo is present within the project site or within 500 feet of the project site. If suitable habitat is present, protocol-level surveys shall be conducted during the appropriate survey window (generally April 10 through July 31) in accordance with the most current USFWS guidance, including *Least Bell's Vireo Survey Guidelines* (USFWS 2001), or any successor guidance.

If protocol surveys verify absence of Least Bell's Vireo within the project site and adjacent habitat that could be affected by construction activities, no further species-specific mitigation is required.

If Least Bell's Vireo, occupied habitat, or nesting territories are identified within or adjacent to the project site, a qualified biologist shall establish avoidance buffers sufficient to avoid direct and indirect impacts to the species and occupied habitat. Buffer distances shall be based on site-specific conditions, including habitat quality, topography, construction methods, anticipated noise levels, and location of occupied habitat. Buffer areas shall be clearly marked in the field prior to construction, and no grading, vegetation removal, equipment operation, staging, parking, or other construction activities shall occur within the buffer areas.

Avoidance of occupied habitat and active nesting territories shall be the preferred mitigation approach. If impacts cannot be feasibly avoided and construction could result in potential direct or indirect impacts to least Bell's vireo and/or occupied habitats, WMWD shall consult with USFWS and CDFW prior to commencement of construction and obtain all required authorizations under FESA and CESA. Such authorizations may include, but are not limited to, a Biological Opinion issued pursuant to FESA Section 7, an Habitat Conservation Plan issued pursuant to FESA Section 10, a CESA Section 2081 Incidental Take Permit, or CESA Section 2020.1 Consistency Determination. Alternatively, WMWD may seek coverage as a Participating Special Entity (PSE) under the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), subject to all applicable MSHCP requirements including the preparation of a Determination of Biologically Equivalent or Superior Preservation, if required. If MSHCP take coverage is obtained, it would provide for regional conservation of the species, and no further mitigation is required. However, if project-specific take permits are obtained, mitigation for permanent impacts to occupied habitat would be proposed at a minimum mitigation-to-impact ratio of 2:1, or as approved by USFWS and CDFW, and may include the purchase of mitigation credits at an agency-approved off-site mitigation bank or in-lieu fee program. If mitigation is to occur on-site and/or off-site (i.e., not at a mitigation bank or in-lieu fee program), then prior to any activity that could result in direct or indirect impacts to Least Bell's Vireo or occupied habitat, WMWD shall prepare and implement a USFWS- and/or CDFW-approved Least Bell's Vireo Mitigation Plan that includes, at a minimum:

- A description and quantification of direct and indirect impacts to Least Bell's Vireo and occupied habitat;
- Documentation demonstrating why complete avoidance is infeasible;
- Measures to avoid and minimize impacts during construction;

- Mitigation at a minimum of 2:1 for permanent impacts to occupied habitat, which may include habitat preservation, restoration, enhancement, and/or establishment measures sufficient to achieve no net loss of occupied habitat functions and values;
- Permanent protection of mitigation lands through conservation easements, deed restrictions, or other long-term protection mechanisms;
- A monitoring and reporting program with clearly defined biological performance standards and success criteria;
- Annual monitoring reports documenting compliance with mitigation requirements and progress toward achievement of performance standards.; and Adaptive management and contingency measures to be implemented if performance standards are not achieved.

BIO-8: Stephens' Kangaroo Rat. Prior to commencement of ground-disturbing activities, a qualified biologist shall determine whether suitable Stephens' kangaroo rat habitat is present within the project impact area or within 500 feet of the project site. If suitable habitat is present and may be affected by project activities, focused surveys and protocol trapping shall be conducted by a qualified biologist. Surveys shall be conducted in accordance with the most current USFWS and CDFW guidelines. Trapping shall be conducted during appropriate seasonal and weather conditions.

If surveys verify the absence of Stephens' kangaroo rat within the project site and adjacent habitat that could be affected by construction activities, no further species-specific mitigation shall be required.

If Stephens' kangaroo rat, occupied habitat, active burrows, or other evidence of occupancy are detected within or adjacent to the project site, a qualified biologist shall establish avoidance buffer sufficient to avoid direct and indirect impacts to the species and occupied habitat. Buffer distances shall be based on site-specific conditions, including habitat quality, topography, construction methods, and location of occupied habitat. Buffer areas shall be clearly marked in the field prior to construction, and no grading, vegetation removal, equipment operation, staging, parking, or other construction activities shall occur within the designated buffer areas.

Avoidance of occupied habitat shall be the preferred mitigation approach. If impacts cannot be feasibly avoided and construction could result in potential direct or indirect impacts to Stephens' kangaroo rat and/or occupied habitats, WMWD shall consult with USFWS and CDFW prior to commencement of construction and obtain all required authorizations under FESA and CESA. Such authorizations may include, but are not limited to, a Biological Opinion issued pursuant to FESA Section 7, a Habitat Conservation Plan issued pursuant to FESA Section 10, CESA Section 2081 Incidental Take Permit, or CESA Section 2020.1 Consistency Determination. Alternatively, WMWD may seek coverage under the Stephens' Kangaroo Rat Habitat Conservation Plan (SKR HCP), or as a Participating Special Entity (PSE) of the Western Riverside County Multiple Species Habitat Conservation Plan, subject to all applicable requirements. If SKR HCP or MSHCP take coverage is obtained, it would provide for regional conservation of the species, and no further mitigation is required. However, if project-specific take permits are obtained, mitigation for permanent impacts to occupied habitat would be proposed at a minimum mitigation-to-impact ratio of 2:1, or as approved by USFWS and CDFW, and may include the purchase of mitigation credits at an agency-approved off-site mitigation bank or in-lieu fee program. If mitigation is to occur on-site and/or off-site (i.e., not at a mitigation bank or in-lieu fee program), then prior to any activity that could result in direct or indirect impacts to Stephens'

kangaroo rat or occupied habitat, WMWD shall prepare and implement a USFWS- and/or CDFW-approved Stephens' Kangaroo Rat Mitigation Plan that includes, at a minimum:

- A description and quantification of direct and indirect impacts to Stephens' kangaroo rat and occupied habitat;
- Documentation demonstrating why complete avoidance is infeasible;
- Measures to avoid and minimize impacts during construction;
- Mitigation at a minimum of 2:1 for permanent impacts to occupied habitat, which may include habitat preservation, restoration, enhancement, and/or establishment measures sufficient to achieve no net loss of occupied habitat functions and values;
- Permanent protection of mitigation lands through conservation easements, deed restrictions, or other long-term protection mechanisms;
- A monitoring and reporting program with clearly defined biological performance standards and success criteria;
- Annual monitoring reports documenting compliance with mitigation requirements and progress toward achievement of performance standards; and
- Adaptive management and contingency measures to be implemented if performance standards are not achieved.

BIO-9: Western Burrowing Owl. Prior to commencement of ground-disturbing activities, a qualified biologist shall determine whether suitable burrowing owl habitat is present within the project site or within 500 feet of the project site. If suitable habitat is present and may be affected by project activities, protocol-level surveys shall be conducted in accordance with the most current California Department of Fish and Wildlife guidance, *Staff Report on Burrowing Owl Mitigation* (CDFW 2012), or successor guidance. Surveys shall be conducted during the appropriate survey periods and shall include a pre-construction survey no more than 14 days prior to initiation of ground-disturbing activities, or within the timeframe specified by current CDFW guidance.

If surveys verify absence of burrowing owls and occupied burrows within the project site and adjacent habitat that could be affected by construction activities, no further species-specific mitigation is required.

If burrowing owls or occupied burrows are identified within or adjacent to the project site, a qualified biologist shall establish avoidance buffers sufficient to avoid direct and indirect impacts to the species and occupied habitat. Buffer distances shall be based on site-specific conditions, including habitat quality, topography, construction methods, and location of occupied habitat. Unless otherwise approved by CDFW, occupied burrows shall be protected by the buffer distances recommended in the current CDFW Burrowing Owl Staff Report. Buffer areas shall be clearly marked in the field prior to construction, and no grading, vegetation removal, equipment operation, staging, parking, or other construction activities shall occur within the designated buffer areas.

Avoidance of occupied burrows and occupied habitat shall be the preferred mitigation approach. If impacts cannot be feasibly avoided and construction could result in potential direct or indirect impacts to burrowing owl and/or occupied habitats, WMWD shall consult with CDFW prior to commencement of construction and obtain any required authorizations. Such authorizations may

include, but are not limited to, a CESA Section 2081 Incidental Take Permit. Alternatively, WMWD may seek coverage as a Participating Special Entity (PSE) under the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), subject to all applicable requirements, including preparation of a Determination of Biologically Equivalent or Superior Preservation, if required. If MSHCP take coverage is obtained, it would provide for regional conservation of the species, and no further mitigation is required. However, if project-specific take permits are obtained, mitigation for permanent impacts to occupied habitat would be proposed at a minimum mitigation-to-impact ratio of 2:1, or as approved by CDFW, and may include the purchase of mitigation credits at an agency-approved off-site mitigation bank or in-lieu fee program. If mitigation is to occur on-site and/or off-site (i.e., not at a mitigation bank or in-lieu fee program), then prior to any activity that could result in direct or indirect impacts to burrowing owls, occupied burrows, or occupied habitat, WMWD shall prepare and implement a CDFW-approved Burrowing Owl Mitigation Plan. The plan may include passive relocation, habitat preservation, habitat restoration, habitat enhancement, conservation banking, or other measures approved by CDFW, as appropriate to the nature and extent of impacts. The Burrowing Owl Mitigation Plan shall include, at a minimum:

- A description and quantification of direct and indirect impacts to burrowing owls, occupied burrows and habitat;
- Documentation demonstrating why complete avoidance is infeasible;
- Measures to avoid and minimize impacts during construction;
- Procedures for passive relocation, if approved by CDFW and determined necessary;
- Mitigation at a minimum of 2:1 for permanent impacts to occupied habitat, which may include habitat preservation, restoration, enhancement, and/or establishment measures sufficient to achieve no net loss of occupied habitat functions and values;
- Permanent protection of mitigation lands through conservation easements, deed restrictions, or other long-term protection mechanisms;
- A monitoring and reporting program with clearly defined biological performance standards and success criteria;
- Annual monitoring reports documenting compliance with mitigation requirements and progress toward achievement of performance standards; and
- Adaptive management and contingency measures to be implemented if performance standards are not achieved.

BIO-10: Western Spadefoot. Prior to commencement of ground-disturbing activities, a qualified biologist shall determine whether suitable western spadefoot breeding habitat (e.g., seasonal ponds, vernal pools, ephemeral drainages, or other seasonal ponding features) and associated upland habitat occur within the project site or within 500 feet of the project site. If suitable habitat is present and may be affected by project activities, focused surveys shall be conducted in accordance with accepted survey methodologies for western spadefoot.

If surveys verify absence of the western spadefoot and occupied habitat within the project site and adjacent habitat that could be affected by construction activities, no further species-specific mitigation is required.

If western spadefoot, breeding habitat, or occupied habitat is identified within or adjacent to the project site, a qualified biologist shall establish avoidance buffers to avoid direct and indirect

impacts to the species and occupied habitat. Buffer distances shall be based on site-specific conditions, including habitat quality, breeding status, hydrological conditions, topography, and construction methods. Buffer areas shall be clearly marked in the field prior to construction, and no grading, vegetation removal, equipment operation, staging, parking, or other construction activities shall occur within the designated buffer areas.

Avoidance of occupied habitat shall be the preferred mitigation approach. If impacts cannot be feasibly avoided and construction could result in potential direct or indirect impacts to western spadefoot and/or occupied habitats, WMWD shall prepare and implement a Western Spadefoot Mitigation Plan approved by the appropriate regulatory agencies, as applicable, prior to commencement of construction activities that could affect the species or its habitat. Alternatively, WMWD may seek coverage as a Participating Special Entity under the Western Riverside County Multiple Species Habitat Conservation Plan MSHCP, subject to all applicable requirements.

The Western Spadefoot Mitigation Plan shall include, at a minimum:

- A description and quantification of direct and indirect impacts to western spadefoot and occupied habitat;
- Documentation demonstrating why complete avoidance is infeasible;
- Measures to avoid and minimize impacts during construction;
- If egg masses, tadpoles, or individuals require relocation, a relocation plan shall be prepared and implemented by a qualified biologist and approved by the appropriate regulatory agencies;
- Mitigation at a minimum ratio of 2:1 for permanent impacts to occupied habitat, which may include habitat preservation, restoration, enhancement, or establishment measures sufficient to achieve no net loss of occupied habitat functions and values;
- Permanent protection of mitigation lands through conservation easements, deed restrictions, or other long-term protection mechanisms;
- A monitoring and reporting program with clearly defined biological performance standards and success criteria;
- Annual monitoring reports documenting compliance with mitigation requirements and progress toward achievement of performance standards; and
- Adaptive management and contingency measures to be implemented if performance standards are not achieved.

BIO-11: Nesting Birds. To avoid impacts to nesting birds protected under the Migratory Bird Treaty Act; California Fish and Game Code Sections 3503, 3503.5, and 3513; and other applicable regulations, a qualified biologist shall conduct a pre-construction nesting bird surveys if vegetation removal, grading, ground disturbance, or other construction activities are scheduled to occur during the nesting season (generally February 1 through August 31).

The pre-construction surveys shall be conducted no more than 7 days prior the start of construction activities within suitable nesting habitat located within the project impact area and a minimum 300-foot buffer surrounding the construction limits. Surveys shall identify active nests, nesting territories, and other evidence of breeding activity that could be affected by project construction.

If no active nests are identified, no further species-specific mitigation measures shall be required.

If any active nests are identified, a qualified biologist shall establish species-specific avoidance buffer to avoid direct and indirect impacts to nesting birds, eggs, and young. Buffer distances shall be based on the nesting species, nesting status, habitat conditions, topography, construction methods, and anticipated disturbance levels. Unless otherwise approved by a qualified biologist based on site-specific conditions:

- A minimum 300-foot buffer shall be established around active nests of passerine birds; and
- A minimum 500-foot buffer shall be established around active nests of raptors, special-status bird species, and federally or state-listed bird species.

Buffer areas shall be clearly marked in the field. No grading, vegetation removal, equipment operation, staging, parking, or other construction activities shall occur within the established buffer areas unless a qualified biologist determines that a reduced buffer would avoid nest abandonment, reproductive failure, or other adverse impacts based on species-specific behavior and site conditions.

If an active white-tailed kite nest is identified, project activities shall avoid direct and indirect impacts to the occupied nest and nesting territory. Because white-tailed kite is designated as a California Fully Protected Species pursuant to Fish and Game Code Section 3511, project activities shall be modified, relocated, rescheduled, or otherwise redesigned, as necessary, to avoid take of the species. Construction activities shall not proceed in a manner that could result in take of white-tailed kite or abandonment of an active nest.

If construction activities occur in close proximity to active nests, the qualified biologist shall monitor the nest site as necessary to verify that project activities are not causing behavioral disturbance, nest abandonment, reduced reproductive success, or other adverse effects. If adverse effects are observed, construction activities shall be modified, suspended, or relocated as necessary to avoid impacts.

Established buffers shall remain in place until the qualified biologist determines that the nest is no longer active and the young have fledged and are no longer dependent on the nest for survival.

The qualified biologist shall have the authority to temporarily halt or redirect construction activities if necessary to prevent unauthorized impacts to active nests, nesting birds, eggs, or dependent young.

BIO-12: Non-Listed Special-Status Ground-Dwelling Wildlife. Prior to commencement of ground-disturbing activities, a qualified biologist shall determine whether suitable habitat for non-listed special-status ground-dwelling wildlife species is present within the project impact area or within 500 feet of the project site. If suitable habitat is present and may be affected by project activities, the following measures shall be implemented to avoid and minimize impacts to special-status wildlife:

- A qualified biologist(s) shall conduct pre-construction clearance surveys no more than 7 days prior to the start of construction (including staging and mobilization). The surveys shall cover the entire work area plus a minimum 200-foot buffer, if feasible, and shall identify all special-status wildlife species, occupied habitat features, burrows, dens, refugia, movement corridors, and other sensitive biological resources that could be affected by project activities.

- Prior to commencement of construction, all construction workers shall receive a WEAP training consistent with Mitigation Measure BIO-2. The training shall include information regarding special-status wildlife species that may occur within the project site, applicable avoidance measures, reporting requirements, and procedures to follow if wildlife is encountered.
- If any special-status wildlife species, occupied habitat, active burrows, nests, refugia, or other sensitive habitat features are identified within or adjacent to work areas, a qualified biologist shall establish avoidance buffers sufficient to avoid direct and indirect impacts. Buffer distances shall be based on species-specific sensitivity, habitat conditions, construction methods, and the nature of the anticipated disturbance. Buffer areas shall be clearly marked in the field prior to construction, and no construction activities shall occur within the designated buffer areas unless authorized by the qualified biologist.
- A qualified biologist(s) shall monitor all ground-disturbing activities, including vegetation removal, grading, trenching, and excavation, in areas supporting suitable habitat for special-status wildlife species.
- All trenches, pipes, culverts or similar structures shall be inspected by a qualified biologist or designated monitor at the beginning of each workday and prior to backfilling, covering, capping relocation, or abandonment. Any wildlife found within these features shall be allowed to leave voluntarily or shall be relocated by a qualified biologist in accordance with applicable permits and regulatory requirements.
- Open trenches and excavations left unattended shall be covered, fenced, or equipped with escape ramps to prevent wildlife entrapment. These protection measures shall remain in place until the excavation is backfilled or otherwise secured.
- Any non-listed special-status species observed by the qualified biologist(s) or construction crew shall be allowed to move out of harm's way or shall be relocated from the work area either through direct capture or through passive exclusion by a qualified biologist(s) with appropriate permits.

The qualified biologist shall have the authority to temporarily halt or redirect construction activities if necessary to prevent unauthorized impacts to special-status wildlife species or occupied habitat features.

BIO-13: Special-Status Bats. Prior to commencement of ground-disturbing activities, vegetation removal, or demolition of structures that may support bat roosts, a qualified biologist shall determine whether suitable roosting habitat for special-status bat species is present within the project impact area or within 500 feet of the project site. If suitable habitat is present and may be affected by project activities, focused bat surveys shall be conducted to identify the presence, type, and status of roosts that could be affected by construction.

Surveys shall be conducted during appropriate seasons and favorable weather conditions to evaluate potential daytime roosts, maternity roosts, night roasts, and hibernacula. Surveys shall include, as appropriate:

- Daytime visual inspections of trees, structures, rock outcrops, bridges, culverts, and other potential roost features;
- Evaluation of evidence of bat use, including guano, urine staining, staining around entry points, feeding remains, vocalizations, and direct observations of bats;

- Dusk emergence surveys and/or dawn re-entry surveys to determine roost occupancy and status; and
- Acoustic monitoring using bat detectors and call analysis, as appropriate.

If active bat roosts are identified within or adjacent to the project site, a qualified biologist shall establish avoidance buffers sufficient to avoid direct and indirect impacts to roosting bats. Buffer distances shall be based on species sensitivity, roost type, colony size, construction methods, topography, and anticipate disturbance levels. Active maternity roosts and active hibernacula shall be avoided and protected during construction. Construction activities within established buffers shall be prohibited unless a qualified biologist determines that the activities would not affect the roost. Buffers shall remain in place until the qualified biologist determines that the roost is no longer active or no longer susceptible to project-related disturbance.

Avoidance of active roosts shall be the preferred mitigation approach. Maternity roosts and active hibernacula shall not be removed, excluded, disturbed, or destroyed.

If avoidance of a non-maternity roost is determined to be infeasible, WMWD shall consult with CDFW prior to implementation of exclusion activities and shall prepare a Bat Roost Management Plan. The plan shall identify measures necessary to avoid, minimize, and compensate for impacts to special-status bat species and shall include, at a minimum:

- Documentation demonstrating why complete avoidance is infeasible;
- Species identification, roost characterization, and estimated colony size;
- Procedures for exclusion, if approved by CDFW;
- Measures to ensure bats are not trapped, injured, or killed during exclusion activities;
- Monitoring requirements before, during, and after exclusion activities;
- Installation of alternative roost structures, such as bat boxes, where appropriate;
- Long-term monitoring and reporting requirements;
- Performance standards and success criteria; and
- Adaptive management and contingency measures if performance standards are not achieved.

If exclusion is approved, exclusion devices shall:

- Be designed to allow bats to exist but prevent re-entry;
- Not utilize netting or other materials that could entangle bats;
- Be installed only during periods approved by the qualified biologist and CDFW when maternity colonies and hibernating bats are not present;
- Be monitored by a qualified biologist during installation and operation; and
- Be inspected regularly to ensure effectiveness and prevent bat entrapment.

If bat boxes or other replacement roost structures are required, they shall be installed prior to roost exclusion and maintained for a period specified in the approved Bat Roost Management Plan.

Significance Determination

Less than Significant with Mitigation Incorporated

Future Projects

Pipelines, Pump/Lift Stations, Storage Tanks, and WWRF

Future proposed project locations are based on growth that occurs within the Riverside Retail Service Area and could change during the 20-year future project implementation from 2030 to 2050. As currently proposed, these sites are located adjacent to areas where habitat could support special-status wildlife species similar to priority and near-term projects. Prior the start of construction, **Mitigation Measure BIO-14 (Future Project Habitat Assessment)** would require that habitat assessments be conducted to identify any potential special-status species within or adjacent proposed future project sites. Depending on the special-status species found through implementation of Mitigation Measure BIO-14, avoidance measures may need to be implemented to reduce impacts to a less than significant level, including **Mitigation Measure BIO-1** for special-status plants, **Mitigation Measure BIO-5** for coastal California gnatcatcher, **Mitigation Measure BIO-6** for Crotch's bumble bee, **Mitigation Measure BIO-7** for least Bell's vireo, **Mitigation Measure BIO-8** for Stephens' Kangaroo Rat, **Mitigation Measure BIO-9** for western burrowing owl, Mitigation **Measure BIO-10** for western spadefoot, **Mitigation Measure BIO-11** for nesting birds, **Mitigation Measure BIO-12** for non-listed special-status ground-dwelling wildlife, and **Mitigation Measure BIO-13** for special-status bats. Additionally, implementation of **Mitigation Measure BIO 2 (General BMPs and WEAP)** and **Mitigation Measure BIO-3 (Invasive Plant Species Control Measures)**, would further reduce direct and/or indirect impacts to special-status plants by requiring environmental training for all personnel, implementing invasive plant species control measures, and using best management practices to manage trash and dust. The implementation of **Mitigation Measure BIO-4 (Revegetation Plan)** would reduce impacts to species habitat in the proposed project site by requiring the restoration of temporarily impacted areas to pre-construction conditions. With implementation of these mitigation measures, impacts to special-status plants and wildlife would be reduced to less than significant with mitigation incorporated.

Mitigation Measures

BIO-14: Future Project Habitat Assessments. Prior to approval, final design, or commencement of ground-disturbing activities for any future project not evaluated at the project level in this DPEIR, WMWD shall retain a qualified biologist to prepare a site-specific biological resources assessment. The assessment shall evaluate the presence or potential presence of special-status plant species, special-status wildlife species, sensitive natural communities, jurisdictional waters and wetlands, wildlife movement corridors, nesting habitat, roosting habitat, and other sensitive biological resources within the project impact area and an appropriate surrounding buffer. The biological resources assessment shall include, at a minimum:

- A records search of available biological resources databases, including the California Natural Diversity Database;
- Review of applicable conservation plans, recovery plans, habitat conservation plans, and regulatory constraints;
- Site reconnaissance and habitat evaluation sufficient to determine the potential for special-status species and sensitive habitats to occur;

- Identification of all sensitive biological resources that could be directly or indirectly affected by project construction or operation;
- Recommendations regarding the need for focused species surveys, jurisdictional delineation, agency consultation, avoidance measures, monitoring, and compensatory mitigation.

If the assessment determines that special-status species or other sensitive biological resources may occur within the project site or may be affected by project implementation, focused surveys shall be conducted in accordance with applicable agency protocols and current regulatory guidance prior to commencement of construction.

If sensitive biological resources are identified, WMWD shall first avoid impacts to the maximum extent feasible through project siting, design modifications, seasonal restrictions, construction timing limitations, establishment of biological buffers, exclusion fencing, worker education, biological monitoring, lighting controls, noise controls, and other avoidance and minimization measures.

Where sensitive biological resources occur outside the construction footprint but within an area that could be affected by project activities, the qualified biologist shall establish species- and resource-specific avoidance buffers and other protective measures sufficient to avoid direct and indirect impacts. Buffer distances shall be based on the resource present, site-specific conditions, construction methods, and applicable agency guidance.

If, after implementation of avoidance and minimization measures, the qualified biologist determines that significant impacts to sensitive biological resources could still occur, WMWD shall implement the applicable mitigation measures identified in this DPEIR and any additional resource-specific mitigation necessary to avoid, minimize, compensate for, or otherwise address identified impacts.

The biological resource assessment and any required focused surveys shall be completed sufficiently in advance of construction to allow incorporation of all avoidance, minimization, monitoring, and mitigation measures into project plans and construction specifications.

Implement Mitigation Measures BIO-1 through BIO-13, as applicable.

Significance Determination

Less than Significant with Mitigation Incorporated

Operations and Maintenance

Operation and maintenance (O&M) of water, wastewater, and recycled water infrastructure would involve periodic inspection, repair, vegetation management limited to immediately adjacent to infrastructure, and access by maintenance personnel and vehicles. These activities would occur within previously disturbed and maintained areas of the project site and would not substantially affect natural habitats.

Because these areas are or will become regularly maintained, special-status wildlife species are unlikely to occur within areas subject to routine O&M activities. As a result, the potential for disturbance to birds, reptiles, amphibians, mammals, and invertebrates would be low.

If O&M activities occur near suitable habitat, minor and temporary disturbance could occur, such as noise or human presence. However, these activities would be infrequent, localized, and short-term. O&M activities would not result in the removal of vegetation, roosting habitat for bats, substantial disturbance to burrows or refugia, or long-term reduction in foraging habitat. Additionally, these activities would not result in substantial habitat loss or degradation. Therefore, impacts associated with operation and maintenance of the proposed facilities would be less than significant.

Mitigation Measures

None Required

Significance Determination

Less than Significant

5.3.2 Sensitive Natural Communities

Impact 3.4-2: The proposed project could have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

Priority and Near-Term Projects

Pipelines, Pump/Lift Stations, Storage Tanks, and WWRF Expansion

As described in Section 4.4, the following projects contain at least one sensitive natural community within their BSAs: W-4: Hillside 2320 PZ Booster PS and Pipeline, WW-5: Meridian Lift Station Upgrades (WWRF), RW-1: Meridian West Pipelines, W-14: Highland Grove II and III 12-inch Pipeline, W-13: Highland Grove Pipeline III 18-inch Pipeline, RW-1: Idaleona Drive Upsizing, RW-1: Lake Ranch Pipelines, W-11: Cole Ave/Cedar Street Upsize, and W-12: Mariposa Ave/Lurin Ave Upsize.

Of these, W-14: Highland Grove II and III 12-inch Pipeline is the only project where construction is expected to directly impact approximately 0.49 acre of Goodding's willow – red willow riparian woodland and forest. Activities such as trenching, grading, and clearing vegetation could damage or remove these habitats.

For the other projects listed above, sensitive natural communities are present within the BSA but are not located within the planned construction areas. Although construction activities adjacent to sensitive natural communities could result in localized dust generation, increased human activity, or the inadvertent spread of invasive species, these effects would be temporary, localized, and minimized through implementation of standard construction BMPs and project design features. Construction would generally occur within existing disturbed roadways or previously developed areas, and no long-term degradation of adjacent sensitive natural communities is anticipated. Therefore, indirect impacts to sensitive natural communities would be less than significant.

Because sensitive natural communities are present within the W-14: Highland Grove II and III 12-inch Pipeline project site, and construction activities could result in damage or loss of these habitats, impacts would be potentially significant. Implementation of **Mitigation Measure BIO-15 (Sensitive Natural Communities)** would require delineation and protection of sensitive natural communities within or

adjacent to work area and compensatory mitigation for permanent impact if avoidance is infeasible. Additionally, implementation of **Mitigation Measure BIO 2 (General BMPs and WEAP)** and **Mitigation Measure BIO-3 (Invasive Plant Species Control Measures)**, would further reduce direct and/or indirect impacts to sensitive natural communities by requiring environmental training for all personnel, implementing invasive plant species control measures, and using best management practices to manage trash and dust. With implementation of these mitigation measures, impacts to sensitive natural communities would be reduced to less than significant with mitigation incorporated.

