WATER+ TREATMENT PLANTS RESILIENCY AND IMPROVEMENTS PROJECT

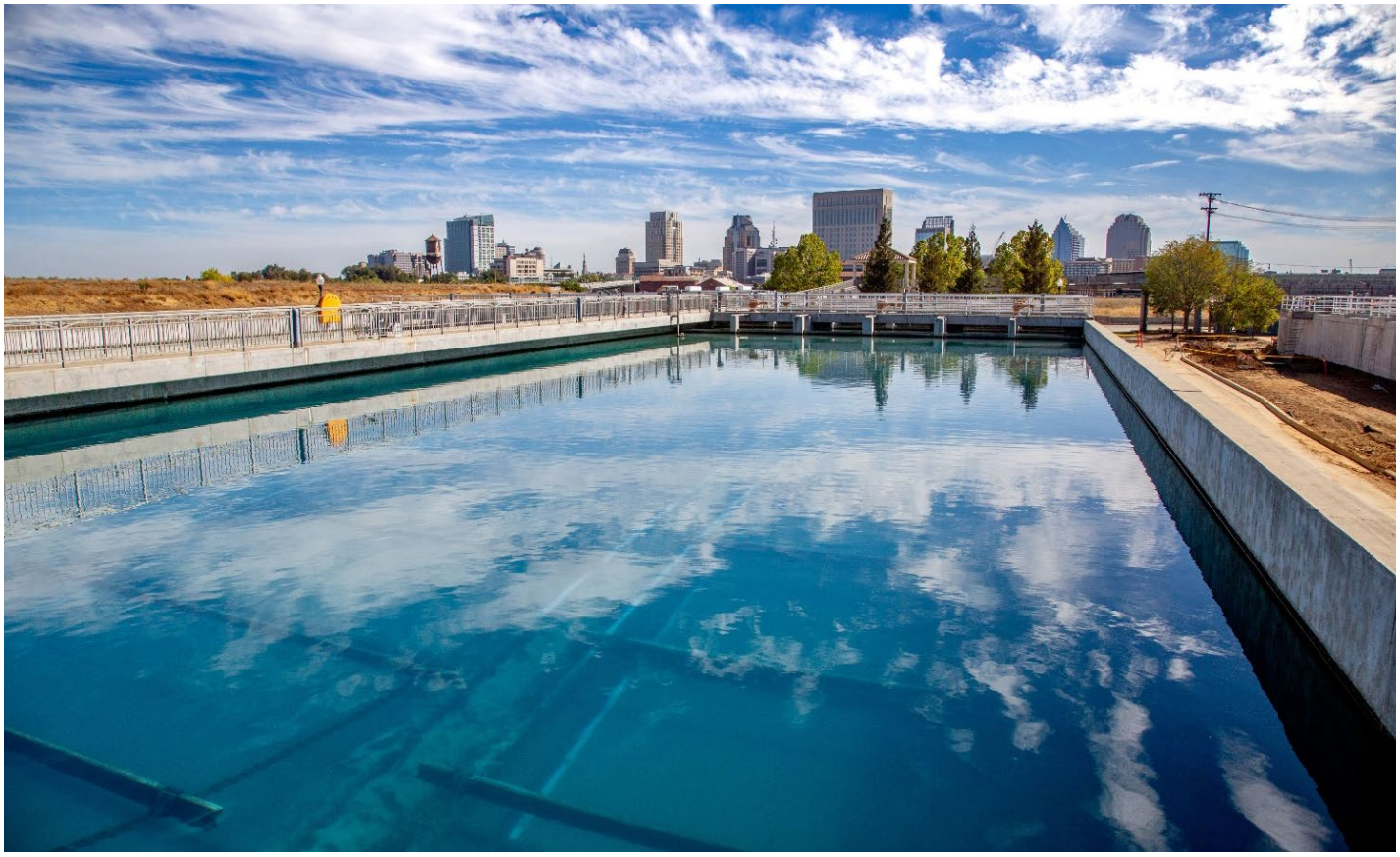
Final Environmental Impact Report

State Clearinghouse No. 2022040138

Prepared for
City of Sacramento

January 2026

ESA



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CHAPTER 1
Introduction and List of Commenters

1.1 Purpose of this Document

This document includes all agency and public written comments received on the Draft Environmental Impact Report (Draft EIR, SCH #2022040138) for the Water+ Treatment Plants Resiliency and Improvements Project (proposed project). Also included are changes in the text of the Draft EIR either in response to written comments or initiated by staff.

Written comments were received by the City of Sacramento (City) during the public comment period from June 19, 2025 through August 4, 2025. This document includes written responses to each comment received on the Draft EIR. This Final EIR document has been prepared in accordance with the California Environmental Quality Act (CEQA) and together with the Draft EIR (and Appendices) constitutes the EIR for the proposed project that will be used by the decision-makers during project hearings. The responses and text changes refine, clarify, amplify, and/or correct text in the Draft EIR, as appropriate. These changes do not alter the conclusions or findings of the Draft EIR.

1.2 Summary of Proposed Project

The proposed project is designed to provide treatment resiliency for changing water quality in the American and Sacramento rivers; to address reliability of water treatment facilities with aging infrastructure; and to meet the City's projected potable water demands. In summary, the proposed project includes the following components:

- Facility and treatment process improvements at both the E. A. Fairbairn Water Treatment Plant (FWTP) and the Sacramento River Water Treatment Plant (SRWTP) including replacement of aging infrastructure; integration of ozone into the treatment processes; and conversion from chlorine gas to sodium hypochlorite as the primary chemical for disinfection of the water.
- Upgrades to existing utilities that serve the FWTP and SRWTP (i.e., storm drainage systems and electrical service line connections).
- Construction of a new Sacramento River water intake and pump station, and installation of a new raw water conveyance pipeline to transfer raw water from the supply source (Sacramento River) to the SRWTP facilities.

- Improvements to the existing Sacramento River water intake and associated facilities, and installation of a new pipeline to transport sediment deposited within the intake to SRWTP (following a similar alignment as the existing intake raw water conveyance pipelines).
- Improvement of the potable water transmission system in the vicinity of SRWTP to address critical hydraulic constrictions.

The proposed project includes two phases of work: an "initial phase" to occur between 2027 and 2038, followed by a "project buildout" to occur between 2039 and 2050. The initial phase of the proposed project would improve treatment reliability at both water treatment plants by replacing facilities that have reached the end of their effective lives. The initial phase would also provide resiliency within each treatment system through the addition of ozone treatment, to help address changing water quality in the Sacramento and American Rivers, and the conversion from chlorine gas to sodium hypochlorite, a safer and more reliably available chemical for disinfection. The project buildout phase of the proposed project would be staged to meet the increasing water demands of the City's service area through 2050 by further increasing the treatment capacity of the SRWTP to treat water diverted from the Sacramento River.

1.3 Public Participation and Review

The City of Sacramento has complied with all noticing and public review requirements of CEQA. This compliance included notification of all responsible and trustee agencies and interested groups, organizations, and individuals that the Draft EIR was available for review. The following list of actions took place during the preparation, distribution, and review of the Draft EIR:

- A Notice of Preparation (NOP) for the EIR was filed with the State Clearinghouse on April 6, 2022. The 30-day public review comment period for the NOP ended on May 6, 2022 (SCH# 2022040138). In accordance with PRC Section 21080.4(a) and CEQA Guidelines Section 15082(b), each responsible agency, trustee agency, and involved federal agency was requested to provide, in writing, the scope and content of the environmental information to be included in the Draft EIR related to its area of statutory responsibility. The NOP was also sent to public agencies, organizations, and individuals that requested receipt of the City's public notices, to invite them to provide input. The NOP was also available for review on the City's Water+ Program website: https://www.cityofsacramento.gov/utilities/projects/waterplus.
- A virtual public meeting was held during the 30-day NOP review period to solicit comments on the scope and content of the EIR, and to provide information to the public, including a description of the proposed project. The meeting was held at 12:00 p.m. on Wednesday, April 27, 2022, via the Zoom web conference application. A total of five comment letters were received and are included in **Appendix A**, *Notice of Preparation*, of the Draft EIR along with a copy of the NOP.
- In accordance with the requirements of PRC Section 21080.3, City staff conducted Native American outreach and consultation efforts. On April 1, 2022, the City sent tribal outreach letters to Native American representatives on the City's Assembly Bill (AB) 52 consultation list. United Auburn Indian Community of the Auburn Rancheria (UAIC) responded on

April 29, 2022, that the project area is sensitive for tribal cultural resources and requested consultation. No other tribe responded to the outreach notification in accordance with PRC 21080.3.1.

- A Notice of Completion (NOC) and copies of the Draft EIR were filed with the State Clearinghouse on June 20, 2025. An official 45-day public review period for the Draft EIR was established by the State Clearinghouse, ending on August 4, 2025. A Notice of Availability (NOA) for the Draft EIR was published in the Sacramento Bulletin on June 20, 2025. The NOA was also posted with the office of the Sacramento County Clerk-Recorder and was sent to respondents of the NOP, and other interested parties that requested receipt of the notice. The Draft EIR and NOA were also published on the City's website.
- Copies of the Draft EIR were available for review at the following locations:

  City of Sacramento
  Community Development Department
  300 Richards Boulevard, Third Floor
  Sacramento, CA 95811

  Sacramento Public Library
  828 I Street
  Sacramento, CA 95814

1.4 List of Commenters

The City of Sacramento received five comment letters during the comment period on the Draft EIR for the proposed project. Table 1-1 indicates the numerical designation for each comment letter, the author of the comment letter, and the date of the comment letter.

TABLE 1-1
COMMENT LETTERS REGARDING THE DRAFT EIR

Letter #	Entity	Author(s) of Comment Letter/ e-mail	Date of Comment Letter/ e-mail	Number of Comments
Agencies – Federal, State, and Local				
F1	National Marine Fisheries Service (NMFS) Central Valley Office	Stephen Maurano	July 14, 2025	3
S1	Central Valley Regional Water Quality Control Board	Peter G. Minkel	August 4, 2025	9
S2	California Department of Fish and Wildlife (CDFW)	Morgan Kilgour	August 5, 2025	16
L1	Sacramento Area Sewer District (SacSewer)	Robb Armstrong	July 29, 2025	7
L2	Sacramento Metropolitan Air Quality Management District (SMAQMD)	Molly Wright	August 4, 2025	13

1.5 Organization of the Final EIR

The Final EIR is organized as follows:

Chapter 1 – Introduction and List of Commenters: This chapter summarizes the project under consideration and describes the contents of the Final EIR. This chapter also contains a summary of the public participation and review process, and a list of the agencies who submitted comments on the Draft EIR during the public review period, presented in order by agency and date received.

Chapter 2 – Revisions to the Draft EIR: This chapter describes changes and refinements made to the proposed project since publication of the Draft EIR. These refinements, clarifications, amplifications, and corrections, which are described as a narrative in the beginning of the chapter, would not change the conclusions or findings presented in the Draft EIR for the reasons discussed in Chapter 2. This chapter also summarizes text changes made to the Draft EIR in response to comments made on the Draft EIR and staff-initiated text changes. Changes to the text of the Draft EIR are shown by either ~~strikethrough~~ where text has been deleted, or double underline where new text has been inserted.

Chapter 3 – Comments and Responses: This chapter contains the comment letters received on the Draft EIR followed by responses to individual comments. Each comment letter is presented with brackets indicating how the letter has been divided into individual comments. Each comment is given a binomial with the letter number appearing first, followed by the comment number. For example, comments in Letter F1 are numbered F1-1, F1-2, F1-3, and so on. Immediately following the letter are responses, each with binomials that correspond to the bracketed comments.

If the subject matter of one letter overlaps that of another letter, the reader may be referred to more than one response to review all information on a given subject. Where this occurs, cross-references to other comments are provided.

Some comments that were submitted to the City do not pertain to environmental issues or do not address the adequacy of the analysis contained in the Draft EIR. Responses to such comments, though not required, are included to provide additional information.

Chapter 4 – Mitigation Monitoring and Reporting Program: This chapter contains the MMRP to guide the City in its implementation and monitoring of measures adopted in the EIR, and to comply with the requirements of Public Resources Code Section 21081.6(a).

CHAPTER 2
Revisions to the Draft EIR

2.1 Introduction

This chapter describes changes made to the proposed project since the publication of the Draft EIR as well as text changes made to the Draft EIR either in response to a comment letter or initiated by City staff or in response to a modification to the proposed project.

Under CEQA, recirculation of all or part of an EIR may be required if significant new information is added after public review and prior to certification. According to CEQA Guidelines section 15088.5(a), new information is not considered significant "unless the EIR is changed in a way that deprives the public of a meaningful opportunity to comment upon a substantial adverse environmental effect of the project or a feasible way to mitigate or avoid such an effect (including a feasible project alternative) that the project's proponents have declined to implement." More specifically, the CEQA Guidelines define significant new information as including:

- A new significant environmental impact resulting from the project or from a new mitigation measure;
- A substantial increase in the severity of an environmental impact that would not be reduced to insignificance by adopted mitigation measures;
- A feasible project alternative or mitigation measure considerably different from those analyzed in the Draft EIR that would clearly lessen the environmental impacts of the project and which the project proponents decline to adopt; and
- A Draft EIR that is so fundamentally and basically inadequate and conclusory that meaningful public review and comment were precluded.

The changes to the proposed project and text changes described below update, refine, clarify, and amplify the project information and analyses presented in the Draft EIR. No new significant impacts are identified, and no information is provided that would involve a substantial increase in severity of a significant impact that would not be mitigated by measures agreed to by the project applicant. In addition, no new or considerably different project alternatives or mitigation measures have been identified. The revisions to mitigation measures outlined in this chapter refine and clarify mitigation measures; they do not reduce the effectiveness or enforceability of the mitigation measures or change the conclusions of the EIR. Finally, there are no changes that would reflect inadequacies in the Draft EIR. Recirculation of any part of the EIR therefore is not required.

2.2 Changes to the Proposed Project

This section summarizes changes made to the proposed project. The summary included here is intended to succinctly describe changes to the project design, refinement of project elements, and any changes to project images since publication of the Draft EIR. Specific text changes to the Draft EIR are presented in section 2.3, *Text Changes to the Draft EIR*. Revised Draft EIR figures and appendices are included at the end of this chapter. These changes are minor and do not change the environmental analysis or significance conclusions described in the Draft EIR.

2.3 Text Changes to the Draft EIR

This section summarizes text changes made to the Draft EIR either in response to a comment letter, initiated by City staff, or in response to a modification to the proposed project. New text is indicated in double underline and text to be deleted is reflected by a ~~strike through~~. Text changes are presented in the page order in which they appear in the Draft EIR.

The text revisions provide clarification, amplification, and corrections that have been identified since publication of the Draft EIR. The text changes do not result in a change in the conclusions or findings of the Draft EIR.

Global Revisions

In response to Comment L1-6, references to the Sacramento Regional Wastewater Treatment Plant (Sacramento Regional WWTP) in the Draft EIR are revised to reflect the new name of EchoWater Resource Recovery Facility (EchoWater Facility).

References to the Project Applicant or Project Proponent in the mitigation measures presented in the Draft EIR are revised to refer instead to the City of Sacramento (City). This is a staff-initiated change to clarify the text and has not been done in response to a public comment.

Executive Summary

Page ES-2 is revised to reflect updates to the anticipated construction schedule for the proposed project:

> The proposed project is designed to achieve the project objectives through two phases of work relating to the City's water treatment plants, raw water supply, and potable water transmission pipelines: an "initial phase" to occur between ~~2026 and 2037~~ 2027 and 2038, followed by a "project buildout" to occur between ~~2040~~ 2039 and 2050.

The summary of proposed project components on Page ES-2 is revised to reflect a clarification to the alignment of the new sediment pipeline from the existing intake to SRWTP:

- Improvements to the existing Sacramento River water intake and associated facilities, and installation of a ~~second~~ new pipeline to transport sediment deposited within the intake to SRWTP (following ~~approximately the same~~ a similar alignment as the raw water conveyance pipeline described above).

In Table ES-1, select rows are revised to reflect revisions to mitigation measures related to air quality, aquatic biological resources, terrestrial biological resources, and noise.

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Impact Statement	Significance Before Mitigation: Treatment Plant Improvements	Significance Before Mitigation: Existing Utility Upgrades	Significance Before Mitigation: Sacramento River Water Intakes	Significance Before Mitigation: Potable Water Transmission Pipelines	Mitigation Measures	Significance After Mitigation: Treatment Plant Improvements	Significance After Mitigation: Existing Utility Upgrades	Significance After Mitigation: Sacramento River Water Intakes	Significance After Mitigation: Potable Water Transmission Pipelines
3.4 Air Quality									
3.4-1: Construction of the proposed project could conflict with or obstruct implementation of an applicable air quality plan.	PS (FWTP/ SRWTP)	PS (FWTP/ SRWTP)	PS (Existing/ New)	PS	**Mitigation Measure 3.4-1(a) (~~TPI-SRWTP, EUU–SRWTP~~ ALL):** Prior to the initiation of construction at SRWTP, including existing utility upgrades, contractor shall ensure that all heavy-duty off-road diesel-powered equipment (including owned, leased, and subcontractor equipment) shall be CARB Tier 4 Final or cleaner. These requirements shall also be included on improvement plans and submitted for review and approval by SMAQMD. **Mitigation Measure 3.4-1(b) (ALL):** The following Basic Construction Emissions Control Practices, required by SMAQMD Rule 403 and enforced by SMAQMD staff, shall be implemented to minimize fugitive dust emissions during construction activities: i. Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads; ii. Cover or maintain at least 2 feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered; iii. (Use wet power vacuum street sweepers to remove any visible track-out mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited; iv. Limit vehicle speeds on unpaved roads to 15 miles per hour; v. All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used; vi. Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site; vii. Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, Sections 2449 and 2449.1]; and viii. Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.	LSM (FWTP/ SRWTP)	LSM (FWTP/ SRWTP)	LSM (Existing/ New)	LSM
3.4-3: Construction of the proposed project could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.	PS (FWTP/ SRWTP)	PS (FWTP/ SRWTP)	PS (Existing/ New)	PS	~~**Mitigation Measure 3.4-2(a) (TPI-SRWTP, EUU–SRWTP):** Implement Mitigation Measure 3.4-1(a).~~ ~~**Mitigation Measure 3.4-2(b) (ALL):** Implement Mitigation Measure 3.4-1(b).~~ **Mitigation Measure 3.4-2 (ALL):** Implement Mitigation Measures 3.4-1(a) and (b).	LSM (FWTP/ SRWTP)	LSM (FWTP/ SRWTP)	LSM (Existing/ New)	LSM
3.5 Biological Resources - Aquatic									
3.5-1: Construction of the proposed project could result in direct or indirect impacts to listed fish species and their associated habitat and could interfere with movement of native resident or migratory fish.	NI (FWTP/ SRWTP)	NI (FWTP/ SRWTP)	LS (Existing) PS (New)	NI	**Mitigation Measure 3.5-4 (SRWI-New)**: In order to offset the permanent loss of 0.23 acres of shaded riverine aquatic habitat removed to accommodate the proposed new intake, the City shall purchase mitigation credits from a public or private mitigation bank approved by CDFW. The final number of credits purchased will be in a ratio of 3:1, or another ratio found agreeable to CDFW and other agencies consulted.	NA	NA	LSM (New)	NA
3.6 Biological Resources – Terrestrial									
3.6-1: Construction of the proposed project could impact nesting migratory birds and birds of prey.	PS (FWTP/ SRWTP)	PS (FWTP/ SRWTP)	PS (Existing/ New)	PS	**Mitigation Measure 3.6-1 (ALL):** (a) Project construction shall occur outside of the nesting season to the extent feasible. If project construction begins during the nesting season (**Table ES-2**), a qualified biologist shall conduct a preconstruction survey for active nests on and adjacent to the project area. The pre-construction survey shall be conducted within ~~14~~ 7 days prior to commencement of construction activities (e.g. ground disturbing activities, materials staging, demolition activities) and include the project site and publicly accessible areas within 100 feet for active nests of protected migratory birds and areas within 500 feet for active nests of birds of prey. If no active nests are found during the pre-construction survey, no additional mitigation measures are required. If construction does not commence within ~~14~~ 7 days of the pre-construction survey, or halts for more than ~~14~~ 7 days, an additional pre-construction survey is required. Additional survey requirements for Swainson's hawk are provided below.	LSM (FWTP/ SRWTP)	LSM (FWTP/ SRWTP)	LSM (Existing/ New)	LSM

Impact Statement	Significance Before Mitigation: Treatment Plant Improvements	Existing Utility Upgrades	Sacramento River Water Intakes	Potable Water Transmission Pipelines	Mitigation Measures	Significance After Mitigation: Treatment Plant Improvements	Existing Utility Upgrades	Sacramento River Water Intakes	Potable Water Transmission Pipelines

TABLE ES-2
NESTING SEASON FOR SPECIAL-STATUS AND COMMON NESTING BIRDS

Species	Nesting Season
White-tailed kite	February 1 to September 30
Swainson's hawk	March 1 to September 15
Common nesting birds (raptors, passerines, herons, and egrets)	February 1 to August 31

(b) If an active nest is located on or adjacent to the project area, an appropriate buffer zone shall be established around the nest, as determined by the qualified biologist. The biologist shall mark the buffer zone with construction tape or pin flags and maintain the buffer zone until the end of breeding season or until the young have successfully fledged or the nest is determined to no longer be active. Buffer zones are typically 50−100 feet for migratory bird nests and 250−500 feet for bird of prey nests (excluding Swainson's hawk). Buffer size shall be determined by the qualified biologist based on the species of bird, the location of the nest relative to the project, project activities during the time the nest is active, and other project-specific conditions. The qualified biologist will make additional recommendations as needed to protect nesting birds, including, but not limited to, setting up sound walls and/or visual barriers.

(c) If establishing the typical buffer zone is impractical, the qualified biologist may reduce the buffer depending on the species and daily monitoring would be required to ensure that the nest is not disturbed, and no forced fledging occurs. Daily monitoring shall occur until the qualified biologist determines that the nest is no longer active.

(d) A worker environmental awareness training program shall be provided to all on-site personnel by a qualified biologist prior to the start of construction. The training will cover special-status species that may occur on the project site and will cover identification, status, avoidance measures, and possible penalties for non-compliance. This training program shall notify project personnel that if at any time during project construction a nesting bird is found on the project site, work should stop within a 100-foot radius if it is a protected migratory bird, a 500-foot radius if it is a bird-of-prey, and a 0.25-mile radius if it is a Swainson's hawk, and that the qualified biologist shall be contacted for further guidance. The crew members shall sign a sign-in sheet documenting that they received the training.

Additional Measures for Swainson's Hawk

(~~d~~e) If construction activities are anticipated to commence during the Swainson's hawk nesting season (March 1 to September 15), a qualified biologist shall conduct a minimum of ~~two pre-construction~~ three Swainson's hawk surveys during each of the ~~recommended~~ two survey periods prior to construction in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee, 2000). All potential nest trees within 0.25 mile of the project areas shall be visually examined for potential Swainson's hawk nests, as accessible. If no active Swainson's hawk nests are identified on or within 0.25 mile, no additional mitigation measures are required.

(~~e~~f) If an active Swainson's hawk nest is found within 0.25 mile of the project areas, the following measures will be implemented to avoid and minimize impacts to the nest:

~~i. A Worker Awareness Training Program shall be conducted prior to the start of construction;~~

~~i~~ii. A no-disturbance buffer zone shall be established and work shall be scheduled to avoid impacting the nest during critical periods. To the extent feasible, no work shall occur within 500 feet of the nest while it is in active use. If work would occur within 500 feet of the nest, then construction shall be monitored daily by a qualified biologist to ensure no disturbance occurs to the nest;

~~i~~iii. A biological monitor shall conduct weekly monitoring of the nest during construction activities; ~~and~~

~~iv~~iii. The biologist may halt construction activities if they determine that the construction activities are disturbing the nest. CDFW shall be consulted prior to re-initiation of activities that may disturb the nest; and

iv. If at any time during preconstruction surveys or project implementation an active Swainson's hawk nest (used for breeding in the last 5 years) is found in a tree requiring removal, CDFW will be consulted to determine the need for a CESA ITP.

(g) Implement Mitigation Measures 3.6-3(a) and 3.6-3(b).

Impact Statement	Significance Before Mitigation: Treatment Plant Improvements	Significance Before Mitigation: Existing Utility Upgrades	Significance Before Mitigation: Sacramento River Water Intakes	Significance Before Mitigation: Potable Water Transmission Pipelines	Mitigation Measures	Significance After Mitigation: Treatment Plant Improvements	Significance After Mitigation: Existing Utility Upgrades	Significance After Mitigation: Sacramento River Water Intakes	Significance After Mitigation: Potable Water Transmission Pipelines
3.6-5: Construction of the proposed project could impact riparian habitat.	NI (FWTP/ SRWTP)	NI (FWTP/ SRWTP)	PS (Existing/ New)	NI	**Mitigation Measure 3.6-3(a) (SRWI – Existing/New):** i. Tree removal shall be minimized to the extent possible. ii. Prior to the removal of any protected tree as defined by City Code 12.56, the ~~applicant~~ City shall submit a tree removal permit application for the removal of protected trees and comply with all conditions of any issued permit. iii. Removal of riparian trees along the Sacramento River resulting from project implementation will be mitigated in one of the following ways: • Purchase mitigation credits at a 3:1 ratio of replacement credits to acreage of permanently impacted riparian habitat at a CDFW-approved mitigation or conservation bank for riparian habitat. • Replant removed trees 4 inches diameter at breast height (DBH) or greater located in the riparian habitat with native riparian tree species at a 3:1 replacement to loss ratio within the riparian habitat onsite or other suitable riparian habitat located in Sacramento County. A replanting plan shall be prepared and submitted to CDFW and the City of Sacramento for approval prior to removal of riparian trees. **Mitigation Measure 3.6-3(b) (SRWI- Existing/New):** i. High-visibility fencing shall be erected at the edge of the project footprint to prevent encroachment into unpermitted areas by construction equipment and personnel. Trucks and other vehicles will not be allowed to park beyond the fencing, nor shall equipment be stored beyond the fencing. No vegetation removal or ground disturbing activities will be permitted beyond the fencing. ii. After project work is completed, any temporary fill and construction debris will be removed, and temporarily disturbed areas will be restored to pre project or better conditions. Before restoration, all non-biodegradable materials will be removed. Restoration may include recontouring disturbed areas to their original configurations.	NA	NA	LSM (Existing/ New)	NA
3.14 Noise and Vibration									
3.14-1: Construction of the proposed project could generate a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	PS (FWTP/ SRWTP)	PS (FWTP/ SRWTP)	PS (Existing/ New)	PS	**Mitigation Measure 3.14-1 (ALL):** The City shall require contractors to implement the measures below, as a condition of contract, to avoid and minimize temporary and short-term construction noise effects on sensitive receptors. These measures will be implemented during construction, to avoid and minimize temporary and short-term construction noise effects on sensitive receptors: a) All construction activity on the project sites shall comply with the provisions of City Code Chapter 8.68 relating to noise between the hours of 7:00 a.m. and 6:00 p.m. Monday through Saturday, and between the hours of 9:00 a.m. and 6:00 p.m. on Sunday. Construction outside of these hours would require approval ~~may be approved through a development permit based on a site-specific "construction noise mitigation plan" and a finding~~ by the Director of Community Development or their designee that the ~~C~~construction noise mitigation ~~plan is~~ measures would be adequate to prevent excessive noise disturbance of affected residential uses. Because it is anticipated that certain construction activities (such pipeline work outside the treatment plants at major street intersections) may require work outside normally permitted construction hours (e.g., overnight), ~~the project's Development Permit would allow for~~ such construction activities would be allowed, subject to conditions of approval, including performance standards, imposed by the City to limit noise impacts. (b) All construction equipment shall be equipped with noise-reduction devices, such as mufflers, to minimize construction noise, and all internal combustion engines will be equipped with exhaust and intake silencers, in accordance with manufacturers' specifications. (c) The use of bells, whistles, alarms, and horns will be restricted to safety warning purposes only. (d) Excessive noise-generating activities such as concrete cutting and pile driving shall be conducted during daytime hours only. (e) Impact tools shall be restricted to daytime construction hours. (f) Impact tools and equipment that are particularly loud (e.g., concrete saws) shall have the working area/impact area shrouded or shielded, with intake and exhaust ports on power equipment muffled or suppressed. The use of temporary or portable, application-specific noise shields or barriers, or temporary construction barriers adjacent to or at the boundary of the construction area may be necessary to reduce associated noise levels. (g) Stationary noise-generating equipment such as air compressors or portable power generators shall be located as far as possible from sensitive receptors. Temporary noise barriers shall be constructed, if needed, to screen stationary noise-generating equipment when located near adjoining noise-sensitive land uses.	LSM (FWTP) SU (SRWTP)	LSM (FWTP/ SRWTP)	LSM (Existing/ New)	LSM

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Chapter 2 Project Description

The following text on page 2-3 is revised to reflect updates to the anticipated construction schedule for the proposed project:

> The proposed project is designed to achieve the project objectives through two phases of work relating to the City's water treatment plants, raw water supply, and potable water transmission pipelines: an "initial phase" to occur between ~~2026 and 2037~~ 2027 and 2038, followed by a "project buildout" to occur between ~~2040~~ 2039 and 2050 (refer to subsection 2.5.5, *Construction Schedule and Phasing*).

The row for improvement number 23 in Table 2-2 under subsection 2.4.2, *Sacramento River Water Treatment Plant Project Area*, on page 2-14 is revised to update the number of anticipated improvements:

Number[1]	Proposed Improvement	Initial Phase (235 MGD Capacity)[2]	Project Buildout (310 MGD Capacity)
23	Emergency Generators	• Provide ~~three~~ five new emergency power (diesel) generators within an enclosure	N/A

NOTES:
1. These numbers correspondence with the location of major facility improvements depicted in Figure 2-5.
2. Any dimensions, sizes or volumes listed in this table are approximate and may change during future design phases of the project. Complete or partial demolition of existing facilities will be required for each project improvement.

The following text on page 2-16 is revised to include a new reference in response to Comment F1-1:

> The fish screen criteria considered incorporates guidance established by the National Marine Fisheries Service (~~2011~~2023) and California Department of Fish and Wildlife (2010) and would be conservatively designed using the Delta smelt criterion (e.g., approach velocity to the screens set at 0.2-foot pound per second ~~and a minimum screen area of 1,163 square feet~~).

The following text on page 2-18 is revised to reflect a clarification to the alignment of the new sediment pipeline from the existing intake to SRWTP:

> A ~~second~~ new pipeline (2,000 feet of 12-inch-diameter pipe) would be installed at the existing intake to transport sediment from the existing intake to SRWTP for processing and removal. The pipeline would be located along a similar alignment as the raw water conveyance pipeline from the new intake (i.e., the pipeline would spur from the existing intake, cross over the existing east bank levee, and run through Jibboom Street ~~to meet and follow the raw water conveyance line alignment over the existing east bank levee~~ and under I-5 before ending at the Grit Separation Basin [refer to Figure 2-5]).

The following text on page 2-21 is revised in response to Comment L1-1:

> During construction at FWTP, access to SacSewer's facilities would generally be maintained. Access may be temporarily limited for short periods of time when work occurs around SacSewer facilities; however, such work activities would be redirected to provide SacSewer access as needed. No interruption of service or relocation of SacSewer's facilities is anticipated.

Table 2-3 on page 2-24 under subsection 2.5.3, *Construction Materials and Equipment*, is revised to clarify the anticipated construction sequencing of the proposed project:

TABLE 2-3
ANTICIPATED CONSTRUCTION MATERIALS ASSOCIATED WITH THE PROPOSED PROJECT

	Project Component				
	Treatment Plant Improvements and Existing Utility Upgrades				
Materials[1]	FWTP[2] (Initial Phase: 100 MGD Capacity)	SRWTP[3] (Initial Phase: 235 MGD Capacity)	SRWTP[3] (Project Buildout: 310 MGD Capacity)	Sacramento River Water Intakes	Potable Water Transmission Pipelines
Concrete, cubic yards	22,000	112,000	16,000	4,000	0
Cement, tons	4,000	17,000	3,000	1,000	0
Rebar, tons	3,000	14,000	2,000	200	0
Excavated materials (off-haul), cubic yards	24,000	34,000	18,000	13,000	4,000
Grubbing/stripping (soil), cubic yards	100	600	100	200	0
Grubbing/stripping (vegetation), cubic yards	100	1,600	300	500	0
Demolition, cubic yards	16,000	48,000	19,000	0	5,000
Piles, number	50	4,800	300	1,250	0

NOTES:
1. All quantities and/or volumes listed are approximate and may change during future design phases of the project.
2. FWTP includes both treatment plant improvements and existing utility upgrades, which will be undertaken during the initial phase of the proposed project.
3. SRWTP includes both treatment plant improvements and existing utility upgrades that will occur over the course of the initial phase of the proposed project as well as project buildout.

The following text on page 2-24 under subsection 2.5.5, *Construction Schedule and Phasing*, is revised and Table 2-4 is replaced to reflect changes in equipment use based on the updated anticipated construction schedule (see revisions to Table 2-7).

> **Table 2-4** identifies the type and anticipated total hours of use ~~maximum estimated daily number~~ of construction equipment associated with construction of proposed project components by phase. ~~There could be a period when activities for constructing the treatment plant improvements and utility upgrades at SRWTP overlap with construction activities related to the Sacramento River water intakes, requiring the use of similar equipment at the same time.~~

TABLE 2-4
ANTICIPATED CONSTRUCTION EQUIPMENT ASSOCIATED WITH THE PROPOSED PROJECT

Equipment[1]	Project Component				
	Treatment Plant Improvements and Existing Utility Upgrades			Sacramento River Water Intakes	Potable Water Transmission Pipelines
	FWTP[2]	SRWTP (Initial Phase)[3]	SRWTP (Buildout)		
Aerial Lifts	1	2	1	1	0
Air Compressors	0	0	0	2	0
Boom Truck	1	2	1	0	0
Bore/Drill Rigs	0	2	1	2	0
Concrete/Industrial Saws	2	4	2	2	0
Concrete Pumps	2	4	2	2	0
Concrete Truck	6	12	6	2	0
Cranes	0	0	0	1	0
Crawler Tractors	1	2	1	3	0
Delivery Trucks (equipment) – Semi	2	4	2	2	2
Delivery Trucks (piles) – Semi	2	4	2	2	0
Delivery Trucks (rebar) – Semi	2	4	2	2	0
Dump Trucks (dirt) – Semi	2	4	2	5	2
Dumpers/Tenders	0	0	0	6	1
Excavators	1	2	1	3	1
Forklifts	1	2	1	2	0
Generator Sets	1	2	1	3	0
Graders	0	2	1	0	0
Paving Equipment	1	2	1	1	1
Pile Driver	0	1	0	1	0
Plate Compactors	1	2	1	6	1
Pumps	1	4	2	8	0
Rollers	1	2	1	0	1
Rubber Tired Backhoe	2	4	2	0	0
Rubber Tired Loader	2	4	2	3	2
Water Truck	1	2	1	2	0
Welder	1	4	2	8	0

NOTES:
1 All quantities listed are approximate and may change during future design phases of the project.
2 FWTP includes both treatment plant improvements and existing utility upgrades.
3 SRWTP (Initial Phase) includes treatment plant improvements and existing utility upgrades. The equipment quantities are conservatively estimated and assume up to two construction activities are occurring at the same time.

TABLE 2-4
ANTICIPATED TOTAL HOURS OF CONSTRUCTION EQUIPMENT USAGE ASSOCIATED WITH THE PROPOSED PROJECT

Equipment Type[1]	Project Phase		
	Initial Phase 1A (Early Projects)[2] *Total Hours*	Initial Phase 1B (Later Projects)[3] *Total Hours*	Project Buildout[4] *Total Hours*
Aerial Lifts	1,301	750	1,253
Boom Truck	1,581	906	1,487
Bore/Drill Rigs	326	1,443	2,152
Concrete/Industrial Saws	1,989	2,462	2,833
Concrete Truck	1,911	4,426	4,644
Crawler Tractors	1,266	1,496	2,256
Dump Truck	-	-	84
Excavators	1,664	1,122	1,922
Forklifts	666	1,016	1,487
Generator Sets	1,118	1,348	2,256
Graders	148	-	209
Paving Equipment	252	-	292
Plate Compactors	1,187	577	1,007
Pumps	3,496	11,367	22,064
Rollers	532	-	376
Rubber Tired Loader	1,763	2,244	3,645
Water Truck	556	299	451
Welder	811	1,443	4,344

NOTES:

1. The equipment type and total hours of use per phase may change during future design phases of the project.
2. Initial Phase 1A (Early Projects) includes improvements and existing utility upgrades at FWTP, as well as partial improvements and partial existing utility upgrades at SRWTP, and work at the existing Sacramento River water intake.
3. Initial Phase 1B (Later Projects) includes the rest of the improvements and existing utility upgrades work at SRWTP.
4. Project Buildout includes the new water intake and pump station, additional SRWTP improvements, and the potable water transmission pipelines.

Table 2-5 on page 2-26 under subsection 2.5.3, *Construction Materials and Equipment,* is revised to clarify the anticipated construction sequencing of the proposed project:

TABLE 2-5
ANTICIPATED CONSTRUCTION WORKFORCE ASSOCIATED WITH THE PROPOSED PROJECT

	Project Component				
	Treatment Plant Improvements and Existing Utility Upgrades				
Construction Workforce[1]	FWTP[2] (Initial Phase: 100 MGD Capacity)	SRWTP[3] (Initial Phase: 235 MGD Capacity)	SRWTP[3] (Project Buildout: 310 MGD Capacity)	Sacramento River Water Intakes	Potable Water Transmission Pipelines
Estimated daily average number of construction workers on-site	12	14	14	45	10
Estimated daily maximum number of construction workers on-site	37	42	42	63	15

NOTES:
1. All quantities and/or volumes listed are approximate and may change during future design phases of the project.
2. FWTP includes both treatment plant improvements and existing utility upgrades, which will be undertaken during the initial phase of the proposed project.
3. SRWTP includes both treatment plant improvements and existing utility upgrades that will occur over the course of the initial phase of the proposed project as well as project buildout.

Table 2-6 on page 2-26 under subsection 2.5.3, *Construction Materials and Equipment*, is revised to clarify the anticipated construction sequencing of the proposed project:

TABLE 2-6
ANTICIPATED CONSTRUCTION TRUCK TRIPS ASSOCIATED WITH THE PROPOSED PROJECT

	Project Component				
	Treatment Plant Improvements and Existing Utility Upgrades				
Trip Type	FWTP[2] (Initial Phase: 100 MGD Capacity)	SRWTP[3] (Initial Phase: 235 MGD Capacity)	SRWTP[3] (Project Buildout: 310 MGD Capacity)	Sacramento River Water Intakes	Potable Water Transmission Pipelines
Daily truck trips for materials, waste, and vendors (round trips per day)	24	56	28	16	12

NOTES:
1. All quantities and/or volumes listed are approximate and may change during future design phases of the project.
2. FWTP includes both treatment plant improvements and existing utility upgrades, which will be undertaken during the initial phase of the proposed project.
3. SRWTP includes both treatment plant improvements and existing utility upgrades that will occur over the course of the initial phase of the proposed project as well as project buildout.

The following text on page 2-27 under subsection 2.5.5, *Construction Schedule and Phasing*, is revised and Table 2-7 is replaced to reflect changes in the anticipated construction schedule for the proposed project.

> **Table 2-7** presents the construction schedule, including the approximate duration of construction for each project component. In the FWTP project area, construction associated with the treatment plant improvements and existing utility upgrades is expected to occur only during the initial phase of proposed project implementation, between ~~2026 and 2031~~ 2027 and 2032. In the SRWTP project area, the initial phase of construction would be implemented in two parts: Initial Phase 1A (Early Projects) is expected to occur between 2027 and 2032 at the same time as FWTP improvements, and Initial Phase 1B (Later Projects) is expected to occur between ~~2027 and 2037~~ 2033 and 2038 ~~and~~. The buildout phase of the proposed project is expected ~~scheduled~~ to occur between ~~2040~~ 2039 and 2050. ~~Note t~~The overall schedule to complete the work is estimated to take place over ~~25~~ approximately 24 years (~~including buildout through 2050), with construction of the treatment plant improvements and utility upgrades at SRWTP having the longest schedule (up to 8 years)~~ 2027 through 2050). ~~For each project component, there would be a period of intensive construction, using heavy equipment, followed by several years of minimal activity to reach anticipated completion.~~
>
> ~~As mentioned, both FWTP and SRWTP would remain operational throughout construction of the proposed project improvements. Therefore, c~~ Construction activities would be sequenced in a manner that minimizes facility shutdowns, maintains the integrity of the treatment process, and ensures water demands in the system will continue to be met.

~~**TABLE 2-7**~~
~~**ANTICIPATED CONSTRUCTION SCHEDULE BY PROJECT COMPONENT**~~

~~Project Component~~	~~Anticipated Start~~	~~Anticipated Finish of Intensive Construction~~	~~Anticipated Completion~~	~~Estimated Total Duration (years)~~
~~**FWTP Project Area**~~				
~~Treatment Plant Improvements and Existing Utility Upgrades~~	~~July 2026~~	~~July 2028~~	~~July 2031~~	~~5~~
~~**SRWTP Project Area**~~				
~~*Initial Phase (235 MGD)*~~	~~*January 2027*~~		~~*July 2037*~~	
~~Treatment Plant Improvements and Existing Utility Upgrades~~	~~January 2027~~	~~January 2031~~	~~January 2035~~	~~8~~
~~Sacramento River Water Intakes~~	~~January 2031~~	~~July 2035~~	~~July 2037~~	~~6~~
~~Potable Water Transmission Pipelines~~	~~July 2032~~	~~July 2035~~	~~July 2036~~	~~4~~
~~*Buildout (310 MGD)*~~	~~*2040*~~		~~*2050*~~	
~~Additional Improvements to Treatment Plant and New Sacramento River Water Intake Pump Station~~	~~2040~~	~~2043[1]~~	~~2050~~	~~10 (intermittent)~~

~~NOTES:~~
~~1 During project buildout, intensive construction is anticipated to occur over the first 2.5 years.~~

TABLE 2-7
ANTICIPATED CONSTRUCTION SCHEDULE BY PROJECT PHASE

Project Phase/Component	Anticipated Start	Anticipated Completion	Estimated Total Duration (years)
Initial Phase 1A (Early Projects)	**2027**	**2032**	**5**
FWTP Project Area			
Treatment Plant Improvements and Existing Utility Upgrades			
SRWTP Project Area			
Treatment Plant Improvements and Existing Utility Upgrades			
Existing Water Intake			
Initial Phase 1B (Later Projects)	**2033**	**2038**	**5**
SRWTP Project Area			
Additional Treatment Plant Improvements and Existing Utility Upgrades			
Project Buildout	**2039**	**2050**	**11**
SRWTP Project Area			
New Water Intake and Pump Station			
Additional Treatment Plant Improvements			
Potable Water Transmission Pipelines			

The following text on page 2-28 under subsection 2.6.1, *Treatment Plant Improvements*, is revised to update the number of anticipated improvements:

> Additional emergency generators would be installed at each water treatment plant within an enclosure to support maintenance and inspection activities in the event of an emergency or power outage (up to 2 at the FWTP and up to ~~3~~ 5 at the SRWTP; refer to Tables 2-1 and 2-2, respectively).

Section 3.4 Air Quality

The following text on page 3.4-7 is revised to add a footnote in response to Comment L2-7:

> Nearby ambient air quality monitoring stations that are assumed to be representative of the ambient air for the project areas are located in the Del Paso Manor neighborhood and at 1309 T Street.[2]
>
> [2] The SMAQMD's Bercut Drive air quality monitoring station is located within the SRWTP project site and is representative of ambient air quality in the SRWTP project area.

The notes in Table 3.4-2, on page 3.4-8, are revised in response to Comment L2-10:

TABLE 3.4-2
SUMMARY OF AIR QUALITY MONITORING DATA (2020–2022)

Pollutant	National/ State Standard	2020	2021	2022
Ozone – Sacramento-T Street Station				
Maximum 1-hour concentration, ppm	0.09[a]	**0.112**	0.091	**0.106**
Number of days above State 1-Hour standard		1	0	1
Maximum 8-hour concentration, ppm	0.070/0.070	**0.076**	**0.080**	**0.079**
Number of days above National 8-Hour standard		3	1	3
Number of days above State 8-Hour standard		*	*	*
Respirable Particulate Matter (PM_{10}) – T Street Station				
Annual average concentration, µg/m^3	20[a]	**31.2**	**23.5**	**21.0**
Maximum 24-Hour concentration (national/state), µg/m^3	150/50	**298.7/292.8**	**132.6**/142.6	60.2/61.3
Estimated number of days above National 24-Hour standard[~~c~~b]		**4**	0	0
Estimated number of days above State 24-Hour standard[~~c~~b]		**59**	**13.3**	**6.1**
Fine Particulate Matter ($PM_{2.5}$) – T Street Station				
Annual average concentration, µg/m^3	12.0[c]/12.0	**13.1**	9.3	8.5
Maximum 24-Hour concentration, µg/m^3	35[~~b~~d]	**111.0**	**89.1**	33.1
Estimated number of days above National 24-Hour standard[~~c~~b]		17.1	4.0	0
Carbon Monoxide (CO) – Del Paso Manor Station				
Maximum 8-Hour concentration, ppm	9/9.0	2.1	1.1	*
Number of days above National or State 8-hour standard		0	0	0
Maximum 1-Hour concentration, ppm	35/20	2.2	1.3	*
Number of days above National or State 1-hour standard		0	0	0

NOTES: ppm = parts per million; µg/m^3 = micrograms per cubic meter; * = insufficient data.

Bold values are in excess of applicable standard.

a. State standard, not to be exceeded.

~~c~~b. Particulate matter sampling schedule of 1 out of every 6 days, for a total of approximately 60 samples per year. Estimated days exceeded mathematically estimates of how many days concentrations would have been greater than the level of the standard had each day been monitored.

c. Although not applicable to the years of data presented, the federal annual standard for $PM_{2.5}$ was lowered from 12 µg/m^3 to 9 µg/m^3 in 2024.

~~b~~d. National standard, not to be exceeded.

SOURCES: CARB, 2023b; USEPA, 2023.

The following text on page 3.4-9 is revised to add a footnote in response to Comment L2-4:

SRWTP Project Area

The nearest existing sensitive receptors to the SRWTP are residences located over 1,500 feet to the north of the construction area.[3]

[3] At the time of this Draft EIR publication, there were existing residences against the boundary line of the SRWTP. However, those residences will have been vacated and demolished prior to the start of construction of the project.

Table 3.4-3 on page 3.4-10, is revised as follows in response to Comment L2-8:

TABLE 3.4-3
STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	State Standard	National Standard
Fine Particulate Matter ($PM_{2.5}$)	24 hour	---	35 µg/m^3
	Annual Avg.	12 µg/m^3	~~12~~9.0 µg/m^3

Table 3.4-4 on page 3.4-11is revised as follows in response to Comment L2-8:

TABLE 3.4-4
SACRAMENTO COUNTY ATTAINMENT STATUS

Pollutant and Averaging Time	Designation/Classification	
	State Standards	**Federal Standards**
Ozone (1-hour)	Nonattainment	No Federal Standard
Ozone (8-hour)	Nonattainment/Serious	Nonattainment/Severe
Carbon Monoxide	Attainment	Attainment/Maintenance
Nitrogen Dioxide	Attainment	Unclassified/Attainment
Sulfur Dioxide	Attainment	Unclassified
Respirable Particulate Matter (PM_{10})	Nonattainment	Attainment/Maintenance*
Fine Particulate Matter ($PM_{2.5}$)	Attainment	~~Nonattainment/Moderate~~ To be determined[1]
Lead	Attainment	Attainment
Visibility Reducing Particles	Unclassified	No Federal Standard
Sulfates	Attainment	No Federal Standard
Hydrogen Sulfide	Unclassified	No Federal Standard
Vinyl Chloride	Unclassified	No Federal Standard

NOTES:

CARB makes area designations for ten criteria pollutants (O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, lead, visibility reducing particles, sulfates, and hydrogen sulfide. CARB does not designate areas according to the vinyl chloride standard.