Mitigation Measures

BIO-15: Sensitive Natural Communities. Prior to commencement of ground-disturbing activities, a qualified biologist shall identify, delineate, and map all sensitive natural communities within or adjacent to the project impact area. Sensitive natural communities shall include, but are not limited to, vegetation communities recognized by CDFW as sensitive, rare, or declining; communities identified in local or regional conservation plans; and other communities meeting the significance criteria used in the DEIR.

The qualified biologist shall establish environmentally sensitive area (ESA) boundaries around sensitive natural communities that will be avoided. The boundaries of these areas shall be clearly marked in the field using high-visibility fencing, flagging, or staking prior to construction and shall remain in place throughout construction. No construction activities, equipment staging, or vehicle access shall occur within these areas.

Avoidance of sensitive natural communities shall be the preferred mitigation approach. If temporary impacts to sensitive natural communities cannot be avoided, WMWD shall prepare and implement a Habitat Restoration Plan prior to the commencement of construction. The plan shall include, at a minimum:

- Mapping and quantification of all temporarily impacted areas;
- Baseline documentation of existing habitat conditions;
- Site preparation, erosion control, weed management, and restoration procedures;
- Native species seed mixes and planting palettes appropriate to the affected habitat type;
- Quantitative performance standards and success criteria;
- A monitoring and reporting program for a minimum of three years and up to five years, or longer if performance standards have not been achieved;
- Adaptive management and contingency measures, including supplemental planting, reseeding, invasive species control, erosion repair, and extension of monitoring, if performance standards are not met.

If permanent impacts to sensitive natural communities cannot be avoided, WMWD shall implement compensatory mitigation sufficient to achieve no net loss of the acreage, functions, and values of the affected community. Compensatory mitigation may be provided through on-site restoration, off-site restoration, habitat preservation, approved conservation banks, approved mitigation banks, or a combination thereof, as appropriate. Final mitigation requirements shall be developed in coordination with and shall be implemented prior to project impacts. If mitigation is to occur on-site and/or off-site (i.e., not at a mitigation bank), then prior to commencement of

construction, WMWD shall prepare a Sensitive Natural Community Mitigation Plan that includes, at a minimum:

- A description and quantification of direct and indirect impacts to sensitive natural communities;
- Documentation demonstrating why complete avoidance is infeasible;
- Compensatory mitigation at a minimum ratio of 1:1 for permanent impacts, which may include habitat preservation, restoration, enhancement, establishment, and/or a combination thereof sufficient to offset project impacts;
- Permanent protection of mitigation lands through conservation easements, deed restrictions, conservation banks, or other long-term protection mechanisms;
- Monitoring and reporting requirements with clearly defined biological performance standards and success criteria;
- Annual monitoring reports documenting compliance with mitigation requirements and progress toward achievement of performance standards; and
- Adaptive management and contingency measures if performance standards are not achieved.

Implement Mitigation Measure BIO-2 and BIO-3.

Significance Determination

Less than Significant with Mitigation Incorporated

Future Projects

Pipelines, Pump/Lift Stations, and Storage Tanks

Vegetation mapping (**Mitigation Measure BIO-14**) shall occur within future project BSAs to determine whether sensitive natural communities are present and may be significantly impacted. Because sensitive natural communities may be present within multiple project sites, and construction activities could result in damage or loss of these habitats, impacts would be potentially significant. Implementation of **Mitigation Measure BIO-15 (Sensitive Natural Communities)** would require delineation and protection of sensitive natural communities within or adjacent to work area and compensatory mitigation for permanent impact if avoidance is infeasible. Additionally, implementation of **Mitigation Measure BIO 2 (General BMPs and WEAP)** and **Mitigation Measure BIO-3 (Invasive Plant Species Control Measures)**, would further reduce direct and/or indirect impacts to sensitive natural communities by requiring environmental training for all personnel, implementing invasive plant species control measures, and using best management practices to manage trash and dust. With implementation of these mitigation measures, impacts to sensitive natural communities would be reduced to less than significant with mitigation incorporated.

Operations and Maintenance

Operation and maintenance of the proposed facilities could result in minor impacts to sensitive natural communities. These activities may include access by maintenance vehicles and minor repair work. These actions could cause temporary disturbance to vegetation or soils and may increase the spread of invasive plant species in localized areas.

However, operation and maintenance activities would be infrequent, limited in area, and would not result in the removal or long-term loss of sensitive natural communities. With implementation of standard best management practices, including avoiding sensitive areas and minimizing disturbance, impacts would be less than significant and no mitigation would be warranted for operation and maintenance activities.

Mitigation Measures

None Required

Significance Determination

Less than Significant

5.3.3 Wetlands

Impact 3.4-3: The proposed project could have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

Priority, Near-Term, and Future Projects

Pipelines, Pump/Lift Stations, Storage Tanks, and WWRF Expansion

A formal aquatic resources delineation was not conducted as part of the biological field reconnaissance. However, several potentially jurisdictional aquatic resource features were identified within BSAs based on a review of NWI. These features may include wetlands and other waters that could be subject to federal and state jurisdiction and are shown on Figure 7 of this report.

Project activities such as pipeline installation, grading, trenching, and construction of aboveground facilities could result in direct and indirect impacts to these features. Direct impacts may include removal or filling of wetlands or other waters. Indirect impacts could include changes in drainage patterns, increased erosion, sedimentation, and reduced water quality. Construction activities could also interrupt surface flows or alter hydrology in areas where aquatic features are present.

Potentially jurisdictional features occur within or cross several project site BSAs, including W-13: Highland Grove Pipeline, W-14: Highland Grove II and III 12-inch Pipeline, RW-1: Lake Ranch Pipelines, W-2: Blackburn Road Pipeline Upsizing, RW-1: Orangecrest Supply Pipeline, RW-1: Meridian West, RW-1: Bergamont Park Conversion, W-7: New 7 MG Markham Tank, RW-1: Idaleona Drive Upsizing, and W-15: Juniper Road Pipeline Upsizing. Because wetlands and other jurisdictional waters may be present within project sites, and because construction activities could result in removal, filling, or changes to hydrology, impacts to these project sites would be potentially significant. Implementation of **Mitigation Measure BIO-16 (Aquatic Resources)** requiring impact avoidance and minimization and compensatory mitigation if avoidance is infeasible. Additionally, implementation of **Mitigation Measure BIO 2 (General BMPs and WEAP)** and **Mitigation Measure BIO-3 (Invasive Plant Species Control Measures)**, would further reduce direct and/or indirect impacts to wetlands by requiring environmental training for all personnel, implementing invasive plant species control measures, and using best

management practices to manage trash and dust. With implementation of these mitigation measures, impacts to aquatic resources would be reduced to less than significant with mitigation incorporated.

Mitigation Measures

BIO-16: Aquatic Resources. Prior to commencement of ground-disturbing activities, a qualified biologist and/or aquatic resources specialist shall identify, delineate, and map aquatic resources within and adjacent to the project impact area, including wetlands, streams, drainages, riparian habitat, and other potentially jurisdictional waters. Where required by the applicable regulatory agencies, formal jurisdictional delineation shall be prepared and verified.

Avoidance of aquatic resources shall be the preferred mitigation approach. To the maximum extent feasible, project facilities, staging areas, access routes, stockpiles, and other construction-related activities shall be located outside aquatic resources and associated buffer areas.

Where aquatic resources occur within or adjacent to construction work areas, the following measures shall be implemented.

- Aquatic resources and avoidance buffers shall be clearly marked in the field using high-visibility fencing, flagging, staking or other approved methods prior to commencement of construction. Buffer distances shall be established by a qualified biologist based on site-specific conditions, resource sensitivity, and construction methods. Unless otherwise approved by the qualified biologist, a minimum 50-foot buffer shall be established around aquatic resources where feasible.
- Construction staging areas, including laydown areas, and all materials and spoils shall be located outside aquatic resources and established buffer areas. Temporary sediment and erosion control measures (e.g., berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers) shall be installed as appropriate to prevent stormwater runoff from entering aquatic habitats.
- Materials shall be stored on impervious surfaces or plastic ground covers and, to the extent feasible, at least 50 feet away from aquatic resources to prevent contamination from spills or leaks.
- In the event of a spill, work shall stop if it is safe to do so. The affected area shall be contained, cleaned, and any contaminated materials properly disposed of. The project foreman or designated environmental representative shall be notified immediately.
- No equipment, vehicles, materials, or personnel shall enter wetted portions of streams, wetlands, or other jurisdictional waters except as authorized by applicable permits and approvals.

Prior to any activity that could result in direct or indirect impact to jurisdictional waters wetlands, or other regulated aquatic resources, WMWD shall coordinate with the U.S. Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife, and any other applicable agencies as appropriate to determine permitting requirements. Such authorizations may include, but are not limited to, the Clean Water Act (CWA) Section 404 Nationwide Permit, CWA Section 401 Water Quality Certification, Porter-Cologne Act Waste Discharge Requirement, Fish and Game Code (FGC) Section 1602 Streambed Alteration Agreement. All required permits, authorizations, certifications, and approvals shall be obtained prior to commencement of the activity.

If impacts to aquatic resources cannot be avoided, mitigation for permanent impacts to regulated aquatic resources would be proposed at a minimum mitigation-to-impact ratio of 2:1, or as approved by the appropriate regulatory agencies, and may include the purchase of mitigation credits at an agency-approved off-site mitigation bank or in-lieu fee program. If mitigation is to occur on-site and/or off-site (i.e., not at a mitigation bank or in-lieu fee program), then WMWD shall prepare and implement an Aquatic Resources Mitigation Plan prior to commencement of construction activities. The plan shall include, at a minimum:

- A description and quantification of temporary and permanent impacts to aquatic resources, including direct and indirect impacts;
- Documentation demonstrating why complete avoidance is infeasible;
- Measures to avoid and minimize impacts during construction;
- Restoration procedures for temporarily disturbed areas, including restoration of pre-project contours, hydrologic function, substrate conditions, and native vegetation communities;
- Compensatory mitigation at a minimum ratio of 2:1 for permanent impacts sufficient to replace lost aquatic resource acreage, functions, and values;
- Permanent protection of mitigation sites through conservation easements, deed restrictions, or other long-term protection mechanisms;
- Monitoring and reporting requirements with clearly defined biological and functional performance standards;
- Annual monitoring reports documenting compliance with mitigation requirements and progress toward achievement of performance standards; and
- Adaptive management and contingency measures if performance standards are not achieved.

Implement Mitigation Measures BIO-2 and BIO-3.

Significance Determination

Less than Significant with Mitigation Incorporated

Operations and Maintenance

Operation and maintenance of the proposed facilities could result in minor, indirect impacts to wetlands and other jurisdictional waters. These activities may include periodic inspections and minor repair work near aquatic features. Such activities could cause localized disturbance, including soil compaction, minor vegetation removal, or small amounts of sediment or runoff entering nearby wetlands.

However, these activities would be infrequent, short-term, and limited in area. Operation and maintenance would not result in the filling of wetlands or long-term changes to hydrology. As a result, impacts would be less than significant.

Mitigation Measures

None Required

Significance Determination

Less than Significant

5.3.4 Wildlife Corridors

Impact 3.4-4: The proposed project could 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.

Priority, Near-Term, and Future Projects

Pipelines, Pump/Lift Stations, Storage Tanks, and WWRF Expansion

As shown on Figures 6A through 6F, the Riverside Retail Service Area includes areas identified in the CEHC database, which support wildlife movement and ecological connectivity. However, the project sites are primarily located within developed, disturbed, or fragmented areas and do not represent key regional wildlife corridors or habitat linkages.

Construction activities associated with the proposed Riverside FMP could temporarily interfere with local wildlife movement at project sites. Activities such as trenching, grading, and equipment use may temporarily restrict movement or create short-term barriers for wildlife locally. Open trenches may also pose a temporary hazard to small animals. In addition, construction noise and human activity could temporarily disturb wildlife and reduce use of nearby areas.

However, these effects would be temporary and limited to the construction period. Pipelines would be installed underground and would not create permanent barriers to movement. Aboveground facilities, such as pump stations and tanks, would mostly be located in developed or previously disturbed areas and would not substantially interfere with wildlife movement or connectivity. The project would not remove or block any known regional wildlife corridors or habitat linkages. Although the project sites may provide movement opportunities for common wildlife species, they are not expected to function as important movement corridors at a regional scale. Nursery sites may be temporarily disturbed during construction; however, these effects would be short-term and would not result in long-term loss of habitat function.

Because construction activities could temporarily interfere with wildlife movement and use of habitat, impacts would be potentially significant. Implementation of **Mitigation Measure BIO 2 (General BMPs and WEAP)** and **Mitigation Measure BIO-3 (Invasive Plant Species Control Measures)**, would further reduce direct and/or indirect impacts to wildlife corridors by requiring environmental training for all personnel, implementing invasive plant species control measures, and using best management practices to manage trash and dust. With implementation of these mitigation measures, impacts to wildlife corridors would be reduced to less than significant with mitigation incorporated.

Mitigation Measures

Implement Mitigation Measures BIO-2 and BIO-3.

Significance Determination

Less than Significant with Mitigation Incorporated

Operations and Maintenance

Operations and maintenance of the proposed facilities could result in minor, temporary disturbance to wildlife movement within project sites. Activities such as periodic inspections, maintenance vehicle access, and vegetation trimming may temporarily disrupt wildlife movement or cause animals to avoid the area for short periods of time. However, these activities would be infrequent, short-term, and limited in area. Operations and maintenance would not introduce permanent barriers or block wildlife corridors. Existing movement patterns would continue once activities are complete. Therefore, impacts to wildlife movement and use of nursery sites from operation and maintenance would be less than significant.

Mitigation Measures

None Required.

Significance Determination

Less than Significant

5.3.5 Local Policies and Ordinances

Impact 3.4-5: The proposed project could conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Priority, Near-Term, and Future Projects

Pipelines, Pump/Lift Stations, and Storage Tanks, and WWRF Expansion

The County of Riverside Ordinance No. 559 regulates native trees that occur on parcels greater than one-half acre in size located in areas above 5,000 feet in elevation. None of the project components would be located in areas above 5,000 feet in elevation.

The City of Riverside Tree and Shrub Supervision ordinance (Chapter – 13.25 of the Municipal Code) prohibits the trimming or removal of City managed trees located within the public right-or-way. At this time, the extent to which tree trimming or removal may be required for implementation of the proposed projects is unknown. If construction activities require trimming or removal of City-managed trees within the public right-of-way, the project could conflict with the requirements of Chapter 13.25. Projects located within the City of Riverside include W-9: New 12.5 MG Orangecrest Tank, RW-1: New Orangecrest Tank, RW-1: Orangecrest Supply Pipeline, RW-1: Meridian West, RW-1: Bergamont Park Conversion to RW, RW-1: Lurin Irrigation Tank Improvements, and W-12: Mariposa Ave/Lurin Ave Upsize. Because implementation of the proposed projects could require trimming or removal of City-managed trees within the public right-of-way, impacts related to local ordinances would be potentially significant. Implementation of **Mitigation Measure BIO-17 (Tree Protection)** would reduce impacts to a less-than-significant level.

The County of Riverside Ordinance No. 663 requires that all proposed development projects located within the Stephens' kangaroo rat fee area are reviewed to determine the most appropriate course of action to ensure the survival of the species. As individual projects are proposed and approved in the SKR Plan Area, public and private land developers are required to pay a SKR mitigation fee for land that is developed and removes habitat of SKR. Implementation of Mitigation Measure BIO-8 would require focused surveys for the species within suitable habitat and obtaining take coverage under the SKRHCP if occupied habitat is present.

Mitigation Measures

Mitigation Measure BIO-17: Tree Protection. Prior to the commencement of construction, WMWD shall retain a qualified arborist or qualified biologist to identify and map all City-managed trees and other protected trees that could be affected by project activities. WMWD shall coordinate with the City of Riverside to determine applicable permit requirements and tree protection standards pursuant to Chapter 13.25 of the Riverside Municipal Code and any other applicable regulations.

Avoidance of tree removal shall be the preferred mitigation approach. To the maximum extent feasible, project facilities, staging areas, access routes, trench alignments, and other construction activities shall be designed and located to avoid impacts to protected trees and their root protection zones.

Where trees are located adjacent to construction activities, the following measures shall be implemented:

- Prior to commencement of construction, protective fencing shall be installed around the dripline or root protection zone of trees designated for preservation, or at another distance approved by the qualified arborist or the City of Riverside.
- Any pruning required for construction shall be performed by a qualified arborist in accordance with accepted arboricultural standards and applicable City requirements.
- Construction activities occurring near preserved trees shall be monitored periodically by a qualified arborist to verify compliance with tree protection measures and identify any corrective actions necessary to avoid damage.

If tree removal cannot be avoided, WMWD shall obtain all required permits and approvals and shall provide replacement planting or other compensatory mitigation in accordance with City requirements. If City requirements do not specify replacement standards, removed trees shall be replaced at a minimum ratio of 1:1 based on canopy value, trunk diameter, or another method approved by the City. Replacement trees shall consist of species appropriate for the project site and shall be maintained until successfully established.

If construction activities result in damage to a protected tree designated for preservation, WMWD shall implement corrective actions recommended by a qualified arborist and the City, which may include remedial treatment, replacement planting, or other measures to compensate for loss of the tree resources.

Implement Mitigation Measure BIO-8

Significance Determination

Less than Significant with Mitigation Incorporated

5.3.6 Habitat Conservation Plan

Impact 3.4-6: The proposed project conflicts with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Priority, Near-Term, and Future Projects

Pipelines, Pump/Lift Stations, Storage Tanks, and WWRF Expansion

As previously discussed, the Western Riverside MSHCP and SKRHCP do not apply to the project because WMWD is not a signatory to the MSHCP or SKRHCP. Should WMWD apply for listed species take coverage under the SKR HCP, or to be a PSE of the MSHCP, then the applicable project(s) would be subject to the provisions and requirements of consistency with the SKR HCP or MSHCP. Therefore, the project would not conflict with these habitat conservation plans. No impact would occur.

Mitigation Measures

None Required

Significance Determination

No Impact

5.3.7 Cumulative Impacts

Impact 3.4-7: Concurrent construction and operation of the proposed project and related projects in the geographic scope could result in cumulative short-term and long-term impacts to biological resources.

The cumulative analysis for impacts to biological resources involves the projected growth of the Riverside Retail Service Area. Future cumulative development projects identified would involve many large-scale development projects like the Lake Ranch Project (Tract 36730), Highland Grove Residential Projects 2-6, and the Tract 22102 (Mockingbird Canyon) that would be constructed within undeveloped areas particularly in the areas northeast and east of Lake Matthews. The projected growth through 2050 would result in rapid development of commercial, industrial, and residential land uses that could convert undeveloped areas that may be suitable habitat for special-status species or could support sensitive habitats. Because the potential impacts to biological resources associated with the implementation of the Riverside FMP projects would mostly be located in developed or disturbed areas and therefore would not result in loss of native habitat in the region, the project's contribution to cumulative biological resource impacts would be less than cumulatively considerable. Additionally, Mitigation Measures BIO-1 through BIO-17 would reduce project-related impacts to a less than significant level. The project's cumulative biological resource impacts would be less than significant.

Mitigation Measures

Implement Mitigation Measures BIO-1 through BIO-17

Significance Determination

Less than Significant with Mitigation Incorporated

6.0 References

CDFW (California Department of Fish and Wildlife). 2025. California Natural Community List. Sacramento, CA: CDFW, Natural Heritage Division. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=153609. Accessed April 15, 2026.

CDFW. 2026a. California Natural Diversity Data Base (CNDDB). RareFind 5. CDFW's Electronic database, Sacramento, California. https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed April 15, 2026.

CNPS (California Native Plant Society). 2026. Inventory of Rare and Endangered Vascular Plants of California. http://rareplants.cnps.org/. Accessed April 15, 2026.

CRPWD (City of Riverside Public Works). 2024. Urban Forestry Policy. Revised February 2024. https://www.riversideca.gov/publicworks/sites/riversideca.gov.publicworks/files/pdf/Urban%20Forestry%20Policy%20Manual.pdf. Accessed April 17, 2026.

NRCS (Natural Resource Conservation Science). 2026. Web Soil Survey. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed April 15, 2026.

RCHCA (Riverside County Habitat Conservation Agency). 1996. Habitat Conservation Plan for the Stephens' Kangaroo Rat in Western Riverside County California. March 1996. https://www.rchca.us/DocumentCenter/View/549/SKR-Habitat-Conservation-Plan. Accessed on April 17, 2026.

RCPD (Riverside County Planning Department). 2026. Riverside County Oak Tree Management Guidelines. https://planning.rctlma.org/riverside-county-oak-tree-management-guidelines. Accessed April 17, 2026.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation. 2nd Edition. California Native Plant Society.

South Coast Wildlands. South Coast Missing Linkages: A Wildland Network for the South Coast Ecoregion. Produced in cooperation with partners in the South Coast Missing Linkages Initiative. Available online at http://www.scwildlands.org. Accessed April 17, 2026.

USFWS (U.S. Fish and Wildlife Service). 2026a. Critical Habitat Portal. https://fws.maps.arcgis.com/apps/mapviewer/index.html?layers=794de45b9d774d21aed3bf9b5313ee24. Accessed April 15, 2026.

USFWS. 2026b. National Wetlands Inventory (NWI). https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/. Accessed April 15, 2026.

USFWS. 2026c. Information for Planning and Consultation. https://ipac.ecosphere.fws.gov/location/index. Accessed April 15. 2026

Appendix A
Soils

NRCS Mapped Soil Types

TABLE 1
SOIL TYPES WITHIN THE PRIORITY PROJECT AREAS

Soil Type	W-1: Moonridge Drive Pipeline Upsizing	W-2: Blackburn Road Pipeline Upsizing	W-3: Cedar Street and Avenue D Pipeline Upsizing	WW-1: McKinley Trunk Sewer 1 (WCWRA)	WW-2: Beazer 1 Lift Station and Forcemain Upgrades (WRCWRA)	WW-3: Markham Lift Station Upgrade (WWRF)
Arlington fine sandy loam, 8 to 15 percent slopes	X		X			
Arlington fine sandy loam, deep, 8 to 15 percent slopes	X					
Arlington loam, deep, 0 to 5 percent slopes				X		
Bonsall fine sandy loam, 2 to 8 percent slopes			X			
Bonsall fine sandy loam, 8 to 15 percent slopes	X	X				
Buchenau loam, slightly saline-alkali, 0 to 2 percent slopes				X		
Buren fine sandy loam, 2 to 8 percent slopes, eroded		X				
Buren fine sandy loam, 8 to 15 percent slopes, eroded					X	
Buren loam, deep, 2 to 8 percent slopes, eroded		X		X		
Cajalco fine sandy loam, 8 to 15 percent slopes, eroded		X			X	
Caljaco rocky fine sandy loam, 15 to 50 percent slopes, eroded		X			X	
Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded		X	X			
Cieneba sandy loam, 8 to 15 percent slopes, eroded			X			
Cieneba sandy loam, 15 to 50 percent slopes, eroded		X	X			
Escondido fine sandy loam, 15 to 25 percent slopes, eroded			X			
Fallbrook fine sandy loam, shallow, 8 to 15 percent slopes, eroded	X	X				
Fallbrook sandy loam, 8 to 15 percent slopes, eroded	X	X	X			X
Friant fine sandy loam, 5 to 25 percent slopes, eroded	X					
Greenfield sandy loam, 2 to 8 percent slopes, eroded				X		
Hanford coarse sandy loam, 2 to 8 percent slopes				X		X
Las Posas loam, 2 to 8 percent slopes		X				
Las Posas loam, 8 to 15 percent slopes, eroded		X				
Monserate sandy loam, 0 to 5 percent slopes						X
Monserate sandy loam, 5 to 8 percent slopes, eroded						
Monserate sandy loam, 8 to 15 percent slopes, eroded					X	
Terrace escarpments					X	
Vista coarse sandy loam, 8 to 15 percent slopes, eroded	X	X				
Vista coarse sandy loam, 15 to 35 percent slopes, eroded		X	X			

TABLE 2
SOIL TYPES WITHIN THE NEAR-TERM PROJECT AREAS

Soil Type	RW-1: New Orangecrest Tank	RW-1: Bergamont Park Converstion to RW	RW-1: Lurin Irrigation Tank Improvements	RW-1: Meridian West Pipelines	RW-1: Idaleona Drive Upsizing	RW-1: Cemetery PS Expansion	RW-1: Lake Ranch Pipelines	RW-1: El Sobrante PS Expansion (150 HP)	W-4: Hillside 2320 PZ Booster Pump Station and Pipeline	W-5: New 3 MG Hidden Valley Tank	W-6: New 1.5 MG El Nido Tank	W-7: New 7 MG Markham Tank	W-9: New 12.5 MG Orangecrest Tank	W-10: Highland Grove Pressure Reducing Valve	W-11: Cole Ave/Cedar Street Upsize	W-12: Mariposa Ave/Lurin Avenue Upsize	W-13: Highland Grove Pipeline III 18-inch Pipeline	W-14: Highland Grove II and III 12-inch Pipeline	W-15: Juniper Road Pipeline Upsizing	WW-4: MARB 1269 Lift Station and Pipeline Upgrade	WW-5: Meridian Lift Station Upgrades (WWRF)	WW-6: WWRF Expansion Study
Bonsall fine sandy loam, 2 to 8 percent slopes					X											X						
Bonsako, 2 to 8 p clay ercent slopes							X											X				
Buren fine sandy loam, 2 to 8 percent slopes, eroded																		X				
Buren fine sandy loam, 8 to 15 percent slopes, eroded															X							
Buren loam, deep, 2 to 8 percent slopes, eroded							X	X									X	X				
Cajalco fine sandy loam, 2 to 8 percent slopes, eroded							X											X	X			
Cajalco fine sandy loam, 8 to 15 percent slopes, eroded					X		X	X									X	X	X			
Cajalco fine sandy loam, 15 to 35 percent slopes, eroded								X									X					
Cieneba rocky fine sandy loam, 5 to 15 percent slopes, eroded										X												
Cieneba rocky fine sandy loam, 15 to 50 percent slopes, eroded							X			X							X	X				
Cieneba rocky sandy loam, 8 to 15 percent slopes, eroded										X		X							X			
Cieneba rocky sandy loam, 15 to 50 percent slopes, eroded																						
Cieneba sandy loam, 5 to 8 percent slopes, eroded												X										
Cieneba sandy loam, 8 to 15 percent slopes, eroded			X		X							X			X		X		X			
Cieneba sandy loam, 15 to 50 percent slopes, eroded	X		X	X					X		X	X	X		X	X			X		X	
Dams																	X					
Escondido fine sandy loam, 2 to 8 percent slopes, eroded																			X			
Escondido fine sandy loam, 8 to 15 percent slopes, eroded																			X			
Fallbrook fine sandy loam, shallow, 2 to 8 percent slopes, eroded	X	X		X								X				X						X
Fallbrook fine sandy loam, shallow, 8 to 15 percent slopes, eroded	X			X									X								X	
Fallbrook rocky sandy loam, shallow, 8 to 15 percent slopes, eroded	X																					
Fallbrook rocky sandy loam, shallow, 15 to 50 percent slopes, eroded	X	X																				
Fallbrook sandy loam, 8 to 15 percent slopes, eroded	X	X	X								X		X		X	X		X				
Fallbrook sandy loam, 15 to 25 percent slopes, eroded		X						X									X					
Fallbrook sandy loam, shallow, 5 to 8 percent slopes, eroded	X			X												X						
Friant rocky fine sandy loam, 8 to 25 percent slopes, eroded																			X			
Friant rocky fine sandy loam, 25 to 50 percent slopes, eroded																			X			
Gorgonio loamy sand, deep, 2 to 8 percent slopes									X													
Grangeville fine sandy loam, loamy substratum, drained, 0 to 2 percent slopes									X													
Greenfield sandy loam, 0 to 2 percent slopes																				X		