* Effective October 28, 2013, the United States EPA formally re-designated Sacramento County as attainment for the federal PM_{10} standard.

1. EPA is working to determine the area designations for the updated annual $PM_{2.5}$ standard, established February 7, 2024. Designations will be released February 2026. More information on the designation process and timeline can be found here: https://www.epa.gov/pm-pollution/final-reconsideration-national-ambient-air-quality-standards-particulate-matter-pm.

The following text on page 3.4-13 is revised to update the list of the most recent applicable air quality plans for the region in response to Comment L2-9:

Local

Sacramento Metropolitan Air Quality Management District

The SMAQMD is the regional agency responsible for air quality regulation within Sacramento County. The SMAQMD regulates air quality through its planning and review

activities and has permit authority over most types of stationary emission sources and can require operators of stationary sources to obtain permits, can impose emission limits, set fuel or material specifications, and establish operational limits to reduce air emissions. The SMAQMD regulates new or modified stationary sources of TACs.

All areas designated as nonattainment are required to prepare plans showing how the area would meet the air quality standards by its attainment dates. The following are the most recent air quality plans applicable to the area of the proposed projects:

- Sacramento Regional 2008 8-Hour Ozone Attainment and Reasonable Further Progress Plan (SMAQMD, 2017)[4]
- Sacramento Regional 2015 8-Hour Ozone Attainment and Reasonable Further Progress Plan (SMAQMD 2023)[5]
- SMAQMD's Triennial Report and Air Quality Plan Revision (SMAQMD, 2015)
- Second 10 Year PM_{10} ~~Implementation/~~Maintenance Plan ~~and Redesignation Request~~ for Sacramento County (SMAQMD, ~~2010~~2021)
- $PM_{2.5}$ Implementation/Maintenance Plan and Redesignation Request (SMAQMD, 2013)[6]
- 2004 Revision to the California State Implementation Plan for CO (SMAQMD, 2004)

4 The Sacramento Regional 2015 NAAQS 8-Hour Ozone Attainment & Reasonable Further Progress Plan was published August 22, 2023. Public hearings will be held in September through October 2023 to consider adoption of the plan. The Sacramento Federal Nonattainment Area air districts will host public hearings to consider this Plan. After the air districts adopt the Plan, it will be submitted to CARB for final adoption. The Plan will be subsequently submitted to United States EPA for final reviews and approval. The EPA has not yet approved this Plan; therefore the 2008 Plan is the most recent plan approved for the region. For more information, see: https://www.airquality.org/air-quality-health/air-quality-plans/2015-o3-naaqs-sip.

5 Ibid.

6 This plan has not been submitted to the EPA for approval.

The Method of the Analysis section beginning on page 3.4-14 under subsection 3.4.4, *Impacts and Mitigation Measures,* is revised as follows to present changes in the emissions modeling approach to remove amortization, clarify construction sequencing, and describe methods for a health risk assessment, in response to Comments L2-3, L2-4, L2-5, and L2-6:

Method of the Analysis

The following analysis is based on guidance from the SMAQMD provided in its Guide to Air Quality Assessment in Sacramento County. The air district's guidelines identify different approaches to analyzing plans versus projects. See Section 3.1, *Approach to the Analysis* for further discussion of the approach to the analysis used for evaluating impacts of the proposed project.

Project-related air quality impacts fall into two categories: short-term impacts due to construction, and long-term impacts due to project operation. As presented in Table 2-7

in Chapter 2, *Project Description*, implementation of the initial phase of proposed project construction would occur in two parts – Phase 1A (Early Projects) and Phase 1B (Later Projects). Phase 1A includes all necessary work at the FWTP project area (treatment plant improvements and existing utility upgrades), as well as initial construction activities at the SRWTP project area (treatment plant improvements, existing utility upgrades, and improvements for the existing Sacramento River water intake). Phase 1B includes additional treatment plant improvements and utility upgrades at the SRWTP project area. Phase 1A is anticipated to start in January 2027 and lasts until July 2032, followed by Phase 1B, anticipated to start in January 2033 and finish in July 2038. Construction of the new Sacramento River water intake, potable water transmission lines, and additional SRWTP treatment plant improvements would occur during project buildout (referred to as Phase 2 in this analysis and in Appendix B, *Criteria Air Pollutant and Greenhouse Gas Emission Calculations*), anticipated to occur over approximately 12 years, beginning January 2039 and finishing July 2050. ~~construction activities in the FWTP project area (improvements at the FWTP and existing utility upgrades) would occur over a total period of approximately 5 years (July 2026 through July 2031). Construction activities in the SRWTP project area (improvements at the SRWTP, existing utility upgrades, Sacramento River water intakes, and potable water transmission pipelines) would occur in two phases. The initial phase would occur over a total period of approximately 10 years (January 2027 through July 2037), and the buildout phase would occur over approximately 10 years (2040 through 2050). For each project component, there would be a period of intensive construction, using heavy equipment, followed by several years of minimal activity to reach anticipated completion. For a conservative estimate of emissions, the most intensive construction years were modeled, and these periods are also presented in Table 2-7.~~

Construction at the FWTP and the SRWTP would be sequenced in a manner that would minimize facility shutdowns, maintain the integrity of the treatment process, and ensure water demands in the system will continue to be met. Therefore, the level of activity and equipment use would not be continuous for the duration of construction at each site.

The following Project construction activities were modeled for the 3 phases:

- Phase 1A, 2027-2032. Includes improvements and exiting utility upgrades at the FWTP, as well as some of the improvements and existing utility upgrades at the SRWTP (Early Projects), and existing water intake work at the SRWTP.
- Phase 1B, 2033-2038. Includes the rest of the improvements and existing utility upgrades work at SRWTP (Later Projects).
- Phase 2, 2039-2050. Includes the new water intake and pump station, additional SRWTP improvements, and the potable water transmissions pipelines.

Emissions by phase were estimated for each year of construction activity. During construction of each project component, activities would generate criteria air pollutants primarily from the combustion of fuel in construction equipment and vehicle trips

associated with worker commute, material delivery and hauling. Once each component is operational, emissions would result primarily from motor vehicle trips generated by worker trips to and from the various component sites.

Construction Impacts

The emissions generated from construction activities include:

- Exhaust emissions from fuel combustion for mobile heavy-duty diesel and gasoline-powered equipment (including construction equipment, haul trucks, and employee vehicles)
- PM from soil disturbance and site preparation and grading activity (also known as fugitive dust)

Construction emissions were estimated using methodology consistent with the California Emissions Estimator Model (CalEEMod) version 2022.1.1.20 and Emissions Factor model (EMFAC) 2021. Project-specific inputs for each component included site area, demolition area, fill and off haul volumes, and starting year and duration of construction. In addition, equipment types, quantities, and total annual hours anticipated to be used were provided, along with the number of workers, vendors, and haul trips (see Tables 2-3 through 2-6 in Chapter 2). ~~An average of 9 hours per day of equipment use was applied based on the anticipated project construction schedules. Total annual hours of use for equipment associated with new water intake was approximated based on duration of construction and level of activity required for that component.~~

Operation and Maintenance Impacts

Once improvements are completed, operation and maintenance (O&M) activities would generally be similar to existing O&M activities. However, additional maintenance activities and the operation of new equipment at the water treatment plants and new intake would result in additional full-time employees (2 at FWTP and 10 at SRWTP). O&M activities for all other project components would be completed under existing maintenance programs. As there would be minimal activity in the operational lifetime of each project component, air pollutant emissions resulting from operations of the project components have not been quantified.

Health Risk Assessment

~~The proposed project would result in a short-term increase of TAC emissions over the 10 years of construction of the various project components. The main TAC of concern for the proposed project is diesel exhaust, a complex mixture of chemicals and particulate matter identified by the CARB as a TAC with potential cancer and chronic non-cancer effects. As DPM is the TAC emitted in the largest quantity, it is used as a surrogate for other TACs within diesel exhaust. The operation of off-road construction equipment (e.g., excavators, loaders, cranes, graders) and on-road diesel-fueled heavy-duty vehicles would emit DPM.~~

~~Due to the low levels of emissions from construction equipment and operational activities, the short durations of equipment used during construction, and the distance from project components to sensitive receptors, the potential health risk increases are discussed qualitatively to assess the impacts of DPM emissions generated by construction equipment and vehicles associated with the proposed project on existing sensitive receptors located in the vicinity of the various construction areas.~~

A health risk assessment (HRA) was conducted to evaluate the health risk impacts of emissions generated by construction equipment and vehicles associated with the proposed project on existing sensitive receptors located in the vicinity of the FWTP construction area, as this is the area with nearby sensitive receptors. The main TAC of concern for the proposed project is diesel exhaust, a complex mixture of chemicals and particulate matter identified by the CARB as a TAC with potential cancer and chronic non-cancer effects. As DPM is the TAC emitted in the largest quantity, it is used as a surrogate for other TACs within diesel exhaust. The operation of off-road construction equipment (e.g., excavators, loaders, graders) and on-road diesel-fueled heavy-duty vehicles would emit DPM.

Though other exposure pathways exist (ingestion and dermal contact), the inhalation pathway is the dominant exposure pathway from DPM for both cancer risk and chronic non-cancer health effects. Consequently, the HRA only evaluated the inhalation cancer and chronic non-cancer effects of inhaling DPM.

The HRA was conducted using guidelines from SMAQMD and the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment (OEHHA), and estimated cancer risks and chronic health hazards from proposed project-related DPM emissions at nearby offsite residences located within 1,000 feet of the FWTP area, the zone of influence within which health risk impacts are more pronounced. United States EPA's AERMOD dispersion model (version 24142) was used to predict concentrations at receptor locations defined by a Cartesian coordinate system using:

- Site-specific terrain and elevation data imported from the United States Geological Survey's National Elevation Dataset with ⅓ arc-second resolution and a horizon datum of the North American Datum of 1983; and
- Five years (2014 – 2018) of meteorological data from the Sacramento Executive Airport station.

A conservative representation of the on-site construction equipment was modeled as area sources. In addition, the access routes used by construction vehicles to deliver materials and equipment and transport off-haul material were modeled as line area sources. The modeling parameters used are as follows:

- On-site Construction: The construction areas within the FWTP were modeled as 11 area source groups to represent the 11 project components within the facility with;
    - Release height of 5 meters for construction equipment exhaust;

- Initial vertical dimension of 1.4 meters;

- Off-site Construction Truck Routes: Each truck route was modeled as a line area source with dimensions overlaying the width of the roadway with;
  - Release height of 2.55 meters for truck exhaust;
  - Initial vertical dimension of 2.37 meters;
- Receptor flagpole height of 1.5 meters (ground-level receptor at breathing height)

The sources were modeled with an emission rate of one gram per second to obtain a dispersion factor (unit concentration) at each receptor location. The DPM concentrations at receptors were calculated using the dispersion factors and the annual PM_{10} exhaust emission rates derived from the criteria pollutant modeling. Exhaust PM_{10} from diesel-fueled vehicles and equipment is conservatively used a surrogate for DPM emissions.

All construction at FWTP would occur within the timeline Phase 1A, however the specific timing of construction for each component at FWTP is not known at this time. Therefore, estimates of emissions occurring within Phase 1A were conservatively considered for the HRA calculations. The DPM concentrations at the receptors calculated for the first 5 years of construction year were applied to the unit risk methodologies specified by OEHHA to calculate the potential increase in lifetime cancer risk from activities over the duration of construction (OEHHA, 2015). The Maximally Exposed Individual Receptor (MEIR) was identified for the proposed project and the estimated increase in lifetime cancer risk was compared to SMAQMD's project-level threshold of 10 in 1 million.

Non-cancer health hazards for chronic diseases are expressed in terms of a Hazard Index, a ratio of TAC concentration to the reference exposure level for that TAC—the level below which no adverse health effects are expected, even for sensitive individuals. OEHHA has recommended an ambient concentration of 5 $\mu g/m^3$ as the chronic inhalation reference exposure level for DPM exhaust. The maximum chronic Hazard Index, calculated as the ratio of maximum annual DPM concentration to the reference exposure level, was compared to SMAQMD's threshold of 1.0 to determine significance. No short term, acute relative exposure values for DPM are established and regulated, and, therefore, were not addressed in the HRA. OEHHA equations and the health impact calculations are detailed in Appendix B.

As the proposed project would not include any operational sources of TACs, operational health risk impacts have been addressed qualitatively.

The following text on page 3.4-18 and 3.4-19 under Impact 3.4-1 is revised as follows to clarify construction sequencing and integrate the results of updated emissions modeling that was conducted in response to Comments L2-3 and L2-4:

Emissions from construction activities associated with each project component were estimated for each year of ~~intensive~~ construction activity (refer to Impact 3.4-3, Table

3.4-7 to Table 3.4-~~12~~9). The total emissions generated from construction activities of the proposed project would not exceed ~~the~~ SMAQMD threshold<u>s for any of the pollutants analyzed for any year during the construction period</u> ~~for NOx emissions in construction years 2027 and 2028, which are generated primarily by the construction activities at the SRWTP~~. PM_{10} and $PM_{2.5}$ were modeled assuming incorporation of SMAQD BMPs during construction to help reduce fugitive dust emissions. However, if those BMPs are not implemented, emissions could exceed the thresholds. Consequently, construction activities would be considered to generate emissions that could conflict with or obstruct implementation of the SMAQMD's air quality plans and this impact would be **potentially significant**.

Mitigation Measures

Mitigation Measure 3.4-1(a) (~~TPI-SRWTP, EUU-SRWTP~~ <u>ALL</u>): Prior to the initiation of construction at SRWTP, including existing utility upgrades, contractor shall ensure that all heavy-duty off-road diesel-powered equipment (including owned, leased, and subcontractor equipment) shall be CARB Tier 4 Final or cleaner. These requirements shall also be included on improvement plans and submitted for review and approval by SMAQMD.

Mitigation Measure 3.4-1(b) (ALL): The following Basic Construction Emissions Control Practices, required by SMAQMD Rule 403 and enforced by SMAQMD staff, shall be implemented to minimize fugitive dust emissions during construction activities:

i. Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads;

ii. Cover or maintain at least 2 feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered;

iii. Use wet power vacuum street sweepers to remove any visible track-out mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited;

iv. Limit vehicle speeds on unpaved roads to 15 miles per hour;

v. All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used;

vi. Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site;[1]

[1] This BMP for idling specifically applies to diesel-powered equipment. Non-diesel vehicles are not required to limit idling time.

vii. Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, Sections 2449 and 2449.1];[2] and

viii. Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

Significance After Mitigation: Although emissions are below the applicable SMAQMD thresholds, ~~I~~implementation of Mitigation Measure 3.4-1(a) would further reduce ~~SRWTP~~ construction emissions of NOx by requiring the use of CARB Tier 4 Final or cleaner equipment~~. to be below SMAQMD thresholds for construction in 2027 and 2028.~~ Implementation of Mitigation Measure 3.4-1(b) would reduce PM_{10} and $PM_{2.5}$ emissions by ensuring compliance with the requirements of SMAQMD Rule 403. Therefore, with implementation of Mitigation Measure 3.4-1(a) and (b), the proposed project would not conflict with or obstruct the implementation of the SMAQMD's air quality plans and this impact would be **less than significant with mitigation**.

The following text starting on page 3.4-19 under Impact 3.4-2 is revised to clarify information about proposed equipment improvements at the treatment plants:

Once improvements are completed, O&M activities at the treatment plants would generally be similar to existing O&M activities. However, additional maintenance activities and the operation of new equipment at the water treatment plants and new intake would result in additional full-time employees (2 at FWTP and 10 at SRWTP). In addition, there would be additional truck trips for chemical delivery to each treatment plant (one per day to one per week depending on plant operating conditions). Additional emergency generators would also be installed at each water treatment plant within an enclosure to support maintenance and inspection activities in the event of an emergency or power outage (up to 2 new generators at the FWTP and up to 5 new generators at the SRWTP). These emergency generators would be subject to SMAQMD permitting and Toxics Best Available Control Technology (T-BACT) requirements, as required by District Rule 201, and therefore would comply with District air quality standards.

The discussion under Impact 3.4-3 beginning on page 3.4-20 is replaced with the following analysis to clarify construction sequencing and integrate the results of updated emissions modeling that was conducted in response to Comments L2-3 and L2-4:

Impact 3.4-3: Construction of the proposed project could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.

All Project Components

~~Emissions from construction activities associated with each project component were estimated for each year of intensive construction activity (see Chapter 2, *Project*~~

[2] This BMP specifically applies to diesel-powered equipment.

Description, Table 2-7). Construction of FWTP improvements and existing utility upgrades would occur over an approximately 2-year period between July 2026 through July 2028. Initial phase construction of SRWTP improvements and existing utility upgrades would occur over an approximately 4-year period (January 2027 through January 2031). Initial phase construction at the Sacramento River water intakes would occur over an approximately 4.5-year period (January 2031 through July 2035). Initial phase construction activities associated with the installation of the potable water transmission mains would occur over an approximately 3-year period (July 2032 through July 2035). The buildout phase for additional improvements at the SRWTP and new water intake pump station would occur intermittently over an approximately 10-year period (2040 through 2050) with intensive construction anticipated to occur over the first 2.5 years.

Results of the construction emissions modeling for each separate component are presented in **Tables 3.4-7** through **3.4-12** for informational purposes. Total unmitigated and mitigated emissions are summarized in **Table 3.4-13 and Table 3.4-14 respectively and** compared to the SMAQMD thresholds of significance. SMAQMD does not have a significance threshold for ROG emissions from construction, and therefore ROG emissions are shown for informational purposes only. These emissions incorporate the reduction in PM_{10} and $PM_{2.5}$ from the quantifiable measures required by SMAQMD BMPs during construction to help reduce fugitive dust emissions. As shown in the table, emissions for all years of construction activities at the FWTP, Sacramento River water intake, and the potable water transmission pipeline would be under applicable SMAQMD thresholds. However, construction emissions from the SRWTP improvements and associated existing utility upgrades at SRWTP would exceed the NOx SMAQMD threshold in the years 2027 and 2028 and the impact would be **potentially significant**.

Mitigation Measures

Mitigation Measure 3.4-2(a) (TPI-SRWTP, EUU– SRWTP): Implement Mitigation Measure 3.4-1(a).

Mitigation Measure 3.4-2(b) (ALL): Implement Mitigation Measure 3.4-1(b).

TABLE 3.4-7
FWTP PLANT IMPROVEMENTS AND UTILITY UPGRADES EMISSIONS BY YEAR

Year	ROG (ppd)	NO_x (ppd)	PM_{10} (ppd)	$PM_{2.5}$ (ppd)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2026	1.69	15.41	3.47	0.89	0.48	0.11
2027	3.23	22.75	4.05	1.18	0.52	0.15
2028	1.57	10.40	3.65	0.81	0.47	0.10

SOURCE: ESA, 2024 (see Appendix B)

TABLE 3.4-8
SRWTP PLANT IMPROVEMENTS AND UTILITY UPGRADES UNMITIGATED EMISSIONS BY YEAR

Year	ROG (ppd)	NO_x (ppd)	PM_{10} (ppd)	$PM_{2.5}$ (ppd)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2027	13.34	91.05	8.77	3.73	1.14	0.49
2028	13.10	85.25	8.60	3.56	1.12	0.46
2029	13.00	81.25	8.42	3.43	1.09	0.45
2030	12.80	77.80	8.33	3.35	1.08	0.44
2031	1.12	6.57	5.85	1.05	0.76	0.14

SOURCE: ESA, 2023 (see Appendix B)

TABLE 3.4-9
SRWTP PLANT IMPROVEMENTS AND UTILITY UPGRADES MITIGATED EMISSIONS BY YEAR

Year	ROG (ppd)	NO_x (ppd)	PM_{10} (ppd)	$PM_{2.5}$ (ppd)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2027	4.23	51.72	6.43	1.65	0.84	0.21
2028	4.21	51.19	6.43	1.64	0.84	0.21
2029	4.22	51.08	6.43	1.64	0.84	0.21
2030	4.22	50.77	6.43	1.64	0.84	0.21
2031	0.37	4.45	5.68	0.90	0.76	0.14

SOURCE: ESA, 2024 (see Appendix B)

TABLE 3.4-10
SRWTP BUILDOUT CONSTRUCTION EMISSIONS BY YEAR

Year	ROG (ppd)	NO_x (ppd)	PM_{10} (ppd)	$PM_{2.5}$ (ppd)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2040	2.95	15.34	2.96	0.86	0.38	0.11
2041	2.94	15.06	2.94	0.84	0.38	0.11
2042	1.21	6.13	2.63	0.55	0.34	0.07

SOURCE: ESA, 2024 (see Appendix B)

TABLE 3.4-11
SACRAMENTO RIVER WATER INTAKE CONSTRUCTION EMISSIONS BY YEAR

Year	ROG (ppd)	NO_x (ppd)	PM_{10} (ppd)	$PM_{2.5}$ (ppd)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2031	1.68	12.19	0.99	0.47	0.13	0.06
2032	1.65	11.77	0.98	0.46	0.13	0.06
2033	1.62	11.30	0.96	0.44	0.12	0.06
2034	1.61	11.03	0.95	0.43	0.12	0.06
2035	0.79	5.34	0.75	0.25	0.10	0.03

SOURCE: ESA, 2024 (see Appendix B)

TABLE 3.4-12
POTABLE WATER TRANSMISSION PIPELINE CONSTRUCTION EMISSIONS BY YEAR

Year	ROG (ppd)	NO_x (ppd)	PM_{10} (ppd)	$PM_{2.5}$ (ppd)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2032	0.05	0.32	0.29	0.05	0.41	0.35
2033	0.07	0.47	0.29	0.06	0.40	0.34
2034	0.07	0.44	0.29	0.05	0.21	0.16
2035	0.03	0.21	0.29	0.05	0.04	0.01

SOURCE: ESA, 2024 (see Appendix B)

TABLE 3.4-13
PROPOSED PROJECT CONSTRUCTION UNMITIGATED EMISSIONS BY YEAR

Year	ROG (ppd)	NO_x (ppd)	PM_{10} (ppd)	$PM_{2.5}$ (ppd)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2026	1.69	15.14	3.74	0.89	0.49	0.12
2027	16.58	**113.80**	12.82	4.91	1.67	0.64
2028	14.67	**95.66**	12.25	4.37	1.59	0.57
2029	13.00	81.25	8.42	3.43	1.09	0.45
2030	12.80	77.80	8.33	3.35	1.08	1.12
2031	2.80	18.76	1.23	0.68	0.16	0.09
2032	2.04	14.20	1.34	0.57	0.17	0.07
2033	2.17	14.90	1.35	0.59	0.18	0.08
2034	2.15	14.44	1.33	0.57	0.17	0.07
2035	1.00	6.69	1.07	0.33	0.14	0.04
2040	2.95	15.34	2.96	0.86	0.38	0.11
2041	2.94	15.06	2.94	0.84	0.38	0.11
2042	1.21	6.13	2.63	0.55	0.34	0.07
SMAQMD Thresholds	N/A	85	80	82	14.6	15.0
Significant?	N/A	**Yes**	No	No	No	No

SOURCE: ESA, 2024 (see Appendix B)

TABLE 3.4-14
PROPOSED PROJECT CONSTRUCTION MITIGATED EMISSIONS BY YEAR

Year	ROG (ppd)	NO_x (ppd)	PM_{10} (ppd)	$PM_{2.5}$ (ppd)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)
2026	1.69	15.14	3.74	0.89	0.49	0.12
2027	7.47	74.47	10.48	2.83	1.36	0.37
2028	5.79	61.59	10.08	2.45	1.31	0.32
2029	4.22	51.08	6.43	1.64	0.84	0.21
2030	4.22	50.77	6.43	1.64	0.84	0.90
2031	2.05	16.64	1.06	0.54	0.14	0.07

~~Year~~	~~ROG (ppd)~~	~~NO_X (ppd)~~	~~PM_{10} (ppd)~~	~~$PM_{2.5}$ (ppd)~~	~~PM_{10} (tpy)~~	~~$PM_{2.5}$ (tpy)~~
~~2032~~	~~2.04~~	~~14.20~~	~~1.34~~	~~0.57~~	~~0.17~~	~~0.07~~
~~2033~~	~~2.17~~	~~14.90~~	~~1.35~~	~~0.59~~	~~0.18~~	~~0.08~~
~~2034~~	~~2.15~~	~~14.44~~	~~1.33~~	~~0.57~~	~~0.17~~	~~0.07~~
~~2035~~	~~1.00~~	~~6.69~~	~~1.07~~	~~0.33~~	~~0.14~~	~~0.04~~
~~2040~~	~~2.95~~	~~15.34~~	~~2.96~~	~~0.86~~	~~0.38~~	~~0.11~~
~~2041~~	~~2.94~~	~~15.06~~	~~2.94~~	~~0.84~~	~~0.38~~	~~0.11~~
~~2042~~	~~1.21~~	~~6.13~~	~~2.63~~	~~0.55~~	~~0.34~~	~~0.07~~
~~SMAQMD Thresholds~~	~~N/A~~	~~85~~	~~80~~	~~82~~	~~14.6~~	~~15.0~~
~~Significant?~~	~~N/A~~	~~No~~	~~No~~	~~No~~	~~No~~	~~No~~

~~SOURCE: ESA, 2024 (see Appendix B)~~

~~**Significance After Mitigation:** Implementation of Mitigation Measure 3.4-1(a) would reduce SRWTP construction emissions of NOx to be below SMAQMD thresholds for construction in 2027 and 2028. Implementation of Mitigation Measure 3.4-1(b) would ensure compliance with the requirements of SMAQMD Rule 403 to reduce fugitive dust emissions. Therefore, with implementation of Mitigation Measures 3.4-1(a) and (b), construction activities would not exceed SMAQMD thresholds and the impact from construction of the proposed project would be **less than significant with mitigation**.~~

Emissions from construction activities associated with each project phase were estimated by year of construction activity. Emissions are presented by phase in **Tables 3.4-7** through **3.4-9** and are compared to the SMAQMD thresholds of significance. SMAQMD does not have a significance threshold for ROG emissions from construction, and therefore ROG emissions are shown for informational purposes only. Estimates of PM_{10} and $PM_{2.5}$ emissions incorporate reduction from the quantifiable measures required by SMAQMD BMPs during construction to help reduce fugitive dust emissions.

As shown in the tables, emissions for all years of construction activities for each phase would be below applicable SMAQMD thresholds. However, if those BMPs are not implemented, emissions could exceed the thresholds and this impact would be **potentially significant**. Therefore, the following mitigation measures are recommended to further reduce pollutant emissions during construction of the proposed project.

TABLE 3.4-7
PHASE 1A - UNMITIGATED CRITERIA AIR POLLUTANT EMISSIONS BY YEAR

Construction Year	ROG	NO_X	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
	Pounds per day				Tons per year	
2027	0.45	5.56	2.23	0.43	0.29	0.06
2028	0.43	5.21	2.22	0.43	0.29	0.06
2029	0.42	4.95	2.21	0.42	0.29	0.05

Construction Year	ROG	NO_X	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
	Pounds per day				Tons per year	
2030	0.41	4.70	2.20	0.41	0.29	0.05
2031	0.41	4.48	2.20	0.41	0.29	0.05
2032	0.19	1.38	2.13	0.35	0.28	0.05
SMAQMD Thresholds	NA	85	80	82	14.6	15.0
Significant?	NA	No	No	No	No	No

SOURCE: ESA, 2025 (see Appendix B)

TABLE 3.4-8
PHASE 1B - UNMITIGATED CRITERIA AIR POLLUTANT EMISSIONS BY YEAR

Construction Year	ROG	NO_X	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
	Pounds per day				Tons per year	
2033	0.36	4.01	2.11	0.39	0.27	0.05
2034	0.35	3.85	2.11	0.38	0.27	0.05
2035	0.35	3.69	2.10	0.38	0.27	0.05
2036	0.34	3.57	2.10	0.38	0.27	0.05
2037	0.33	3.43	2.09	0.37	0.27	0.05
2038	0.16	1.01	2.04	0.33	0.27	0.04
SMAQMD Thresholds	NA	85	80	82	14.6	15.0
Significant?	NA	No	No	No	No	No

SOURCE: ESA, 2025 (see Appendix B)

TABLE 3.4-9
PHASE 2 - UNMITIGATED CRITERIA AIR POLLUTANT EMISSIONS BY YEAR

Construction Year	ROG	NO_X	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
	Pounds per day				Tons per year	
2039	0.36	3.94	0.68	0.17	0.09	0.02
2040	0.36	3.85	0.68	0.17	0.09	0.02
2041	0.36	3.78	0.68	0.17	0.09	0.02
2042	0.35	3.71	0.68	0.17	0.09	0.02
2043	0.35	3.66	0.68	0.17	0.09	0.02
2044	0.35	3.59	0.67	0.17	0.09	0.02
2045	0.35	3.54	0.67	0.17	0.09	0.02
2046	0.34	3.48	0.67	0.16	0.09	0.02
2047	0.34	3.45	0.67	0.16	0.09	0.02
2048	0.33	1.82	0.64	0.13	0.08	0.02

Construction Year	ROG	NO_X	PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
	Pounds per day				Tons per year	
2049	0.35	4.98	0.70	0.19	0.09	0.03
2050	0.14	1.40	0.62	0.12	0.08	0.02
SMAQMD Thresholds	NA	85	80	82	14.6	15.0
Significant?	NA	No	No	No	No	No

SOURCE: ESA, 2025 (see Appendix B)

Mitigation Measures

Mitigation Measure 3.4-2 (ALL): Implement Mitigation Measures 3.4-1(a) and (b).

Significance After Mitigation: Although emissions are below the applicable SMAQMD thresholds, implementation of Mitigation Measure 3.4-1(a) would further reduce construction emissions of all criteria air pollutant exhaust emissions by requiring the use of CARB Tier 4 Final or cleaner equipment. Implementation of Mitigation Measure 3.4-1(b) would ensure compliance with the requirements of SMAQMD Rule 403 to reduce fugitive dust emissions. With implementation of Mitigation Measures 3.4-2, construction activities would not exceed SMAQMD thresholds and the impact from construction of the proposed project would be **less than significant with mitigation**.

The following text on page 3.4-24 under Impact 3.4-4 is revised to clarify information about proposed equipment improvements at the treatment plants:

As described in Impact 3.4-2, once improvements are completed, O&M activities at the treatment plants would generally be similar to existing O&M activities. However, additional maintenance activities and the operation of new equipment at the water treatment plants and new intake would result in additional full-time employees (2 at FWTP and 10 at SRWTP). In addition, there would be additional truck trips for chemical delivery to each treatment plant (one per day to one per week depending on plant operating conditions). Additional emergency generators would also be installed at each water treatment plant within an enclosure to support maintenance and inspection activities in the event of an emergency or power outage (up to 2 new generators at the FWTP and up to 5 new generators at the SRWTP). These emergency generators would be subject to SMAQMD permitting and Toxics Best Available Control Technology (T-BACT) requirements, as required by District Rule 201, and therefore would comply with District air quality standards.

The following text beginning on page 3.4-25 under Impact 3.4-5 is revised to clarify construction sequencing in response to Comment L2-4 and integrate the results of a health risk assessment conducted in response to Comments L2-5 and L2-6:

Impact 3.4-5: Construction of the proposed project could expose sensitive receptors to substantial pollutant concentrations.

The dose to which receptors are exposed is the primary factor affecting health risk from TACs. Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. According to the California Office of Environmental Health Hazard Assessment (part of the California Environmental Protection Agency), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on 9-year, 30-year, and/or 70-year exposure periods when assessing TACs (such as DPM) that have only cancer or chronic non-cancer health effects. However, such health risk assessments should be limited to the duration of the emissions-producing activities associated with the project, unless the activities occur for less than 6 months. Activities that would last more than 2 months but less than 6 months should be evaluated as if they would last for 6 months. The Office of Environmental Health Hazard Assessment does not recommend assessing cancer risk for projects lasting less than 2 months at the maximum exposed individual resident (OEHHA, 2015).

Land uses sensitive to air pollutants are those where sensitive population groups are located including residences, schools, hospitals, convalescent homes, and other facilities where people spend significant amounts of time.

Treatment Plant Improvements and Existing Utility Upgrades

FWTP

The nearest sensitive receptors to the FWTP are residences located approximately 60 feet south of the FWTP property boundary, across College Town Drive. During construction activities, the use of heavy-duty, diesel-fueled construction equipment would generate TAC emissions in the form of DPM. ~~However, e~~Construction activity would be temporary, with all of the construction activity at FWTP to occur within Phase 1A ~~the most intensive construction occurring in periods over a 3-year span, and emissions would be minimal as shown in Table 3.4-7. Onlly 8 percent of the approximately 34-acre FWTP property would be disturbed throughout the duration of construction.~~ The active disturbed area for each ~~phase~~ component of construction at FWTP would rotate around the site rather than remain in the same location for the 5~~3~~-year period of work. ~~Therefore, no one receptor would be exposed to DPM emissions for the full construction duration. Due to the intermittent duration of construction activity and low levels of emissions, health risk that would result from construction related DPM emissions would be minimal.~~

Table 3.4-10 presents the health risks at the maximally exposed individual receptor from exposure to uncontrolled DPM emissions from construction activities at the FWTP. The table includes lifetime excess cancer risk (chances per million) and the chronic Hazard Index at the MEIR and compares them to the respective SMAQMD thresholds.

TABLE 3.4-10
MAXIMUM CONSTRUCTION HEALTH RISKS - FWTP

Receptor	Lifetime Excess Cancer Risk (chances per million)	Chronic Hazard Index (unitless)
Resident	1.76	0.002
SMAQMD Threshold	10	1.0
Significant?	No	No

SOURCE: ESA, 2025 (see Appendix B)

SRWTP

The nearest existing sensitive receptors to the SRWTP are residences located over 1,500 feet to the north of the construction area. During construction activities, the use of heavy-duty, diesel-fueled construction equipment would generate TAC emissions in the form of DPM. ~~However, c~~Construction activity would be temporary, and emissions would be minimal, as shown in Table~~s~~ 3.4-7~~8~~. The active disturbed area for each phase of construction would rotate around the site rather than remain in the same location for the ~~4.5-year period of work~~ duration of construction. Therefore, no one receptor would be exposed to DPM emissions for the full construction duration. Due to the intermittent duration of construction activity and low levels of emissions, health risk that would result from construction related DPM emissions would be minimal.

As discussed under subsection 3.4.2, *Environmental Setting*, while not an existing use, the future Kaiser Permanente Medical Center, located south of the SRWTP property across Summit Tunnel Avenue, is estimated to be complete and operational by 2030. Construction would still be on-going in the SRWTP project area, including at the water treatment plant and Sacramento River water intakes, after the hospital is operational. Hospitals and healthcare facilities are equipped with advanced filtration systems not just to reduce particulate pollution but also to reduce virus transmission. Hospitals rely on a combination of specialized heating, ventilation, and air conditioning (HVAC) systems and high-efficiency particulate air (HEPA) filters to regulate airflow, and to prevent the spread of viruses and bacteria. Any air entering the hospital is first passed through a series of filters before it is allowed to circulate. These filters reduce the levels of potentially harmful particulates in the air, such as viruses, dust, pollen, and pollution from the outdoor environment (Cairn Technology Ltd., 2022). A short-term indoor exposure of several days or even several weeks is extremely unlikely to cause health risks that would exceed SMAQMD's thresholds. The short duration of inpatient stay combined with the presence of HEPA filters and inoperable windows would result in less-than-significant health risk impacts from DPM and $PM_{2.5}$, whose impacts are primarily chronic and estimated based on exposure durations of 1 year for $PM_{2.5}$ concentration and 30 years for cancer risk.

Sacramento River Water Intakes

During construction of the new water intake, pump station and raw water pipeline, the use of heavy-duty, diesel-fueled construction equipment would generate TAC emissions in

the form of DPM. However, construction activity would be temporary, and emissions would be minimal as shown in Table 3.4-10. Due to the temporary nature of the construction, low levels of emissions, and lack of sensitive receptors in the vicinity of the new water intake, pump station and raw water pipeline site, health risk that would result from construction related DPM emissions would be minimal.

Potable Water Transmission Pipelines

Construction of up to 14,000 linear feet of potable water transmission pipelines in the vicinity of the SRWTP would involve many of the same earth-disturbing activities (e.g., soil excavation, trenching, dewatering) and equipment types as for the FWTP and SRWTP improvements. Construction would likely occur in previously distributed areas, and depending on the location of the pipeline, minor vegetation and/or tree removal may be required.

The routes and footprints of the transmission pipelines are not known at this time. However, the type of construction activities for installing them would be similar to other ground disturbing activities associated with other project components and would be subject to compliance with existing regulations and the incorporation of BMPs. Therefore, construction would not expose sensitive receptors to substantial pollutant concentrations.

Health Impacts of Criteria Air Pollutants

In a 2018 decision (*Sierra Club v. County of Fresno*, 6 Cal.5th 502, also referred to as *Friant Ranch*), the California Supreme Court held that CEQA requires disclosure of the potential for a project's emissions to affect human health when the project's criteria air pollutant emissions exceed applicable thresholds and contribute considerably to a significant cumulative impact. The decision requires EIRs to either: (1) make a "reasonable effort" to substantively connect the estimated amount of a given air pollutant a project will produce and the health effects associated with that pollutant, or (2) explain why such an analysis is infeasible.[9]

The Court also clarified that CEQA "does not mandate" that EIRs include "an in-depth risk assessment" that provides "a detailed comprehensive analysis … to evaluate and predict the dispersion of hazardous substances in the environment and the potential for exposure of human populations and to assess and quantify both the individual and population wide health risks associated with those levels of exposure."[10]

9 *Sierra Club V. County of Fresno*, 6 Cal.5th at 510–511.

10 *Sierra Club V. County of Fresno*, 6 Cal.5th at 521.

The health effects associated with emissions of criteria pollutants and ozone precursors are described under Section 3.4.2, *Environmental Setting* above. The main health concern of exposure to ground-level ozone formed from ROG and NOx, the ozone precursors, is the effect on the respiratory system, especially on lung function. As discussed above, the proposed project would generate criteria pollutant emissions of ROG, NOx, and particulate matter during construction and operation.

Typically, the potential health impacts of a particular criteria pollutant are analyzed by air districts on a regional scale in establishing ambient air quality standards. Because SMAQMD's attainment plans and supporting air quality modeling tools are regional in nature, they are not typically used to evaluate the impacts of individual projects on ambient concentrations of criteria air pollutants, or to correlate those impacts to potential resultant effects on public health. The complex nature of dispersion of criteria air pollutants and the complex atmospheric chemistry (especially in the case of ozone and fine particulate matter) limit the usefulness of applying the available models to predict health impacts on a project level. The accumulation and dispersion of air pollutant emissions within an air basin depends on the size and distribution of emission sources in the region and meteorological factors such as wind, sunlight, temperature, humidity, rainfall, atmospheric pressure, and topography. Various air districts in California agree that it is difficult to quantify health impacts of criteria air pollutants of individual projects and that the specific tools and methods to use are still under development.

The ambient air quality standards adopted at the state and federal levels are health protective standards. Air districts such as the SMAQMD have established thresholds of significance for project-level emissions at levels to ensure continued progress of their jurisdictions towards the attainment of these ambient air quality standards. Hence, projects that generate less than the significance thresholds can be considered to not cause exceedances of the standards or associated health impacts. As discussed above, emissions of pollutants would be below the applicable SMAQMD thresholds of significance for criteria pollutants. Therefore, this impact would be **less than significant**.

Impact Conclusion

Due to the temporary nature of the construction, low levels of emissions, and lack of sensitive receptors in the vicinity of the new water intake, pump station and raw water pipeline site, health risk that would result from construction related DPM emissions would be minimal, and impacts would be **less than significant**.

Mitigation Measures

Mitigation Measures (ALL): None required.

The following text on page 3.4-27 under Impact 3.4-6 is revised to clarify information about proposed equipment improvements at the treatment plants:

As described in Impact 3.4-2, once improvements are completed, O&M activities at the treatment plants would generally be similar to existing O&M activities. However, additional maintenance activities and the operation of new equipment at the water treatment plants and new intake would result in additional full-time employees (2 at FWTP and 10 at SRWTP). In addition, there would be additional truck trips for chemical delivery to each treatment plant (one per day to one per week depending on plant operating conditions). Additional emergency generators would also be installed at each water treatment plant within an enclosure to support maintenance and inspection activities in the event of an emergency or power outage (up to 2 new generators at the

FWTP and up to 5 new generators at the SRWTP). These emergency generators would be subject to SMAQMD permitting and Toxics Best Available Control Technology (T-BACT) requirements, as required by District Rule 201, and therefore would comply with District air quality standards.

The following text on page 3.4-28 under Impact 3.4-8 is revised to clarify information about proposed equipment improvements at the treatment plants:

As described in Impact 3.4-2, once improvements are completed, O&M activities at the treatment plants would generally be similar to existing O&M activities. However, additional maintenance activities and the operation of new equipment at the water treatment plants and new intake would occur, including installation of additional emergency generators at each water treatment plant within an enclosure (up to 2 new generators at the FWTP and up to 5 new generators at the SRWTP). No additional emergency generators are required for O&M activities at either the existing or proposed new intake. Unlike wastewater treatment operations, water treatment facilities are not typically associated with odor emissions. During operation, odors could emanate from vehicle exhaust, intermittent use of the backup generators during emergencies and maintenance testing, temporarily generating localized odors. However, these emissions would occur infrequently and for short durations and would not adversely affect a substantial number of people. O&M activities for all other project components would be completed under existing maintenance programs. Because O&M of proposed project components are not expected to result in emissions that would lead to the production of odors that could adversely affect a substantial number of people, impacts would be **less than significant**.

Section 3.5 Biological Resources – Aquatic

The following text on page 3.5-23 and Table 3.5-4 is revised in response to Comment S2-2:

Table 3.5-4 provides a summary of known acute and sub-lethal effects of noise on fish. Noise levels that result in startle responses in ~~steelhead trout and salmon~~ fish have been documented to occur at sound levels as low as 150 dB root-mean-square pressure level (~~Halvorsen et al., 2012~~ NMFS, 2024). Any disturbance to federal or state-listed fish species that results in altered swimming, foraging, movement along a migration corridor, or any other altered normal behavior is considered harassment, a potentially significant impact.~~3~~

~~3 It should be noted that the acoustic thresholds shown in Table 3.5-4 regard sound levels generated for impact pile driving, no criteria for vibratory pile driving exist at this time.~~

TABLE 3.5-4
POTENTIAL EFFECTS TO FISH AT VARYING NOISE LEVELS

Taxa	Sound Level (dB)	Effect	~~Reference~~ Type of Pile Driving
All fish	None	Acute Barotraumas	Vibratory
All fish ~~> 2 grams in size~~	206 peak ~~187 (SEL)~~	Acute Barotraumas	Impact ~~Fisheries Hydroacoustic Working Group, 2008~~
All fish < 2 grams in size	183~~6~~ (SEL)	Acute Barotraumas	Impact ~~Fisheries Hydroacoustic Working Group, 2008~~
All fish > 2 grams	187 (SEL)	Acute Barotraumas	Impact
All fish ~~Salmon, steelhead~~	150 (RMS)	Avoidance behavior	Vibratory, Impact ~~Halvorsen et al., 2012~~

NOTES: SEL = sound exposure level; RMS = root-mean-square pressure level

SOURCE: NMFS, 2024

The following text on page 3.5-30 is revised in response to Comment S2-3:

> **Mitigation Measure 3.5-4 (SRWI-New):** In order to offset the permanent loss of 0.23 acres of shaded riverine aquatic habitat removed to accommodate the proposed new intake, the City shall purchase mitigation credits from a public or private mitigation bank approved by CDFW. The final number of credits purchased will be in a ratio of 3:1, or another ratio found agreeable to CDFW and other agencies consulted.

The following text on page 3.5-31 is revised in response to Comment F1-1:

> Entrainment and Impingement
>
> Operation of the proposed new water intake in the Sacramento River has the potential to entrain or impinge listed fish species such as Delta smelt and outmigrating juvenile salmonids. During operations, water that is pulled into the new intake could entrain fish swimming or feeding in the water adjacent to the project location into the intake as well. However, as described in Chapter 2, *Project Description*, subsection 2.4.2, the proposed new intake would be designed to meet standards in accordance with CDFW (~~2000~~2010) and NMFS (~~1996~~2023b) fish screening criteria.

Section 3.6 Biological Resources – Terrestrial

Mitigation Measure 3.6-1 beginning on page 3.6-27 is revised as follows in response to Comments S2-6, S2-7, S2-9, S2-11, S2-12, and S2-13:

> **Mitigation Measure 3.6-1 (ALL):**
>
> (a) Project construction shall occur outside of the nesting season to the extent feasible. If project construction begins during the nesting season (**Table 3.6-4**), a qualified biologist shall conduct a preconstruction survey for active nests on and adjacent to the project area. The pre-construction survey shall be conducted within ~~14~~7 days prior to commencement of construction activities (e.g. ground disturbing activities, materials staging, demolition activities) and include the project site and publicly accessible areas within 100 feet for active nests of protected migratory birds and areas within 500 feet for active nests of birds of

prey. If no active nests are found during the pre-construction survey, no additional mitigation measures are required. If construction does not commence within ~~14~~ 7 days of the pre-construction survey, or halts for more than ~~14~~ 7 days, an additional pre-construction survey is required. Additional survey requirements for Swainson's hawk are provided below.

TABLE 3.6-4
NESTING SEASON FOR SPECIAL-STATUS AND COMMON NESTING BIRDS

Species	Nesting Season
White-tailed kite	February 1 to September 30
Swainson's hawk	March 1 to September 15
Common nesting birds (raptors, passerines, herons, and egrets)	February 1 to August 31

(b) If an active nest is located on or adjacent to the project area, an appropriate buffer zone shall be established around the nest, as determined by the qualified biologist. The biologist shall mark the buffer zone with construction tape or pin flags and maintain the buffer zone until the end of breeding season or until the young have successfully fledged or the nest is determined to no longer be active. Buffer zones are typically 50−100 feet for migratory bird nests and 250−500 feet for bird of prey nests (excluding Swainson's hawk). Buffer size shall be determined by the qualified biologist based on the species of bird, the location of the nest relative to the project, project activities during the time the nest is active, and other project-specific conditions. The qualified biologist will make additional recommendations as needed to protect nesting birds, including, but not limited to, setting up sound walls and/or visual barriers.

(c) If establishing the typical buffer zone is impractical, the qualified biologist may reduce the buffer depending on the species and daily monitoring would be required to ensure that the nest is not disturbed, and no forced fledging occurs. Daily monitoring shall occur until the qualified biologist determines that the nest is no longer active.