Soil Type	RW-1: New Orangecrest Tank	RW-1: Bergamont Park Converstion to RW	RW-1: Lurin Irrigation Tank Improvements	RW-1: Meridian West Pipelines	RW-1: Idaleona Drive Upsizing	RW-1: Cemetery PS Expansion	RW-1: Lake Ranch Pipelines	RW-1: El Sobrante PS Expansion (150 HP)	W-4: Hillside 2320 PZ Booster Pump Station and Pipeline	W-5: New 3 MG Hidden Valley Tank	W-6: New 1.5 MG El Nido Tank	W-7: New 7 MG Markham Tank	W-9: New 12.5 MG Orangecrest Tank	W-10: Highland Grove Pressure Reducing Valve	W-11: Cole Ave/Cedar Street Upsize	W-12: Mariposa Ave/Lurin Avenue Upsize	W-13: Highland Grove Pipeline III 18-inch Pipeline	W-14: Highland Grove II and III 12-inch Pipeline	W-15: Juniper Road Pipeline Upsizing	WW-4: MARB 1269 Lift Station and Pipeline Upgrade	WW-5: Meridian Lift Station Upgrades (WWRF)	WW-6: WWRF Expansion Study
Greenfield sandy loam, 0 to 2 percent slopes, eroded																			X			
Hanford coarse sandy loam, 2 to 8 percent slopes												X			X						X	
Honcut sandy loam, 2 to 8 percent slopes																			X			
Las Posas loam, 2 to 8 percent slopes					X		X											X				
Las Posas loam, 8 to 15 percent slopes																	X	X				
Lodo rocky loam, 8 to 25 percent slopes, eroded																			X			
Lodo rocky loam, 25 to 50 percent slopes, eroded																			X			
Madera fine sandy loam, 2 to 5 percent slopes, eroded																X						
Monserate sandy loam, 0 to 5 percent slopes																X			X	X	X	
Monserate sandy loam, 5 to 8 percent slopes, eroded									X												X	
Monserate sandy loam, 8 to 15 percent slopes, eroded																X					X	
Monserate sandy loam, shallow 8 to 15 percent slopes, eroded									X												X	
Monserate sandy loam, shallow 15 to 25 percent slopes, eroded																					X	
Ramona sandy loam, 0 to 2 percent slopes																				X		
Rockland					X				X													
Temescal loam, 15 to 50 percent slopes											X								X			
Temescal rocky loam, 15 to 50 percent slopes										X												
Terrace escarpments							X		X								X	X				
Vista coarse sandy loam, 2 to 8 percent slopes					X							X			X							
Vista coarse sandy loam, 8 to 15 percent slopes, eroded					X							X							X			
Vista coarse sandy loam, 8 to 15 percent slopes, eroded								X									X					
Vista rocky coarse sandy loam, 2 to 35 percent slopes				X															X			
Yokohl loam, 2 to 8 percent slopes																			X			
Yokohl loam, 8 to 15 percent slopes, eroded																			X			

Appendix B
Floral and Faunal Compendia

FLORAL COMPENDIUM

Family	Scientific Name	Common Name	Nativity	Status
ANGIOSPERMS				
DICOTS				
Anacardiaceae – Sumac or Cashew Family				
	Schinus molle	Peruvian pepper tree	cultivated, exotic	
Arecaceae– Palm Family				
	Washingtonia robusta	Mexican fan palm	exotic	
Asteraceae – Sunflower Family				
	Baccharis salisifolia	mulefat	native	
	Centaurea melitensis	tocalote	exotic	
	Corethrogyne filaginifolia	common sandaster	native	
	Deinandra paniculata	paniculate tarweed	native	4.2
	Encelia californica	California brittlebush	native	
	Encelia farinosa	brittle bush	native	
	Eriophyllum confertiflorum	golden yarrow	native	
	Helianthus annus	common sunflower	native	
	Helianthus anomalus	sand sunflower	hybrid	
	Heterotheca grandiflora	telegraphweed	native	
	Lactuca serriola	prickly lettuce	exotic	
	Oncosiphon pilulifer	stinknet	exotic	
	Pseudognaphalium californicum	Ladies' tobacco	native	
	Stephanomeria exigua	small wirelettuce	native	
	Silybum marianum	milk thistle	exotic	
	Symphyotrichum chilense	California aster	native	
Bignoniaceae– Trumpet-Creeper Family				
	Jacaranda sp.	jacaranda	exotic	
Brassicaceae – Mustard Family				
	Brassica nigra	black mustard	exotic	
	Hirschfeldia incana	short-podded mustard	exotic	
	Sisymbrium irio	London rocket	exotic	
Boraginaceae – Borage Family				
	Amsinckia menziesii	Menzies' fiddleneck	native	
	Heliotropium curassavicum	heliotrope	native	
	Plagiobothrys nothofulvus	Rusty popcorn flower	native	
Chenopodiaceae – Goosefoot Family				
	Atriplex canescens	fourwing saltbush	native	
	Salsola tragus	Russian thistle	exotic	
Convolvulaceae – Morning Glory Family				
	Convolvulus arvensis	field bindweed	exotic	
	Cuscuta sp.	dodder	native	

Family	Scientific Name	Common Name	Nativity	Status
Crassulaceae – Stonecrop Family				
	Dudleya sp.	dudleya	native	
Cucurbitaceae – Gourd Family				
	Marah sp.	man-root	native	
Cyperaceae– Sedge Family				
	Cucurbita palmata	coyote melon	native	
	Cyperus involucratus	umbrella plant	exotic	
Euphorbiaceae – Spurge Family				
	Croton setiger	doveweed	native	
	Ricinus communis	castor bean	exotic	
Fabaceae – Legume Family				
	Acmispon glaber	deerweed	native	
	Acmispon strigosus	Strigose lotus	native	
	Lupinus sp.	lupine	native	
	Medicago polymorpha	bur-clover	exotic	
	Melilotus indicus	yellow sweetclover	exotic	
	Parkinsonia aculeata	Jerusalem thorn	cultivated	
Geraniaceae – Geranium Family				
	Erodium cicutarium	red stemmed filaree	exotic	
Hydrophyllaceae – Waterleaf Family				
	Emmenanthe penduliflora	whispering bells	native	
	Eucrypta chrysanthemifolia	common eucrypta	native	
	Phacelia distans	common phacelia	native	
	Phacelia minor	California bluebell	native	
	Phacelia ramosissima	branching phacelia	native	
Lamiaceae– Mint Family				
	Salvia mellifera	black sage	native	
Lauraceae – Laurel Family				
	Persea americana	avocado	exotic	
Malvaceae – Mallow Family				
	Malva parviflora	cheeseweed mallow	exotic	
Meliaceae – Mohagany Family				
	Melia azedarach	China berry tree	exotic	
Moraceae – Mulberry Family				
	Ficus carica	fig	cultivated	
Myrtacaceae – Myrtle Family				
	Eucalyptus globulus	blue gum	cultivated	
Oleaceae – Olive Family				
	Olea europaea	olive	exotic	

Family	Scientific Name	Common Name	Nativity	Status
Onagraceae – Evening-Primrose Family				
	Oenothera avita ssp. *californica*	California primrose	native	
Papaveraceae – Poppy Family				
	Eschscholzia californica	California poppy	native	
Phrymaceae – Lopseed Family				
	Diplacus aurantiacus	orange bush monkeyflower	native	
	Erythranthe guttata	seep monkeyflower	native	
Polygonaceous – Buckwheat Family				
	Eriogonum fasciculatum	California buckwheat	native	
Rhamnaceae– Buckthorn Family				
	Ceanothus crassifolius	hoary leaved ceanothus	native	
Rosaceae – Rose Family				
	Adenostoma fasciculatum	chamise	native	
Salicaceae – Willow Family				
	Populus fremontii	Fremont cottonwood	native	
	Salix gooddingii	Goodding's willow	native	
	Salix laevigata	red willow	native	
	Salix lasiolepis	arroyo willow	native	
Solanaceae – Solanum Family				
	Datura wrightii	jimsonweed	native	
	Nicotiana glauca	tree tobacco	exotic	
Tamaricaceae – Tamarisk Family				
	Tamarix ramosissima	tamarisk	exotic	
Themidaceae – Brodiaea Family				
	Dipterostemon capitatus	blue dicks	native	
Typhaceae – Cattail Family				
	Typha sp.	cattail	native	
Viburnaceae – Muskroot Family				
	Sambucus mexicana	blue elderberry	native	
GYMNOSPERMS				
Cupressaceae– Cypress Family				
	Juniperus sp.	juniper tree	native	
Fagaceae – Oak Family				
	Quercus agrifolia	coast live oak	native	
Pinaceae – Pine Family				
	Pinus sp.	pine tree	native	
MONOCOTS				
Arecaceae – Palm Family				
	Phoenix canariensis	Canary island date palm	exotic	
	Washingtonia robusta	Mexican fan palm	exotic	

Family	Scientific Name	Common Name	Nativity	Status
Poaceae – Grass Family				
	Arundo donax	giant reed	exotic	
	Avena barbata	slender oat	exotic	
	Avena fatua	wild oat	exotic	
	Bromus diandrus	ripgut brome	exotic	
	Bromus madritensis ssp. *rubens*	red brome	exotic	
	Bromus tectorum	downy chess	exotic	
	Hordeum murinum	blue foxtail	exotic	
	Schismus barbatus	Mediterranean schismus	exotic	

Notes:
Federal Listings
FE = Listed as endangered under the federal Endangered Species Act
State Listings
CE = Listed as endangered under the California Endangered Species Act
CRPR Rankings
1A: Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
2A: Plants Presumed Extirpated in California, But Common Elsewhere
2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3: Plants About Which More Information is Needed - A Review List
4: Plants of Limited Distribution - A Watch List

FAUNAL COMPENDIUM

Class	Family	Family Common Name	Scientific Name	Common Name	Status
Birds					
	Accipitridae	True Hawks	*Buteo jamaicensis*	red-tailed hawk	
	Aegithalidae	Bushtits	*Psaltriparus minimus*	bushtit	
	Alaudidae	Larks	*Eremophila alpestris*	horned lark	WL
	Cardinalidae	Cardinals	*Piranga ludoviciana*	western tanager	
	Cathartidae	New World Vultures	*Cathartes aura*	turkey vulture	
	Charadriidae	Plovers	*Charadrius vociferus*	killdeer	
	Columbidae	Doves	*Columba livia*	rock dove	
	Columbidae	Doves	*Zenaida macroura*	mourning dove	
	Corvidae	Crows and Jays	*Aphelocoma californica*	western scrub-jay	
	Corvidae	Crows and Jays	*Corvus brachyrhynchos*	American crow	
	Corvidae	Crows and Jays	*Corvus corax*	common raven	
	Falconidae	Falcons	*Falco sparverius*	American kestrel	
	Fringillidae	Finches and Allies	*Haemorhous mexicanus*	house finch	
	Fringillidae	Finches and Allies	*Spinus psaltria*	lesser goldfinch	
	Hirundinidae	Swallows and Swifts	*Hirundo rustica*	barn swallow	
	Hirundinidae	Swallows and Swifts	*Petrochelidon pyrrhonota*	cliff swallow	
	Icteridae	New World Blackbirds	*Euphagus cyanocephalus*	Brewer’s blackbird	
	Icteridae	New World Blackbirds	*Icterus bullockii*	Bullock’s oriole	
	Icteridae	New World Blackbirds	*Sturnella neglecta*	western meadowlark	
	Laniidae	Shrikes	*Lanius ludovicianus*	loggerhead shrike	SSC
	Mimidae	Mockingbirds and Thrashers	*Mimus polyglotos*	northern mockingbird	
	Odontophoridae	New World Quails	*Callipepla californica*	California quail	
	Parulidae	New World Warblers	*Setophaga coronata*	Yellow-rumped warbler	
	Passeridae	Old World Sparrows	*Passer domesticus*	house sparrow	
	Passerellidae	New World Sparrows	*Chondestes grammacus*	lark sparrow	
	Passerellidae	New World Sparrows	*Melospiza melodia*	song sparrow	
	Passerellidae	New World Sparrows	*Melozone crissalis*	California towhee	
	Passerellidae	New World Sparrows	*Passerculus sandwichensis*	savannah sparrow	
	Passerellidae	New World Sparrows	*Piplio maculatus*	spotted towhee	
	Passerellidae	New World Sparrows	*Zonotrichia leucophrys*	white-crowned sparrow	
	Picidae	Woodpeckers	*Dryobates nuttallii*	Nuttall’s woodpecker	
	Sturnidae	Starlings	*Sturnus vulgaris*	European starling	
	Turdidae	Thrushes	*Sialia mexicana*	western bluebird	
	Trochilidae	Hummingbirds	*Calypte anna*	Anna's hummingbird	
	Troglodytidae	Wrens	*Thryomanes bewickii*	Bewick’s wren	
	Tyrannidae	Tyrant Flycatchers	*Sayornis nigricans*	black phoebe	

Class	Family	Family Common Name	Scientific Name	Common Name	Status
	Tyrannidae	Tyrant Flycatchers	*Sayornis saya*	Say's phoebe	
	Tyrannidae	Tyrant Flycatchers	*Pyrocephalus obscurus*	vermilion flycatcher	SSC
	Tyrannidae	Tyrant Flycatchers	*Tyrannus vociferans*	Cassin's kingbird	
Invertebrates					
	Acrididae	Grasshoppers	*Schistocerca nitens*	gray bird grasshopper	
	Nymphalidae	Brush-footed Butterflies	*Danaus plexippus*	monarch butterfly	
Mammals					
	Canidae	Wolves and Coyotes	*Canis latrans*	coyote	
	Leporidae	Rabbits	*Lepus californicus*	black-tailed jackrabbit	
	Leporidae	Rabbits	*Sylvilagus audubonii*	Audubon's cottontail	
	Sciuridae	Squirrels	*Otospermophilus beecheyi*	California ground squirrel	
Reptiles					
	Phrynosomatidae	Spiny Lizards	*Sceloporus orcutti*	granite spiny lizard	
	Phrynosomatidae	Spiny Lizards	*Uta stansburiana*	common side-blotched lizard	
	Teiidae	Whiptails	*Aspidoscelis tigris*	western whiptail	

Notes:
State Listings
SSC = Species of Special Concern (CDFW)
WL = Watch List (CDFW)

Appendix C
Representative Photographs



Photo 1. Blackburn Road Pipeline Upsizing with non-native grasslands to the south. Facing west (February 2026).



Photo 2. Cedar Street Avenue D Pipeline Upsizing. Facing west (May 2022).

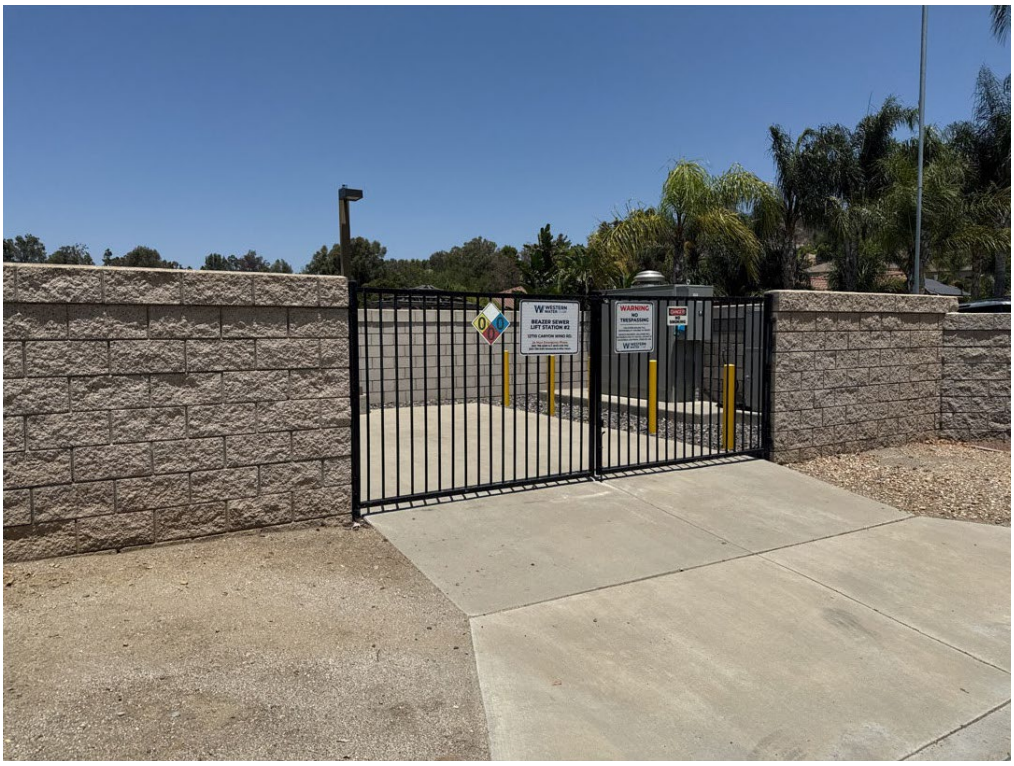


Photo 3. Beazer Lift Station Upgrade Project Site. Facing west (June 2025).



Photo 4. Markham Lift Station Upgrade (WWRF) Project Site. Facing southwest (May 2022).



Photo 5. Southern extent of Hillside 2320 PZ Booster Pump Station and Pipeline, west of Chalon Road. Facing southwest (February 2026).



Photo 6. View of New 3 MG Hidden Valley Tank Project Site with native shrub habitat. Facing west (February 2026).



Photo 7. View of New 1.5 MG El Nido Tank Project Site with native shrubs on slope. Facing northeast (February 2026).



Photo 8. New 7 MG Markham Tank Project Site. Facing north (June 2025).



Photo 9. New 12.5 MG Orangecrest Tank Project Site. Facing north (May 2022).



Photo 10. Cole Ave/Cedar Street Upsize Project Site. Facing southwest (February 2026).



Photo 11. Highland Grove Pipeline III 18-Inch Pipeline Project Site, east of Blackburn Road. Facing west (February 2026).



Photo 12. Highland Grove II and III 12-inch Pipeline Project Site. Facing west (February 2026).



Photo 13. Ruderal grassland habitat west of Juniper Road Pipeline Upsizing Project Site. Facing west (June 2025).



Photo 14. View of New Orangecrest Tank with non-native trees (background). Facing north (May 2022).



Photo 15. Orangecrest Tank Supply Pipelines (May 2022).



Photo 16. Lurin Irrigation Tank Improvements Project Site. Facing southeast (May 2022).



Photo 17. Western extent of Idaleona Drive Upsizing Project Site. Facing west (February 2026).



Photo 18. Cemetery PS Expansion Project Site (May 2022).



Photo 19. El Sobrante PS Expansion (150 HP) Project Site. Facing south (May 2022).



Photo 20. MARB 1269 Lift Station and Pipeline Upgrade 1269 Expansion Project site (June 2025).



Photo 21. Meridian Lift Station Upgrade (WWRF) (May 2022).



Photo 22. WWRF Expansion Study Project Site (background) and ruderal vegetation. Facing northeast (May 2022).

Appendix D
Special-Status Plant Species

Common Name ***Scientific Name***	**Sensitivity Status[1]**	**Flowering Period**	**Preferred Habitat/Known Elevation and Distribution[2]**	**Presence/Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Presence/Potential to Occur Within Future Projects Biological Study Areas**
BRYOPHYTES (Mosses)					
Bryaceae **(Moss Family)**					
California screw moss *Tortula californica*	Federal: None State: S2 Local: 1B.2	N/A	Chenopod scrub, Valley and foothill grassland; grows within sandy soils. Elevation range extends from 10-1,640 meters.	**Not Expected.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.	**Not Expected.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.
GYMNOSPERMS					
Cupressaceae **(Cypress Family)**					
Tecate cypress *Hesperocyparis forbesii*	Federal: None State: None Local: 1B.1	N/A	Clay, gabbroic or metavolcanic soils associated with closed-cone coniferous forest and chaparral. Elevation range extends from 80-1,500 meters. Found in Riverside, Orange, San Diego counties.	**Not Expected/Low.** This species may occur within chaparral habitat, however there is marginal suitable soils within the BSAs. CNDDB records are located in the Santa Ana Mountains.	**Not Expected.** This species may occur within chaparral habitat, however there are no suitable soils in the BSAs. CNDDB records are located in the Santa Ana Mountains.
ANGIOSPERMS (DICOTYLEDONS)					
Asteraceae **(Sunflower Family)**					
San Diego ambrosia *Ambrosia pumila*	Federal: FE State: None Local: 1B.1	Aug.-Oct.	Disturbed and vernal pools in coastal sage scrub, chaparral, freshwater wetlands (occasionally), valley grasslands. Elevation range extends from 5-600 meters. Found in Riverside and San Diego counties.	**Moderate/High.** This species has suitable coastal sage scrub and chaparral habitat. **Not Expected/Low.** This species is generally not expected to occur in BSAs that lack coastal sage scrub or chaparral habitat. One CNPS record from 2005 is present approximately 3 miles southeast of the El Nido Tank BSA.	**Moderate/High.** This species has suitable coastal sage scrub and chaparral habitat. **Not Expected/Low.** This species is generally not expected to occur in BSAs that lack coastal sage scrub or chaparral habitat.

Common Name ***Scientific Name***	**Sensitivity Status[1]**	**Flowering Period**	**Preferred Habitat/Known Elevation and Distribution[2]**	**Presence/Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Presence/Potential to Occur Within Future Projects Biological Study Areas**
Malibu baccharis *Baccharis malibuensis*	Federal: None State: None Local: 1B.1	Aug.	Chaparral, cismontane woodland, coastal scrub, riparian woodland. Elevation range extends from 150-305 meters. Found in Los Angeles and Orange.	**Not Expected.** The BSA is outside of the species' known range as it is limited to Los Angeles and Orange Counties.	**Not Expected.** The BSA is outside of the species' known range as it is limited to Los Angeles and Orange Counties.
smooth tarplant *Centromadia pungens* ssp. *laevis*	Federal: None State: None Local: 1B.1 MFSCHP(d)	Apr.-Sep.	Valley and foothill grasslands with poorly drained alkaline soil conditions at low elevations. Elevation range extends from 0-640 meters. Found in Riverside, San Bernardino, San Diego counties.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable alkaline soils. Some CNDDB records occur in the adjacent vicinity to the BSAs.	**Low.** This species is not expected to occur within the BSAs due to the lack of suitable alkaline soils. Some CNDDB records occur in the adjacent vicinity to the BSAs.
paniculate tarplant *Deinandra paniculata*	Federal: None State: None Local: 4.2	Apr.-Nov.	Generally vernally mesic; coastal scrub; valley and foothill grassland; vernal pools. Elevation range extends from 25-940 meters. Found in Orange, Riverside, San Diego, San Bernardino, Santa Barbara counties.	**Present.** This species was observed within RW-1: Cemetery PS Expansion and W-15: Juniper Road Pipeline Upsizing BSAs. Suitable habitat is also present within the WW-6: WWRF Expansion Study BSA.	**Moderate/High.** This species was observed during the Priority and Near-Term Projects field reconnaissance. Suitable habitat is present within the BSAs.
Los Angeles sunflower *Helianthus nuttallii* subsp. *parishii*	Federal: None State: None Local: 1A	Aug.-Oct.	Freshwater marsh, salt marsh. Elevation range extends from 10-1,675 meters. Found in Los Angeles, Orange, San Bernardino counties.	**Not Expected.** The BSA is outside of the species' known range as it is limited Orange, Los Angeles, and San Bernardino Counties.	**Not Expected.** The BSA is outside of the species' known range as it is limited Orange, Los Angeles, and San Bernardino Counties.
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	Federal: None State: None Local: 1B.1 MSHCP (d)	Feb.-Jun.	Salt-marsh, playas, vernal-pools, coastal; usually occurs in wetlands but occasionally in non-wetlands. Elevation range extends from 1-1,220 meters. Found in Orange, Riverside, Ventura, San Diego, and possibly Los Angeles, Kern and San Bernardino counties.	**Not Expected.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.	**Not Expected.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.

Common Name ***Scientific Name***	**Sensitivity Status[1]**	**Flowering Period**	**Preferred Habitat/Known Elevation and Distribution[2]**	**Presence/Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Presence/Potential to Occur Within Future Projects Biological Study Areas**
Allen's pentachaeta *Pentachaeta aurea* subsp. *allenii*	Federal: None State: None Local: 1B.1	Mar.-Jun.	Open coastal scrub, valley and foothill grassland. Elevation range extends from 75-520 meters. Found in Orange County.	**Not Expected.** The BSA is outside of the species' known range as it is limited to Orange County.	**Not Expected.** The BSA is outside of the species' known range as it is limited to Orange County.
chaparral ragwort *Senecio aphanactis*	Federal: None State: None Local: 2B.2	Jan.-Apr.	Chaparral, cismontane woodland, coastal scrub; sometimes alkaline soil. Elevation range extends from 15-800 meters. Found in Los Angeles, Riverside, Orange, San Diego, Santa Barbara, Ventura counties.	**Not Expected/Low.** Limited suitable habitat is present within W-5: New 3 MG Hidden Valley Tank and New 1.5 MG El Nido Tank BSAs. CNDDB records are located approximately 6 miles north of the northernmost BSA.	**Not Expected/Low.** Limited suitable habitat is present within the W-22: New 3 MG Hidden Valley Tank BSAs. CNDDB records are located approximately 6 miles north of the northernmost BSA.
white rabbit-tobacco *Pseudognaphalium leucocephalum*	Federal: None State: None Local: 2B.2	Jul.-Dec.	Sandy, gravelly, Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland. Elevation range extends from 0-2,100 meters. Found in Los Angeles, Riverside, Orange, San Diego, Ventura counties.	**Not Expected/Low.** Limited suitable habitat is present within W-5: New 3 MG Hidden Valley Tank and W-6: New 1.5 MG El Nido Tank BSAs. CNDDB records are located in Temescal Canyon approximately 4.5 miles southwest of the Hidden Valley BSA.	**Not Expected/Low.** Limited suitable habitat is present within W-22: New 3 MG Hidden Valley Tank BSAs. CNDDB records are located in Temescal Canyon approximately 4.5 miles southwest of the Hidden Valley BSA.
San Bernardino aster *Symphyotrichum defoliatum*	Federal: None State: None Local: 1B.2	Jul.-Nov.	Near ditches, springs, and streams; cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, valley and foothill grassland (vernally mesic) Elevation range extends from 2-2,040 meters. Found in Los Angeles, Kern, Imperial, Riverside, San Bernardino, Orange, San Diego counties.	**Not Expected/Low.** This species is not expected to occur within the BSAs as two of the CNDDB occurrences are from 1986 and 1995 and the third has been extirpated.	**Not Expected/Low.** This species is not expected to occur within the BSAs as two of the CNDDB occurrences are from 1986 and 1995 and the third has been extirpated.

Common Name ***Scientific Name***	**Sensitivity Status[1]**	**Flowering Period**	**Preferred Habitat/Known Elevation and Distribution[2]**	**Presence/Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Presence/Potential to Occur Within Future Projects Biological Study Areas**
Wright's trichocoronis *Trichocoronis wrightii* var. *wrightii*	Federal: None State: None Local: 2B.1 MSHCP(b)	May-Sept.	Meadows and seeps, marshes and swamps, riparian scrub, vernal. Elevation range extends from 5-435 meters. Found in Riverside County.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable alkaline soils.	**Not Expected.** This species is not expected to occur within the BSAs due to the lack of suitable habitat and alkaline soils.
Berberidaceae (Barberry Family)					
Nevin's barberry *Berberis nevinii*	Federal: FE State: CE Local: 1B.1	Mar.-June	Sandy soils in low-gradient washes, alluvial terraces, and canyon bottoms, along gravelly wash margins, or on coarse soils on steep, generally north-facing slopes in alluvial scrub, cismontane (e.g., chamise) chaparral, coastal sage scrub, oak woodland, and/or riparian scrub or woodland. Elevation range extends from 70-825 meters. Found in Los Angeles, Riverside, San Bernardino, San Diego counties.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable habitat. Additionally, the closest CNDDB occurrence is listed as a transplant outside of its native habitat and range.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable habitat. Additionally, the closest CNDDB occurrence is listed as a transplant outside of its native habitat and range.
Boraginaceae (Borage Family)					
mud nama *Nama stenocarpa*	Federal: None State: None Local: 2.B2 MSHCP(d)	Jan.-Jul.	Marches and swamps (lake margins, riverbanks). Elevation range extends from 5-500 meters. Found in Orange, Riverside, San Diego, possibly Los Angeles counties.	**Not Expected.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.	**Not Expected.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.