(d) A worker environmental awareness training program shall be provided to all on-site personnel by a qualified biologist prior to the start of construction. The training will cover special-status species that may occur on the project site and will cover identification, status, avoidance measures, and possible penalties for non-compliance. This training program shall notify project personnel that if at any time during project construction a nesting bird is found on the project site, work should stop within a 100-foot radius if it is a protected migratory bird, a 500-foot radius if it is a bird-of-prey, and a 0.25-mile radius if it is a Swainson's hawk, and that the qualified biologist shall be contacted for further guidance. The crew members shall sign a sign-in sheet documenting that they received the training.

Additional Measures for Swainson's Hawk

(~~d~~c)If construction activities are anticipated to commence during the Swainson's hawk nesting season (March 1 to September 15), a qualified biologist shall conduct a minimum of ~~two pre-construction~~ three Swainson's hawk surveys

during each of the ~~recommended~~ two survey periods prior to construction in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee, 2000). All potential nest trees within 0.25 mile of the project areas shall be visually examined for potential Swainson's hawk nests, as accessible. If no active Swainson's hawk nests are identified on or within 0.25 mile, no additional mitigation measures are required.

(~~e~~f) If an active Swainson's hawk nest is found within 0.25 mile of the project areas, the following measures will be implemented to avoid and minimize impacts to the nest:

i. A Worker Awareness Training Program shall be conducted prior to the start of construction;

~~i~~i. A no-disturbance buffer zone shall be established and work shall be scheduled to avoid impacting the nest during critical periods. To the extent feasible, no work shall occur within 500 feet of the nest while it is in active use. If work would occur within 500 feet of the nest, then construction shall be monitored daily by a qualified biologist to ensure no disturbance occurs to the nest;

~~i~~ii. A biological monitor shall conduct weekly monitoring of the nest during construction activities; ~~and~~

~~iv~~iii. The biologist may halt construction activities if they determine that the construction activities are disturbing the nest. CDFW shall be consulted prior to re-initiation of activities that may disturb the nest; and

iv. If at any time during preconstruction surveys or project implementation an active Swainson's hawk nest (used for breeding in the last 5 years) is found in a tree requiring removal, CDFW will be consulted to determine the need for a CESA ITP.

(g) Implement Mitigation Measures 3.6-3(a) and 3.6-3(b).

Significance After Mitigation: Mitigation Measures 3.6-1(a) through 3.6-1(f) would ensure that the proposed project would avoid impacts to migratory birds and other birds of prey through clearing vegetation outside of the nesting season or conducting preconstruction surveys. No-work buffers would be established if birds are observed nesting in the vicinity of the construction footprint. Mitigation Measure 3.6-1(g), which implements Mitigation Measures 3.6-3(a) and 3.6-3(b), would ensure that the proposed project avoids or mitigates for impacts to trees potentially used for nesting by Swainson's hawk and other birds of prey. Therefore, this impact would be reduced to **less-than-significant with mitigation**.

Mitigation Measure 3.6-3(a) beginning on page 3.6-33 is revised as follows in response to Comment S2-13:

Mitigation Measure 3.6-3(a) (SRWI – Existing/New):

i. Tree removal shall be minimized to the extent possible.

ii. Prior to the removal of any protected tree as defined by City Code 12.56, the applicant shall submit a tree removal permit application for the removal of protected trees and comply with all conditions of any issued permit.

iii. Removal of riparian trees along the Sacramento River resulting from project implementation will be mitigated in one of the following ways:

- Purchase mitigation credits at a 3:1 ratio of replacement credits to acreage of permanently impacted riparian habitat at a CDFW-approved mitigation or conservation bank for riparian habitat.

- Replant removed trees 4 inches diameter at breast height (DBH) or greater located in the riparian habitat with native riparian tree species at a 3:1 replacement to loss ratio within the riparian habitat onsite or other suitable riparian habitat located in Sacramento County. A replanting plan shall be prepared and submitted to CDFW and the City of Sacramento for approval prior to removal of riparian trees.

Section 3.8 Energy

The Method of the Analysis description for construction impacts on page 3.8-7 under subsection 3.8.4, *Impacts and Mitigation Measures,* is revised as follows to clarify anticipated construction sequencing and update information about emissions modeling inputs, in response to Comments L2-3 and L2-4:

Construction Impacts

As presented in Table 2-7 in Chapter 2, *Project Description*, implementation of the initial phase of proposed project construction would occur in two parts – Phase 1A (Early Projects) and Phase 1B (Later Projects). Phase 1A includes all necessary work at the FWTP project area (treatment plant improvements and existing utility upgrades), as well as initial construction activities at the SRWTP project area (treatment plant improvements, existing utility upgrades, and improvements for the existing Sacramento River water intake). Phase 1B includes additional treatment plant improvements and utility upgrades at the SRWTP project area. Phase 1A is anticipated to start in January 2027 and last until July 2032, followed by Phase 1B, anticipated to start in January 2033 and finish in July 2038. Construction of the new Sacramento River water intake, potable water transmission lines, and additional SRWTP treatment plant improvements would occur during project buildout (referred to as Phase 2 in this analysis and in Appendix B, *Criteria Air Pollutant and Greenhouse Gas Emission Calculations*), anticipated to occur over approximately 12 years, beginning January 2039 and finishing July 2050. ~~construction activities in the FWTP project area (improvements at the FWTP and existing utility upgrades) would occur over a total period of approximately 5 years (July 2026 through July 2031). Construction activities in the SRWTP project area (improvements at the SRWTP, existing utility upgrades, Sacramento River water intakes, and potable water transmission pipelines) would occur in two phases. The initial phase would occur over a total period of approximately 10 years (January 2027 through July 2037), and the buildout phase would occur over approximately 10 years (2040 through 2050). For each project component,~~

~~there would be a period of intensive construction, using heavy equipment, followed by several years of minimal activity to reach anticipated completion. For a conservative estimate of emissions, the most intensive construction years were modeled, and these periods are also presented in Table 2-7.~~

Construction at the FWTP and the SRWTP would be sequenced in a manner that would minimize facility shutdowns, maintain the integrity of the treatment process, and ensure water demands in the system will continue to be met. Therefore, the level of activity and equipment use would not be continuous for the duration of construction at each site.

~~Emissions from construction activities associated with each project component were estimated for each year of intensive construction activity. Construction of FWTP improvements and existing utility upgrades would occur over an approximately 2-year period between July 2026 through July 2028. Initial phase construction of SRWTP improvements and existing utility upgrades would occur over an approximately 4-year period (January 2027 through January 2031). Initial phase construction at the Sacramento River intakes would occur over an approximately 4.5-year period (January 2031 through July 2035). Initial phase construction activities associated with the installation of the potable water transmission mains would occur over an approximately 3-year period (July 2032 through July 2035). The buildout phase of additional improvements to the SRWTP and new water intake pump station would occur intermittently over an approximately 10-year period (2040 through 2050) with intensive construction anticipated to occur over the first 2.5 years.~~

Emissions by phase were estimated for each year of construction activity. Construction emissions were estimated using methodology consistent with the California Emissions Estimator Model (CalEEMod) ~~version 2022.1.1.20~~ and Emissions Factor model (EMFAC) 2021,~~. Project-specific inputs to the California Emissions Estimator Model (CalEEMod 2022.1.1) including proposed project area, demolition area, infill and off haul volumes, and starting year and duration of construction were used to calculate pollutant emissions~~ which were then used to calculate associated construction fuel usage for the energy analysis. For further emission modeling details, see Section 3.4, *Air Quality*. All fuel calculations can be found in Appendix B, *Criteria Air Pollutant and Greenhouse Gas Emission Calculations*.

~~The types, quantities, and hours used for construction equipment, and number of worker, vendor, and haul trips were presented in Tables 2-3 through 2-6 in Chapter 2, *Project Description*. Diesel fuel estimates were provided for the FWTP improvements and SRWTP improvements. The new water intake diesel fuel usage was estimated using information provided by the City. Gasoline fuel usage was also estimated using information provided by the City.~~

The analysis under Impact 3.8-1 beginning on page 3.8-8 is replaced with the following analysis to clarify construction sequencing and integrate the results of updated emissions modeling that was conducted in response to Comments L2-3 and L2-4:

Impact 3.8-1: Implementation of the proposed project could result in wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation.

~~**Treatment Plant Improvements and Existing Utility Upgrades**~~

~~Construction~~

~~Construction of the FWTP and SRWTP treatment plant improvements, in addition to existing utility upgrades at both treatment plants, would result in the consumption of energy in the form of transportation fuels (i.e., diesel and gasoline fuel) from a variety of sources, including off-road construction equipment and on-road workers, vendors, and hauling vehicles. The level of energy consumption would fluctuate depending on the type of construction activities underway during any particular time period. Energy use would be higher during the period of construction involving the initial site clearance and above earth-moving/grading, where the largest and most powerful equipment would be required to excavate, lift, and transport large volumes of soil and demolished materials (such as concrete, asphalt, and service poles) from the site. Gasoline and diesel fuel would be the primary energy source for vehicles driven by construction crews and to power the large trucks used to deliver and remove construction equipment, materials, and debris.~~

~~Based on the estimated equipment use and duration of activities associated with intensive construction of the facility and treatment process improvements at the FWTP and upgrades to utilities needed to serve the FWTP, the estimated consumption of an average of approximately 71,632 gallons of diesel fuel per year, and an average of approximately 3,458 gallons of gasoline per year, would occur over the approximate 2-year intensive construction period. Although construction energy use is presented as an annual average, some construction years would be more or less energy intensive depending on the phasing of activities. The proposed activity's estimated annual average diesel and gasoline use are equivalent to approximately 0.14 percent of the diesel and a very small fraction (less than 0.001 percent) of the gasoline sold in Sacramento County annually (CEC, 2023).~~

~~Based on the estimated equipment use and duration of activities associated with construction of the initial phase facility and treatment process improvements at the SRWTP and upgrades to utilities needed to serve the SRWTP, the estimated consumption of an average of approximately 117,060 gallons of diesel fuel per year, and an average of approximately 3,921 gallons of gasoline per year, would occur over the approximate 4-year intensive construction period. The proposed project's estimated annual average diesel and gasoline use are equivalent to approximately 0.23 percent of the diesel and a very small fraction (less than 0.001 percent) of the gasoline sold in Sacramento County annually (CEC, 2023).~~

~~Based the estimated equipment use and duration of activities associated with construction of the build out phase facility and treatment process improvements at the SRWTP and~~

~~upgrades to utilities needed to serve the SRWTP, the estimated consumption of an average of approximately 51,658 gallons of diesel fuel per year, and an average of approximately 3,207 gallons of gasoline per year, would occur over the 2.5-year intensive construction period. Although construction energy use is presented as an annual average, some construction years would be more or less energy intensive depending on the phasing of activities. The proposed project's estimated annual average diesel and gasoline use are equivalent to approximately 0.10 percent of the diesel and a very small fraction (less than 0.001 percent) of the gasoline sold in Sacramento County annually (CEC, 2023).~~

~~Construction activities are temporary and would not result in a long-term increase in demand for fuel and would not be of sufficient magnitude to require new infrastructure to be constructed to supply construction activities.~~

~~Operation and Maintenance~~

~~Operational consumption of electricity was conservatively estimated using CalEEMod under full buildout operation for the FWTP and SRWTP. The project proposes to construct several facility buildings as noted in Chapter 2: *Project Description*, Table 2-2. The annual energy use requirements estimated for buildout operation of the FWTP and SRWTP are expected to be 89,910 kilowatt hours (kWh) per year and 512,484 kWh per year, respectively. Electricity serving the entire project area would be served by SMUD. The proposed project's estimated annual electricity use is equivalent to approximately 0.01 percent of energy consumed in Sacramento County annually (CEC, 2023).~~

~~Once improvements are completed at the FWTP and SRWTP, O&M activities would generally be similar to existing activities. However, the ozone generation and treatment system improvements at both water treatment plants would require some additional maintenance, including the use of additional emergency generators (up to 2 at the FWTP and up to 4 at the SRWTP) to support screen cleaning and inspection activities. Electrical demand due to the ozone process would represent double the total plant electrical demand at FWTP and SRWTP respectively. In addition, additional electricity would be needed to operate the intermediate pump station at the FWTP, new intake at the Sacramento River, and the new high lift pump station at the SRWTP. As mentioned previously, electricity demand would be served by the new SMUD service lines at the SRWTP and would be served by four new and upgraded transformers at the FWTP. Consumption of energy resources from vehicle trips would come from additional full-time employees needed at both water treatment plants (2 at FWTP and 10 at SRWTP). In addition, there would be additional truck trips for chemical delivery to each treatment plant (one per day to one per week depending on plant operating conditions).~~

~~Once constructed, O&M of the existing utility upgrades to serve both the FWTP and SRWTP would remain the same as existing conditions. The proposed new upgraded storm drain pipelines would be operated and maintained the same as the existing storm drain pipelines. Similarly, the replacement electrical service lines would also be operated and maintained as the existing service lines are under SMUD's maintenance program.~~

~~Sacramento River Water Intakes~~

~~Construction~~

~~Construction of the Sacramento River intakes would involve similar earth-moving activities (e.g., soil excavation, trenching, dewatering) and equipment types as the water treatment improvements of the FWTP and SRWTP. Based on the Sacramento River intake's estimated equipment use and construction duration, the construction of the proposed new intake is estimated to result in the consumption of an average of approximately 68,148 gallons of diesel fuel per year, and an average of approximately 11,649 gallons of gasoline per year, over the approximate 4.5-year intensive construction period. Although construction energy use is presented as an annual average, some construction years would be more or less energy intensive depending on the phasing of activities. The proposed project's estimated annual average diesel and gasoline use are equivalent to approximately 0.13 percent of the diesel and a very small fraction (less than 0.001 percent) of the gasoline sold in Sacramento County annually (CEC, 2023).~~

~~Operation and Maintenance~~

~~Operation of the Sacramento River intakes would generate an incremental amount of increased O&M. Periodic cleaning of the water intake's tee screens would be done with on-site equipment located within the pump stations. SRWTP employees would inspect and maintain the existing water intake, new water intake, pump stations, and conveyance pipelines. As maintenance trips already occur for the existing intake, additional truck trips for maintenance of the new intake are not anticipated. No additional emergency generators are required for O&M activities at either the existing or proposed new intake. However, portable generators may be used by divers during routine maintenance. The vehicle trips would occur locally and would have minimal energy use.~~

~~Potable Water Transmission Pipelines~~

~~Construction~~

~~Installation of potable water transmission pipelines in the vicinity of the SRWTP would involve many of the same earth-disturbing activities (e.g., soil excavation, trenching, dewatering) and equipment types as for the FWTP and SRWTP improvements. The type of construction activities for installing them would be similar to other ground disturbing activities associated with other project components and would result in consumption of energy in the form of transportation fuels. Construction would likely occur in previously disturbed areas, and depending on the location of the pipeline, minor vegetation and/or tree removal may be required. Based on the potable water transmission pipeline's estimated equipment use and construction duration, the construction activities are estimated to result in the consumption of an average of approximately 12,619 gallons of diesel fuel per year, and an average of approximately 2,532 gallons of gasoline per year, over the approximate 3-year intensive construction period. Although construction energy use is presented as an annual average, some construction years would be more or less energy intensive depending on the phasing of activities. The proposed project's estimated annual average diesel and gasoline use are equivalent to approximately 0.02 percent of the diesel and a very small fraction (less than 0.001 percent) of the gasoline sold in Sacramento County annually (CEC, 2023).~~

~~Operation and Maintenance~~

~~O&M for the proposed potable water transmission pipelines would be performed as part of ongoing City programs and would remain the same as existing conditions. It is anticipated that construction of the proposed transmission pipelines and associated O&M activities would result in similar energy use as other project components.~~

~~Impact Conclusion~~

~~Estimated annual average diesel and gasoline use associated with proposed project construction activities were estimated to be a very small fraction (less than 0.001 percent) of the gasoline sold in Sacramento County annually. O&M activities would generally remain the same at the FWTP and SRWTP, except for additional O&M required for the new ozone treatment. Consumption of O&M energy resources would come from employee vehicle trips to and from the treatment plants for intermittent O&M activities. The vehicle trips would occur locally and would have minimal energy use. Additional truck and employee trips anticipated to operate the new water intake would occur locally and would have minimal energy use. It is anticipated that construction of the proposed transmission pipelines and associated O&M activities would result in similar energy use as other project components. Therefore, implementation of the proposed project would not result in inefficient consumption of energy and would be **less than significant**.~~

All Project Components

Construction

Construction of the proposed project would result in the consumption of energy in the form of transportation fuels (i.e., diesel and gasoline fuel) from a variety of sources, including off-road construction equipment and on-road workers, vendors, and hauling vehicles. The level of energy consumption would fluctuate depending on the type of construction activities underway during any particular time period. Energy use would be higher during the period of construction involving the initial site clearance and above earth-moving/grading, where the largest and most powerful equipment would be required to excavate, lift, and transport large volumes of soil and demolished materials (such as concrete, asphalt, and service poles) from the site. Gasoline and diesel fuel would be the primary energy source for vehicles driven by construction crews and to power the large trucks used to deliver and remove construction equipment, materials, and debris. Construction would likely occur in previously disturbed areas, and depending on the location of the pipelines, minor vegetation and/or tree removal may be required.

Under Phase 1A, construction of the FWTP and SRWTP treatment plant improvements, existing utility upgrades at both treatment plants, and construction of a new pipeline from the existing intake to SRWTP, are estimated to result in the consumption of an average of approximately 32,200 gallons of diesel fuel per year, and an average of approximately 3,900 gallons of gasoline per year, over the approximate 5-year construction period.

Under Phase 1B, construction of the additional SRWTP treatment plant improvements and existing utility upgrades are estimated to result in the consumption of an average of

approximately 30,700 gallons of diesel fuel per year, and an average of approximately 3,500 gallons of gasoline per year over the approximate 5-year construction period.

Under Phase 2, installation of potable water transmission pipelines in the vicinity of the SRWTP, construction of the new Sacramento River water intake and pump station, and additional treatment plant improvements at SRWTP to reach buildout capacity are estimated to result in the consumption of an average of approximately 30,400 gallons of diesel fuel per year, and an average of approximately 3,100 gallons of gasoline per year, over the approximate 12-year construction period. Although construction energy use is presented as an annual average, some construction years would be more or less energy intensive depending on the phasing of activities.

Over the course of the anticipated construction period, the proposed project's estimated annual average diesel and gasoline use are equivalent to approximately 0.06 percent of the diesel and less than 0.001 percent of the gasoline sold in Sacramento County annually (CEC, 2023).

Construction activities are temporary and would not result in a long-term increase in demand for fuel and would not be of sufficient magnitude to require new infrastructure to be constructed to supply construction activities.

Operation and Maintenance

Once improvements are completed at the FWTP and SRWTP, O&M activities would generally be similar to existing activities. However, the ozone generation and treatment system improvements at both water treatment plants would require some additional maintenance. Additional emergency generators would be installed at each water treatment plant within an enclosure to support maintenance and inspection activities in the event of an emergency or power outage (up to 2 new generators at the FWTP and up to 5 new generators at the SRWTP). Electrical demand due to the ozone process would represent double the total plant electrical demand at FWTP and SRWTP respectively. In addition, additional electricity would be needed to operate the intermediate pump station at the FWTP. Consumption of energy resources from vehicle trips would come from additional full-time employees needed at both water treatment plants (2 at FWTP and 10 at SRWTP). In addition, there would be additional truck trips for chemical delivery to each treatment plant (one per day to one per week depending on plant operating conditions). The proposed new upgraded storm drain pipelines would be operated and maintained the same as the existing storm drain pipelines. Similarly, the replacement electrical service lines would also be operated and maintained as the existing service lines are under SMUD's maintenance program.

Operation of the Sacramento River intakes would generate an incremental amount of increased O&M. SRWTP employees would inspect and maintain the existing water intake, new water intake, pump stations, and conveyance pipelines. As maintenance trips already occur for the existing intake, additional truck trips for maintenance of the new intake are not anticipated. No additional emergency generators are required for O&M

activities at either the existing or proposed new intake. However, portable generators may be used by divers during routine maintenance. O&M for the proposed potable water transmission pipelines would be performed as part of ongoing City programs and would remain the same as existing conditions.

Operational consumption of electricity was conservatively estimated using CalEEMod under full buildout operation for the FWTP and SRWTP. The project proposes to construct several facility buildings as noted in Chapter 2: *Project Description*, Table 2-2. The annual energy use requirements estimated for buildout operation of the FWTP and SRWTP are expected to be 89,910 kilowatt hours (kWh) per year and 512,484 kWh per year, respectively. Electricity serving the entire project area would be served by SMUD. The proposed project's estimated annual electricity use is equivalent to approximately 0.01 percent of energy consumed in Sacramento County annually (CEC, 2023).

Impact Conclusion

Estimated annual average diesel and gasoline use associated with proposed project construction activities were estimated to be 0.06 percent of diesel and less than 0.001 percent of gasoline sold in Sacramento County annually. O&M activities would generally remain the same at the FWTP and SRWTP, except for additional O&M required for the new ozone treatment. Consumption of O&M energy resources would come from employee vehicle trips to and from the treatment plants for intermittent O&M activities. The vehicle trips would occur locally and would have minimal energy use. Additional truck and employee trips anticipated to operate the new water intake would occur locally and would have minimal energy use. It is anticipated that construction of the proposed transmission pipelines and associated O&M activities would result in similar energy use as other project components. Therefore, implementation of the proposed project would not result in inefficient consumption of energy and would be **less than significant**.

Section 3.10 Greenhouse Gas Emissions

The Method of the Analysis description beginning on page 3.10-12 under subsection 3.10.4, *Impacts and Mitigation Measures,* is revised as follows to clarify anticipated construction sequencing and update information about emissions modeling inputs, in response to Comments L2-3 and L2-4:

For the purposes of quantifying project-level construction impacts, this portion of the analysis draws from the 2020 adopted thresholds of the Sacramento Metropolitan Air Quality Management District (SMAQMD). The SMAQMD has developed and adopted thresholds of significance for GHG emissions during construction and operation of projects. The recommended SMAQMD significance threshold for the construction phase is 1,100 metric tons CO_2e per year. Should the project's construction emissions exceed 1,100 metric tons CO_2e in any year, there would be a significant impact and mitigation measures would be required. ~~Construction emissions are generally short-lived in duration when compared to a project's overall operational lifetime (OPR, 2018). Various agencies, including the SMAQMD and the South Coast Air Quality Management District, have~~

~~suggested amortizing short-term construction emissions over the expected life of a project (e.g., 30 years), to evaluate project-level impacts. Amortizing construction emissions over 30 years represents the estimated useful life of the proposed project, a methodology consistent with preliminary guidance developed by the South Coast Air Quality Management District and widely used as an industry standard. This approach is consistent with the California Office of Planning and Research's *CEQA and Climate Change Advisory Discussion Draft*. As stated therein, "when possible, lead agencies should quantify the project's construction and operational greenhouse gas emissions, using available data and tools, to determine the amount, types, and sources of greenhouse gas emissions resulting from the project" (OPR, 2018). Therefore, the total project construction emissions were amortized over 30 years before being compared to the construction significance threshold.~~

As presented in Table 2-7 in Chapter 2, *Project Description*, implementation of the initial phase of proposed project construction would occur in two parts – Phase 1A (Early Projects) and Phase 1B (Later Projects). Phase 1A includes all necessary work at the FWTP project area (treatment plant improvements and existing utility upgrades), as well as initial construction activities at the SRWTP project area (treatment plant improvements, existing utility upgrades, and improvements for the existing Sacramento River water intake). Phase 1B includes additional treatment plant improvements and utility upgrades at the SRWTP project area. Phase 1A is anticipated to start in January 2027 and lasts until July 2032, followed by Phase 1B, anticipated to start in January 2033 and finish in July 2038. Construction of the new Sacramento River water intake, potable water transmission lines, and additional SRWTP treatment plant improvements would occur during project buildout (referred to as Phase 2 in Appendix B, Criteria Air Pollutant and Greenhouse Gas Emission Calculations), anticipated to occur over approximately 12 years, beginning January 2039 and finishing July 2050. ~~construction activities in the FWTP project area (improvements at the FWTP and existing utility upgrades) and in the SRWTP project area (improvements at the SRWTP, existing utility upgrades) would occur over a total period of approximately 5 years (July 2026 through July 2031). Construction activities in the SRWTP project area (improvements at the SRWTP, existing utility upgrades, Sacramento River water intakes, and potable water transmission pipelines) would occur in two phases. The initial phase would occur over a total period of approximately 10 years (January 2027 through July 2037), and the buildout phase would occur over approximately 10 years (2040 through 2050).~~

~~For each project component, there would be a period of intensive construction, using heavy equipment, followed by several years of minimal activity to reach anticipated completion. For a conservative estimate of GHG, the most intensive construction years were modeled, and these periods are also presented in Table 2-7. Construction of FWTP improvements and existing utility upgrades would occur over an approximately 2-year period between July 2026 through July 2028. Initial phase construction of SRWTP improvements and existing utility upgrades would occur over an approximately 4-year period (January 2027 through January 2031). Initial phase construction at the Sacramento River intakes would occur over an approximately 4.5-year period (January 2031 through~~

~~July 2035). Initial phase construction activities associated with the installation of the potable water transmission mains would occur over an approximately 3-year period (July 2032 through July 2035). The buildout phase of additional improvements to the SRWTP and new water intake pump station would occur intermittently over an approximately 10-year period (2040 through 2050), with intensive construction anticipated to occur over the first 2.5 years.~~

Construction at the FWTP and the SRWTP would be sequenced in a manner that would minimize facility shutdowns, maintain the integrity of the treatment process, and ensure water demands in the system would continue to be met. Therefore, the level of activity and equipment use would not be continuous for the duration of construction activities.