Common Name ***Scientific Name***	**Sensitivity Status[1]**	**Flowering Period**	**Preferred Habitat/Known Elevation and Distribution[2]**	**Presence/Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Presence/Potential to Occur Within Future Projects Biological Study Areas**
Santiago Peak phacelia *Phacelia keckii*	Federal: None State: None Local: 1B.3 MSHCP	May-Jun.	Within openings in closed-cone coniferous forest and chaparral; occasionally found along streams. Elevation range extends from 545-1,600 meters. Found in Orange and Riverside counties.	**Not Expected/Low.** This species is not expected to occur within the BSAs in the service are as they are outside of the species known range. CNDDB records are located in the Santa Ana Mountains.	**Not Expected/Low.** This species is not expected to occur within the BSAs in the service are as they are outside of the species known range. CNDDB records are located in the Santa Ana Mountains.
Brand's star phacelia *Phacelia stellaris*	Federal: FC State: None Local: 1B.1 MSHCP(b)	Mar-Jun.	Open areas within coastal dunes and scrub habitats. Elevation range extends from 1-400 meters. Found in Los Angeles, Orange, Riverside, San Bernardino San Diego counties.	**Not Expected.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.	**Not Expected.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.
Brassicaceae (Cabbage Family)					
Gambel's water cress *Nasturtium gambelii*	Federal: FE State: CT Local: 1B.1	Apr.-Oct.	Marshes or swamps. Elevation range extends from 5-330 meters. Found in Los Aneles, Orange, San Diego, possibly San Bernardino counties.	**Not Expected.** This species is not expected to occur within the BSAs due to lack of suitable habitat.	**Not Expected.** This species is not expected to occur within the BSAs due to lack of suitable habitat.
rigid fringepod *Thysanocarpus rigidus*	Federal: None State: None Local: 1B.2	Feb.-May	Pinyon and juniper woodland; prefers dry, rocky slopes and ridges within oak and pine woodland in arid mountains. Elevation range extends from 425-2,165 meters.	**Moderate.** Juniper woodland habitat present at W-15: Juniper Road Pipeline Upsizing. **Not Expected/Low.** This species is generally not expected to occur within the BSAs due to the lack of suitable habitat.	**Not Expected/Low.** This species is generally not expected to occur within the BSAs due to the lack of suitable habitat.

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Caryophyllaceae (Pink Family)					
marsh sandwort *Arenaria paludicola*	Federal: FE State: SE Local: 1B.1	May-Aug.	Marshes and swamps (freshwater or brackish)/sandy, openings Elevation range extends from 3-170 meters. Found in Los Angeles, San Bernardino, San Luis Obispo counties.	**Not Expected/Low.** This species is generally not expected within the service area, which lacks suitable marsh and swamp habitats.	**Not Expected/Low.** This species is generally not expected within the service area, which lacks suitable marsh and swamp habitats.
Chenopodiaceae (Goosefoot Family)					
San Jacinto Valley crownscale *Atriplex coronata* var. *notatior*	Federal: FE State: None Local: 1B.1 MSHCP(d)	Apr.-Aug.	Alkaline flats, playas, valley and foothill grassland, vernal pools. Elevation range extends from 370-488 meters. Found in Riverside and Kern counties.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.
Coulter's saltbush *Atriplex coulteri*	Federal: None State: None Local: 1B.2	Mar.-Oct.	Alkaline or clay soils; coastal bluff scrub, coastal dunes, Coastal scrub, Valley and foothill grassland. Elevation range extends from 3-460 meters. Found in Los Angeles, Orange, San Diego, San Bernardino, Ventura counties.	**Not Expected/Low.** This species is not expected to occur within the BSAs in the service are as they are outside of the species known range.	**Not Expected/Low.** This species is not expected to occur within the BSAs in the service are as they are outside of the species known range.
Parish's brittlescale *Atriplex parishii*	Federal: None State: None Local: 1B.1 MSHCP(d)	Jun.-Oct.	Shadscale scrub, alkali sinks, freshwater wetlands, wetland-riparian; playas, vernal pools. Elevation range extends from 25-1,900 meters. Found in Orange, Riverside, San Diego, and possibly Los Angeles and San Bernardino counties.	**Not Expected.** This species is not expected to occur as one of the CNDDB occurrences is listed as possibly extirpated and the date is unknown for the other occurrence.	**Not Expected.** This species is not expected to occur as one of the CNDDB occurrences is listed as possibly extirpated and the date is unknown for the other occurrence.

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Davidson's saltscale *Atriplex serenana* var. *davidsonii*	Federal: None State: None Local: 1B.2 MSHCP(d)	Apr.-Oct.	Coastal sage scrub, wetland-riparian; coastal. Elevation range extends from 10-200 meters. Found in Orange, Riverside, San Diego, and possibly Los Angeles and San Bernardino counties.	**Not Expected/Low.** This species is not expected to occur within the BSAs in the service are as they are outside of the required elevational range.	**Not Expected/Low.** This species is not expected to occur within the BSAs in the service are as they are outside of the required elevational range.
Convolvulaceae (Morning-glory Family)					
lucky morning-glory *Calystegia felix*	Federal: None State: None Local: 1B.1	Mar.-Sep.	Meadows and seeps (sometimes alkaline), riparian scrub (alluvial); usually found in wetlands and marshes, but can be found in drier areas as well. Elevation range extends from 30-215 meters. Found in Los Angeles, Riverside, San Bernardino counties.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to lack of suitable habitat..	**Not Expected/Low.** This species is not expected to occur within the BSAs due to lack of suitable habitat..
Peruvian dodder *Cuscuta obtusiflora* var. *glandulosa*	Federal: None State: None Local: 2B.2	Jul.-Oct.	Marshes and swamps (freshwater). Elevation range extends from 15-280 meters.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to lack of suitable habitat..	**Not Expected/Low.** This species is not expected to occur within the BSAs due to lack of suitable habitat..
Crassulaceae (Stonecrop Family)					
Santiago Canyon dudleya *Dudleya chasmophyta*	Federal: None State: None Local: 1B.2	May-Jun.	Chaparral, coastal scrub on steep cliffs of conglomerate rock. Elevation range extends 475-515 meters. Found in Orange county.	**Not Expected.** This species is not expected to occur within the BSAs due to the BSAs being outside of the known range for the species (limited to Orange county).	**Not Expected.** This species is not expected to occur within the BSAs due to the BSAs being outside of the known range for the species (limited to Orange county).

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many-stemmed dudleya *Dudleya multicaulis*	Federal: None State: None Local: 1B.2 MSHCP(b)	Apr.-Jul.	Chaparral, coastal scrub, valley and foothill grassland often on clay soils. Elevation range extends from 15-790 meters. Found in Los Angeles, Orange, Riverside, San Bernardino, San Diego counties.	**Moderate/High.** This species may occur in chaparral and grassland habitat, however there are marginal suitable soils for this species.	**Not Expected/Low.** This species may occur in chaparral, coastal scrub and grassland habitat, however there are no suitable soils for this species.
sticky dudleya *Dudleya viscida*	Federal: None State: None Local: 1B.2 MSHCP(f)	May-Jun.	Chaparral, coastal sage scrub; coastal. Elevation range extends from 10-550 meters. Found in Orange, Riverside, San Diego counties.	**Not Expected/Low.** This species may occur within the BSAs with chaparral habitat, however the CNDDB record is located in the Santa Ana Mountains.	**Not Expected/Low.** This species may occur within the BSAs with chaparral habitat, however the CNDDB record is located in the Santa Ana Mountains.
Ericaceae **(Heather Family)**					
summer holly *Comarostaphylis diversifolia* subsp. *diversifolia*	Federal: None State: None Local: 1B.2	Apr.-Jun.	Chaparral, cismontane woodland, mixed chaparral; sometimes found in burned areas. Elevation range extends from 30-790 meters. Found in Orange, Riverside, San Diego counties.	**Not Expected/Low.** This species is not expected to occur within suitable chapparal habitat within the service area, which is not within the known range for the species. Recent CNDDB records are located within the Santa Ana Mountains.	**Not Expected/Low.** This species is not expected to occur within suitable chapparal habitat within the service area, which is not within the known range for the species. Recent CNDDB records are located within the Santa Ana Mountains.
Fabaceae **(Legume Family)**					
Braunton's milk-vetch *Astragalus brauntonii*	Federal: FE State: None Local: 1B.1	Jan.-Aug.	Chaparral, coastal scrub, valley and foothill grassland; recent burns or disturbed areas, usually sandstone with carbonate layers. Elevation range extends from 4-640 meters. Found in Los Angeles, Orange, Riverside, Ventura counties.	**Not Expected/Low.** This species is not expected to occur within the service area, which is not within the known range of the species.	**Not Expected/Low.** This species is not expected to occur within the service area, which is not within the known range of the species.

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Horn's milk-vetch *Astragalus hornii* var. *hornii*	Federal: None State: None Local: 1B.1	May-Oct.	Meadows and seeps, Playas/lake margins, alkaline Elevation range extends from 60-850 meters. Found in Kern, San Bernardino* counties, Nevada.	**Not Expected/Low.** This species is not expected to occur within the service area, which is not within the known range of the species.	**Not Expected/Low.** This species is not expected to occur within the service area, which is not within the known range of the species.
Grossulariaceae (Gooseberry Family)					
Parish's gooseberry *Ribes divaricatum* var. *parishii*	Federal: None State: None Local: 1A	Feb.-Apr.	Riparian woodland. Elevation range extends from 65-300 meters. Found in Los Angeles*, San Bernardino counties.	**Not Expected/Low.** This species is not expected to occur within the BSAs in the service are as they are outside of the species known range. The CNDDB 1917 occurrence in San Bernardino is listed as possibly extirpated	**Not Expected/Low.** This species is not expected to occur within the BSAs in the service are as they are outside of the species known range. The CNDDB 1917 occurrence in San Bernardino is listed as possibly extirpated
Lamiaceae (Mint Family)					
San Miguel savory *Clinopodium chandleri*	Federal: None State: None Local: 1B.2 MSHCP	Mar.-Jul.	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Grows within rocky, gabbroic, or metavolcanic soils. Elevation range extends from 120-1,075 meters. Found in Orange, Riverside, San Diego counties.	**Not Expected/Low.** This species is not expected due to lack of suitable soils. CNDDB occurrences are located in the Santa Ana Mountains.	**Not Expected/Low.** This species is not expected due to lack of suitable soils. CNDDB occurrences are located in the Santa Ana Mountains.
heart-leaved pitcher sage *Lepechinia cardiophylla*	Federal: None State: None Local: 1B.2 MSHCP(d)	Apr.-Jul.	Closed-cone coniferous forest, chaparral, cismontane woodland. Elevation range extends from 520-1,370 meters. Found in Orange, Riverside, San Diego counties.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to lack of suitable habitat.	**Not ExpectedLow**. This species is not expected to occur within the BSAs due to lack of suitable habitat.

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Jokerst's monardella *Monardella australis* subsp. *jokersti*	Federal: None State: None Local: 1B.1	Jul.-Sep.	Steep scree or talus slopes between breccias, secondary alluvial benches along drainages and washes; chaparral, lower montane coniferous forest. Elevation range extends from 1,350-1,750 meters. Found in San Bernardino County.	**Not Expected/Low**. This species is not expected to occur within the BSAs, which is lower than the known elevational range for this species.	**Not Expected/Low.** This species is not expected to occur within the BSAs, which is lower than the known elevational range for this species.
intermediate monardella *Monardella hypoleuca* subsp. *intermedia*	Federal: None State: None Local: 1B.3	Apr.-Sep.	Chaparral, cismontane woodland, lower montane, occasionally coniferous forest; generally grows on steep hillsides with dense brush. Elevation range extends from 400-1,250 meters. Found in Riverside, Orange, San Diego counties.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to lack of suitable habitat. CNDDB occurrences are located in the Santa Ana Mountains.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to lack of suitable habitat. CNDDB occurrences are located in the Santa Ana Mountains.
Hall's monardella *Monardella macrantha* subsp. *hallii*	Federal: None State: None Local: 1B.3 MSHCP	Jun.-Oct.	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Elevation range extends from 730-2,195 meters. Found in Los Angeles, Orange, Riverside, San Bernardino, San Diego counties.	**Not Expected/Low**. This species is not expected to occur within the BSAs, which is lower than the known elevational range for this species.	**Not Expected/Low**. This species is not expected to occur within the BSAs, which is lower than the known elevational range for this species.
Pringle's monardella *Monardella pringlei*	Federal: None State: None Local: 1A	May-Jun.	Coastal scrub(sandy) Elevation range extends from 300 to 400 meters. Found in Riverside*, San Bernardino* counties.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to lack of suitable habitat. CNDDB occurrences are possibly extirpated in Jurupa Valley and Colton.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to lack of suitable habitat. CNDDB occurrences are possibly extirpated in Jurupa Valley and Colton.

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Malvaceae **(Mallow Family)**					
Parish's bushmallow *Malacothamnus parishii*	Federal: None State: None Local: 1A	Jun-Jul.	Chaparral, coastal scrub. Elevation range extends from 305-455 meters. Found in Ventura, Los Angeles, Orange, San Bernadino, Riverside, and San Diego counties.	**Not Expected/Low**. This species is not expected to occur within the BSAs as the CNDDB occurrences is from 1895 and is listed as extirpated.	**Not Expected/Low**. This species is not expected to occur within the BSAs as the CNDDB occurrences is from 1895 and is listed as extirpated.
salt spring checkerbloom *Sidalcea neomexicana*	Federal: None State: None Local: 2.2	Mar.-Jun.	Chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, playas; alkaline and mesic soils. Elevation range extends from 15-1,530 meters. Found in Kern, Orange, Riverside, Ventura, San Bernardino, San Diego, possibly Los Angeles counties.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable soils.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable soils and presence of marginal habitat.
Nyctaginaceae **(Four O'clock Family)**					
chaparral sand-verbena *Abronia villosa* var. *aurita*	Federal: None State: None Local: 1B.1	Jan.-Sep.	Chaparral, coastal scrub, and desert dunes/sandy areas. Elevation range extends from 0-1,600 meters. Found in Los Angeles, Riverside, San Diego, San Bernardino, possibly Orange counties.	**Moderate/High.** This species has suitable habitat within the coastal sage scrub and chaparral communities within sandy soils including brittle bush scrub, California brittlebush scrub, California buckwheat scrub, California sagebrush – California buckwheat scrub, California sagebrush scrub, California juniper woodland, chamise chaparral, and chamise – sage chaparral. **Not Expected/Low.** The species is generally not expected within BSAs that do not contain appropriate chaparral or coastal sage scrub habitats. No dune habitat is expected within the service area.	**Moderate/High.** This species has suitable habitat within the coastal sage scrub and chaparral communities within sandy soils within the service area. **Not Expected/Low.** The species is generally not expected within BSAs that do not contain appropriate chaparral or coastal sage scrub habitats. No dune habitat is expected within the service area.

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Orobanchaceae **(Broomrape Family)**					
Salt marsh bird's beak *Chloropyron [Cordylanthus] maritimum* subsp*. maritimum*	Federal: FE State: SE Local: 1B.2	May-Oct.	Coastal dunes, marshes, and swamps. Elevation range extends from 0-30 meters. Found in Los Angeles, Orange, San Diego, San Bernardino, Ventura counties.	**Not Expected/Low**. This species is not expected due to lack of suitable habitat. One CNDDB record from 1888 is listed as possibly extirpated.	**Not Expected/Low**. This species is not expected due to lack of suitable habitat. One CNDDB record from 1888 is listed as possibly extirpated.
Picrodendraceae **(Bitter Tree Family)**					
California beardtongue *Penstemon californicus*	Federal: None State: None Local: 1B.2 MSHCP	May-Jun. (uncommonly Aug.)	Sandy, chaparral, lower montane coniferous forest, pinyon and juniper woodlands. Elevation range extends from 1,170-2,300 meters. Found in Orange and Riverside counties.	**Not Expected/Low**. This species is not expected to occur within the BSAs, which is lower than the known elevational range for this species.	**Not Expected/Low**. This species is not expected to occur within the BSAs, which is lower than the known elevational range for this species.
Polemoniaceae **(Phlox Family)**					
Santa Ana River woollystar *Eriastrum densifolium* ssp. *sanctorum*	Federal: FE State: SE Local: 1B.1	Apr.-Sep.	Chaparral, coastal scrub (alluvial fan)/sandy or gravelly. Elevation range extends from 91-610 meters. Found in Riverside, San Bernardino, possibly Orange counties.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to the lack of suitable habitat.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to the lack of suitable habitat.
spreading navarretia *Navarretia fossalis*	Federal: FT State: None Local: 1B.1 MSHCP(b)	Apr.-Jun.	Coastal sage scrub, wetland-riparian; occurs almost always under natural conditions in wetlands. Elevation range extends from 30-655 meters. Found in Los Angeles, Riverside, San Diego counties.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to the lack of suitable habitat.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to the lack of suitable habitat.

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prostrate vernal pool navarretita *Navarretia prostrata*	Federal: None State: None Local: 1B.1	Apr.-Jul.	Coastal sage scrub, wetland-riparian; occurs almost always under natural conditions in wetlands. Elevation range extends from 15-1,210 meters. Found in Los Angeles, Orange, Riverside, San Diego counties.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area as the service area is located outside of known vernal pools at a watershed level.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area as the service area is located outside of known vernal pools at a watershed level.
Polygonaceae **(Buckwheat Family)**					
San Fernando Valley spineflower *Chorizanthe parryi* var. *fernandina*	Federal: FC State: FE Local: 1B.1	Apr.-Jul.	Coastal scrub (sandy), valley and foothill grassland; Elevation range extends from 150-1,220 meters. Found in Los Angeles, Ventura, possibly Orange counties.	**Not Expected/Low**. The BSA is outside of the species' known range, which does not include Riverside County.	**Not Expected/Low**. The BSA is outside of the species' known range, which does not include Riverside County.
Parry's spineflower *Chorizanthe parryi* var. *parryi*	Federal: None State: None Local: 1B.1	Apr.-Jun.	Openings/clearings in coastal or desert sage scrub, chaparral or interface; dry slopes or flat ground; sandy soils. Elevation range extends from 275-1,220 meters. Found in Los Angeles, Riverside, San Bernardino counties.	**Moderate**. This species has a moderate potential to occur within the RW-1: Idaleona Drive Upsizing, W41: Hillside 2320 PZ Booster Pump Station and Pipeline, W-5: New 3 MG Hidden Valley Tank, W-6: New 1.5 MG El Nido Tank BSA due to the presence of suitable habitat and soils. Additionally, there are many relatively recent CNDDB records located near the BSA.	**Not Expected/Low**. This species has a low potential to occur within the CITP, W-5: New 3 MG Hidden Valley Tank BSAs due to the presence of suitable habitat and soils. Additionally, there are many relatively recent CNDDB records located near the BSAs.
long-spined spineflower *Chorizanthe polygonoides* var. *longispina*	Federal: None State: None Local: 1B.2 MSHCP	Apr.-Jul.	Primarily associated with clay soils but also found on sandy or gravelly soils within open areas of chaparral, sage scrub, or needlegrass grassland. Elevation range extends from 30-1,530 meters. Found in Orange, Riverside, Santa Barbara, San Diego counties.	**Moderate**. This species has a low potential to occur within the IRW-1: Idaleona Drive Upsizing, W-4: Hillside 2320 PZ Booster Pump Station and Pipeline, W-5: New 3 MG Hidden Valley Tank, W-6: New 1.5 MG El Nido Tank BSA due to the presence of suitable habitat and soils. Additionally, there are many relatively recent CNDDB records located near the BSA.	**Not Expected/Low**. This species has a low potential to occur within the CITP, W-5: New 3 MG Hidden Valley Tank BSAs due to the presence of suitable habitat and soils. Additionally, there are many relatively recent CNDDB records located near the BSAs.

Common Name ***Scientific Name***	**Sensitivity Status[1]**	**Flowering Period**	**Preferred Habitat/Known Elevation and Distribution[2]**	**Presence/Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Presence/Potential to Occur Within Future Projects Biological Study Areas**
white-bracted spineflower *Chorizanthe xanti* var. *leucotheca*	Federal: None State: None Local: 1B.2	Apr.-Jun.	Sandy or gravelly soils in coastal scrub (alluvial fans); Mojavean desert scrub; Pinyon and juniper woodland. Elevation range extends from 300-1,200 meters. Found in Los Angeles, Riverside, San Bernardino, San Diego counties.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to the lack of suitable habitat.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to the lack of suitable habitat.
slender-horned spineflower *Dodecahema leptoceras*	Federal: FE State: SE Local: 1B.1	Apr.-Jun.	Scrub and chaparral in sandy soils and alluvial fans. Elevation range extends from 200-760 meters. Found in Los Angeles, Riverside, San Bernardino counties.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to the lack of suitable habitat.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to the lack of suitable habitat.
Rhamnaceae **(Buckthorn Family)**					
mesa horkelia *Horkelia cuneata* var. *puberula*	Federal: None State: None Local: 1B.1	Feb.-Jul. (uncommonly Sep.)	Chaparral (maritime), cismontane woodland, coastal scrub/sandy or gravelly. Elevation range extends from 70-810 meters. Found in Los Angeles, Orange, San Bernardino, San Diego, Ventura, possibly Riverside counties.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to the lack of suitable habitat.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to the lack of suitable habitat.
Rubiaceae **(Coffee Family)**					
Alvin Meadow bedstraw *Galium californicum* ssp. *primum*	Federal: None State: None Local: 1B.2	May-Jul.	Chaparral, Lower montane coniferous forest/granitic, sandy Elevation range extends from 1,350-1,700 meters. Found in Riverside, San Bernardino counties.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to the lack of suitable habitat and they are outside of the required elevational range.	**Not Expected/Low**. This species is not expected to occur within the BSAs due to the lack of suitable habitat and they are outside of the required elevational range.

Common Name ***Scientific Name***	**Sensitivity Status[1]**	**Flowering Period**	**Preferred Habitat/Known Elevation and Distribution[2]**	**Presence/Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Presence/Potential to Occur Within Future Projects Biological Study Areas**
Solanaceae **(Nightshade Family)**					
Parish's box thorn *Lycium parishii*	Federal: None State: None Local: 2B.3	Mar.-Apr.	Coastal scrub, Sonoran desert scrub Elevation range extends from 135-1,000 meters. Found in Imperial, Riverside, San Bernardino*, San Diego counties, Arizona.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.
ANGIOSPERMS (MONOCOTYLEDONS)					
Alliaceae **(Onion Family)**					
Yucaipa onion *Allium marvinii*	Federal: None State: None Local: 1B.2	Apr.-May	Dry ridges and slopes. Elevation range extends 300-1250 meters. Found in Orange, Riverside, and San Diego counties.	**Moderate/High.** This species has suitable habitat within the chamise chaparral and chamise – sage chaparral communities within the service area. **Not Expected/Low.** The species is generally not expected within BSAs that do not contain appropriate chaparral habitats.	**Moderate/High.** This species has suitable habitat such as chaparral communities like chamise chaparral and chamise – sage chaparral communities within the service area. **Not Expected/Low.** The species is generally not expected within BSAs that do not contain appropriate chaparral habitats.
Munz's onion *Allium munzii*	Federal: FE State: ST Local: 1B.1 MSHCP(b)	Mar.-May	Chaparral, cismontane woodland, coastal scrub, pinyon and juniper woodland, valley and foothill grassland communities; clay soils. Elevation range extends from 297-1,070 meters. Found in Riverside County.	**Moderate-High.** The species has suitable habitat within the coastal sage scrub habitats present within the service area. **Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable soil and in areas where suitable chaparral habitat is not present. Additionally, one CNDDB record from 1931 is located within the RW-1: Idaleona Drive Upsizing BSA and it is listed as possible extirpated.	**Moderate-High.** The species has suitable habitat within the coastal sage scrub habitats present within the service area that contain clay soils. **Not Expected/Low.** This species is not expected to occur in BSAs that lack clay soils and/or chaparral habitat.

Common Name ***Scientific Name***	**Sensitivity Status[1]**	**Flowering Period**	**Preferred Habitat/Known Elevation and Distribution[2]**	**Presence/Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Presence/Potential to Occur Within Future Projects Biological Study Areas**
Cyperaceae (Sedge Family)					
bristly sedge *Carex comosa*	Federal: None State: None Local: 2B.1	May-Sep.	Coastal prairie, Marshes and swamps (lake margins), Valley and foothill grassland. Elevation range extends from 0-625 meters. Found in much of the United States, Sacramento, San Bernardino, Santa Cruz, San Francisco.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to lack of suitable habitat. The one CNDDB record from 1884 is listed as possibly extirpated.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to lack of suitable habitat. The one CNDDB record from 1884 is listed as possibly extirpated.
California saw-grass *Cladium californicum*	Federal: None State: None Local: 2B.2	Jun.-Sep.	Meadows and seeps, marshes, swamps/alkaline or freshwater. Elevation range extends from 0-2,000 meters. Found in Riverside, San Bernardino, possibly Los Angeles counties.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.
Liliaceae (Lily Family)					
intermediate mariposa lily *Calochortus weedii* var. *intermedius*	Federal: None State: None Local: 1B.2 MSHCP	May-Jul.	Coastal scrub, chaparral, valley and foothill grassland on rocky soil and rocky outcrops. Elevation range extends from 105-855 meters. Found in Los Angeles, Orange, Riverside, San Bernardino counties.	**Moderate.** Suitable chaparral and coastal scrub habitat with rocky outcrops present at W-15: Juniper Road Pipeline Upsizing, W-6: New 1.5 MG El Nido Tank, and W-5: New 3 MG Hidden Valley Tank. **Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable soil and in areas where suitable coastal sage scrub or chaparral habitat is not present. All recent CNDDB records are located within the Santa Ana Mountains.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable soil and in areas where suitable coastal sage scrub or chaparral habitat is not present. All recent CNDDB records are located within the Santa Ana Mountains.

Common Name ***Scientific Name***	**Sensitivity Status[1]**	**Flowering Period**	**Preferred Habitat/Known Elevation and Distribution[2]**	**Presence/Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Presence/Potential to Occur Within Future Projects Biological Study Areas**
Poaceae **(True Grass Family)**					
California satintail *Imperata brevifolia*	Federal: None State: None Local: 2B.1	Sep.-May	Chaparral, coastal sage scrub, Mojavean desert scrub, meadows and seeps (often alkali), riparian scrub/mesic. Elevation range extends from 0-1,215 meters. Found in Kern, Los Angeles, Riverside, San Bernardino, Ventura, Orange counties.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable habitat and soils.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable soils and presence of marginal habitat.
aparejo grass *Muhlenbergia utilis*	Federal: None State: None Local: 2B.2	Oct-Mar	Wet sites along streams and ponds. Elevation range extends 250-1000 meters. Found in various counties throughout California.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.
California Orcutt grass *Orcuttia californica*	Federal: FE State: SE Local: 1B.1 MSHCP (b)	Apr.-Aug.	Vernal pools. Elevation range extends from 15-660 meters. Found in Los Angeles, Riverside, San Diego, Ventura counties.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area as the service area is located outside of known vernal pools at a watershed level.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area as the service area is located outside of known vernal pools at a watershed level.
prairie wedge grass *Sphenopholis obtusata*	Federal: None State: None Local: 2B.2	Apr.-Jul.	Cismontane woodland, meadows and seeps/mesic. Elevation range extends from 300-2,000 meters. Found in much of the United States, Riverside, San Bernardino, San Diego counties, Baja California.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable habitat.

Common Name *Scientific Name*	Sensitivity Status[1]	Flowering Period	Preferred Habitat/Known Elevation and Distribution[2]	Presence/Potential to Occur Within Priority and Near-Term Projects Biological Study Areas	Presence/Potential to Occur Within Future Projects Biological Study Areas
Ruscaceae (Ruscus Family)					
chaparral nolina *Nolina cismontana*	Federal: None State: None Local: 1B.2	May-Jul.	Xeric Diegan sage scrubs, open chaparral, coastal scrub; generally grows within sandstone and shale substrates and occasionally within gabbro. Elevation range extends from 140-1,275 meters. Found in Orange, Riverside, San Diego, Ventura counties.	**Not Expected/Low.** The species may occur within open chapparal habitats, however there is marginal soil suitability within the BSAs.	**Not Expected/Low.** The species may occur within open chapparal habitats, however there is marginal soil suitability within the BSAs.
Themidaceae (Butcher's-Broom Family)					
thread-leaved brodiaea *Brodiaea filifolia*	Federal: FT State: CE Local: 1B.1	Mar.-Jun.	Clay soils in coastal scrub, valley and foothill grassland, cismontane woodland, and vernal pools. Elevation range extends from 25-1,120 meters. Found in Los Angeles, Orange, Riverside, San Diego, San Bernardino counties.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable soils.	**Not Expected/Low.** This species is not expected to occur within the BSAs due to the lack of suitable soils.

1. Sensitivity Status

Federal

FE	*Federally Endangered*
FT	*Federally Threatened*
FC	*Federal Candidate*
FPE	*Federally Proposed as Endangered*
FPT	*Federally Proposed as Threatened*
FPD	*Federally Proposed for Delisting*

State

SE	*State Listed as Endangered*
ST	*State Listed as Threatened*
SCE	*State Candidate for Endangered*
SCT	*State Candidate for Threatened*
SR	*State Rare*

Common Name *Scientific Name*	Sensitivity Status[1]	Flowering Period	Preferred Habitat/Known Elevation and Distribution[2]	Presence/Potential to Occur Within Priority and Near-Term Projects Biological Study Areas	Presence/Potential to Occur Within Future Projects Biological Study Areas

Local

CRPR

California Rare Plant Ranks:

California Rare Plant Rank 1A — Plants presumed extirpated in California and either rare or extinct elsewhere

California Rare Plant Rank 1B — Plants rare, threatened, or endangered in California and elsewhere

California Rare Plant Rank 2A — Plants presumed extirpated in California but common elsewhere

California Rare Plant Rank 2B — Plants rare, threatened, or endangered in California, but common elsewhere

Threat Code extensions and their meanings:

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

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

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

MSHCP — *Western Riverside County Multiple Species Habitat Conservation Plan covered species*

MSHCP (a) — *Surveys may be required as part of wetlands mapping per MSHCP Section 6.1.2.*

MSHCP (b) — *Surveys may be required within Narrow Endemic Plant Species survey area per MSHCP Section 6.1.3.*

MSHCP (c) — *Surveys may be required per MSHCP Section 6.3.2.*

MSHCP (d) — *Surveys may be required within Criteria Area per MSHCP Section 6.3.2.*

MSHCP (e) — *These Covered Species will be considered to be Covered Species Adequately Conserved when conservation requirements identified in species-specific conservation objectives have been met per MSHCP Section 9.0 (Table 9-3).*

MSHCP (f) — *These Covered Species will be considered to be Covered Species Adequately Conserved when a Memorandum of Understanding is executed with the Forest Service that addresses management for these species on Forest Service Land per MSHCP Table 9-3.*

2. Sources for Preferred Habitat:

Calflora. 2026. Information on Wild California Plants. Available online at: https://www.calflora.org/.

CDFW. 2026. California Natural Diversity Database (CNDDB). RareFind, Version 5.0 (Commercial Subscription). Sacramento, California: CDFW, Biogeographic Data Branch. Available online at: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed on April 15, 2026.

Source: ESA 2026

Appendix E
Special-Status Wildlife Species

Common Name ***Scientific Name***	**Sensitivity Status[1]** **(Federal, State, Other)**	**Preferred Habitat/Known Distribution[2]**	**Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Potential to Occur Within Future Projects Biological Study Areas**
AMPHIBIANS				
Bufonidae (true toads)				
Arroyo toad *Anaxyrus californicus*	Federal: FE State: SSC Other: MSHCP AC	Gravelly or sandy washes, stream and river banks, and arroyos where flow rates are great enough to keep silt and clay suspended. Found in desert wash, riparian scrub, riparian woodland, south coast flowing waters, and south coast standing waters. Shallow sandy pools bordered sand and gravel flood terraces are needed for breeding.	**Not Expected/Low**. The species lacks suitable sandy wash habitats along aquatic habitats within the BSAs and is thus not expected to occur.	**Not Expected/Low**. The species lacks suitable sandy wash habitats along aquatic habitats within the BSAs and is thus not expected to occur.
Ranidae (true frogs)				
southern mountain yellow-legged frog *Rana muscosa*	Federal: FE State: SE Local: MSHCP AC	Occurs in San Jacinto Mountains, San Bernardino Mountains, and San Gabriel Mountains in Southern California and the Southern Sierra Nevada.	**Not Expected/Low**. The species lacks suitable aquatic habitat within the BSAs and is thus not expected to occur.	**Not Expected/Low**. The species lacks suitable aquatic habitat within the BSAs and is thus not expected to occur.
Salamandridae (newts)				
Coast Range newt *Taricha torosa*	Federal: None State: SSC Other: None	Leave their aquatic habitat within a few weeks of breeding, and estivate terrestrially during the dry summer, residing in moist habitats under woodland debris, animal burrows, or in rock crevices. Species has been documented migrating approximately 2 miles between breeding and estivation sites.	**Not Expected/Low**. The species lacks suitable aquatic habitat within the BSAs and is thus not expected to occur.	**Not Expected/Low**. The species lacks suitable aquatic habitat within the BSAs and is thus not expected to occur.

Common Name ***Scientific Name***	**Sensitivity Status[1]** **(Federal, State, Other)**	**Preferred Habitat/Known Distribution[2]**	**Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Potential to Occur Within Future Projects Biological Study Areas**
Scaphiopodidae (spadefoot toads)				
Western spadefoot *Spea hammondii*	Federal: FPT State: SSC Other: MSHCP AC	Mixed woodland, grasslands, chaparral, sandy washes, lowlands, river floodplains, alluvial fans, playas, alkali flats, foothills, and mountains. Prefers washes and other sandy areas with patches of brush and rocks. Rain pools or shallow temporary pools, which do not contain bullfrogs, fish, or crayfish are necessary for breeding. Perennial plants necessary for its major food-termites.	**Moderate/High.** The species has suitable habitat within disturbed, wild oats and annual brome grasslands, and other upland areas that have seasonal aquatic features that can serve as breeding habitat. **Not Expected/Low.** The species is generally not expected to occur within BSAs that lack upland habitats that are not known to support seasonal pools.	**Moderate/High.** The species has suitable habitat within disturbed, wild oats and annual brome grasslands, and other upland areas that have seasonal aquatic features that can serve as breeding habitat. **Not Expected/Low.** The species is generally not expected to occur within BSAs that lack upland habitats that are not known to support seasonal pools.
BIRDS				
Accipitridae (Hawks, kites harriers, and eagles)				
Cooper's hawk *Astur cooperii*	Federal: None State: WL Other: MSHCP AC	Inhabits cismontane woodland, riparian forest, riparian woodland, upper montane coniferous forest, or other forest habitats near water. Nests and forages near open water or in riparian vegetation.	**Moderate/High.** The species has suitable habitat within developed areas and the various woodlands within the service area. **Not Expected/Low.** The species is generally not expected to occur in BSAs that do not contain developed areas or riparian woodlands.	**Moderate/High.** The species has suitable habitat within developed areas and the various woodlands within the service area. **Not Expected/Low.** The species is generally not expected to occur in BSAs that do not contain developed areas or riparian woodlands.

Common Name ***Scientific Name***	**Sensitivity Status[1]** **(Federal, State, Other)**	**Preferred Habitat/Known Distribution[2]**	**Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Potential to Occur Within Future Projects Biological Study Areas**
Golden eagle *Aquila chrysaetos*	Federal: None State: FP, WL Other: MSHCP AC	Known to live in open and semi-open country featuring native vegetation across most of the Northern Hemisphere. They avoid developed areas and uninterrupted stretches of forest. They are found primarily in mountains up to 12,000 feet, Canyonlands, rimrock terrain, and riverside cliffs and bluffs. Nest on cliffs and steep escarpments in grassland, chaparral, shrubland, forest, and other vegetated areas. Forages for mammalian prey in grasslands, coastal sage scrub, chaparral, oak savannahs, open coniferous forest, and over open areas	**Not Expected/Low (breeding).** This species generally lacks suitable breeding habitat (i.e. cliffs) but may occasionally forage within coastal sage scrub and grassland habitats. It has been occasionally observed around the vicinity of Lake Matthews (eBird 2026).	**Not Expected/Low (breeding).** This species generally lacks suitable breeding habitat (i.e. cliffs) but may occasionally forage within coastal sage scrub and grassland habitats. It has been occasionally observed around the vicinity of Lake Matthews (eBird 2026).
Ferruginous hawk *Buteo regalis*	Federal: None State: WL Other: MSHCP AC	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon and juniper habitats.	**Present.** **Not Expected/Low (breeding).** This species generally lacks suitable breeding habitat (i.e. cliffs) but may occasionally forage within grassland habitats. It has been occasionally observed overwintering around the vicinity of Lake Matthews (eBird 2026).	**Not Expected/Low (breeding).** This species generally lacks suitable breeding habitat (i.e. cliffs) but may occasionally forage within grassland habitats. It has been occasionally observed overwintering around the vicinity of Lake Matthews (eBird 2026).
Swainson's hawk *Buteo swainsoni*	Federal: None State: ST Other: MSHCP AC	Found in Great Basin grassland, riparian forest, riparian woodland, valley and foothill grassland. Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	**Not Expected/Low (breeding).** This species generally lacks suitable breeding habitat (i.e. trees within riparian areas and adjacent to open foraging habitat) but may occasionally forage within coastal sage scrub and grassland habitats. It has been occasionally observed within the service area during its migration to breeding grounds (eBird 2026).	**Not Expected/Low (breeding).** This species generally lacks suitable breeding habitat (i.e. trees within riparian areas and adjacent to open foraging habitat) but may occasionally forage within coastal sage scrub and grassland habitats. It has been occasionally observed within the service area during its migration to breeding grounds (eBird 2026).

Common Name ***Scientific Name***	**Sensitivity Status[1]** **(Federal, State, Other)**	**Preferred Habitat/Known Distribution[2]**	**Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Potential to Occur Within Future Projects Biological Study Areas**
Northern harrier *Circus hudsonius*	Federal: None State: SSC Other: MSHCP AC	Found in coastal scrub, Great Basin grassland, marsh and swamp, riparian scrub, valley and foothill grassland, wetland. Coastal salt and freshwater marsh. Nest and forage in grasslands, from saltgrass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at salt marsh edge; nest built of a large mound of sticks in wet areas.	**Moderate/High.** The species has suitable habitat within the grasslands and freshwater marsh areas within the service area. **Not Expected/Low.** The species is generally not expected to occur within BSAs that lack grasslands or freshwater marsh areas.	**Moderate/High.** The species has suitable habitat within the grasslands and freshwater marsh areas within the service area. **Not Expected/Low.** The species is generally not expected to occur within BSAs that lack grasslands or freshwater marsh areas.
White-tailed kite *Elanus leucurus*	Federal: None State: FP Other: MSHCP AC	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes nest to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Moderate/High.** The species has suitable habitat within the grasslands and elderberry patches of the BSAs. **Not Expected/Low.** The species is generally not expected to occur within BSAs that lack grasslands and other open upland habitats.	**Moderate/High.** The species has suitable habitat within the grasslands and elderberry patches of the BSAs. **Not Expected/Low.** The species is generally not expected to occur within BSAs that lack grasslands and other open upland habitats.
Bald eagle *Haliaeetus leucocephalus*	Federal: BGEPA State: SE, FP Other: MSHCP AC	Typically nest in forested areas adjacent to large bodies of water, staying away from heavily developed areas when possible. Tolerant of human activity when feeding, and may congregate around fish processing plants, dumps, and below dams where fish concentrate. For perching, bald eagles prefer tall, mature coniferous or deciduous trees that afford a wide view of the surroundings. In winter, bald eagles can also be seen in dry, open uplands if there is access to open water for fishing.	**Not Expected/Low.** This species generally lacks suitable aquatic foraging habitats and suitable nesting areas within BSAs in the service area.	**Not Expected/Low.** This species generally lacks suitable aquatic foraging habitats and suitable nesting areas within BSAs in the

Common Name ***Scientific Name***	**Sensitivity Status[1]** **(Federal, State, Other)**	**Preferred Habitat/Known Distribution[2]**	**Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Potential to Occur Within Future Projects Biological Study Areas**
Alaudidae (larks)				
California horned lark Eremophila alpestris actia	Federal: None State: WL Other: MSHCP AC	Found from grasslands along the coast and deserts near sea level to alpine dwarf-shrub habitat above the treeline. During the winter, this species typically flocks in desert lowlands.	**Present.** California horned lark was observed during biological surveys within the RW-1: Lurin Irrigation Tank BSA. **Moderate/High.** This species has suitable habitat within the open habitats within the BSAs including agriculture, wild oats and annual brome grassland, and disturbed areas. **Not Expected/Low.** The species is generally not expected to occur within BSAs that lack grasslands and other open upland habitats.	**Moderate/High.** This species has suitable habitat within the open habitats within the BSAs including agriculture, wild oats and annual brome grassland, and disturbed areas. **Not Expected/Low.** The species is generally not expected to occur within BSAs that lack grasslands and other open upland habitats.
Charadriidae (plovers and relatives)				
Western snowy plover *Charadrius nivosus nivosus*	Federal: FT State: SSC Other: None	Found in Great Basin standing waters, sand shore, wetland. Sandy beaches, salt pond levees & shores of large alkali lakes. Requires sandy, gravelly, or friable soil substrate for nesting.	**Not Expected/Low.** The species lacks suitable wetland and sandy areas for foraging and breeding throughout the BSAs in the service area.	**Not Expected/Low.** The species lacks suitable wetland and sandy areas for foraging and breeding throughout the BSAs in the service area.
Cuculidae (cuckoos and relatives)				
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	Federal: FT State: SE Other: MSHCP AC	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods, with lower story of blackberry nettles, or wild grape.	**Not Expected/Low.** The species has marginally suitable riparian woodland habitat that is not expected to support this species. Historic occurrences are along the Santa Ana River and are likely extirpated.	**Not Expected/Low.** The species has marginally suitable riparian woodland habitat that is not expected to support this species. Historic occurrences are along the Santa Ana River and are likely extirpated.

Common Name ***Scientific Name***	**Sensitivity Status[1]** **(Federal, State, Other)**	**Preferred Habitat/Known Distribution[2]**	**Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Potential to Occur Within Future Projects Biological Study Areas**
Falconidae (falcons)				
Merlin *Falco columbarius*	Federal: None State: WL Other: MSCHP AC	Occupies seacoast, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms, and ranches. Clumps of trees or windbreaks are required for roosting in open country.	**Moderate/High.** The species has potential to utilize open woodlands such as eucalyptus groves and orchards within the service area as suitable habitat. **Not Expected/Low.** The species is generally not expected to occur within BSAs that lack open woodland habitat.	**Moderate/High.** The species has potential to utilize open woodlands habitats. **Not Expected/Low.** The species is generally not expected to occur within BSAs that lack open woodland habitat.
Icteridae (blackbirds)				
Tricolored blackbird *Agelaius tricolor*	Federal: None State: ST; SSC Other: MSCHP AC	Known to occur in freshwater marsh, marsh, swamp, and wetland. Highly colonial species, most numerous in Central Valley and vicinity. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	**Not Expected/Low.** The species has marginally suitable habitat within agricultural areas and cattail marshes, but breeding necessitates large areas with suitable foraging areas adjacent to marshes or bramble patches for nesting. The species is rarely observed within the service area.	**Not Expected/Low.** The species has marginally suitable habitat within agricultural areas and cattail marshes, but breeding necessitates large areas with suitable foraging areas adjacent to marshes or bramble patches for nesting. The species is rarely observed within the service area.
Icteriidae (yellow-breasted chats)				
Yellow-breasted chat *Icteria virens*	Federal: None State: SSC Other: MSCHP AC	Known to occur with riparian forest, scrub, and woodland habitats. Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 feet of ground.	**Moderate/High.** The species has suitable habitat within riparian scrub and woodland habitats that are present within the service area. **Not Expected/Low.** The species is generally not expected within BSAs that lack riparian scrub or woodlands.	**Moderate/High.** The species has suitable habitat within riparian scrub and woodland habitats that are present within the service area. **Not Expected/Low.** The species is generally not expected within BSAs that lack riparian scrub or woodlands.

Common Name ***Scientific Name***	**Sensitivity Status[1]** **(Federal, State, Other)**	**Preferred Habitat/Known Distribution[2]**	**Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Potential to Occur Within Future Projects Biological Study Areas**
Laniidae (shrikes)				
Loggerhead shrike *Lanius ludovicianus*	Federal: None State: SSC Other: MSHCP AC	Found in broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	**Present.** Loggerheaded shrike was observed during biological surveys within the RW-1: Idaleona Drive Upsizing BSA. **Moderate/High.** The species has suitable habitat within riparian woodlands and other scrub habitat that has suitable nesting and foraging opportunities. **Not Expected/Low.** This species is generally not expected in BSAs that lack open habitats with ample perching locations.	**Moderate/High.** The species has suitable habitat within riparian woodlands and other scrub habitat that has suitable nesting and foraging opportunities. **Not Expected/Low.** This species is generally not expected in BSAs that lack open habitats with ample perching locations.
Parulidae (wood-warblers)				
northern yellow warbler *Setophaga [petechia] aestiva*	Federal: None State: SSC Other: MSCHP AC	Found in riparian forest, scrub, and woodland. Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	**Moderate/High.** The species has suitable habitat within BSAs that contain riparian woodlands, forests, or scrub. **Not Expected/Low.** The species is generally not expected within BSAs that lack riparian woodlands, forests, or scrub.	**Moderate/High.** The species has suitable habitat within BSAs that contain riparian woodlands, forests, or scrub. **Not Expected/Low.** The species is generally not expected within BSAs that lack riparian woodlands, forests, or scrub.
grasshopper sparrow *Ammodramus savannarum*	Federal: None State: SSC Local: MSHCP	Known to occur in dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs, and scattered shrubs.	**Not Expected/Low.** The species has marginally suitable habitat within grasslands within the service area but the species has been rarely documented within the service area.	**Not Expected/Low.** The species has marginally suitable habitat within grasslands within the service area but the species has been rarely documented within the service area.

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Southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	Federal: None State: WL Other: MSHCP AC	Known to frequent relatively steep, often rocky hillsides with grass and forb species. Resident in southern California coastal sage scrub and mixed chaparral habitats.	**Moderate/High.** The species has suitable habitat within rocky hillsides with coastal sage scrub and chaparral habitats. **Not Expected/Low.** The species is generally not expected within BSAs that lack these coastal sage scrub and chaparral habitats.	**Moderate/High.** The species has suitable habitat within rocky hillsides with coastal sage scrub and chaparral habitats. **Not Expected/Low.** The species is generally not expected within BSAs that lack these coastal sage scrub and chaparral habitats.
Bell's sage sparrow *Artemisiospiza belli belli*	Federal: None State: WL Other: MSHCP AC	Inhabits large, unfragmented blocks of coastal sage scrub, southern mixed chaparral habitats	**Moderate/High.** The species has suitable coastal sage scrub and mixed chaparral habitats within some of the BSAs in the service area. **Not Expected/Low.** The species is generally not expected to occur within BSAs that lack these coastal sage scrub and chaparral habitats.	**Moderate/High.** The species has suitable coastal sage scrub and mixed chaparral habitats within some of the BSAs in the service area. **Not Expected/Low.** The species is generally not expected to occur within BSAs that lack these coastal sage scrub and chaparral habitats.
Polioptilidae (gnatcatchers)				
Coastal California gnatcatcher *Polioptila californica californica*	Federal: FT State: SSC Other: MSHCP AC	Species is an obligate, permanent resident of coastal sage scrub habitats dominated by California sagebrush and flat-topped buckwheat, mainly on cismontane slopes below 1,500 feet in elevation. Low coastal sage scrub in arid washes, on mesas and slopes.	**Present.** Coastal California gnatcatcher was observed during biological surveys within the W-4: Hillside 2320 PZ Booster Pump Station and Pipeline and W-15: Juniper Road Pipeline Upsizing BSAs. **Moderate/High Potential.** The species has suitable coastal sage scrub habitats within some BSAs in the service area. **Not Expected/Low.** The species is generally not expected to occur within BSAs in the service area that lack these coastal sage scrub habitats.	**Moderate/High Potential.** The species has suitable coastal sage scrub habitats within some BSAs in the service area. **Not Expected/Low.** The species is generally not expected to occur within BSAs in the service area that lack these coastal sage scrub habitats.

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Rallidae (rails, coots, and gallinules)				
Yellow rail *Coturnicops noveboracensis*	Federal: None State: SSC Other: None	Species is a summer resident in eastern Sierra Nevada in Mono County.	**Not Expected/Low.** The species generally lacks suitable marsh habitat and is believe to be extirpated from the area.	**Not Expected/Low.** The species generally lacks suitable marsh habitat and is believe to be extirpated from the area.
California black rail *Laterallus jamaicensis coturniculus*	Federal: None State: ST, FP Other: None	Known to occur in brackish and freshwater marshes. Inhabits riparian thickets of willow and other brushy tangles near watercourses. Needs water depths of about 1 inch that does not fluctuate during the year and dense vegetation for nesting habitat.	**Not Expected/Low.** The species generally lacks suitable marsh habitat and is believe to be extirpated from the area.	**Not Expected/Low.** The species generally lacks suitable marsh habitat and is believe to be extirpated from the area.
Strigidae (owls)				
Long-eared owl *Asio otus*	Federal: None State: SSC Other: None	Roosts in dense vegetation and forage in open grasslands or shrublands; also open confirerous or deciduous woodlands. They occur at elevations ranging from near sea level to above 6,500 feet.	**Not Expected/Low.** The species generally lacks suitable grasslands and associated roost areas within the BSAs. The species was last observed in the 1930s near the service area (CDFW 2026).	**Not Expected/Low.** The species generally lacks suitable grasslands and associated roost areas within the BSAs. The species was last observed in the 1930s near the service area (CDFW 2026).
Western burrowing owl *Athene cunicularia hypugaea*	Federal: None State: SCE; SSC Other: MSHCP AC	Inhabits coastal prairie, coastal scrub, Great Basin scrub, Mojavean desert scrub, Sonoran desert scrub, annual and perennial grasslands, bare ground, and disturbed habitats characterized by low-growing vegetation. A subterranean nester dependent upon burrowing mammals, particularly the California ground squirrel.	**Moderate/High.** The species has suitable habitat within the agriculture, wild oats and annual brome grasslands, and grazed land. **Not Expected/Low.** The species is generally not expected within BSAs that lack these open habitats.	**Moderate/High.** The species has suitable habitat within the agriculture, wild oats and annual brome grasslands, and grazed land. **Not Expected/Low.** The species is generally not expected within BSAs that lack these open habitats.

Common Name ***Scientific Name***	**Sensitivity Status[1]** **(Federal, State, Other)**	**Preferred Habitat/Known Distribution[2]**	**Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Potential to Occur Within Future Projects Biological Study Areas**
Threskiornithidae (ibises and spoonbills)				
White-faced ibis *Plegadis chihi*	Federal: None State: WL Other: MSHCP AC	Wading bird that seeks open, shallow, aquatic bodies such as lagoons, wetlands, ephemeral ponds, and stock ponds to forage. Nests in marsh growth (cattails) or low shrubs and trees above water.	**Moderate/High.** The species has suitable habitat within wetland and open riparian habitats within BSAs in the service area. **Not Expected/Low.** The species is generally not expected within BSAs in the service area that lack these wetland and open riparian habitats.	**Moderate/High.** The species has suitable habitat within wetland and open riparian habitats within BSAs in the service area. **Not Expected/Low.** The species is generally not expected within BSAs in the service area that lack these wetland and open riparian habitats.
Troglodytidae (wrens)				
Coastal cactus wren *Campylorhynchus brunneicapillus sandiegensis*	Federal: None State: SSC Other: MSCHP AC	Known to occur in coastal scrub habitats. Nest almost exclusively in prickly pear (*Opuntia littoralis* and *O. oricola*) and coastal cholla (*O. prolifera*).	**Not Expected/Low.** The species is generally not expected within BSAs in the service area, as the species is typically restricted to west of the Santa Ana Mountains even if there is suitable coastal sage scrub habitat.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area, as the species is typically restricted to west of the Santa Ana Mountains even if there is suitable coastal sage scrub habitat.
Tyrannidae (tyrant flycatchers)				
Southwestern willow flycatcher *Empidonax traillii extimus*	Federal: FE State: SE Other: MSHCP AC	For nesting, species requires dense riparian habitats (cottonwood/willow and tamarisk vegetation) with microclimatic conditions dictated by the local surroundings. Saturated soils, standing water, or nearby streams, pools, or cienegas are a component of nesting habitat that also influences the microclimate and density vegetation component. Habitat not suitable for nesting may be used for migration and foraging. Recurrent flooding and a natural hydrograph are important to withstand invading exotic species (tamarisk).	**Not Expected/Low.** The species is generally not expected as BSAs lack suitable habitat in the service area, as the species is considered extirpated along the Santa Ana River.	**Not Expected/Low.** The species is generally not expected as BSAs lack suitable habitat in the service area, as the species is considered extirpated along the Santa Ana River.

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Vireonidae (vireos)				
Least Bell's vireo *Vireo bellii pusillus*	Federal: FE State: SE Other: MSHCP AC	Known to occur in riparian forest, scrub, and woodland habitats. Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet. Highly territorial and nests primarily in willow, mule fat, or mesquite habitats.	**Present.** Least Bell's vireo was detected during biological surveys within the BSAs of W-13: Highland Grove III 18-inch Pipeline, RW-1: Lake Ranch Pipeline, WW-3: Markham Lift Station Upgrade (WWRF), and W-14: Highland Grove II and III 12-inch Pipeline. **Moderate/High.** The species has suitable riparian scrub and woodland habitat within several BSAs in the service area. **Not Expected/Low.** The species is generally not expected in BSAs that lack suitable riparian habitat.	**Moderate/High.** The species has suitable riparian scrub and woodland habitat within several BSAs in the service area. **Not Expected/Low.** The species is generally not expected in BSAs that lack suitable riparian habitat.
CRUSTACEANS				
Order Anostraca (fairy shrimp)				
vernal pool fairy shrimp *Branchinecta lynchi*	Federal: FT State: None Local: MSCHP	Limited to vernal pools in Oregon and California. Occasionally will be found in habitats other than vernal pools, such as artificial pools created by roadside ditches.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area as the service area is located outside of known vernal pools at a watershed level.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area as the service area is located outside of known vernal pools at a watershed level.
San Diego fairy shrimp *Branchinecta sandiegonensis*	Federal: FE State: None Local: None	Known to occur in areas of swales/earth slump basins in grassland, chaparral, and coastal sage scrub. Inhabit seasonally wet pools filled by winter/spring rains. Hatch in warm water later in the season.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area as the service area is located outside of known vernal pools at a watershed level.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area as the service area is located outside of known vernal pools at a watershed level.

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Riverside fairy shrimp *Streptocephalus woottoni*	Federal: FE State: None Other: MSHCP WS	Endemic to western Riverside, Orange and San Diego Counties in areas of tectonic swales/earth slump basins in grassland and coastal sage scrub. Inhabit seasonally astatic pools filled by winter/spring rains greater than 12 inches in depth. Hatch in warm water later in the season. Typically observed January through March.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area as the service area is located outside of known vernal pools at a watershed level.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area as the service area is located outside of known vernal pools at a watershed level.
FISH				
Catostomidae (suckers)				
Santa Ana sucker *Catostomus santaanae*	Federal: FT State: None Other: MSHCP AC	Habitat generalists, but prefer sand-rubble-boulder bottoms, cool, clear water, and algae.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area, which lacks appropriate aquatic habitat.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area, which lacks appropriate aquatic habitat.
Cyprinidae (minnows and carp)				
Arroyo chub *Gila orcuttii*	Federal: None State: SSC Other: MSHCP AC	Los Angeles Basin south coastal streams. Prefers slow water stream sections with muddy or sandy bottoms. Feeds on aquatic vegetation, insects, and associated invertebrates.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area, which lacks appropriate aquatic habitat.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area, which lacks appropriate aquatic habitat.
Santa Ana speckled dace *Rhinichthys gabrielino*	Federal: FPT State: SSC Other: None	Prefer south coast flowing water in habitat that includes clear, well oxygenated water with movement due to a current or waves. In addition the fish thrive in areas with deep cover or overhead protection from vegetation or woody debris.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area, which lacks appropriate aquatic habitat.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area, which lacks appropriate aquatic habitat.
Salmonidae (trout and salmon)				
Steelhead- southern California DPS *Oncorhynchus mykiss irideus pop. 10*	Federal: FE State: SE Other: None	South coast flowing waters with variable temperatures. Found in streams and rivers with at least 7 inches minimum depth.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area, which lacks appropriate aquatic habitat.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area, which lacks appropriate aquatic habitat.