Emissions by phase were estimated for each year of construction activity. Construction activities would generate ~~criteria air pollutants~~ GHG emissions primarily from the combustion of fuel in construction equipment and vehicle trips associated with worker commute, material delivery and hauling. Once each component is operational, emissions would result primarily from motor vehicle trips generated by worker trips to and from the various component sites. Construction GHG emissions were estimated using methodology consistent with the California Emissions Estimator Model (CalEEMod) version 2022.1.1 and Emission Factor model (EMFAC) 2021. …

The analysis under Impact 3.10-1 beginning on page 3.10-14 is replaced with the following analysis to clarify construction sequencing and integrate the results of updated emissions modeling that was conducted in response to Comments L2-3 and L2-4:

Impact 3.10-1: Construction of the proposed project could generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

~~All Project Components~~

~~With respect to construction activities, projects are required to implement the SMAQMD's identified Basic Construction Emissions Control Practices (BCECPs), which are considered by the SMAQMD to be the applicable construction BMPs. The following BCECPs would be applicable to proposed project construction of the FWTP and SRWTP improvements, existing utility upgrades, Sacramento River water intakes, and potable water transmission pipelines for GHG emissions:~~

- ~~Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site;[1]~~
- ~~Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1];[2] and~~
- ~~Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.~~

Based on the methods described above, the maximum annual construction GHG emissions were estimated for each year of heavy construction equipment use and include emission from any component constructed in that year, as shown in **Table 3.10-3**. The years without construction GHG emissions are periods of light construction and do not involve any heavy construction equipment use.

TABLE 3.10-3
ANNUAL CONSTRUCTION GHG EMISSIONS ($MTCO_2E$ PER YEAR)

Construction Year	Project Construction GHG Emissions
2026	908
2027	6,008
2028	5,294
2029	4,625
2030	4,616
2031	1,216
2032	1,037
2033	1,167
2034	1,162
2035	550
2040	1,282
2041	1,280
2042	529
Total	29,675
Amortized (30 years)	989
SMAQMD Threshold	1,100
Exceeds Threshold?	No
SOURCE: ESA, 2024 (see Appendix B)	

Based on the modeling of construction equipment and off-site vehicle activities, the estimated GHG emissions associated with construction would be approximately 29,675 $MTCO_2e$ for the entire 13-year heavy construction period. As shown in Table 3.10-3, estimated amortized construction emissions that would be associated with the project components are 989 $MTCO_2e$ per year, which would not exceed the construction significance threshold and impacts would be **less than significant**.

Impact Conclusion

As shown in Table 3.10-3, with implementation of the SMAQMD's identified BCECPs, which are considered by the SMAQMD to be the applicable construction BMPs, construction emissions associated with the water treatment plant improvements, existing utility upgrades, Sacramento River water intakes, and potable water transmission pipelines would not exceed the SMAQMD GHG significance threshold of 1,100 MTCO2e. It is possible that the timeline of construction of the transmission pipelines would overlap with the construction of any other of the project components, but

~~emissions would not exceed the SMAQMD GHG emissions threshold. In addition, project construction activities would be required to implement the SMAQMD's identified BCECPs, which are considered by the SMAQMD to be the applicable construction BMPs. Furthermore, although these emissions would not exceed the construction emissions significance threshold, City staff has determined that SMAQMD's Guidance for Construction GHG Emission Reductions measures, which are considered BMPs, should be implemented given that heavy construction would last approximately 13 years (SMAQMD, 2016). Therefore, construction of the proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment and this impact is considered less than significant.~~

~~[1] This BMP for dust control specifically applies to diesel-powered equipment. Non-diesel vehicles are not required to limit idling time.~~

~~[2] This BMP for dust control specifically applies to diesel-powered equipment.~~

All Project Components

With respect to construction activities, projects are required to implement the SMAQMD's identified Basic Construction Emissions Control Practices (BCECPs), which are considered by the SMAQMD to be the applicable construction BMPs. The following BCECPs would be applicable to proposed project construction of the FWTP and SRWTP improvements, existing utility upgrades, Sacramento River water intakes, and potable water transmission pipelines for GHG emissions:

- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site;[1]
- Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, sections 2449 and 2449.1];[2] and
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.

Based on the methods described above, the annual construction GHG emissions were estimated for each year of construction and include emissions from all components constructed in that year, as shown in **Table 3.10-3**. The years without construction GHG emissions are periods of light construction and do not involve any heavy construction equipment use.

As shown in Table 3.10-3, estimated annual construction emissions that would be associated with the project components would not exceed SMAQMD's construction significance threshold during any year of construction and this impact would be **less than significant**.

[1] This BMP for dust control specifically applies to diesel-powered equipment. Non-diesel vehicles are not required to limit idling time.

2 This BMP for dust control specifically applies to diesel-powered equipment.

TABLE 3.10-3
ANNUAL CONSTRUCTION GHG EMISSIONS (MTCO2E PER YEAR)

Construction Year	Project Construction GHG Emissions
2027	353
2028	348
2029	345
2030	341
2031	340
2032	89
2033	333
2034	329
2035	328
2036	327
2037	324
2038	80
2039	236
2040	360
2041	359
2042	357
2043	356
2044	355
2045	353
2046	353
2047	353
2048	182
2049	522
2050	145
SMAQMD Annual Threshold	1,100
Exceeds Threshold?	No

SOURCE: ESA, 2025 (see Appendix B)

Impact Conclusion

As shown in Table 3.10-3, construction emissions associated with the water treatment plant improvements, existing utility upgrades, Sacramento River water intakes, and potable water transmission pipelines would not exceed the SMAQMD GHG significance threshold of 1,100 $MTCO_2e$ during any construction year. In addition, project construction activities would be required to implement the SMAQMD's identified BCECPs, which are considered by the SMAQMD to be the applicable construction BMPs. Furthermore, although these emissions would not exceed the construction emissions significance threshold, City staff has determined that SMAQMD's *Guidance*

for Construction GHG Emission Reductions measures, which are considered BMPs, should be implemented given that construction would last approximately 24 years (SMAQMD, 2016). Therefore, construction of the proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment and this impact is considered **less than significant**.

The following text on page 3.10-16 under Impact 3.10-2 is revised to clarify information about proposed equipment improvements at the treatment plants:

Treatment Plant Improvements

Once improvements are completed at the FWTP and SRWTP, operation and maintenance (O&M) activities would generally be similar to existing O&M activities. However, the ozone generation and treatment system improvements at both water treatment plants would require installation of additional emergency generators within an enclosure to support maintenance and inspection activities in the event of an emergency or power outage ~~some additional maintenance including use of portable generators~~ (up to 2 new generators at the FWTP and up to 4 5 new generators at the SRWTP) ~~to support screen cleaning and inspection activities. The SRWTP would also have three back-up diesel emergency generators.~~

~~In absence of SMAQMD guidance, Bay Area Air Quality Management District limits emergency generator operation to 100 hours per year (BAAQMD, 2019).~~ SMAQMD guidance (SMAQMD 2012) requires that operation of emergency equipment not exceed a total of 200 hours per year, including maintenance operation and testing. For purposes of this analysis, each emergency generator is assumed to have a capacity of 2,500 kilowatts and to operate for 50 hours annually for routine testing and maintenance and 100 hours annually during emergency conditions, for a total of 150 hours per year per generator (see Updated Appendix B). Emergency use would be intermittent and limited to actual emergency events. Based on these assumptions, ~~A~~annual GHG emissions from the back-up diesel emergency generators would result in approximately 1,404 ~~9.63~~ MTCO2e per year. This falls below the 10,000 MTCO2e threshold and, therefore, would not generate significant GHG emissions during operations.

The following text on page 3.10-18 under Impact 3.10-4 is revised to clarify information about proposed equipment improvements at the treatment plants:

Once construction is completed at the treatment plants, O&M activities would generally remain the same, with the exception of additional O&M needed for the new ozone treatment. Emissions would primarily come from employee vehicle trips to and from the treatment plants for intermittent O&M activities. These trips would occur very infrequently and would have negligible GHG emissions. Additional emergency generators would also be installed at each water treatment plant (up to 2 new generators at the FWTP and up to 5 new generators at the SRWTP); however, these would be subject to District Rule 201 and therefore would comply with District air quality

standards. Due to this, operations and maintenance of the FWTP and SRWTP improvements would not conflict with an applicable GHG reduction plan.

The list of the City's Climate Action and Adaptation Plan (CAAP) measures that the proposed project aligns with, as noted under Impact 3.10-4 beginning on page 3.10-18, is revised as follows in response to Comment L2-2:

- **Water and Wastewater (WW-1):** Reduce water utility emissions (in megatons of CO2e per million gallons) by 100 percent by 2030 and maintain that through 2045.
- **Built Environment (E-1):** Support SMUD as it implements the 2030 Zero Carbon Plan

Section 3.14 Noise and Vibration

The Method of the Analysis description beginning on page 3.14-9 under subsection 3.14.4, *Impacts and Mitigation Measures,* is revised as follows to update the anticipated construction schedule and sequencing of the proposed project, in response to Comment L2-4:

> As presented in Table 2-7 in Chapter 2, *Project Description*, implementation of the initial phase of proposed project construction would occur in two parts – Phase 1A (Early Projects) and Phase 1B (Later Projects). Phase 1A includes all necessary work at the FWTP project area (treatment plant improvements and existing utility upgrades), as well as initial construction activities at the SRWTP project area (treatment plant improvements, existing utility upgrades, and improvements for the existing Sacramento River water intake). Phase 1B includes additional treatment plant improvements and utility upgrades at the SRWTP project area. Phase 1A is anticipated to start in January 2027 and lasts until July 2032, followed by Phase 1B, anticipated to start in January 2033 and finish in July 2038. Construction of the new Sacramento River water intake, potable water transmission lines, and additional SRWTP treatment plant improvements would occur during project buildout (referred to as Phase 2 in Appendix B, Criteria Air Pollutant and Greenhouse Gas Emission Calculations), anticipated to occur over approximately 12 years, beginning January 2039 and finishing July 2050. Construction at the FWTP and the SRWTP would be sequenced in a manner that would minimize facility shutdowns, maintain the integrity of the treatment process, and ensure water demands in the system would continue to be met. Therefore, the level of activity and equipment use would not be continuous for the duration of construction activities. …

The following text on page 3.14-13 under Impact 3.14-1 is revised to update the anticipated construction schedule and sequencing of the proposed project, in response to Comment L2-4:

> ~~As described in Chapter 2, *Project Description*, construction in the FWTP project area is expected to occur between July 2026 and July 2031. Construction activities in the SRWTP project area (improvements at the SRWTP, existing utility upgrades, Sacramento River water intakes, and potable water transmission pipelines) would occur in two phases. The initial phase would occur over a total period of approximately 10 years (January 2027 through July 2037), and the buildout phase would occur over approximately 10 years (2040 through 2050).~~

Table 2-7 in Chapter 2, *Project Description*, outlines the construction sequencing for project components and phases. Standard daytime shifts for construction activities would be 6:00 a.m. to 6:00 p.m. Monday through Friday. However, some nighttime and/or weekend construction is anticipated; standard nighttime construction shifts would occur between 6:00 p.m. and 6:00 a.m. As discussed above, City of Sacramento Municipal Code Section 8.68.080 exempts construction activities from noise standards as long as these activities are limited to between the hours of 7:00 a.m. and 6:00 p.m. Monday through Saturday, and between the hours of 9:00 a.m. and 6:00 p.m. on Sunday. Anticipated night-time construction activities would not be exempt. Consequently, the analysis of construction noise impacts focusses on whether nearby sensitive land uses exposed to an exterior noise level of 70 dBA L_{eq} and 60 dBA L_{eq} would result in speech interference and sleep interference, respectively. For noise generated during construction between the hours of 6:00 p.m. and 6:00 a.m., the sleep interference threshold of 60 dBA L_{eq} is used to determine whether nearby sensitive receptors are exposed to construction noise levels that is considered to result in a substantial increase in ambient noise levels.

The following text on page 3.14-20 under Impact 3.14-2 is revised to clarify information about proposed equipment improvements at the treatment plants:

Additional emergency generators would be used to support inspection activities in the event of an emergency or power outage (up to 2 at the FWTP and up to ~~3~~ 5 at the SRWTP; refer to Tables 2-1 and 2-2, respectively). Generators would be installed within an enclosure at both treatment plants which would provide acoustical attenuation. Emergency generators at the FWTP would be approximately 400 feet north of the nearest receptors which would be sufficient to reduce noise levels to below the 55 dBA daytime threshold established in the City of Sacramento Noise Control Ordinance. Emergency generators at the SRWTP would be located more than 500 feet from the nearest receptors and, assuming large 2,500 kW generators, noise levels would be reduced to 35 dBA at 500 feet and would also be below the 55 dBA daytime threshold. These generators would not be used routinely, as they are intended for emergency use only.

Section 3.19 Utilities and Service Systems

The following text beginning on page 3.19-1 is revised in response to Comment L1-4 and L1-6:

Wastewater

The City collects fees for 54 sewer basins (53 separated basins and one combined sewer basin) that serve the community plan areas of North Sacramento, portions of Arden-Arcade, most of South Sacramento (e.g., Pocket, Airport, Meadowview, South Land Park), and most of East Sacramento. Thirteen separated basins flow directly into the City's downtown area's Combined Sewer System (CSS), a system in which both sanitary sewage and storm drainage are collected and conveyed in the same system of pipelines, before being conveyed to the ~~Sacramento Regional Wastewater Treatment Plant (Sacramento Regional WWTP)~~ EchoWater Resource Recovery Facility (EchoWater Facility) for treatment.

The other 40 separated basins flow into the Sacramento Area Sewer District (SacSewer) interceptors, which also convey flows to the ~~Sacramento Regional WWTP~~ EchoWater Facility via individually pumped basins (32 pumped basins) or by gravity flow (8 gravity basins). In February 2013, the SacSewer Board of Directors adopted the Interceptor Sequencing Study (SacSewer, 2013). In March 2021, the SacSewer Board of Directors approved the 2020 System Capacity Plan Update (SacSewer, 2020).

Wastewater treatment in the City is provided by SacSewer. The ~~Sacramento Regional WWTP~~ EchoWater Facility is located approximately 5 miles south of the City in Elk Grove and is owned and operated by Sacramento Regional County Sanitation District (Regional San), now part of SacSewer.[2] The ~~Sacramento Regional WWTP~~ EchoWater Facility has a total capacity of 400 MGD. Currently, the WWTP receives an average of 165 MGD during dry weather conditions and 220 MGD during wet weather conditions (City of Sacramento, 2023). SacSewer operates all regional interceptors and wastewater treatment plants serving the City except for the CSS facilities discussed above, which are operated by the City. Local and trunk wastewater collection is provided by SacSewer and the City.

[2] Regional San and SacSewer legally merged into one district resulting in a consolidated sewer utility called the Sacramento Area Sewer District, effective January 1, 2024 (SacSewer, 2023).

The following text on page 3.19-8 is revised in response to Comment L1-5:

Facility Impact Fee

In addition to the City's Combined Sewer Development Fee, SacSewer levies a fee for planning, designing, construction, and other costs related to wastewater conveyance, treatment, and disposal using SacSewer facilities. Fee amounts are determined in coordination with SacSewer, the project applicant, and Sacramento County. Customers receiving service from SacSewer are responsible for the rates and fees outlined within the latest SacSewer ordinance (SacSewer, 2025).

The following text on pages 3.19-11 under Impact 3.19-1 is revised in response to Comment L1-1:

As described in Chapter 2, *Project Description*, during construction at FWTP, access to SacSewer's facilities would generally be maintained. Access may be temporarily limited for short periods of time when work occurs around SacSewer facilities; however, such work activities would be redirected to provide SacSewer access as needed. No interruption of service or relocation of SacSewer's facilities is anticipated. Other ~~U~~utilities (i.e., electrical, water, sewer, and storm drainage) may be relocated to accommodate construction of the raw water conveyance pipeline and/or the proposed potable water transmission pipelines. Should an existing utility require removal and/or relocation, temporary services would be in place from a few days to a few weeks to ensure minimal disruption to customers.[3] Once construction is completed, utilities would be returned to their original location or be installed in a new location.

Construction activities for all project components would be short-term and temporary and would be accommodated by existing infrastructure or by temporary or portable

infrastructure (such as generators and portable restrooms) and would not result in the need for new or expanded infrastructure. Therefore, construction of the proposed project would not require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, natural gas, or telecommunications facilities. While construction of the proposed project does involve upgrades to existing electrical service lines, construction activities associated with the proposed project would not require or result in the relocation of new or expanded electric power facilities.

The following text on page 3.19-15 under Impact 3.19-3 is revised in response to Comments L1-2 and L1-6:

Currently, the most significant sewer discharge from SRWTP is the dewatering centrifuges, with a maximum discharge volume of 280,000 gallons per day. The proposed dewatering work at SRWTP would result in an additional 1.1 MGD discharge rate to the existing sewer system. Additional wastewater would be treated at the ~~Sacramento Regional WWTP~~ EchoWater Facility which has a total capacity of 400 MGD and currently receives an average of 165 MGD. Because the ~~Sacramento Regional WWTP~~ EchoWater Facility has treatment capacity, there would be capacity to serve the minimal increase in wastewater associated with O&M of the proposed project.

Impact Conclusion

Implementation of the proposed project would result in a determination by the wastewater treatment provider (~~Sacramento Regional WWTP~~ EchoWater Facility) that there is adequate capacity to serve the project's projected demand in addition to the provider's existing commitments. Therefore, this impact would be **less than significant**.

Chapter 4 Cumulative Impacts

Page 4-7 is revised as follows to reflect text changes made in Section 3.4, *Air Quality*.

Although emissions are below the applicable SMAQMD thresholds, i~~I~~mplementation of Mitigation Measure 3.4-1(a) (~~TPI-SRWTP/EUU--SRWTP-~~ALL) would further reduce ~~SRWTP treatment plant improvements and existing utility upgrades~~ construction emissions of NOx ~~to be below SMAQMD thresholds for construction in 2027 and 2028~~ by requiring the use of CARB Tier 4 Final or cleaner equipment. Implementation of Mitigation Measure 3.4-1(b) (ALL) would ensure compliance with the requirements of SMAQMD Rule 403 to reduce fugitive dust emissions. Therefore, implementing these mitigation measures would reduce the contribution of the proposed project to potentially significant cumulative impacts on air quality to less than cumulatively considerable, and this cumulative impact would be **less than significant**.

Page 4-9 is revised as follows to reflect text changes made in Section 3.6, *Biological Resources - Terrestrial*.

Implementation of Mitigation Measures 3.6-1 (ALL), 3.6-2(a) (TPI-FWTP/SRWTP, EUU-FWTP/SRWTP, SRWI-Existing/New), 3.6-2(b) (TPI-FWTP/SRWTP, EUU-

FWTP/SRWTP, SRWI-Existing/New), 3.6-2(c) (TP), 3.6-3(a) (SRWI-Existing/New), 3.6-3(b) (SRWI-Existing/New), 3.6-4(a) (SRWI-New), 3.6-4(b) (TP), and 3.6-5 (ALL) would ensure that construction of the proposed project avoids or mitigates for impacts on nesting migratory birds, valley elderberry longhorn beetle, riparian habitat, waters of the U.S. as defined in Section 404 of the Clean Water Act and State jurisdictional waters, ~~or~~ trees protected by local policies, and riparian areas. Therefore, implementing these mitigation measures would reduce the contribution of the proposed project to potentially significant cumulative impacts on biological resources to less than cumulatively considerable, and this cumulative impact would be **less than significant**.

Chapter 6 Alternatives

The text on Page 6-8, under the subheading *Description of Alternative*, describing Table 6-1 is revised as follows to reflect updates to the anticipated construction schedule for the proposed project, which changed the activities proposed under the Initial Phase Only Alternative:

> **Table 6-1** presents the construction schedule, including the approximate duration of construction for each project component under the Initial Phase Only Alternative. The schedule does not include the project buildout phase from ~~2040~~ 2039 through 2050 proposed under the project which includes the new Sacramento River water intake and pump station, additional improvements to the SRWTP, and the potable water transmission pipelines. ~~installation of three additional pumps at the new water intake pump station in the Sacramento River.~~ Therefore, construction under the Initial Phase Only Alternative would be completed by ~~July 2036~~2038.

The text on Page 6-8 and 6-9, under the subheading *Relationship to Project Objectives*, is revised as follows to reflect updates to the anticipated construction schedule and phasing for the proposed project, which changed the activities proposed under the Initial Phase Only Alternative:

> The Initial Phase Only Alternative would advance towards the general objective of the proposed project to provide a reliable, resilient, and safe water supply, but would not address projected future potable water demand the buildout phase of the project addresses. Under the Initial Phase Only Alternative, there would be: consistent enhancement of treatment resiliency at both FWTP and SRWTP to address changing river water qualities that can impact the City's ability to meet safe drinking water regulations; a reduction in risk to the community associated with the replacement of chlorine gas with sodium hypochlorite for the primary disinfection of the water; and efficiency improvements at the existing Sacramento River water intake due to removal of sediment~~an increase in the ability for SRWTP to reliably access the widening range of river levels; and a reduction of critical hydraulic constrictions in the potable water transmission system that impact the City's ability to economically distribute potable water across the City's service area~~. Therefore, under the Initial Phase Only Alternative, there would be an improvement in the treatment capacity reliability at FWTP and SRWTP to continuously meet near-term potable water demands. However, because the Initial Phase Only Alternative does not provide the complete buildout capacity of SRWTP, the construction of the new water intake and pump station, or improvements to

overcome hydraulic constrictions in the potable water transmission system, it does not include future phased construction of additional treatment capacity and distribution to meet the City's anticipated future potable water demands.