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INSECTS				
Order Diptera (flies)				
Delhi Sands flower-loving fly *Rhaphiomidas terminatus abdominalis*	Federal: FE State: None Other: MSHCP AC	Found only in areas of the Delhi Sands formation in southwestern San Bernardino and northwestern Riverside counties..	**Not Expected/Low.** The species is generally not expected within BSAs in the service area, which lacks appropriate Delhi sand soils.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area, which lacks appropriate Delhi sand soils.
Order Hymenoptera (ants, bees, and wasps)				
Crotch's bumble bee *Bombus crotchii*	Federal: None State: SCE Other: None	Open grassland and scrub habitats that support potential nectar sources such as plants within the Fabaceae, Apocynaceae, Asteraceae, Lamiaceae, and Boraginaceae families.	**Moderate/High.** The species has suitable habitat within a variety of upland habitats that have suitable nectar sources including the various coastal sage scrub communities and other open upland habitats. **Not Expected/Low.** The species is generally not expected in areas that lack suitable nectar sources and appropriate nesting sites (e.g. small mammal burrows).	**Moderate/High.** The species has suitable habitat within a variety of upland habitats that have suitable nectar sources including the various coastal sage scrub communities and other open upland habitats. **Not Expected/Low.** The species is generally not expected in areas that lack suitable nectar sources and appropriate nesting sites (e.g. small mammal burrows).
Order Lepidoptera (butterflies and moths)				
monarch butterfly – California overwintering population *Danaus plexippus pop. 1*	Federal: FPT State: None Local: None	Wintering sites in California are associated with wind-protected groves of large trees (primarily eucalyptus or pine [*Pinus* spp.]) with nectar and water sources nearby that are generally near the coast.	**Not Expected/Low.** While there is marginal suitable overwintering habitat within eucalyptus groves, there are no known overwintering sites for the species in the service area. Adults may use some floral resources to forage, but are unlikely to overwinter in the project BSAs.	**Not Expected/Low.** While there is marginal suitable overwintering habitat within eucalyptus groves, there are no known overwintering sites for the species in the service area. Adults may use some floral resources to forage, but are unlikely to overwinter in the project BSAs.

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Quino checkerspot butterfly *Euphydryas editha quino*	Federal: FE State: SCE Other: MSHCP AC	Sunny openings within native and non-native grasslands, coastal sage scrub, open chaparral, and other open plant community types with rocky outcroppings, cryptogrammic crusts, and presence of host plant species (*Plantago erecta*, *P. insularis*, and *Castilleja exserta*) and nectar sources. Hills and mesas near the coast.	**Not Expected/Low.** While there is some suitable habitat within some of the BSAs in the service area, the species is extirpated around the service area.	**Not Expected/Low.** While there is some suitable habitat within some of the BSAs in the service area, the species is extirpated around the service area.
MAMMALS				
Cricetidae (mice, rats, and voles)				
San Diego desert woodrat *Neotoma lepida intermedia*	Federal: None State: SSC Other: MSHCP AC	Found in a variety of coastal scrub, desert scrub, chaparral, cactus, and rocky habitats. Nests primarily against rock outcroppings, boulders, cacti, or areas of dense undergrowth.	**Moderate/High.** The species may utilize rocky outcrops within coastal sage scrub and chaparral habitats within some of the BSAs in the service area. **Not Expected/Low.** The species is generally not expected to occur within BSAs that lack these coastal sage scrub and chaparral habitats.	**Moderate/High.** The species may utilize rocky outcrops within coastal sage scrub and chaparral habitats within some of the BSAs in the service area. **Not Expected/Low.** The species is generally not expected to occur within BSAs that lack these coastal sage scrub and chaparral habitats
Southern grasshopper mouse *Onychomys torridus ramona*	Federal: None State: SSC Other: None	Alkali desert scrub and desert scrub habitats are preferred, with somewhat lower densities expected in other desert habitats, including succulent shrub, wash, and riparian areas. Occurs in open and semi open valley floor scrub habitats including coastal sage scrub, mixed chaparral, low sagebrush, and annual grassland with scattered shrubs, mainly on sandy or gravelly soils habitats. Uncommon in valley foothill and montane riparian, and in a variety of other habitats.	**Not Expected/Low.** The species is generally not expected to occur within BSAs in the service area which lacks the preferred desert scrub.	**Not Expected/Low.** The species is generally not expected to occur within BSAs in the service area which lacks the preferred desert scrub.

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Heteromyidae (kangaroo rats, pocket mice, and kangaroo mice)				
Dulzura pocket mouse *Chaetodipus californicus femoralis*	Federal: None State: None Other: MSHCP AC	Slopes covered with chaparral and live oaks.	**Not Expected/Low.** The species is generally not expected to occur within BSAs in the service area as the known distribution of the species is in San Diego county.	**Not Expected/Low.** The species is generally not expected to occur within BSAs in the service area as the known distribution of the species is in San Diego county.
Northwestern San Diego pocket mouse *Chaetodipus fallax fallax*	Federal: None State: None Other: MSHCP AC	Moderate canopy coverage of coastal scrub, sagebrush, chaparral, grasslands, pinyon-juniper, and desert wash and scrub. Found in sandy, herbaceous areas with nearby shrubs for cover. Burrows are typically dug within gravelly or sandy soil.	**Moderate/High.** The species has suitable habitat within coastal sage scrub, grasslands, and chaparral habitats within the BSAs in the service area. **Not Expected/Low.** The species is generally not expected within the BSAs in the service area that lack coastal sage scrub, grasslands or chaparral habitats.	**Moderate/High.** The species has suitable habitat within coastal sage scrub, grasslands, and chaparral habitats within the BSAs in the service area. **Not Expected/Low.** The species is generally not expected within the BSAs in the service area that lack coastal sage scrub, grasslands or chaparral habitats.
San Bernardino kangaroo rat *Dipodomys merriami parvus*	Federal: FE State: SE, SSC Other: MSHCP AC	Inhabits coastal sage scrub vegetation in alluvial fans and floodplains.	**Not Expected/Low.** The species is generally not expected to occur within the service area, which lacks suitable alluvial fan and floodplain habitat.	**Not Expected/Low.** The species is generally not expected to occur within the service area, which lacks suitable alluvial fan and floodplain habitat.
Stephens' kangaroo rat *Dipodomys stephensi*	Federal: FT State: ST Other: MSHCP AC	Inhabits annual and perennial grassland habitats, but may occur in coastal scrub or sagebrush with sparse canopy cover, or in disturbed areas. Known to occur in sparse perennial vegetation with firm soil, "neither hard nor sandy." Prefers loamy soils.	**Moderate/High.** The species has suitable habitat within wild oats and annual brome grasslands and some coastal sage scrub habitat within the BSAs of the service area. **Not Expected/Low.** The species is generally not expected within the BSAs in the service area that lack coastal sage scrub or grassland habitats.	**Moderate/High.** The species has suitable habitat within wild oats and annual brome grasslands and some coastal sage scrub habitat within the BSAs of the service area. **Not Expected/Low.** The species is generally not expected within the BSAs in the service area that lack coastal sage scrub or grassland habitats.

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Los Angeles pocket mouse *Perognathus longimembris brevinasus*	Federal: None State: SSC Other: MSHCP AC	Found in lower elevation grasslands and coastal sage scrub communities.	**Moderate/High.** The species has suitable habitat within wild oats and annual brome grasslands and some coastal sage scrub habitat within the BSAs of the service area. **Not Expected/Low.** The species is generally not expected within the BSAs in the service area that lack coastal sage scrub or grassland habitats.	**Moderate/High.** The species has suitable habitat within wild oats and annual brome grasslands and some coastal sage scrub habitat within the BSAs of the service area. **Not Expected/Low.** The species is generally not expected within the BSAs in the service area that lack coastal sage scrub or grassland habitats.
Leporidae (rabbits and hares)				
San Diego black-tailed jackrabbit *Lepus californicus bennettii*	Federal: None State: None Other: MSHCP AC	Inhabits open grasslands, agricultural fields, and sparse coastal scrub where they occur primarily in arid regions with short grass.	**Present.** San Diego black-tailed jackrabbit was observed during biological surveys within the RW-1: Meridian West Pipelines BSA. **Moderate/High.** The species has suitable habitat within wild oats and annual brome grasslands and some coastal sage scrub habitat within the BSAs of the service area. **Not Expected/Low.** The species is generally not expected within the BSAs in the service area that lack coastal sage scrub or grassland habitats.	**Moderate/High.** The species has suitable habitat within wild oats and annual brome grasslands and some coastal sage scrub habitat within the BSAs of the service area. **Not Expected/Low.** The species is generally not expected within the BSAs in the service area that lack coastal sage scrub or grassland habitats.
Molossidae (free-tailed bats)				
Western mastiff bat *Eumops perotis californicus*	Federal: None State: SSC Other: None	Known to occur in habitat consisting of extensive open areas within dry desert washes, flood plains, chaparral, cismontane oak woodland, coastal scrub, open ponderosa pine forest, and grasslands. Roosts primarily in crevices in rock outcrops and buildings.	**Not Expected/Low.** The species has marginal habitat within developed areas adjacent to open habitats, but is generally not likely to exist within BSAs in the service area.	**Not Expected/Low.** The species has marginal habitat within developed areas adjacent to open habitats, but is generally not likely to exist within BSAs in the service area.

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Pocketed free-tailed bat *Nyctinomops femorosaccus*	Federal: None State: SSC Other: None	Inhabits pinyon-juniper woodlands, riparian scrub, Sonoran desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree woodland, and palm oasis. Typically roosts in caves and rocky outcrops; prefers cliffs in order to obtain flight speed. Feeds on insects flying over bodies of water or arid desert habitats to capture prey.	**Not Expected/Low.** The species lacks suitable roosting habitat in cliffs and caves and is thus generally not expected to occur within BSAs in the service area.	**Not Expected/Low.** The species lacks suitable roosting habitat in cliffs and caves and is thus generally not expected to occur within BSAs in the service area.
big free-tailed bat *Nyctinomops macrotis*	Federal: None State: SSC Local: None	Low-lying arid areas in Southern California within habitats such as desert shrub, woodlands, and evergreen forests. Need high cliffs or rugged, rocky outcrops or canyons for roosting sites. Feeds principally on large moths.	**Not Expected/Low.** The species lacks suitable roosting habitat in cliffs and caves and is thus generally not expected to occur within BSAs in the service area.	**Not Expected/Low.** The species lacks suitable roosting habitat in cliffs and caves and is thus generally not expected to occur within BSAs in the service area.
Mustelidae (weasels and relatives)				
American badger *Taxidea taxus*	Federal: None State: SSC Other: None	Found in a variety of habitats, including alkali marsh, desert wash, Great Basin scrub, marsh and swamp, meadow and seep, Mojavean desert scrub, riparian scrub, riparian woodland, valley and foothill grassland. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils, and open, uncultivated ground to dig burrows. Preys on burrowing rodents.	**Moderate/High.** The species has some suitable habitat within open riparian scrub and wild oats and annual brome grassland habitat in some BSAs in the service area. **Not Expected/Low.** The species is generally not expected within areas that lack open upland habitats within BSAs in the service area.	**Moderate/High.** The species has some suitable habitat within open riparian scrub and wild oats and annual brome grassland habitat in some BSAs in the service area. **Not Expected/Low.** The species is generally not expected within areas that lack open upland habitats within BSAs in the service area.

Common Name ***Scientific Name***	**Sensitivity Status[1]** **(Federal, State, Other)**	**Preferred Habitat/Known Distribution[2]**	**Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Potential to Occur Within Future Projects Biological Study Areas**
Vespertilionidae (evening bats)				
Pallid bat *Antrozous pallidus*	Federal: None State: SSC Other: None	Occurs in a wide variety of habitats including chaparral, coastal scrub, desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, riparian woodland, Sonoran desert scrub, upper montane coniferous forest, valley and foothill grasslands. Most common in open, dry habitats with rocky areas for roosting. For roosting, prefers rocky outcrops, cliffs and crevices with access to open habitats for foraging. Roosts must protect species from high temperatures. Very sensitive to disturbance of roosting sites.	**Not Expected/Low.** The species lacks suitable roosting habitat in cliffs and caves and is thus generally not expected to occur within BSAs in the service area. However, it has marginal suitable habitat within orchards, developed, areas and riparian woodlands.	**Not Expected/Low.** The species lacks suitable roosting habitat in cliffs and caves and is thus generally not expected to occur within BSAs in the service area. However, it has marginal suitable habitat within orchards, developed, areas and riparian woodlands.
Western yellow bat *Lasiurus xanthinus*	Federal: None State: SSC Other: None	Known only in Los Angeles and San Bernardino Counties south to the Mexican border. This species has been recorded below 600 m (2000 ft) in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts primarily in trees, including under palm trees, and forages for insects over water and among trees.	**Moderate/High.** The species has some suitable habitat within BSAs that contain palm woodlands, which it may use for roosting. **Not Expected/Low.** The species is generally not expected within BSAs that lack palm trees.	**Moderate/High.** The species has some suitable habitat within BSAs that contain palm woodlands, which it may use for roosting. **Not Expected/Low.** The species is generally not expected within BSAs that that lack palm trees.
Yuma myotis *Myotis yumanensis*	Federal: None State: None Other: None	Occurs in lower montane coniferous forest, riparian forest, riparian woodland, and upper montane coniferous forest. Roosts in buildings, mines, caves, or crevices, but has also been seen roosting in abandoned swallow nests and under bridges.	**Moderate/High.** The species may utilize riparian woodlands within the BSAs in the service area for foraging. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack riparian habitats.	**Moderate/High.** The species may utilize riparian woodlands within the BSAs in the service area for foraging. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack riparian habitats.

Common Name ***Scientific Name***	**Sensitivity Status[1]** **(Federal, State, Other)**	**Preferred Habitat/Known Distribution[2]**	**Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Potential to Occur Within Future Projects Biological Study Areas**
REPTILES				
Anniellidae (legless lizards)				
Southern California legless lizard *Anniella stebbinsi*	Federal: None State: SSC Other: None	Occurs in moist warm loose soil with plant cover. Moisture is essential. Occurs in sparsely vegetated areas of beach/coastal dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas and dunes stabilized with bush lupine and mock heather often indicate suitable habitat. Often can be found under surface objects such as rocks, boards, driftwood, and logs. Can also be found by gently raking leaf litter under bushes and trees. Sometimes found in suburban gardens in Southern California.	**Moderate/High.** The species may utilize riparian, chaparral, and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack riparian, chaparral or coastal sage scrub habitats.	**Moderate/High.** The species may utilize riparian, chaparral, and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack riparian, chaparral or coastal sage scrub habitats.
Colubridae (egg-laying snakes)				
California glossy snake *Arizona elegans occidentalis*	Federal: None State: SSC Other: None	Inhabits arid scrub, rocky washes, and grasslands, and chaparral habitats. Appears to prefer microhabitats of open areas with friable soils for burrowing.	**Moderate/High.** The species may utilize chaparral, and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack chaparral or coastal sage scrub habitats.	**Moderate/High.** The species may utilize chaparral, and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack chaparral or coastal sage scrub habitats.

Common Name ***Scientific Name***	**Sensitivity Status[1]** **(Federal, State, Other)**	**Preferred Habitat/Known Distribution[2]**	**Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Potential to Occur Within Future Projects Biological Study Areas**
San Bernardino ringneck snake *Diadophis punctatus modestus*	Federal: None State: None Other: None	Most common in open, relatively rocky areas within valley-foothill, mixed chaparral, and annual grass habitats. Often in somewhat moist microhabitats near intermittent streams. Avoids moving through open or barren areas by restricting movements to areas of surface litter or herbaceous vegetation.	**Moderate/High.** The species may utilize chaparral, and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack chaparral or coastal sage scrub habitats.	**Moderate/High.** The species may utilize chaparral, and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack chaparral or coastal sage scrub habitats.
Coast patch-nosed snake *Salvadora hexalepis virgultea*	Federal: None State: SSC Other: None	Known to inhabit semi-arid brushy areas and chaparral in canyons, rocky hillsides, and plains with sandy soils and leaf litter.	**Moderate/High.** The species may utilize chaparral, and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack chaparral or coastal sage scrub habitats.	**Moderate/High.** The species may utilize chaparral, and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack chaparral or coastal sage scrub habitats.
Emydidae (box and water turtles)				
Southwestern pond turtle *Actinemys pallida*	Federal: FPT State: SSC Other: MSHCP AC	Known to occur in slow-moving permanent or intermittent streams, ponds, small lakes, rivers, streams, marshes, irrigation ditches with abundant vegetation, reservoirs with emergent basking sites, and either rocky or muddy bottoms. In woodland, forest, or grassland habitats. In creeks that pool to shallower areas and with logs, rocks, cattail mats, and/or exposed banks for basking are required. Could enter brackish or even seawater. Adjacent uplands used during winter.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area, which lacks appropriate aquatic habitat.	**Not Expected/Low.** The species is generally not expected within BSAs in the service area, which lacks appropriate aquatic habitat.

Common Name *Scientific Name*	Sensitivity Status[1] (Federal, State, Other)	Preferred Habitat/Known Distribution[2]	Potential to Occur Within Priority and Near-Term Projects Biological Study Areas	Potential to Occur Within Future Projects Biological Study Areas
Gekkonidae (geckos)				
San Diego banded gecko *Coleonyx variegatus abbotti*	Federal: None State: SSC Other: MSHCP AC	Most common in desert scrub, desert wash, and Joshua tree habitats; occurs in almost every desert habitat. Require friable soil for burrow and nest construction. Creosote bush habitat with large annual wildflower blooms preferred.	**Not Expected/Low.** The species is generally not expected in BSAs within the service area, which lack preferred desert scrub habitat.	**Not Expected/Low.** The species is generally not expected in BSAs within the service area, which lack preferred desert scrub habitat.
Natricidae (live-bearing snakes)				
Two-striped gartersnake *Thamnophis hammondii*	Federal: None State: SSC Other: None	Habitat includes marsh and swamp, riparian scrub, riparian woodland, and wetland. Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	**Not Expected/Low.** The species is generally not expected in BSAs within the service area, which lack appropriate aquatic habitat.	**Not Expected/Low.** The species is generally not expected in BSAs within the service area, which lack appropriate aquatic habitat.
South coast gartersnake *Thamnophis sirtalis pop. 1*	Federal: None State: SSC Other: None	Southern California coastal plain from Ventura County to San Diego County, and from sea level to about 850 m.	**Not Expected/Low.** The species is generally not expected in BSAs within the service area, which lack appropriate aquatic habitat.	**Not Expected/Low.** The species is generally not expected in BSAs within the service area, which lack appropriate aquatic habitat.
Phrynosomatidae (spiny lizards)				
Coast horned lizard *Phrynosoma blainvillii*	Federal: None State: SSC Other: MSHCP AC	Prefers sandy riparian and sage scrub habitats but also occurs in valley-foothill hardwood, conifer, pine-cypress, juniper and annual grassland habitats below 6,000 feet, open country, especially sandy areas, washes, flood plains, and windblown deposits. Requires open areas for sunning, bushes and loose soil for cover and abundant supply of harvester ants.	**Moderate/High.** The species may utilize chaparral, and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack chaparral or coastal sage scrub habitats.	**Moderate/High.** The species may utilize chaparral, and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack chaparral or coastal sage scrub habitats.

Common Name ***Scientific Name***	**Sensitivity Status[1]** **(Federal, State, Other)**	**Preferred Habitat/Known Distribution[2]**	**Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Potential to Occur Within Future Projects Biological Study Areas**
Teiidae (whiptails and relatives)				
Orange-throated whiptail *Aspidoscelis hyperythra*	Federal: None State: WL Other: MSHCP AC	Species requires intact habitat within chaparral, cismontane woodland, and coastal scrub plant communities. Prefers washes and other sandy areas with patches of brush and rocks. Perennial plants necessary for its major food-termites.	**Moderate/High.** The species may utilize chaparral and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack chaparral or coastal sage scrub habitats.	**Moderate/High.** The species may utilize chaparral, and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack chaparral or coastal sage scrub habitats.
Coastal whiptail *Aspidoscelis tigris stejnegeri*	Federal: None State: SSC Other: MSHCP AC	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.	**Moderate/High.** The species may utilize chaparral and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack chaparral or coastal sage scrub habitats.	**Moderate/High.** The species may utilize chaparral and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack chaparral or coastal sage scrub habitats.
Viperiidae (vipers)				
Red-diamond rattlesnake *Crotalus ruber*	Federal: None State: SSC Other: MSHCP AC	Known to occur in chaparral, Mojavean desert scrub, and Sonoran desert scrub communities. Occurs in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks, or surface cover objects.	**Moderate/High.** The species may utilize chaparral and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack chaparral or coastal sage scrub habitats.	**Moderate/High.** The species may utilize chaparral and coastal sage scrub habitats within the BSAs. **Not Expected/Low.** The species is generally not expected in BSAs within the service area that lack chaparral or coastal sage scrub habitats.

Common Name ***Scientific Name***	**Sensitivity Status[1]** **(Federal, State, Other)**	**Preferred Habitat/Known Distribution[2]**	**Potential to Occur Within Priority and Near-Term Projects Biological Study Areas**	**Potential to Occur Within Future Projects Biological Study Areas**

1. Sensitivity Status

Federal- Federal Endangered Species Act (FESA) Listing Codes

FE	*Federally Endangered*
FT	*Federally Threatened*
FPE	*Federally Proposed as Endangered*
FPT	*Federally Proposed as Threatened*
FC	*Federal Candidate Species*

State- California Endangered Species Act (CESA) Listing Codes

SE	*State Endangered*
ST	*State Threatened*
SC	*State Candidate as Endangered or Threatened*

California Department of Fish and Wildlife (CDFW)

FP	*Fully Protected*
SSC	*Species of Special Concern*
WL	*Watch List Species*

Bureau of Land Management (BLM)

S	*Sensitive*

Western Riverside County MSHCP (MSHCP)

WS	*Wetland Species under the MSHCP – additional surveys may be required as part of wetlands mapping per the MSHCP*
AS	*Additional surveys may be required for these species within locations shown on survey maps as described in Section 6.3.2 of the MSHCP.*
AC	*Adequately Conserved Species under the MSHCP*

2. Sources for Preferred Habitat:

CDFW. 2026. California Natural Diversity Database (CNDDB). RareFind, Version 5.0 (Commercial Subscription). Sacramento, California: CDFW, Biogeographic Data Branch. Available online at: https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data. Accessed on April 15, 2026.

Source: ESA 2026

Appendix CUL

Riverside Facilities Master Plan
Cultural Resources Assessment
(Confidential)

Appendix NOI

Noise Calculation

Project: Western MWD Riverside Facilities Master Plan

Construction Noise Impact on Sensitive Receptors

				R1				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Site Preparation					***99***	***94***		**0**
Concrete Saw	2	90	20%	75	89	82	85	0
Dump Truck	1	76	40%	100	70	66	69	0
Dozer	1	82	40%	50	82	78	81	0
Tractor/Loader/Backhoe	1	78	40%	5	98	94	97	0
Grading/Excavation					***104***	***101***		**0**
Drill Rig Truck	1	79	20%	50	79	72	75	0
Crane	1	81	16%	100	75	67	70	0
Excavator	1	81	40%	5	101	97	100	0
Dump Truck	1	76	40%	75	72	68	71	0
Pumps	1	81	50%	5	101	98	101	0
Dozer	1	82	40%	50	82	78	81	0
Tractor/Loader/Backhoe	1	78	40%	75	74	70	73	0
Welder	1	74	40%	75	70	66	69	0
Paving					***97***	***94***		**0**
Dump Truck	1	76	40%	100	70	66	69	0
Paver	1	77	50%	5	97	94	97	0
Compactor (ground)	1	83	20%	50	83	76	79	0
Roller	1	80	20%	75	76	69	72	0
Maximum Combined Noise Levels						**100.6**		

Project: Western MWD Riverside Facilities Master Plan

Construction Noise Impact on Sensitive Receptors

				R1				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Building Upgrades					***87***	***79***		**0**
Compressor (air)	1	78	40%	200	66	62	65	0
Concrete Saw	1	90	20%	100	84	77	80	0
Crane	1	81	16%	150	71	63	66	0
Forklift	1	75	10%	18	84	74	77	0
Tractor/Loader/Backhoe	1	78	40%	100	72	68	71	0
Welder	1	74	40%	150	64	60	63	0
Paving					***87***	***83***		**0**
Dump Truck	1	76	40%	150	66	62	65	0
Paver	1	77	50%	18	86	83	86	0
Compactor (ground)	2	83	20%	100	80	73	76	0
Roller	1	80	20%	200	68	61	64	0
Maximum Combined Noise Levels						**83.4**		

Project: Western MWD Riverside Facilities Master Plan

Construction Noise Impact on Sensitive Receptors

				R1				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Excavation					***87***	***83***		**0**
Excavator	1	81	40%	200	69	65	68	0
Grader	1	85	40%	150	75	71	74	0
Dump Truck	1	76	40%	100	70	66	69	0
Tractor/Loader/Backhoe	1	78	40%	18	87	83	86	0
Foundation					***90***	***86***		**0**
Drum Mixer	1	80	50%	18	89	86	89	0
Compactor (ground)	2	83	20%	100	80	73	76	0
Pumps	1	81	50%	100	75	72	75	0
Dozer	1	82	40%	200	70	66	69	0
Tractor/Loader/Backhoe	1	78	40%	150	68	64	67	0
Construction/Interior					***88***	***84***		**0**
Compressor (air)	1	78	40%	18	87	83	86	0
Concrete Saw	1	90	20%	150	80	73	76	0
Crane	1	81	16%	100	75	67	70	0
Forklift	1	75	10%	100	69	59	62	0
Tractor/Loader/Backhoe	1	78	40%	150	68	64	67	0
Welder	1	74	40%	200	62	58	61	0
Paving					***87***	***83***		
Dump Truck	1	76	40%	200	64	60	63	0
Paver	1	77	50%	18	86	83	86	0
Compactor (ground)	2	83	20%	100	80	73	76	0
Roller	1	80	20%	150	70	63	66	0
Maximum Combined Noise Levels						**86.3**		

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Western MWD Riverside Facilities Master Plan

Construction Noise Impact on Sensitive Receptors

				R1				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Site Preparation					***87***	***83***		**0**
Grader	1	85	40%	200	73	69	72	0
Dump Truck	1	76	40%	150	66	62	65	0
Dozer	1	82	40%	100	76	72	75	0
Tractor/Loader/Backhoe	1	78	40%	18	87	83	86	0
Grading/Excavation					***86***	***82***		**0**
Excavator	1	81	40%	100	75	71	74	0
Dump Truck	1	76	40%	18	85	81	84	0
Dozer	1	82	40%	150	72	68	71	0
Foundation					***89***	***86***		**0**
Drum Mixer	1	80	50%	18	89	86	89	0
Dump Truck	1	76	40%	100	70	66	69	0
Compactor (ground)	2	83	20%	150	76	69	72	0
Pumps	1	81	50%	150	71	68	71	0
Tractor/Loader/Backhoe	1	78	40%	200	66	62	65	0
Tank Erection					***89***	***84***		**0**
Man Lift	2	75	20%	100	72	65	68	0
Crane	1	81	16%	100	75	67	70	0
Forklift	1	75	10%	18	84	74	77	0
Generator	1	81	50%	150	71	68	71	0
Tractor/Loader/Backhoe	1	78	40%	18	87	83	86	0
Welder	1	74	40%	200	62	58	61	0
Coating					***90***	***86***		**0**
Man Lift	2	75	20%	100	72	65	68	0
Compressor (air)	2	78	40%	18	90	86	89	0
Paving					***87***	***83***		
Dump Truck	1	76	40%	200	64	60	63	0
Paver	1	77	50%	18	86	83	86	0
Compactor (ground)	2	83	20%	100	80	73	76	0
Roller	1	80	20%	150	70	63	66	0
Cathodic Protection System					***87***	***80***		
Man lift	2	75	20%	18	87	80	83	0
Maximum Combined Noise Levels						**86.1**		

Source for Ref. Noise Levels: LA CEQA Guides, 2006 & FHWA RCNM, 2005

Project: Western MWD Riverside Facilities Master Plan

Construction Noise Impact on Sensitive Receptors

				R1				
Construction Phase **Equipment Type**	**No. of Equip.**	**Reference Noise Level at 50ft, Lmax**	**Acoustical Usage Factor**	**Distance (ft)**	**Lmax**	**Leq**	**L10**	**Estimated Noise Shielding, dBA**
Tank Erection					***84***	***80***		**0**
Man Lift	2	75	20%	150	68	61	64	0
Crane	1	81	16%	200	69	61	64	0
Forklift	1	75	10%	150	65	55	58	0
Generator	1	81	50%	100	75	72	75	0
Tractor/Loader/Backhoe	1	78	40%	100	72	68	71	0
Welder	1	74	40%	18	83	79	82	0
Coating					***87***	***80***		**0**
Man Lift	2	75	20%	18	87	80	83	0
Compressor (air)	2	78	40%	100	75	71	74	0
Cathodic Protection System					***84***	***77***		**0**
Man Lift	1	75	20%	18	84	77	80	0
Maximum Combined Noise Levels						**80.4**		

Appendix PALEO

Paleontological Resources Assessment for the Riverside Facilities Master Plan Project

(Confidential)

Appendix TRIBAL

Native American Consultation

WESTERN MUNICIPAL WATER DISTRICT

Craig D. Miller
General Manager

Mike Gardner	Gracie Torres	Brenda Dennstedt	Laura Roughton	Fauzia Rizvi
Division 1	Division 2	Division 3	Division 4	Division 5

April 6, 2022

Agua Caliente Band of Cahuilla Indians
Attn: Patricia Garcia
Director of Tribal Historic Preservation Office
5401 Dinah Shore Drive
Palm Springs, CA 92264

Subject: AB 52 Project Notification and Request to Consult Letter for the Proposed Riverside Facilities Master Plan, Riverside, California

Dear Ms. Garcia:

Pursuant to California Assembly Bill (AB) 52, Western Municipal Water District (WMWD) is providing you with notification of the intent to undertake the Riverside Facilities Master Plan (proposed project). Under California State law, the project is subject to the California Environmental Quality Act (CEQA) and WMWD has decided to prepare a Program Environmental Impact Report (PEIR) for the proposed project. The FMP is an integrated master plan that evaluates the performance and capacity of the potable water, recycled/non-potable water, and wastewater systems within WMWD's Riverside Retail Service Area. The FMP provides a list of recommended capital improvement projects to guide WMWD with implementation of the recommended improvements to support future growth and development of the Riverside Retail Service Area. The FMP presents existing system deficiencies that need to be corrected as well as future improvements and facility upgrades to be implemented by 2030 and under buildout conditions (after 2030). The projects include upsizing of existing pipelines as well as new pipelines; new storage tanks; new booster pump stations; new pumps at existing pump stations; capacity upgrades at existing lift stations; and potential expansion of the Western Water Recycling Facility (WWRF).

WMWD's service area is located in western Riverside County, approximately 50 miles east of Los Angeles and covers 527 square miles, of which 104 square miles are included as the Riverside Retail Service Area. The proposed project would be located within WMWD's Riverside Retail Service Area, which is generally bounded by the City of Riverside to the north, the City of Moreno Valley to the east, the City of Lake Elsinore to the south, and the City of Corona to the west, which is shown on the attached **Figure 1**. Projects are located in the City of Riverside as well as unincorporated areas of Riverside County.

The project must comply with California Public Resources Code Section 21080.3.1 (AB 52 of 2014), which requires local governments to conduct meaningful consultation with California Native American tribes that have requested to be notified by lead agencies of proposed projects in the geographic area with which the tribe is traditionally and culturally affiliated.

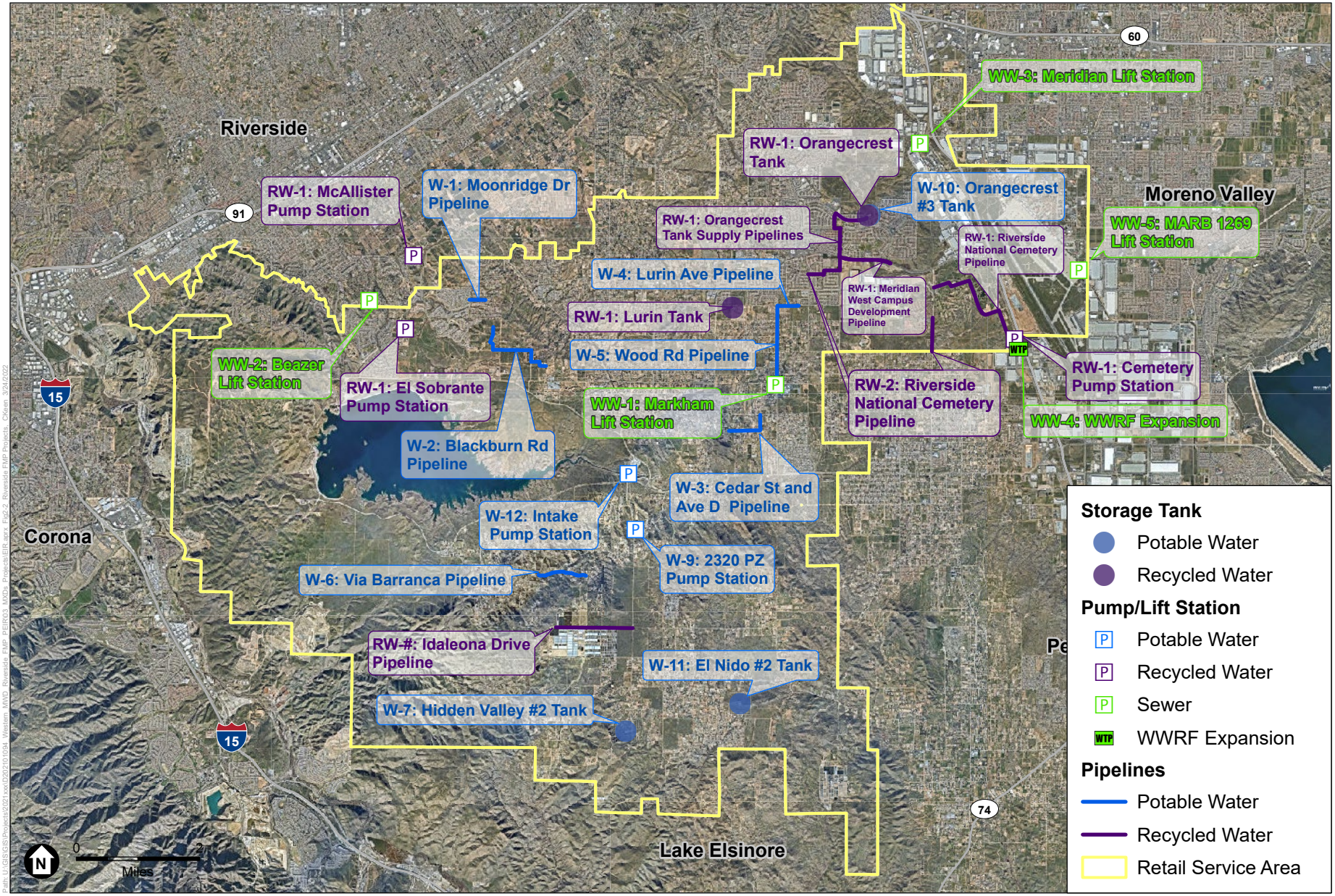
The input of your tribe is important to the WMWD planning process. We respectfully request a written response within 30 days from receipt of this letter if you wish to consult on the project. Please provide your contact information and mail/email your request to Jason Pivovaroff, Deputy Director of Water Resources, Western Municipal Water District, 14205 Meridian Parkway, Riverside, CA 92518, (951) 571-7267, JPivovaroff@wmwd.com.

Thank you for your assistance with our efforts to address tribal cultural resources that may be affected by the proposed project.

Sincerely,



Jason Pivovaroff
Deputy Director of Water Resources
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518
JPivovaroff@wmwd.com
Phone: (951) 571-7267



SOURCE: Nearmap, 2022; WMWD, 2022; ESA, 2022.

Riverside Facilities Master Plan

Figure 1
Riverside FMP Projects

ESA

WESTERN MUNICIPAL WATER DISTRICT

Craig D. Miller
General Manager

Mike Gardner Division 1 | **Gracie Torres** Division 2 | **Brenda Dennstedt** Division 3 | **Laura Roughton** Division 4 | **Fauzia Rizvi** Division 5

April 6, 2022

Morongo Band of Mission Indians
Attn: Raymond Huaute
Cultural Resources Specialist
12700 Pumarra Road
Banning, CA 92220

Subject: AB 52 Project Notification and Request to Consult Letter for the Proposed Riverside Facilities Master Plan, Riverside, California

Dear Mr. Huaute:

Pursuant to California Assembly Bill (AB) 52, Western Municipal Water District (WMWD) is providing you with notification of the intent to undertake the Riverside Facilities Master Plan (proposed project). Under California State law, the project is subject to the California Environmental Quality Act (CEQA) and WMWD has decided to prepare a Program Environmental Impact Report (PEIR) for the proposed project. The FMP is an integrated master plan that evaluates the performance and capacity of the potable water, recycled/non-potable water, and wastewater systems within WMWD's Riverside Retail Service Area. The FMP provides a list of recommended capital improvement projects to guide WMWD with implementation of the recommended improvements to support future growth and development of the Riverside Retail Service Area. The FMP presents existing system deficiencies that need to be corrected as well as future improvements and facility upgrades to be implemented by 2030 and under buildout conditions (after 2030). The projects include upsizing of existing pipelines as well as new pipelines; new storage tanks; new booster pump stations; new pumps at existing pump stations; capacity upgrades at existing lift stations; and potential expansion of the Western Water Recycling Facility (WWRF).

WMWD's service area is located in western Riverside County, approximately 50 miles east of Los Angeles and covers 527 square miles, of which 104 square miles are included as the Riverside Retail Service Area. The proposed project would be located within WMWD's Riverside Retail Service Area, which is generally bounded by the City of Riverside to the north, the City of Moreno Valley to the east, the City of Lake Elsinore to the south, and the City of Corona to the west, which is shown on the attached **Figure 1**. Projects are located in the City of Riverside as well as unincorporated areas of Riverside County.

The project must comply with California Public Resources Code Section 21080.3.1 (AB 52 of 2014), which requires local governments to conduct meaningful consultation with California Native American tribes that have requested to be notified by lead agencies of proposed projects in the geographic area with which the tribe is traditionally and culturally affiliated.

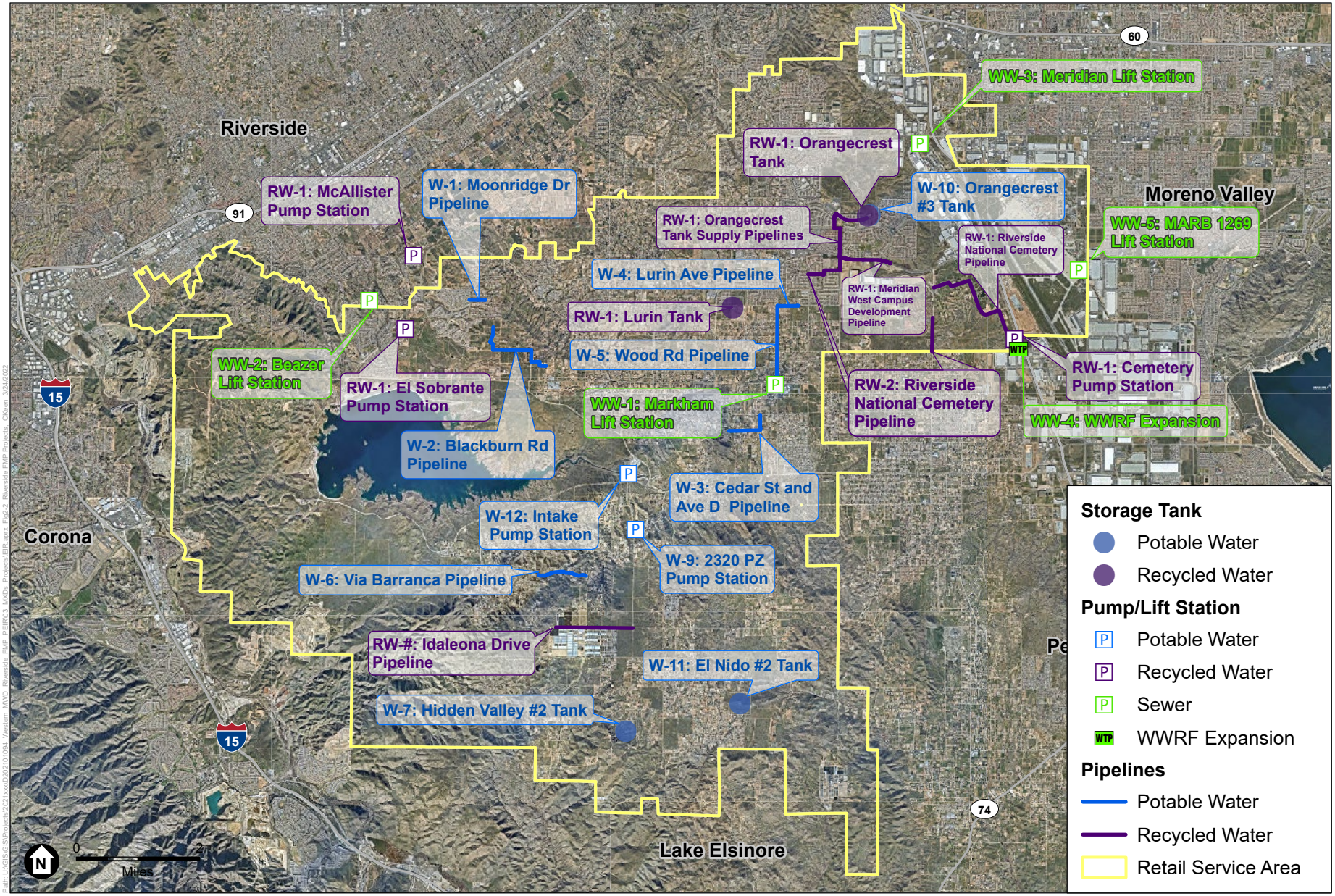
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Thank you for your assistance with our efforts to address tribal cultural resources that may be affected by the proposed project.

Sincerely,



Jason Pivovaroff
Deputy Director of Water Resources
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518
JPivovaroff@wmwd.com
Phone: (951) 571-7267



SOURCE: Nearmap, 2022; WMWD, 2022; ESA, 2022.

Riverside Facilities Master Plan

Figure 1
Riverside FMP Projects

ESA

WESTERN MUNICIPAL WATER DISTRICT

Craig D. Miller
General Manager

Mike Gardner Division 1 | **Gracie Torres** Division 2 | **Brenda Dennstedt** Division 3 | **Laura Roughton** Division 4 | **Fauzia Rizvi** Division 5

April 6, 2022

Morongo Band of Mission Indians
Attn: Robert Martin
Tribal Chairman
12700 Pumarra Road
Banning, CA 92220

Subject: AB 52 Project Notification and Request to Consult Letter for the Proposed Riverside Facilities Master Plan, Riverside, California

Dear Mr. Martin:

Pursuant to California Assembly Bill (AB) 52, Western Municipal Water District (WMWD) is providing you with notification of the intent to undertake the Riverside Facilities Master Plan (proposed project). Under California State law, the project is subject to the California Environmental Quality Act (CEQA) and WMWD has decided to prepare a Program Environmental Impact Report (PEIR) for the proposed project. The FMP is an integrated master plan that evaluates the performance and capacity of the potable water, recycled/non-potable water, and wastewater systems within WMWD's Riverside Retail Service Area. The FMP provides a list of recommended capital improvement projects to guide WMWD with implementation of the recommended improvements to support future growth and development of the Riverside Retail Service Area. The FMP presents existing system deficiencies that need to be corrected as well as future improvements and facility upgrades to be implemented by 2030 and under buildout conditions (after 2030). The projects include upsizing of existing pipelines as well as new pipelines; new storage tanks; new booster pump stations; new pumps at existing pump stations; capacity upgrades at existing lift stations; and potential expansion of the Western Water Recycling Facility (WWRF).

WMWD's service area is located in western Riverside County, approximately 50 miles east of Los Angeles and covers 527 square miles, of which 104 square miles are included as the Riverside Retail Service Area. The proposed project would be located within WMWD's Riverside Retail Service Area, which is generally bounded by the City of Riverside to the north, the City of Moreno Valley to the east, the City of Lake Elsinore to the south, and the City of Corona to the west, which is shown on the attached **Figure 1**. Projects are located in the City of Riverside as well as unincorporated areas of Riverside County.

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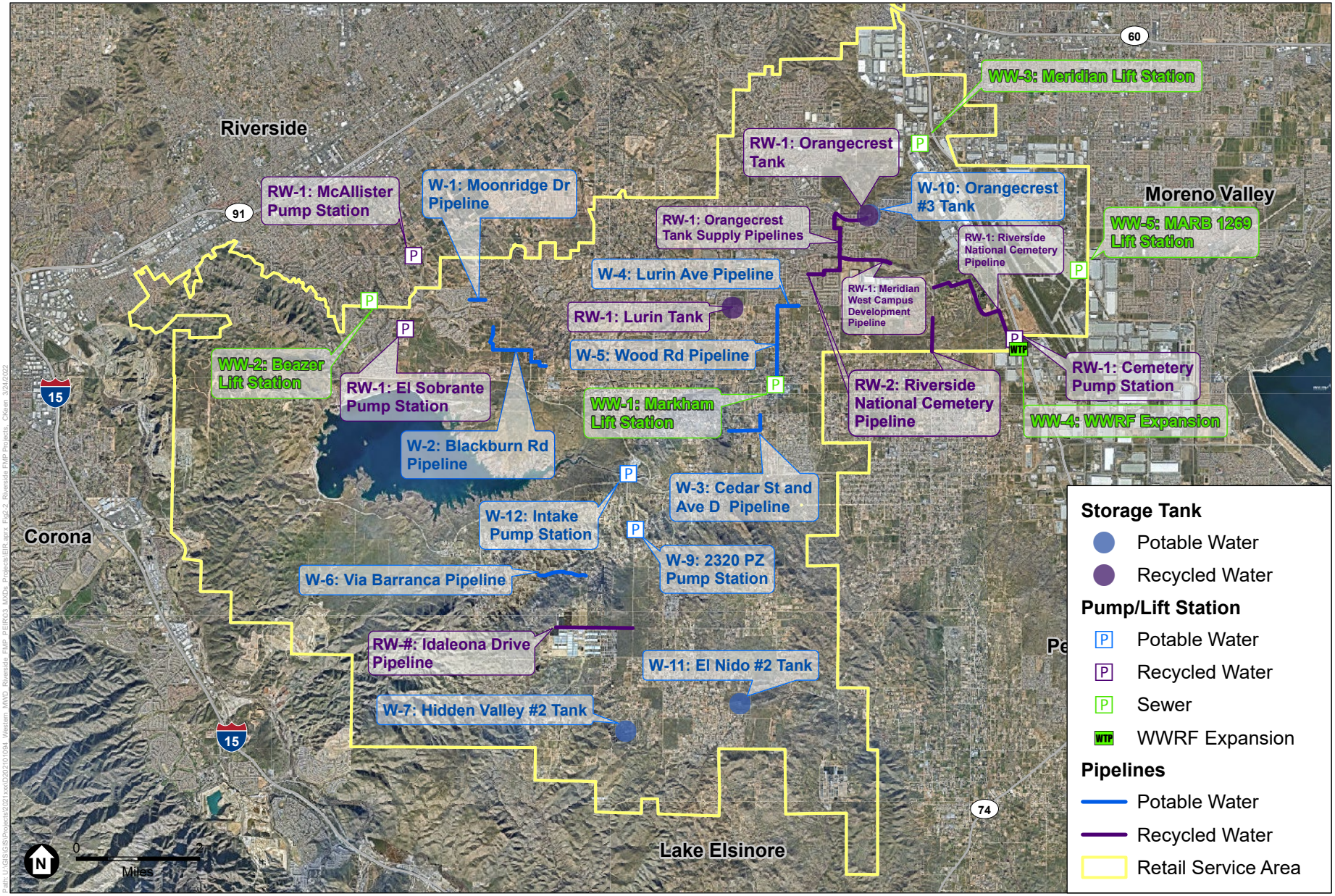
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Thank you for your assistance with our efforts to address tribal cultural resources that may be affected by the proposed project.

Sincerely,



Jason Pivovaroff
Deputy Director of Water Resources
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518
JPivovaroff@wmwd.com
Phone: (951) 571-7267



SOURCE: Nearmap, 2022; WMWD, 2022; ESA, 2022.

Riverside Facilities Master Plan

Figure 1
Riverside FMP Projects

ESA

WESTERN MUNICIPAL WATER DISTRICT

Craig D. Miller
General Manager

Mike Gardner Division 1 | **Gracie Torres** Division 2 | **Brenda Dennstedt** Division 3 | **Laura Roughton** Division 4 | **Fauzia Rizvi** Division 5

April 6, 2022

Pechanga Band of Luiseño Indians
Attn: Mark Macarro
Chairman
PO Box 1477
Temecula, CA 92593

Subject: AB 52 Project Notification and Request to Consult Letter for the Proposed Riverside Facilities Master Plan, Riverside, California

Dear Mr. Macarro:

Pursuant to California Assembly Bill (AB) 52, Western Municipal Water District (WMWD) is providing you with notification of the intent to undertake the Riverside Facilities Master Plan (proposed project). Under California State law, the project is subject to the California Environmental Quality Act (CEQA) and WMWD has decided to prepare a Program Environmental Impact Report (PEIR) for the proposed project. The FMP is an integrated master plan that evaluates the performance and capacity of the potable water, recycled/non-potable water, and wastewater systems within WMWD's Riverside Retail Service Area. The FMP provides a list of recommended capital improvement projects to guide WMWD with implementation of the recommended improvements to support future growth and development of the Riverside Retail Service Area. The FMP presents existing system deficiencies that need to be corrected as well as future improvements and facility upgrades to be implemented by 2030 and under buildout conditions (after 2030). The projects include upsizing of existing pipelines as well as new pipelines; new storage tanks; new booster pump stations; new pumps at existing pump stations; capacity upgrades at existing lift stations; and potential expansion of the Western Water Recycling Facility (WWRF).

WMWD's service area is located in western Riverside County, approximately 50 miles east of Los Angeles and covers 527 square miles, of which 104 square miles are included as the Riverside Retail Service Area. The proposed project would be located within WMWD's Riverside Retail Service Area, which is generally bounded by the City of Riverside to the north, the City of Moreno Valley to the east, the City of Lake Elsinore to the south, and the City of Corona to the west, which is shown on the attached **Figure 1**. Projects are located in the City of Riverside as well as unincorporated areas of Riverside County.

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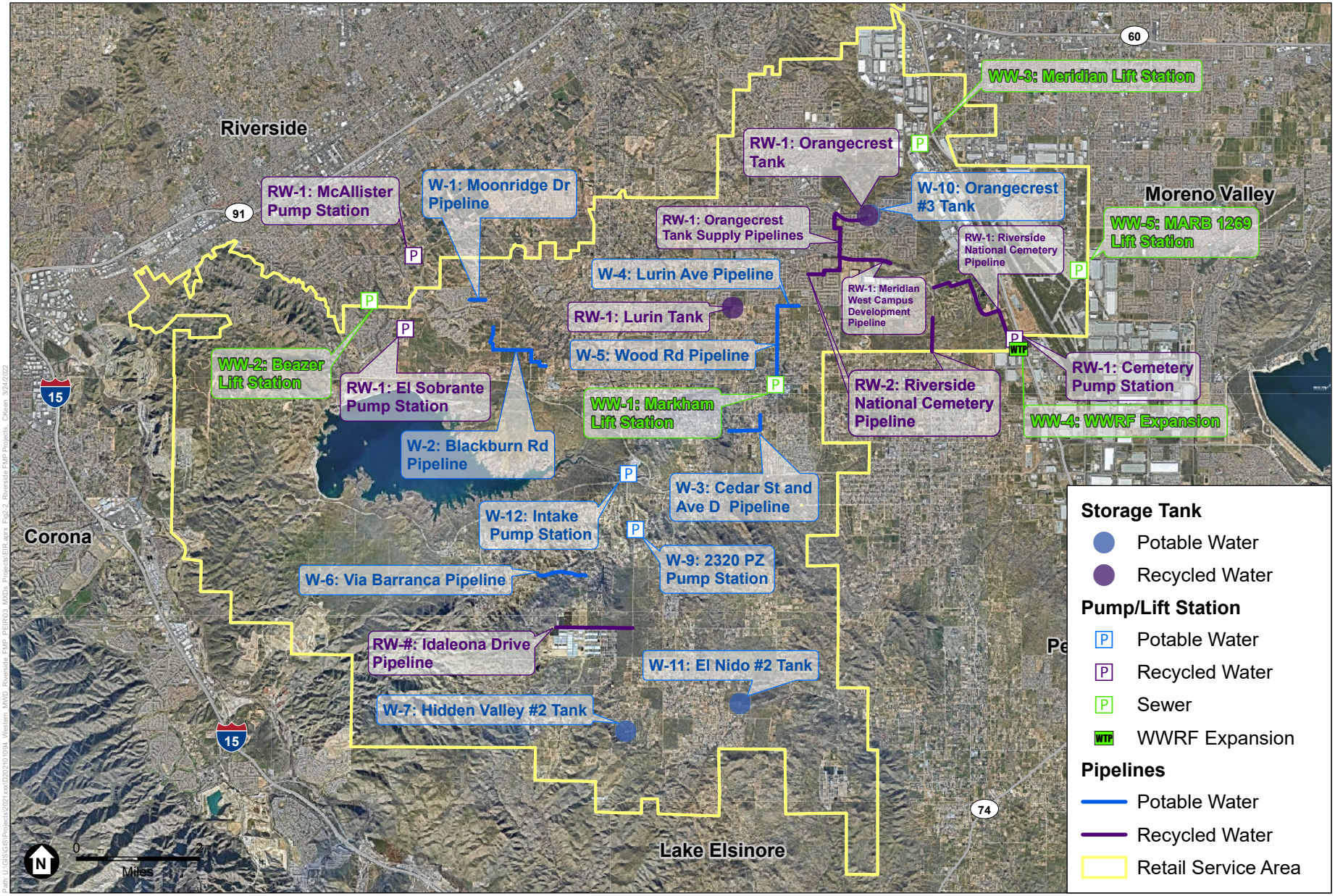
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Thank you for your assistance with our efforts to address tribal cultural resources that may be affected by the proposed project.

Sincerely,



Jason Pivovaroff
Deputy Director of Water Resources
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518
JPivovaroff@wmwd.com
Phone: (951) 571-7267



SOURCE: Nearmap, 2022; WMWD, 2022; ESA, 2022.

Riverside Facilities Master Plan

Figure 1
Riverside FMP Projects

ESA

WESTERN MUNICIPAL WATER DISTRICT

Craig D. Miller
General Manager

Mike Gardner	Gracie Torres	Brenda Dennstedt	Laura Roughton	Fauzia Rizvi
Division 1	Division 2	Division 3	Division 4	Division 5

April 6, 2022

Rincon Band of Luiseño Indians
Attn: Cheryl Madrigal
Cultural Resources Manager/THPO
One Government Center Lane
Valley Center, CA 92082

Subject: AB 52 Project Notification and Request to Consult Letter for the Proposed Riverside Facilities Master Plan, Riverside, California

Dear Ms. Madrigal:

Pursuant to California Assembly Bill (AB) 52, Western Municipal Water District (WMWD) is providing you with notification of the intent to undertake the Riverside Facilities Master Plan (proposed project). Under California State law, the project is subject to the California Environmental Quality Act (CEQA) and WMWD has decided to prepare a Program Environmental Impact Report (PEIR) for the proposed project. The FMP is an integrated master plan that evaluates the performance and capacity of the potable water, recycled/non-potable water, and wastewater systems within WMWD's Riverside Retail Service Area. The FMP provides a list of recommended capital improvement projects to guide WMWD with implementation of the recommended improvements to support future growth and development of the Riverside Retail Service Area. The FMP presents existing system deficiencies that need to be corrected as well as future improvements and facility upgrades to be implemented by 2030 and under buildout conditions (after 2030). The projects include upsizing of existing pipelines as well as new pipelines; new storage tanks; new booster pump stations; new pumps at existing pump stations; capacity upgrades at existing lift stations; and potential expansion of the Western Water Recycling Facility (WWRF).