Table 6-1 on page 6-9 is replaced to reflect updates to the anticipated construction schedule and phasing for the Initial Phase Only Alternative:

~~**TABLE 6-1**~~
~~**ANTICIPATED CONSTRUCTION SCHEDULE BY PROJECT COMPONENT FOR THE INITIAL PHASE ONLY ALTERNATIVE**~~

~~Project Component~~	~~Anticipated Start~~	~~Anticipated Finish of Intensive Construction~~	~~Anticipated Completion~~	~~Estimated Total Duration (years)~~
~~**FWTP Project Area**~~				
~~Treatment Plant Improvements and Existing Utility Upgrades~~	~~July 2026~~	~~July 2028~~	~~July 2031~~	~~5~~
~~**SRWTP Project Area**~~				
~~*Initial Phase (235 MGD)*~~	~~*January 2027*~~		~~*July 2037*~~	
~~Treatment Plant Improvements and Existing Utility Upgrades~~	~~January 2027~~	~~January 2031~~	~~January 2035~~	~~8~~
~~Sacramento River Water Intakes~~	~~January 2031~~	~~July 2035~~	~~July 2037~~	~~6~~
~~Potable Water Transmission Pipelines~~	~~July 2032~~	~~July 2035~~	~~July 2036~~	~~4~~

TABLE 6-1
ANTICIPATED CONSTRUCTION SCHEDULE BY PROJECT PHASE FOR THE INITIAL PHASE ONLY ALTERNATIVE

Project Phase/Component	Anticipated Start	Anticipated Completion	Estimated Total Duration (years)
Initial Phase 1A (Early Projects)	**2027**	**2032**	**5**
FWTP Project Area			
Treatment Plant Improvements and Existing Utility Upgrades			
SRWTP Project Area			
Treatment Plant Improvements and Existing Utility Upgrades			
Existing Water Intake			
Initial Phase 1B (Later Projects)	**2033**	**2038**	**5**
SRWTP Project Area			
Additional Treatment Plant Improvements and Existing Utility Upgrades			

In Table 6-2, beginning on page 6-10, select rows are revised to reflect updates to the anticipated construction schedule and phasing for the proposed project, which changed the activities proposed under the Initial Phase Only Alternative:

TABLE 6-2
COMPARISON OF THE ENVIRONMENTAL IMPACTS OF THE PROPOSED PROJECT AND ALTERNATIVES

Resource Topic		Proposed Project	No Project Alternative	Initial Phase Only Alternative
3.4 Air Quality	**3.4-1:** Construction of the proposed project could conflict with or obstruct implementation of an applicable air quality plan.	**Less than Significant with Mitigation** Construction activities associated with ~~the treatment plant improvements and existing utility upgrades at the SRWTP~~ all project components would generate emissions of NO_x that could conflict with or obstruct implementation of the SMAQMD's air quality plans. Construction activities associated with all project components would generate PM_{10} and $PM_{2.5}$ emissions that could conflict with or obstruct with implementation of the SMAQMD's air quality plans.	**No Impact**	**Reduced** Construction activities would be lesser in magnitude and shorter in duration in the SRWTP project area. However, construction activities would likely still generate emissions of NO_x and/or PM_{10} and $PM_{2.5}$ emissions that could conflict with or obstruct implementation of the SMAQMD's air quality plans. While this significant impact would be less in magnitude, proposed project mitigation measures would be required to reduce this impact to a less-than-significant level.
	3.4-3: Construction of the proposed project could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.	**Less than Significant with Mitigation** Construction activities associated with ~~the treatment plant improvements and existing utility upgrades at the SRWTP~~ all project components would result in ~~a cumulatively considerable net increase of NO_x, resulting in an~~ exceedance of ~~the~~ applicable SMAQMD threshold<u>s if BMPs are not implemented and if compliance with SMAQMD Rule 403 is not met</u>.	**No Impact**	**Reduced** Construction activities would be lesser in magnitude and shorter in duration in the SRWTP. However, construction activities would likely still result in ~~a cumulatively considerable net increase of NO_x, resulting in an~~ exceedance of ~~the~~ applicable SMAQMD threshold<u>s</u>. While this significant impact would be less in magnitude, proposed project mitigation measures would be required to reduce this impact to a less-than-significant level.
3.5 Biological Resources – Aquatic	**3.5-1:** Construction of the proposed project could result in direct or indirect impacts to listed fish species and their associated habitat and could interfere with movement of native resident or migratory fish.	**Less than Significant with Mitigation** Construction associated with the new Sacramento River water intake would result in direct and indirect impacts to listed fish species and their associated habitat and could interfere with movement of native resident or migratory fish.	**No Impact**	~~**Same**~~ **<u>No Impact</u>** <u>Given that construction associated with the new Sacramento River water intake would not occur under this alternative, there would be no impact to listed fish species and their associated habitat or interference with movement of native resident or migratory fish.</u> ~~and would be the same, direct and indirect impacts to listed fish species and their habitat, and interference with movement of native resident and migratory fish would still occur and would be identical to the proposed project. Proposed project mitigation measures would be required to reduce this impact to a less-than-significant level.~~

Resource Topic		Proposed Project	No Project Alternative	Initial Phase Only Alternative
3.6 Biological Resources - Terrestrial	**3.6-5:** Construction of the proposed project could impact riparian habitat.	**Less than Significant with Mitigation** Construction associated with the existing and new Sacramento River water intakes could impact riparian habitat.	**No Impact**	~~**Same**~~ **Reduced** Given that construction associated with the existing ~~and new~~ Sacramento River water intake~~s~~ would be the same, impacts to riparian habitat would still occur but would be lesser in magnitude without construction of the new Sacramento River water intake ~~and would be identical to the proposed project~~. Proposed project mitigation measures would still be required to reduce this impact to a less-than-significant level.
	3.6-7: Construction of the proposed project could result in net reduction of waters of the U.S. as defined in Section 404 of the Clean Water Act and State jurisdictional waters.	**Less than Significant with Mitigation** Construction associated with the new Sacramento River water intake and potable water transmission pipelines could result in a net reduction in waters of the U.S.	**No Impact**	~~**Same**~~ **No Impact** Given that construction associated with the new Sacramento River water intake and potable water transmission pipelines would not occur under this alternative, there would be no impact associated with ~~be the same,~~ a net reduction in waters of the U.S. ~~would still occur and would be identical to the proposed project. Proposed project mitigation measures would be required to reduce this impact to a less-than-significant level.~~
3.12 Hydrology, Water Quality, and Water Supply	**3.12-11:** Increased diversions associated with operation of the proposed new intake could result in substantial decreases in water supply deliveries because of changes in surface water flows and/or changes in water supply system operations, as measured by substantial changes in reservoir storage or timing or rate of river flows.	**Significant and Unavoidable** Increased diversions associated with operation of the new intake would result in substantial decreases in water supply deliveries during dry and critically dry years to SWP and CVP water contractors that have water rights junior to those of the City.	**No Impact**	~~**Reduced**~~ **No Impact** The new water intake would not be constructed or operated and there would be no impact associated with increased diversions from the Sacramento River. ~~While the new water intake would be constructed, the SRWTP would only be able to treat an additional 75 MGD. The significant and unavoidable impact is based on the modeling results that suggest that during dry and critically dry years, increased diversion by the City could result in decreased water supply deliveries, including under the +75 MGD scenario. Therefore, the significant and unavoidable impact would be less in magnitude under the Initial Phase Only alternative.~~

Resource Topic		Proposed Project	No Project Alternative	Initial Phase Only Alternative
3.14 Noise and Vibration	**3.14-3:** Construction of the proposed project could generate excessive groundborne vibration or groundborne noise levels.	**Less than Significant with Mitigation** Construction activities associated with the treatment plant improvements, and existing utility upgrades at SRWTP would not generate excessive groundborne vibration levels. However, nighttime construction of the storm drainage improvements at the FWTP; improvements to the existing Sacramento River water intake and associated facilities; construction of a new water intake, pump station and associated conveyance pipelines to the SRWTP; and installation of the new portable water transmission pipelines could generate excessive groundborne vibration levels.	**No Impact**	~~**Same**~~ **Reduced** Construction activities associated with the storm drainage improvements at FWTP~~,~~ and the ~~new and~~ existing Sacramento River water intake~~s, and the new portable water transmission pipelines~~ would be the same, and therefore would still generate excessive groundborne vibration levels ~~identical to the proposed project~~. These levels would be lesser in magnitude than under the proposed project because the new Sacramento River water intake and potable water transmission pipelines would not be constructed; however, ~~P~~proposed project mitigation measures would still be required to reduce this impact to a less-than-significant level.

Chapter 8 References

Page 8-1 is revised as follows to update a reference in Chapter 2, *Project Description*, in response to Comment F1-1:

~~NMFS (National Marine Fisheries Service). 2011. *Anadromous Salmonid Passage Facility Design*. Northwest Region. July. Available online at: https://www.dfw.state.or.us/fish/passage/docs/fish_passage_design_criteria.pdf. Accessed October 2023.~~

NMFS (National Marine Fisheries Service). 2023. *Anadromous Salmonid Passage Facility Design Manual.* February 22, 2023. West Coast Regional Office. Last updated February 24, 2023. Available online at: https://www.fisheries.noaa.gov/resource/document/anadromous-salmonid-passage-facility-design-manual. Accessed September 2025.

Page 8-4 is revised as follows to update a reference in Section 3.4, *Air Quality,* in response to Comment L2-9:

~~SMAQMD. 2010. *PM 10 Implementation/Maintenance Plan and Redesignation Request for Sacramento County*. October 28, 2010. Available online at: https://ww2.arb.ca.gov/sites/default/files/classic/planningsip/planarea/sacsip/sacpm10staffreport.pdf. Accessed October 2023.~~

SMAQMD (Sacramento Metropolitan Air Quality Management District. 2021. *Second 10-Year PM_{10} Maintenance Plan for Sacramento County*. August 2021. Available online at: https://www.airquality.org/ProgramCoordination/Documents/PM10%202nd%20Maintenance%20Plan%20-%20Final.pdf. Accessed October 2025.

Pages 8-9 and 8-11 are revised as follows to update several references in Section 3.5, *Biological Resources – Aquatic*, in response to Comments F1-1 and S2-2:

~~Halvorsen, M.B., B.M. Casper, C.M. Woodley, T.J. Carlson, and A.N. Popper. 2012. *Threshold for onset of injury in Chinook salmon from exposure to impulsive pile driving sounds*. *PLOS One* 7(6): e38968. Available online at: https://doi.org/10.1371/journal.pone.0038968. Accessed May 2025.~~

~~NMFS (National Marine Fisheries Service). 2011. *Anadromous Salmonid Passage Facility Design*. Northwest Region. July. Available online at: https://www.dfw.state.or.us/fish/passage/docs/fish_passage_design_criteria.pdf. Accessed October 2023.~~

NMFS (National Marine Fisheries Service). 2023. *Anadromous Salmonid Passage Facility Design Manual.* February 22, 2023. West Coast Regional Office. Last updated February 24, 2023. Available online at: https://www.fisheries.noaa.gov/resource/document/anadromous-salmonid-passage-facility-design-manual. Accessed September 2025.

NMFS (National Marine Fisheries Service). 2024. *Pile Driving Sound Measurement Thresholds for ESA-listed Species in the Southeast Region.* Available online at: https://media.fisheries.noaa.gov/2022-05/2022-05-04_NMFS-Accepted%20Sound%20Measurement%20Thresholds%20Table.pdf. Accessed September 2025.

Page 8-22 is revised as follows to add a reference in Section 3.10, *Greenhouse Gas Emissions*, used to clarify SMAQMD guidance for emergency equipment usage:

SMAQMD (Sacramento Metropolitan Air Quality Management District). 2012. *Rule 202 – New Source Review*, August 2012. Adopted September 1976, most recently amended August 2012. Available online at: https://www.airquality.org/ProgramCoordination/Documents/rule202.pdf. Accessed December 2025.

Page 8-33 is revised as follows to update several references in Section 3.19, *Utilities and Service Systems*, in response to Comments L1-4, L1-5, and L1-6:

SacSewer (Sacramento Area Sewer District). 2013. *Interceptor Sequencing Study.* February 2013. Available online at: https://www.sacsewer.com/system-capacity-plans/. Accessed September 2025.

SacSewer (Sacramento Area Sewer District). 2020. *2020 System Capacity Plan Update.* December 2020. Available online at: https://www.sacsewer.com/system-capacity-plans/. Accessed September 2025.

SacSewer (Sacramento Area Sewer District). 2021. *Sacramento Area Sewer District Service Area Map.* Available online at: https://www.sacsewer.com/sites/main/files/file-attachments/sasd_servicearea_20210208.pdf?1612892152. Accessed October 2023.

SacSewer (Sacramento Area Sewer District). 2023. *The Sacramento Regional County Sanitation District Announces Merger with the Sacramento Area Sewer District*. December 18, 2023. Available online at: https://www.sacsewer.com/press-release/sacramento-regional-county-sanitation-district-announces-merger-sacramento-area-sewer/. Accessed May 2025.

SacSewer (Sacramento Area Sewer District). 2025. *Sacramento Area Sewer District, Collection System Ordinance*. Effective Date: August 8, 2025. Available online at: https://d3mu86l2sz7eca.cloudfront.net/wp-content/uploads/Collection-System-Ordinance_2025_Fully-Executed.pdf. Accessed September 2025.

Updated Appendix B: Criteria Air Pollutant and Greenhouse Gas Emission Calculations

Appendix B, *Criteria Air Pollutant and Greenhouse Gas Emission Calculations*, has been replaced with an updated version to capture changes in the emissions modeling approach to remove amortization and clarify construction sequencing in response to Comments L2-3 and L2-4, as well as include emissions tables that are referenced in the Final EIR.

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CHAPTER 3
Comments and Responses

3.1 Introduction

This section contains the comment letters that were received on the Draft EIR. Following each comment letter is a response by the City intended to supplement, clarify, or amend information provided in the Draft EIR or refer the reader to the appropriate place in the document where the requested information can be found. Comments not directly related to environmental issues may be discussed or noted for the record. Where text changes in the Draft EIR are warranted based on comments on the Draft EIR, those changes are generally included after the response to the comment. However, in some cases when the text change is extensive, the reader is instead referred to Chapter 2, *Revisions to the Draft EIR*, where all the text changes can be found.

Occasionally, a response to a comment provides a cross-reference to a response to another comment. This occurs when the same comment, or a very similar comment, was made or the same or a very similar question was asked, and an appropriate response was included elsewhere.

3.2 Comments and Responses

The following presents the comment letter and responses. Refer to Table 1-1 for a list of federal, state, and local agencies that provided comments on the Draft EIR.

Letter F1

From:	Stephen Maurano - NOAA Federal
To:	Charles Tschudin
Cc:	Ellen Roots - NOAA Federal
Subject:	NMFS DEIR Comments on the City of Sacramento Water and Treatment Plants Resiliency and Improvements Project
Date:	Monday, July 14, 2025 3:03:19 PM

Mr. Tschudin,

The National Marine Fisheries Service (NMFS) Central Valley Office is submitting the following comments on the Draft Environmental Impact Report for the City of Sacramento Water and Treatment Plants Resiliency and Improvements Project. The proposed project involves significant upgrades to the E.A. Fairbairn Water Treatment Plant and the Sacramento River Water Treatment Plant, including replacement of aging infrastructure at both plants and changes in treatment processes:

- Of particular note to NMFS trust species is the construction of a new tee screen intake in the Sacramento River which would be constructed and operated between the I Street Bridge and the confluence of the Sacramento and American Rivers. The project description notes that, "The new water intake would include a fish screen designed using traditional and expanded criterion to provide protection of anadromous and resident fisheries (e.g., Pacific salmon, steelhead, and Delta smelt). The fish screen criteria considered incorporates guidance established by the National Marine Fisheries Service (2011) and California Department of Fish and Wildlife (2010) and would be conservatively designed using the Delta smelt criterion (e.g., approach velocity to the screens set at 0.2-foot pound per second and a minimum screen area of 1,163 square feet)." NMFS would suggest referencing the most recent guidance on the topic, contained in the 2023 Anadromous Salmonid Passage Facility Design Manual linked here: https://www.fisheries.noaa.gov/resource/document/anadromous-salmonid-passage-facility-design-manual. **F1-1**

- Construction of the new water intake may temporarily modify fish habitat, cause physiological stress, disrupt spawning or foraging, reduce habitat quality, and potentially expose fish to predation due to displacement. Pile driving activities during construction could generate underwater noise, potentially harming fish through barotrauma. Increased sediment levels from in-water work could also cause respiratory stress to aquatic life. NMFS suggests that all in-water construction occur during designated work windows to avoid sensitive fish periods. **F1-2**

- The increased diversions from the new Sacramento River intake would result in changes in river flows and water temperatures in the Lower American River and Sacramento River compared to baseline conditions. Due to the limitations of monthly timesteps in CalSim modeling, NMFS suggest consideration of what real time or adaptive management actions could be established. These actions could be needed to ensure, particularly during periods of low flows or higher river temperatures (e.g. such as droughts and critical water years), that withdrawals and timed in a way that don't cause or contribute to water quality violations and that minimize thermal and low flow impacts to salmonids. **F1-3**

Regards,

- Stephen Maurano
--
Stephen Maurano
California Central Valley Office | NOAA Fisheries
(916) 214-2675

www.fisheries.noaa.gov

Letter F1 Response	**Stephen Maurano, National Marine Fisheries Service (NMFS) Central Valley Office** July 14, 2025

Response to Comment F1-1

The fish screen criteria described in the Anadromous Salmonid Passage Facility Design Manual (NMFS 2023) will be incorporated into the proposed new intake design and reference to the updated manual and corresponding reference (i.e., NMFS, 2023) have been incorporated into the Draft EIR in Chapter 2, *Project Description*, Section 3.5, *Biological Resources – Aquatic*, and Chapter 8, *References*. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment F1-2

Mitigation Measure 3.5-2 (SRWI-New) in Section 3.5, *Biological Resources – Aquatic*, of the Draft EIR describes best practices to avoid and/or minimize potential impacts from in-water construction on sensitive fish species. This includes a designated in-water work window of June 1 through October 31.

Response to Comment F1-3

The City is part of the Sacramento Water Forum which established the Modified Flow Management Standard for the Lower American River (ARWA 2017). This Modified Flow Management Standard provides guidelines for minimum release requirements and water temperature management with the goal of protecting anadromous salmonids. It includes adaptive management to minimize temperature stress and low river flow impacts to salmonids. The Modified Flow Management Standard utilizes an iterative process throughout the summer and fall season to operate the reservoir and river water temperature models with the objective of achieving monthly target water temperatures (ARWA 2017). The prioritization order of the target temperature schedules for the Modified Flow Management Standard reflects the desire to protect juvenile steelhead over-summer rearing, while considering the needs of fall-run Chinook salmon spawning, given the constraints of coldwater pool availability in Folsom Reservoir (AWRA 2017). Section 3.5, *Biological Resources – Aquatic*, subsection 3.5.2, *Environmental Setting*, and subsection, 3.5.3, *Regulatory Setting*, of the Draft EIR describes the Lower American River Modified Flow Management Standard.

Water temperatures in the Sacramento River Delta downstream of the proposed project are driven by air temperatures, with Delta inflows having little or no effect on water temperature (Sommer et al. 2020). As a result, there are no focused management tools available to maintain low temperatures in the Delta. Therefore, there are no adaptive management options available to adjust diversions in the lower Sacramento River to manage water temperatures in the Delta.

CALIFORNIA Water Boards

GAVIN NEWSOM
GOVERNOR

YANA GARCIA
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Central Valley Regional Water Quality Control Board

4 August 2025

Charles Tschudin
City of Sacramento
300 Richards Boulevard, Third Floor
Sacramento, CA 95811
ctschudin@cityofsacramento.org

COMMENTS TO REQUEST FOR REVIEW FOR THE DRAFT ENVIRONMENTAL IMPACT REPORT, WATER+ TREATMENT PLANTS RESILIENCY AND IMPROVEMENTS PROJECT, SCH#2022040138, SACRAMENTO COUNTY

Pursuant to the State Clearinghouse's 18 June 2025 request, the Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Request for Review for the Draft Environmental Impact Report* for the Water+ Treatment Plants Resiliency and Improvements Project, located in Sacramento County.

Our agency is delegated with the responsibility of protecting the quality of surface and groundwaters of the state; therefore our comments will address concerns surrounding those issues.

I. Regulatory Setting

Basin Plan

The Central Valley Water Board is required to formulate and adopt Basin Plans for all areas within the Central Valley region under Section 13240 of the Porter-Cologne Water Quality Control Act. Each Basin Plan must contain water quality objectives to ensure the reasonable protection of beneficial uses, as well as a program of implementation for achieving water quality objectives with the Basin Plans. Federal regulations require each state to adopt water quality standards to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act. In California, the beneficial uses, water quality objectives, and the Antidegradation Policy are the State's water quality standards. Water quality standards are also contained in the National Toxics Rule, 40 CFR Section 131.36, and the California Toxics Rule, 40 CFR Section 131.38. S1-1

The Basin Plan is subject to modification as necessary, considering applicable laws, policies, technologies, water quality conditions and priorities. The original Basin Plans were adopted in 1975, and have been updated and revised periodically as required, using Basin Plan amendments. Once the Central Valley Water Board has adopted a Basin Plan amendment in noticed public hearings, it must be approved by

the State Water Resources Control Board (State Water Board), Office of Administrative Law (OAL) and in some cases, the United States Environmental Protection Agency (USEPA). Basin Plan amendments only become effective after they have been approved by the OAL and in some cases, the USEPA. Every three (3) years, a review of the Basin Plan is completed that assesses the appropriateness of existing standards and evaluates and prioritizes Basin Planning issues. For more information on the *Water Quality Control Plan for the Sacramento and San Joaquin River Basins*, please visit our website: http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/ **S1-1**

Antidegradation Considerations

All wastewater discharges must comply with the Antidegradation Policy (State Water Board Resolution 68-16) and the Antidegradation Implementation Policy contained in the Basin Plan. The Antidegradation Implementation Policy is available on page 74 at: https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

In part it states:

Any discharge of waste to high quality waters must apply best practicable treatment or control not only to prevent a condition of pollution or nuisance from occurring, but also to maintain the highest water quality possible consistent with the maximum benefit to the people of the State. **S1-2**

This information must be presented as an analysis of the impacts and potential impacts of the discharge on water quality, as measured by background concentrations and applicable water quality objectives.

The antidegradation analysis is a mandatory element in the National Pollutant Discharge Elimination System and land discharge Waste Discharge Requirements (WDRs) permitting processes. The environmental review document should evaluate potential impacts to both surface and groundwater quality.

II. Permitting Requirements

Construction Storm Water General Permit

Dischargers whose project disturb one or more acres of soil or where projects disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit), Construction General Permit Order No. 2009-0009-DWQ. Construction activity subject to this permit includes clearing, grading, grubbing, disturbances to the ground, such as stockpiling, or excavation, but does not include regular maintenance activities performed to restore the original line, grade, or capacity of the facility. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP). For more information on the Construction General Permit, visit the State Water Resources Control Board website at: **S1-3**

http://www.waterboards.ca.gov/water_issues/programs/stormwater/constpermits.shtml

S1-3

Clean Water Act Section 404 Permit

If the project will involve the discharge of dredged or fill material in navigable waters or wetlands, a permit pursuant to Section 404 of the Clean Water Act may be needed from the United States Army Corps of Engineers (USACE). If a Section 404 permit is required by the USACE, the Central Valley Water Board will review the permit application to ensure that discharge will not violate water quality standards. If the project requires surface water drainage realignment, the applicant is advised to contact the Department of Fish and Game for information on Streambed Alteration Permit requirements. If you have any questions regarding the Clean Water Act Section 404 permits, please contact the Regulatory Division of the Sacramento District of USACE at (916) 557-5250.