WMWD's service area is located in western Riverside County, approximately 50 miles east of Los Angeles and covers 527 square miles, of which 104 square miles are included as the Riverside Retail Service Area. The proposed project would be located within WMWD's Riverside Retail Service Area, which is generally bounded by the City of Riverside to the north, the City of Moreno Valley to the east, the City of Lake Elsinore to the south, and the City of Corona to the west, which is shown on the attached **Figure 1**. Projects are located in the City of Riverside as well as unincorporated areas of Riverside County.

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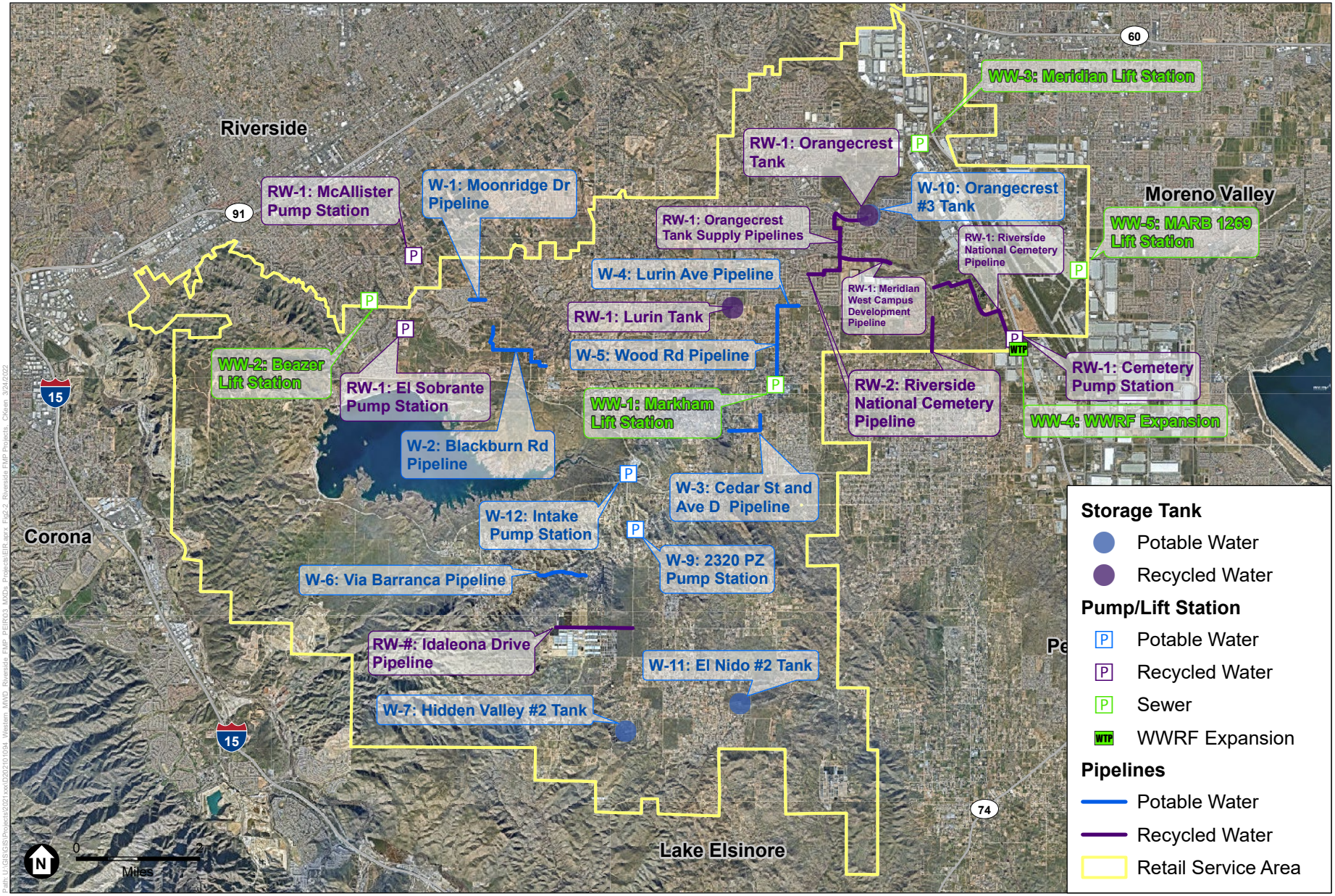
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Thank you for your assistance with our efforts to address tribal cultural resources that may be affected by the proposed project.

Sincerely,



Jason Pivovaroff
Deputy Director of Water Resources
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518
JPivovaroff@wmwd.com
Phone: (951) 571-7267



SOURCE: Nearmap, 2022; WMWD, 2022; ESA, 2022.

Riverside Facilities Master Plan

Figure 1
Riverside FMP Projects

ESA

Craig D. Miller
General Manager

Mike Gardner Division 1
Gracie Torres Division 2
Brenda Dennstedt Division 3
Laura Roughton Division 4
Fauzia Rizvi Division 5

April 6, 2022

San Manuel Band of Mission Indians
Attn: Jessica Mauck
CRM Department Director
26569 Community Center Drive
Highland, CA 92346

Subject: AB 52 Project Notification and Request to Consult Letter for the Proposed Riverside Facilities Master Plan, Riverside, California

Dear Ms. Mauck:

Pursuant to California Assembly Bill (AB) 52, Western Municipal Water District (WMWD) is providing you with notification of the intent to undertake the Riverside Facilities Master Plan (proposed project). Under California State law, the project is subject to the California Environmental Quality Act (CEQA) and WMWD has decided to prepare a Program Environmental Impact Report (PEIR) for the proposed project. The FMP is an integrated master plan that evaluates the performance and capacity of the potable water, recycled/non-potable water, and wastewater systems within WMWD's Riverside Retail Service Area. The FMP provides a list of recommended capital improvement projects to guide WMWD with implementation of the recommended improvements to support future growth and development of the Riverside Retail Service Area. The FMP presents existing system deficiencies that need to be corrected as well as future improvements and facility upgrades to be implemented by 2030 and under buildout conditions (after 2030). The projects include upsizing of existing pipelines as well as new pipelines; new storage tanks; new booster pump stations; new pumps at existing pump stations; capacity upgrades at existing lift stations; and potential expansion of the Western Water Recycling Facility (WWRF).

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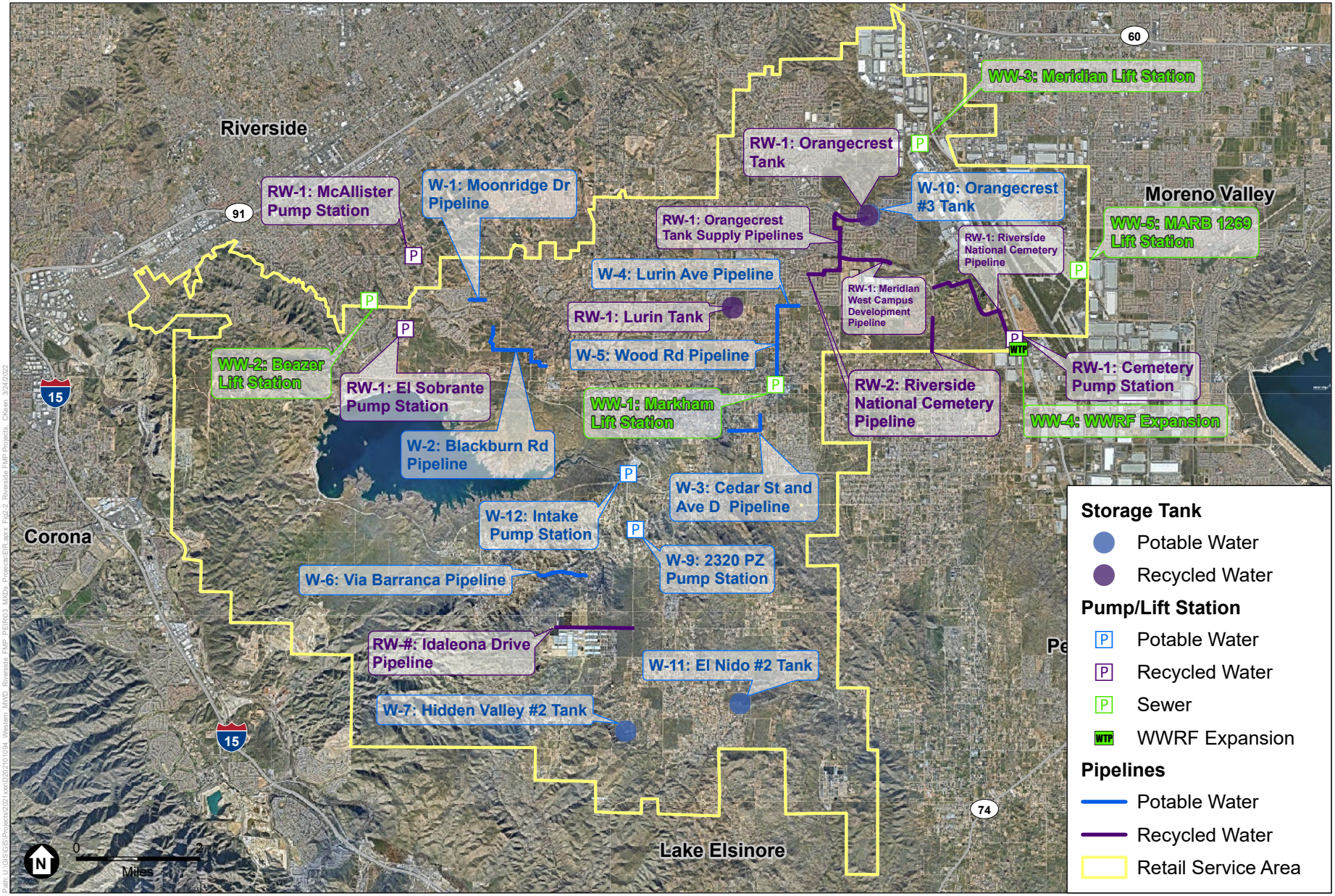
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Thank you for your assistance with our efforts to address tribal cultural resources that may be affected by the proposed project.

Sincerely,



Jason Pivovaroff
Deputy Director of Water Resources
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518
JPivovaroff@wmwd.com
Phone: (951) 571-7267



SOURCE: Nearmap, 2022; WMWD, 2022; ESA, 2022.

Riverside Facilities Master Plan

Figure 1
Riverside FMP Projects

ESA

WESTERN MUNICIPAL WATER DISTRICT

Craig D. Miller
General Manager

Mike Gardner Division 1 | **Gracie Torres** Division 2 | **Brenda Dennstedt** Division 3 | **Laura Roughton** Division 4 | **Fauzia Rizvi** Division 5

April 6, 2022

Soboba Band of Luiseño Indians
Attn: Joseph Ontiveros
Cultural Resources Director
P.O. Box 487
San Jacinto, CA 92581

Subject: AB 52 Project Notification and Request to Consult Letter for the Proposed Riverside Facilities Master Plan, Riverside, California

Dear Mr. Ontiveros:

Pursuant to California Assembly Bill (AB) 52, Western Municipal Water District (WMWD) is providing you with notification of the intent to undertake the Riverside Facilities Master Plan (proposed project). Under California State law, the project is subject to the California Environmental Quality Act (CEQA) and WMWD has decided to prepare a Program Environmental Impact Report (PEIR) for the proposed project. The FMP is an integrated master plan that evaluates the performance and capacity of the potable water, recycled/non-potable water, and wastewater systems within WMWD's Riverside Retail Service Area. The FMP provides a list of recommended capital improvement projects to guide WMWD with implementation of the recommended improvements to support future growth and development of the Riverside Retail Service Area. The FMP presents existing system deficiencies that need to be corrected as well as future improvements and facility upgrades to be implemented by 2030 and under buildout conditions (after 2030). The projects include upsizing of existing pipelines as well as new pipelines; new storage tanks; new booster pump stations; new pumps at existing pump stations; capacity upgrades at existing lift stations; and potential expansion of the Western Water Recycling Facility (WWRF).

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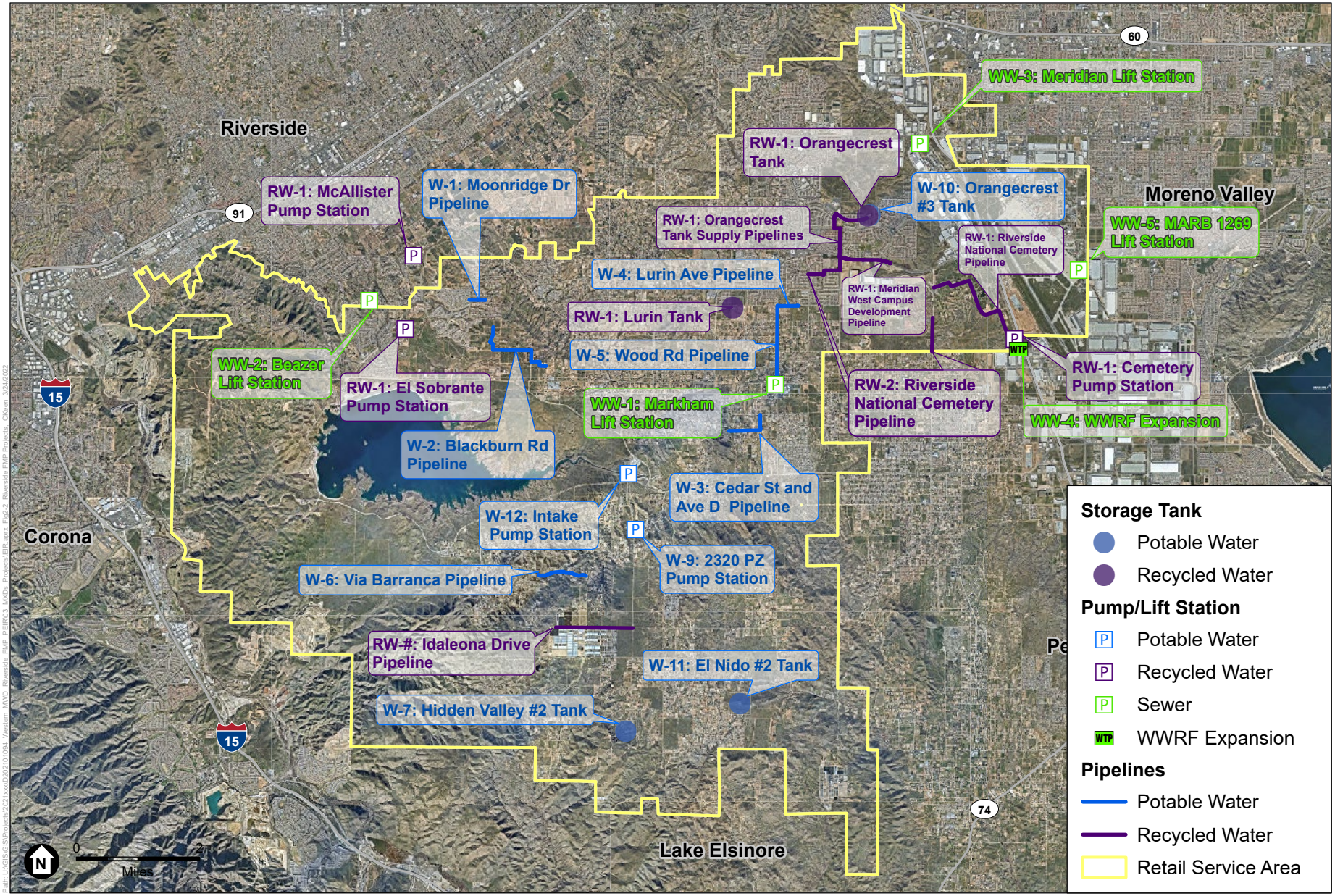
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Thank you for your assistance with our efforts to address tribal cultural resources that may be affected by the proposed project.

Sincerely,



Jason Pivovaroff
Deputy Director of Water Resources
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518
JPivovaroff@wmwd.com
Phone: (951) 571-7267



SOURCE: Nearmap, 2022; WMWD, 2022; ESA, 2022.

Riverside Facilities Master Plan

Figure 1
Riverside FMP Projects

ESA

WESTERN MUNICIPAL WATER DISTRICT

Craig D. Miller
General Manager

Mike Gardner Division 1 | **Gracie Torres** Division 2 | **Brenda Dennstedt** Division 3 | **Laura Roughton** Division 4 | **Fauzia Rizvi** Division 5

April 6, 2022

Torres Martinez Desert Cahuilla Indians
Attn: Michael Mirelez
Cultural Resources Coordinator
P.O. Box 1160
Thermal, CA 92274

Subject: AB 52 Project Notification and Request to Consult Letter for the Proposed Riverside Facilities Master Plan, Riverside, California

Dear Mr. Mirelez:

Pursuant to California Assembly Bill (AB) 52, Western Municipal Water District (WMWD) is providing you with notification of the intent to undertake the Riverside Facilities Master Plan (proposed project). Under California State law, the project is subject to the California Environmental Quality Act (CEQA) and WMWD has decided to prepare a Program Environmental Impact Report (PEIR) for the proposed project. The FMP is an integrated master plan that evaluates the performance and capacity of the potable water, recycled/non-potable water, and wastewater systems within WMWD's Riverside Retail Service Area. The FMP provides a list of recommended capital improvement projects to guide WMWD with implementation of the recommended improvements to support future growth and development of the Riverside Retail Service Area. The FMP presents existing system deficiencies that need to be corrected as well as future improvements and facility upgrades to be implemented by 2030 and under buildout conditions (after 2030). The projects include upsizing of existing pipelines as well as new pipelines; new storage tanks; new booster pump stations; new pumps at existing pump stations; capacity upgrades at existing lift stations; and potential expansion of the Western Water Recycling Facility (WWRF).

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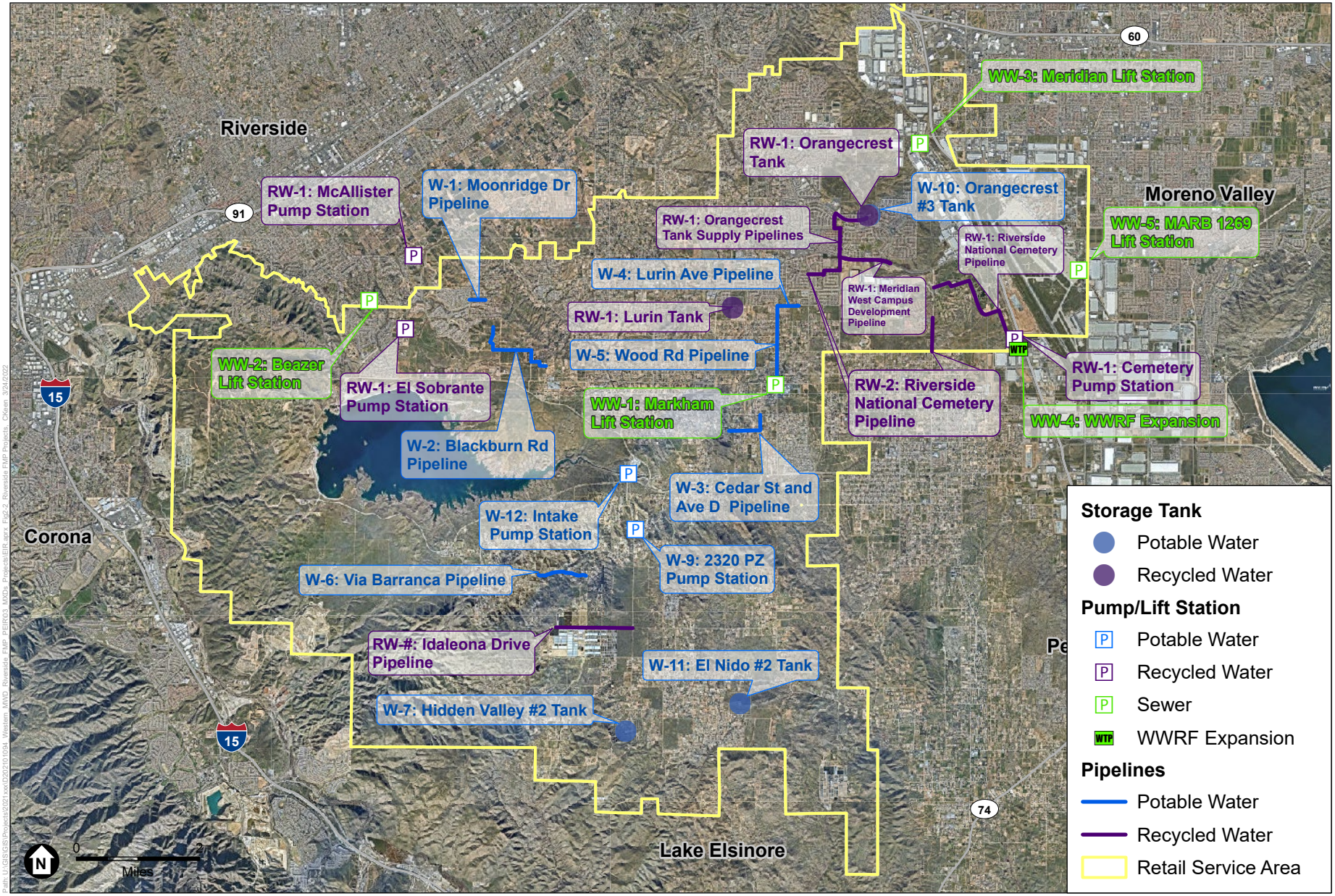
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Thank you for your assistance with our efforts to address tribal cultural resources that may be affected by the proposed project.

Sincerely,



Jason Pivovaroff
Deputy Director of Water Resources
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518
JPivovaroff@wmwd.com
Phone: (951) 571-7267



SOURCE: Nearmap, 2022; WMWD, 2022; ESA, 2022.

Riverside Facilities Master Plan

Figure 1
Riverside FMP Projects

ESA

WESTERN MUNICIPAL WATER DISTRICT

Craig D. Miller
General Manager

Mike Gardner Division 1 | **Gracie Torres** Division 2 | **Brenda Dennstedt** Division 3 | **Laura Roughton** Division 4 | **Fauzia Rizvi** Division 5

January 26, 2023

Morongo Band of Mission Indians
Attn: Bernadette Ann Brierty
Tribal Historic Preservation Officer
12700 Pumarra Road
Banning, CA 92220

Subject: AB 52 Project Consultation Close Out Letter for the Proposed Riverside Facilities Master Plan, Riverside, California

Dear Ms. Brierty:

Pursuant to the provisions of Assembly Bill 52 (AB 52) and PRC § 21080.3.1 (b), as the lead agency under the California Environmental Quality Act (CEQA), Western Municipal Water District (Western) formally requested to consult on the CEQA review of the Program Environmental Impact Report (PEIR) for the Riverside Facilities Master Plan (Riverside FMP) with Morongo Band of Mission Indians on April 6, 2022.

Thank you for your consultation on this project. We appreciate your time in communicating with us. Through our ongoing consultation we have drafted the following mitigation measure for the environmental document, which was originally was sent to you for review on January 19, 2023. The measure has been revised since then and is provided below.

Tribal Section Mitigation Measure:

> ***TCR-1: Native American Monitoring.*** *Prior to the commencement of ground disturbing activity at any of the Riverside FMP project sites, the District shall notify the Rincon Band of Luiseño Indians and the Morongo Band of Mission Indians of such activity. One Native American monitor may be provided by either tribe on a project rotation basis. Should neither Tribe respond within 7 days, the work can continue with only the archaeologist present. The Tribal monitor will only be present on-site during the construction phases that involve ground disturbing activity as outlined in the Cultural Resources Mitigation Measures CR-2, CR-3, CR-4, CR-6, and CR-7. The on-site Tribal monitoring shall end when all ground disturbing activities on the project site are completed, or when the Tribal representatives and Tribal Monitor have indicated that the project site has little to no potential for impacting tribal cultural resources.*
>
> *In the event that cultural resources of Native American origin are identified during construction, the District will coordinate with the qualified archaeologist (who meets the Secretary of the Interior's Professional Qualifications Standards), and both tribes that participated in consultation. If the District, in consultation with the Rincon Band of Luiseño Indians and the Morongo Band of Mission Indians determines that the resource is a tribal cultural resource and thus significant under CEQA, avoidance of the resources will be explored. If avoidance is not a possible, a treatment plan shall be prepared and implemented in accordance with state guidelines and in consultation with the two Native American tribes. The treatment plan may include, but would not be limited to avoidance, capping in place, excavation and removal of the resource, interpretive displays, sensitive area signage, or other mutually agreed upon measure.*

This letter is to notify Morongo Band of Mission Indians that Western is formally closing the period of consultation on January 26, 2023, prior to the release of the Draft PEIR.

We have appreciated your input on this project and look forward to continuing to build upon our relationship with the Morongo Band of Mission Indians. Morongo Band of Mission Indians will receive a Notice of Availability of the Draft PEIR in the mail notifying you of the public review and comment period, public meeting, and reviewing locations.

Sincerely,



Joshua Aguilar
Deputy Director of Water Resources
Western Municipal Water District
14205 Meridian Parkway
Riverside, CA 92518
jaguilar1@wmwd.com
Phone: (951) 571-7267

WESTERN MUNICIPAL WATER DISTRICT

Craig D. Miller
General Manager

Mike Gardner Division 1 | **Gracie Torres** Division 2 | **Brenda Dennstedt** Division 3 | **Laura Roughton** Division 4 | **Fauzia Rizvi** Division 5

January 26, 2023

Rincon Band of Luiseño Indians
Attn: Cheryl Madrigal
Cultural Resources Manager/THPO
One Government Center Lane
Valley Center, CA 92082

Subject: AB 52 Project Consultation Close Out Letter for the Proposed Riverside Facilities Master Plan, Riverside, California

Dear Ms. Madrigal:

Pursuant to the provisions of Assembly Bill 52 (AB 52) and PRC § 21080.3.1 (b), as the lead agency under the California Environmental Quality Act (CEQA), Western Municipal Water District (Western) formally requested to consult on the CEQA review of the Program Environmental Impact Report (PEIR) for the Riverside Facilities Master Plan (Riverside FMP) with Rincon Band of Luiseño Indians on April 6, 2022.

Thank you for your consultation on this project. We appreciate your time in communicating with us. Through our ongoing consultation we have drafted the following mitigation measure for the environmental document, which was sent to you to review on January 19, 2023. Based on your comments, the revised mitigation measure is provided below.

Tribal Section Mitigation Measure:

> ***TCR-1: Native American Monitoring.*** *Prior to the commencement of ground disturbing activity at any of the Riverside FMP project sites, the District shall notify the Rincon Band of Luiseño Indians and the Morongo Band of Mission Indians of such activity. One Native American monitor may be provided by either tribe on a project rotation basis. Should neither Tribe respond within 7 days, the work can continue with only the archaeologist present. The Tribal monitor will only be present on-site during the construction phases that involve ground disturbing activity as outlined in the Cultural Resources Mitigation Measures CR-2, CR-3, CR-4, CR-6, and CR-7. The on-site Tribal monitoring shall end when all ground disturbing activities on the project site are completed, or when the Tribal representatives and Tribal Monitor have indicated that the project site has little to no potential for impacting tribal cultural resources.*
>
> *In the event that cultural resources of Native American origin are identified during construction, the District will coordinate with the qualified archaeologist (who meets the Secretary of the Interior's Professional Qualifications Standards), and both tribes that participated in consultation. If the District, in consultation with the Rincon Band of Luiseño Indians and the Morongo Band of Mission Indians determines that the resource is a tribal cultural resource and thus significant under CEQA, avoidance of the resources will be explored. If avoidance is not a possible, a treatment plan shall be prepared and implemented in accordance with state guidelines and in consultation with the two Native American tribes. The treatment plan may include, but would not be limited to avoidance, capping in place, excavation and removal of the resource, interpretive displays, sensitive area signage, or other mutually agreed upon measure.*

This letter is to notify Rincon Band of Luiseño Indians that Western is formally closing the period of consultation on January 26, 2023, prior to the release of the Draft PEIR.

We have appreciated your input on this project and look forward to continuing to build upon our relationship with the Rincon Band of Luiseño Indians. Rincon Band of Luiseño Indians will receive a Notice of Availability of the Draft PEIR in the mail notifying you of the public review and comment period, public meeting, and reviewing locations.

Sincerely,



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