S1-4

Clean Water Act Section 401 Permit – Water Quality Certification

If an USACE permit (e.g., Non-Reporting Nationwide Permit, Nationwide Permit, Letter of Permission, Individual Permit, Regional General Permit, Programmatic General Permit), or any other federal permit (e.g., Section 10 of the Rivers and Harbors Act or Section 9 from the United States Coast Guard), is required for this project due to the disturbance of waters of the United States (such as streams and wetlands), then a Water Quality Certification must be obtained from the Central Valley Water Board prior to initiation of project activities. There are no waivers for 401 Water Quality Certifications. For more information on the Water Quality Certification, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/water_issues/water_quality_certification/

S1-5

Waste Discharge Requirements – Discharges to Waters of the State

If USACE determines that only non-jurisdictional waters of the State (i.e., "non-federal" waters of the State) are present in the proposed project area, the proposed project may require a Waste Discharge Requirement (WDR) permit to be issued by Central Valley Water Board. Under the California Porter-Cologne Water Quality Control Act, discharges to all waters of the State, including all wetlands and other waters of the State including, but not limited to, isolated wetlands, are subject to State regulation. For more information on the Waste Discharges to Surface Water NPDES Program and WDR processes, visit the Central Valley Water Board website at:https://www.waterboards.ca.gov/centralvalley/water_issues/waste_to_surface_water/

S1-6

Projects involving excavation or fill activities impacting less than 0.2 acre or 400 linear feet of non-jurisdictional waters of the state and projects involving dredging activities impacting less than 50 cubic yards of non-jurisdictional waters of the state may be eligible for coverage under the State Water Resources Control Board Water Quality Order No. 2004-0004-DWQ (General Order 2004-0004). For more information on the General Order 2004-0004, visit the State Water Resources Control Board website at:

https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0004.pdf S1-6

Dewatering Permit

If the proposed project includes construction or groundwater dewatering to be discharged to land, the proponent may apply for coverage under State Water Board General Water Quality Order (Low Threat General Order) 2003-0003 or the Central Valley Water Board's Waiver of Report of Waste Discharge and Waste Discharge Requirements (Low Threat Waiver) R5-2018-0085. Small temporary construction dewatering projects are projects that discharge groundwater to land from excavation activities or dewatering of underground utility vaults. Dischargers seeking coverage under the General Order or Waiver must file a Notice of Intent with the Central Valley Water Board prior to beginning discharge. S1-7

For more information regarding the Low Threat General Order and the application process, visit the Central Valley Water Board website at: http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2003/wqo/wqo2003-0003.pdf

For more information regarding the Low Threat Waiver and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/waivers/r5-2018-0085.pdf

Limited Threat General NPDES Permit

If the proposed project includes construction dewatering and it is necessary to discharge the groundwater to waters of the United States, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. Dewatering discharges are typically considered a low or limited threat to water quality and may be covered under the General Order for *Limited Threat Discharges to Surface Water* (Limited Threat General Order). A complete Notice of Intent must be submitted to the Central Valley Water Board to obtain coverage under the Limited Threat General Order. For more information regarding the Limited Threat General Order and the application process, visit the Central Valley Water Board website at: S1-8
https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/r5-2016-0076-01.pdf

NPDES Permit

If the proposed project discharges waste that could affect the quality of surface waters of the State, other than into a community sewer system, the proposed project will require coverage under a National Pollutant Discharge Elimination System (NPDES) permit. A complete Report of Waste Discharge must be submitted with the Central Valley Water Board to obtain a NPDES Permit. For more information regarding the NPDES Permit and the application process, visit the Central Valley Water Board website at: https://www.waterboards.ca.gov/centralvalley/help/permit/ S1-9

If you have questions regarding these comments, please contact me at (916) 464-4684 or Peter.Minkel2@waterboards.ca.gov.

Peter G. Minkel
Engineering Geologist

cc: State Clearinghouse unit, Governor's Office of Planning and Research, Sacramento

Catherine McEfee
Environmental Science Associates
CMcEfee@esassoc.com

Letter S1 Response	Peter G. Minkel, Central Valley Regional Water Quality Control Board August 4, 2025

Response to Comment S1-1

Subsection 3.12.3 *Regulatory Setting* of Section 3.12, *Hydrology, Water Quality, and Water Supply,* of the Draft EIR describes the applicable basin plans to the proposed project. These include the Water Quality Control Plan for the Sacramento-San Joaquin River Basins adopted by the Central Valley Regional Board, and the Water Quality Control Plan for the Delta adopted by the State Water Board.

Response to Comment S1-2

Subsection 3.12.3 *Regulatory Setting* of Section 3.12, *Hydrology, Water Quality, and Water Supply,* of the Draft EIR summarizes the state's Antidegradation Policy

Response to Comment S1-3

Subsection 3.12.3 *Regulatory Setting* of Section 3.12, *Hydrology, Water Quality, and Water Supply,* of the Draft EIR summarizes the Construction Storm Water General Permit (CGP) and the impact analysis presented in Impact 3.12-1 evaluates its applicability to construction of the proposed project

Response to Comment S1-4

Subsection 3.12.3 *Regulatory Setting* of Section 3.12, *Hydrology, Water Quality, and Water Supply,* of the Draft EIR summarizes Section 404 of the Clean Water Act.

Response to Comment S1-5

Subsection 3.12.3 *Regulatory Setting* of Section 3.12, *Hydrology, Water Quality, and Water Supply,* of the Draft EIR summarizes Section 401 of the Clean Water Act.

Response to Comment S1-6

Subsection 3.12.3 *Regulatory Setting* of Section 3.12, *Hydrology, Water Quality, and Water Supply,* of the Draft EIR summarizes the Waste Discharge Requirements (WDR) including the City's existing WDR for each the FWTP and SRWTP.

Response to Comment S1-7

Subsection 3.12.3 *Regulatory Setting* of Section 3.12, *Hydrology, Water Quality, and Water Supply,* of the Draft EIR summarizes the Dewatering Permit and the impact analysis presented in Impact 3.12-1 evaluates its applicability to construction of the proposed project.

Response to Comment S1-8

Subsection 3.12.3 *Regulatory Setting* of Section 3.12, *Hydrology, Water Quality, and Water Supply,* of the Draft EIR summarizes the Limited Threat General National Pollutant Discharge

Elimination System (NPDES) Permit and the impact analysis presented in Impacts 3.12-1 and 3.12-2 evaluates its applicability to construction of the proposed project.

Response to Comment S1-9

Subsection 3.12.3 *Regulatory Setting* of Section 3.12, *Hydrology, Water Quality, and Water Supply,* of the Draft EIR describes NPDES permits including the Phase I and II Municipal Separate Storm Sewer System Permits. The impact analysis presented under Impacts 3.12-1 and 3.12-2 evaluates its applicability to construction, operation, and maintenance of the proposed project.

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670-4599
(916) 358-2900
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GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

August 5, 2025

Charlie Tschudin
Senior Planner
City of Sacramento Community Development Department
300 Richards Blvd., Third Floor
Sacramento, CA 95811
ctschudin@cityofsacramento.org

Subject: Water + Treatment Plants Resiliency and Improvements Project
DRAFT ENVIRONMENTAL IMPACT REPORT (DEIR)
SCH No. 2022040138

Dear Charlie Tschudin:

The California Department of Fish and Wildlife (CDFW) received and reviewed the Notice of Availability of a DEIR from the City of Sacramento for the Water+ Treatment Plants Resiliency and Improvements Project (Project) pursuant the California Environmental Quality Act (CEQA) statute and guidelines.[1] CDFW previously submitted comments in response to the Notice of Preparation of the DEIR on May 3, 2022.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish, wildlife, native plants, and their habitat. Likewise, CDFW appreciates the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may need to exercise its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (Fish & G. Code, § 1802.) Similarly for purposes of CEQA, CDFW provides, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

CDFW may also act as a Responsible Agency under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's lake and streambed alteration regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project proponent may seek related take authorization as provided by the Fish and Game Code.

PROJECT DESCRIPTION SUMMARY

The Project site is located within the City of Sacramento (the City). The Fairbairn Water Treatment Plant (FWTP) Project Area, including the approximately 34-acre FWTP property, is located adjacent to the American River and near Sacramento State University. Streets adjacent to and within the FWTP Project Area include State University Drive to the west and College Town Drive to the south. The Sacramento River Water Treatment Plant (SRWTP) Project Area, including the approximately 50-acre SRWTP property, is located near the confluence of the Sacramento River and American River. Nearby roads around the SRWTP property include Bannon Street and Richards Boulevard to the north, 7th Street and North B Street to the east, Summit Tunnel Avenue to the south, and Bercut Drive to the west.

The Project consists of an initial phase and a buildout phase. The initial phase would improve treatment reliability at both water treatment plants by replacing facilities that have reached the end of their effective lives, provide resiliency within each treatment system through the addition of ozone treatment, to help address changing water quality in the Sacramento and American Rivers, and the conversion from chlorine gas to sodium hypochlorite, a safer and more reliably available chemical for disinfection. The buildout phase would meet the increasing water demands of the City's service area through 2050 by further increasing the capacity of the SRWTP to treat water diverted from the Sacramento River. Project components include the following:

1. Facility and treatment process improvements at both the FWTP and the SRWTP including replacement of aging infrastructure; integration of ozone into the treatment processes; and conversion from chlorine gas to sodium hypochlorite as the primary chemical for disinfection of the water.

2. Upgrades to existing utilities that serve the FWTP and SRWTP (i.e., storm drainage systems and electrical service line connections).

3. Construction of a new Sacramento River water intake and pump station, and installation of a new raw water conveyance pipeline to transfer raw water from the Sacramento River to the SRWTP facilities.

4. Improvements to the existing Sacramento River water intake and associated facilities, and installation of a second new pipeline to transport sediment deposited

within the intake to SRWTP (following approximately the same alignment as the raw water conveyance pipeline described above).

5. Improvement of the potable water transmission system in the vicinity of SRWTP to address critical hydraulic constrictions.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the City in adequately identifying and, where appropriate, mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document. Based on the potential for the Project to have a significant impact on biological resources, CDFW concludes that an Environmental Impact Report is appropriate for the Project.

CDFW is primarily concerned with the project impacts to the Sacramento River and its associated riparian habitat that would be caused by the construction of the new water intake, pump station, and raw water conveyance pipeline to transfer raw water from Sacramento River to SRWTP and the installation of a second new pipeline to transport sediment deposited within the existing intake to SRWTP. **S2-1**

COMMENT 1: Hydroacoustic Impact Assessment for Pile Driving, Table 3.5-4, page 3.5-24

Issue: The DEIR provided a summary (Table 3.5-4) of known acute and sub-lethal effects of noise on fish with injury thresholds measured in decibels (dB). The thresholds used are not sufficient to reduce impacts to listed fish species to less than significant. All fish less than 2 grams should have an injury threshold for 183 dB (SEL) from using an impact hammer. Also, the 150 dB (RMS) for behavioral disturbances to salmon/steelhead applies to all fish species regardless of pile driving method based on hydroacoustic analysis from the *Pile Driving Sound Measurement Thresholds for ESA-listed Species in the Southeast Region* (National Marine Fisheries, 2024). The wrong threshold may lead to unexpected mortalities. The table also does not account for damage to the inner ear, damage or destruction of the swim bladder, adverse effects on eggs and larvae, and cumulative stress induced impacts leading to high potential for predation. **S2-2**

Recommendation or Recommended Mitigation Measure: CDFW recommends that the DEIR updates Table 3.5-4 and refers to the National Marine Fisheries' *Pile Driving Sound Measurement Thresholds for ESA-listed Species in the Southeast Region* dated 2024 and their *NMFS Pile Driving Calculations - Pacific* for the threshold numbers to minimize fish injury and behavior disturbances.

COMMENT 2: Impacts to Covered Fish Species, Mitigation Measure 3.5-4 (SRWI-New), page 3.5-30

Issue: CESA listed species potentially impacted by project activities may include white sturgeon (*Acipenser transmontanus*), longfin smelt (*Spirinchus thaleichthys*), Delta smelt (*Hypomesus transpacificus*), Chinook salmon – Sacramento River winter-run ESU (*Oncorhynchus tshawytscha* pop. 7), and Chinook salmon – Central Valley spring-run ESU (*Oncorhynchus tshawytscha* pop. 11), including 0.23 acres of permanent loss of shaded riverine aquatic habitat. The DEIR proposed purchasing mitigation credits from a mitigation bank approved by CDFW at a ratio agreeable to CDFW and other regulatory agencies to offset the permanent loss of 0.23 habitat; however, it does not state an enforceable ratio. Please note that obtaining a permit from CDFW by itself with no other mitigation proposal may constitute mitigation deferral. CEQA Guidelines section 15126.4, subdivision (a)(1)(B) states that formulation of mitigation measures should not be deferred until some future time.

Additionally, the measure does not include any mitigation for temporary impacts. Temporary impacts to the CESA listed species include pile driving for the sheet piles and dewatering habitat in the Sacramento River. CESA requires project impacts to be fully mitigated, including any temporary impacts. Please note that mitigation measures that are adequate to reduce impacts to a less-than significant level to meet CEQA requirements may not be enough for the issuance of an ITP. To facilitate the issuance of an ITP, if applicable, CDFW recommends the DEIR include details pertaining to the permanent protection and perpetual management of compensatory habitat necessary and required pursuant to CESA to fully mitigate project-related impacts of the taking on the Covered Species that will result with implementation of the project. The type and amount of mitigation should be based on factors including an assessment of the importance of that habitat in the project area, the extent to which covered activities will impact the habitat, and the estimate of the acreage required to provide for adequate compensation in coordination with CDFW. **S2-3**

Finally, the DEIR only proposes mitigation credits, which may not always be available.

Recommendation or Recommended Mitigation Measure: <u>CDFW recommends defining the ratio at a minimum 3:1 to offset the permanent loss of habitat.</u> CDFW recommends that the DEIR analyze and quantify the amount of temporary impacts to CESA-listed species and their habitat and propose mitigation to reduce project impacts to a less-than-significant level. Lastly, there are currently very limited suitable mitigation credits available, with no guarantee of future suitable credits. CDFW strongly recommends that the City consider developing alternative mitigation solutions. Alternative mitigation could include on-site and/or off-site restoration of shaded riverine aquatic habitat along the Sacramento River or other restoration/ enhancement projects developed in coordination with CDFW.

COMMENT 3: Cumulative Effects on the Sacramento River, Impact 3.5-3: Operation and maintenance of the proposed project could result in far-field indirect impacts to listed fish species and their associated habitat, pages 3.5-33 – 3.5-48

Issue: The Project aims to divert an additional 310 million gallons per day from the Sacramento River. This additional diversion from the Sacramento River may compound other reasonably foreseeable major diversions on the Sacramento River, such as the Sites Reservoir Project, the Delta Conveyance Project, and the RiverArc Project. With the potential for several significant and compounding new diversions along the Sacramento River, the DEIR does not analyze how the Project will add to the cumulative effects that these other diversions will have on fish species reliant on the Sacramento River.

S2-4

Recommendation or Recommended Mitigation Measure: CDFW suggests the DEIR evaluate the cumulative impacts from the additional amount of water that will be diverted from the Sacramento River may have on fish and wildlife species and provide sufficient information for meaningful review based on contemporary, foreseeable, large-scale Sacramento River projects and operations.

COMMENT 4: Project Design Analysis and Coordination, Chapter 2: Project Description, pages 2-1 – 2-28

Issue: The DEIR contains general overview plans but does not have design plans that provide the level of detail needed to fully analyze how the new structures will impact the fish species during construction and long-term operation post-construction. Detailed design plans may include but not limited to flow rates, pump sizing and selection, ventilation design, force main design, valving, bypass systems, motor selection, equipment layout, heating and insulation, foundations, topography, soil conditions, etc.

S2-5

Recommendation or Recommended Mitigation Measure: CDFW recommends that the DEIR includes more details on the water intakes and pump stations regarding their flow rates, pump sizing and selection, ventilation design, force main design, valving, bypass systems, motor selection, equipment layout, heating and insulation, foundations, topography, soil conditions, etc. CDFW recommends early coordination with the CDFW Habitat Conservation Program and the CDFW Conservation Engineering Branch to provide review and analysis of any proposed structures or Project elements with the potential to impact fish and wildlife resources. CDFW Conservation Engineering Branch requests to be provided with engineered drawings and design specification planning sheets during the initial design process, prior to design selection and re-initiating design consultation at 30% design at minimum and through the permitting process for review and comment.

COMMENT 5: Avian Mitigation Measures, Mitigation Measure 3.6-1 (ALL), page 3.6-27

S2-6

Issue: The DEIR states that a preconstruction survey shall be performed for the Project area, vehicle and equipment staging areas, and suitable habitat within 14 days of

commencement of construction activities and that if nesting birds and raptors are found, typical buffers of 50-100 feet for passerines and 250-500 feet for raptors would apply. The DEIR lacks details on how far from the Project area the survey will be conducted. Typically, a larger survey buffer with a minimum of 500 feet for migratory birds and 0.5-mile for raptors, as well as conducting them no more than seven (7) calendar days before construction commences would be more appropriate and protective for species that rebuild a nest quickly. The DEIR measures for nesting birds and raptors are not sufficient in detail to minimize impacts to less than significant as required by CEQA. **S2-6**

Recommendation or Recommended Mitigation Measure: CDFW recommends the DEIR describe how the considerations identified below will be implemented and incorporated into the appropriate DEIR section(s):

1. CDFW recommends the Project proponent add specific avoidance and minimization measures to the Mitigation Measures section. Project-specific avoidance and minimization measures may include but not be limited to: Project phasing and timing, monitoring of Project-related noise (where applicable), sound walls, visual barriers, and buffers, where appropriate. The DEIR should include appropriate preconstruction surveys for non-listed migratory birds at a minimum radius of 500 feet (for migratory birds) and 0.5-mile (for raptors) around the Project area that can be accessed by the Project proponent. The DEIR should include specific avoidance and minimization measures that will be implemented should a nest be located within the Project site. One example is a nest buffer radius which can be determined by monitoring the active nests and determining the distance at which the activities will disturb the nesting birds. **S2-7**

2. CDFW recommends including performance-based protection measures for avoiding all nests protected under the Migratory Bird Treaty Act and Fish and Game Code. While some birds may tolerate disturbance within 500 feet of construction activities, other birds may have a different disturbance threshold and “take” could occur if the temporary disturbance buffers are not designed to reduce stress to that individual pair. It is the Project proponent's responsibility to confirm that the buffer is sufficient to avoid take/nest failure. **S2-8**

3. CDFW recommends a final preconstruction bird survey be required no more than seven (7) calendar days prior to the start of vegetation clearing or ground disturbance activities, as instances of nesting could be missed in earlier surveys. Monitoring of potential nesting activities in the Project area should continue, at a minimum, until the end of the avian nesting season (typically September 1). If a lapse in Project-related work of seven (7) calendar days or longer occurs, another focused bird survey should be completed before Project work can be reinitiated. It is the Project proponent’s responsibility to comply with Fish and Game Code Sections 3503, 3503.5, and 3513, regardless of the time of year. **S2-9**

4. CDFW recommends that any removal of known raptor nest trees, even outside of the nesting season, be replaced with an appropriate native tree species planting at **S2-10**

a ratio of 3:1 at or near the Project area or in another area that will be protected in perpetuity to reduce impacts resulting from the loss of nesting habitat. **S2-10**

COMMENT 6: Swainson's Hawk Mitigation Measures, Mitigation Measure 3.6-1 (ALL) Additional Measures for Swainson's Hawk, pages 3.6-27 – 3.6-28

Issue: The DEIR states that a qualified biologist shall conduct a minimum of two pre-construction surveys during the recommended survey periods in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee, 2000). However, the Swainson's Hawk (SWHA) Technical Advisory Committee (TAC) document states that "to meet the minimum level of protection for the species, surveys should be completed for at least the two survey periods immediately prior to a project's initiation". The two survey periods equal a total of 6 preconstruction surveys. In addition, the SWHA mitigation measures do not provide guidance on what would happen should an active SWHA nest be found on one of the riparian trees on the Sacramento River slated for removal. Therefore, these measures do not reduce project impacts to less than significant. **S2-11**

Recommendation or Recommended Mitigation Measure: CDFW recommends that the SWHA preconstruction survey measure be modified to accurately reflect the TAC's recommendation for surveys during two survey periods prior to project initiation.

CDFW recommends that the Project proponent avoid all active SWHA nests in order to avoid "take" under CESA. Avoidance includes retaining any known nesting trees, in addition to avoiding disturbance related impacts to known active SWHA nests. Typically, CDFW considers a SWHA nest to be active if it has been utilized for breeding in the last 5 years. If an active nest cannot be avoided, CDFW recommends the project proponent obtain an incident take permit (ITP). CDFW recommends the DEIR identify potential impacts to SWHA nesting habitat and include more detailed measures for how the Project will mitigate for potential permanent impacts to SWHA nesting habitat before construction commences. These measures can include purchasing SWHA nesting mitigation credits from a CDFW-approved conservation bank, purchasing and placing a conservation easement on nearby biologically suitable, occupied SWHA nesting habitat, or another method approved by CDFW. The additional measure should be incorporated into the appropriate DEIR section(s). **S2-12**

COMMENT 7: Riparian Habitat Impacts, Impact 3.6-5: Construction of the proposed project could impact riparian habitat, pages 3.6-32 – 3.6-33

Issue: The DEIR states that riparian habitat will be permanently impacted by the construction of the new water intake due to tree and vegetation removal for construction of the new pump station and creation of equipment access and staging through and in the riparian habitat. DEIR states that mitigation for the removed riparian trees and vegetation will comply with the City of Sacramento City Code 12.56 which involves obtaining a tree permit and replanting or paying into a tree planting and replacement fund. The tree planting and replacement fund is not necessarily tied to riparian tree replacements as non- **S2-13**

riparian trees (urban trees like streets and parks) can also be planted using the City fund, therefore is not sufficient to reduce impacts to riparian habitat to less than significant.

Recommendation or Recommended Mitigation Measure: Based on review of the project information, notification for a Lake or Streambed Alteration (LSA) Agreement will be required under Section 1602 of the Fish and Game Code. CDFW relies on the lead agency environmental document analysis when acting as a responsible agency issuing an LSA Agreement. To avoid duplicating mitigation efforts, the DEIR should consider a range of options that comply with municipal requirements as well as those required in other agency authorizations. These may include the purchase of suitable mitigation credits at a 3:1 replacement to loss ratio at a CDFW-approved mitigation or conservation bank, habitat restoration or enhancement onsite or offsite, habitat connectivity enhancements (wildlife crossings), partnership with other agencies or non-profit groups on restoration projects, or other projects developed in coordination CDFW. S2-13

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data. The completed form can be submitted online or mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. S2-14

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.) S2-15

CONCLUSION

Pursuant to Public Resources Code § 21092 and § 21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the proposed project. Written notifications shall be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670 or emailed to R2CEQA@wildlife.ca.gov. S2-16

CDFW appreciates the opportunity to comment on the DEIR for the Water+ Treatment Plants Resiliency and Improvements Project to assist the City of Sacramento in identifying and mitigating Project impacts on biological resources. CDFW personnel are available for

consultation regarding biological resources and strategies to minimize and/or mitigate impacts. Questions regarding this letter or further coordination should be directed to Harvey Tran, Senior Environmental Scientist (Specialist) at (916) 358-4035 or harvey.tran@wildlife.ca.gov.

S2-16

Sincerely,

DocuSigned by:
Morgan Kilgour
C3A86764C0AD4F6...

Morgan Kilgour
Regional Manager

ec: Dylan Wood, Senior Environmental Scientist (Supervisory)
Harvey Tran, Senior Environmental Scientist (Specialist)
Department of Fish and Wildlife

Office of Land Use and Climate Innovation, State Clearinghouse, Sacramento

Letter S2 Response	Morgan Kilgour, California Department of Fish and Wildlife (CDFW) August 5, 2025

Response to Comment S2-1

Responses to individual comments provided in this letter are presented below in Responses to Comments S2-2 through S2-16.

Response to Comment S2-2

Table 3.5-4, Potential Effects to Fish at Varying Noise Levels, and that corresponding text in Section 3.5, *Biological Resources – Aquatic*, of the Draft EIR have been revised to include the appropriate threshold numbers described in *Pile Driving Sound Measurement Thresholds for ESA-listed Species in the Southeast Region* (NMFS, 2024). See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment S2-3

Mitigation Measure 3.5-4 (SRWI-New) in Section 3.5, *Biological Resources – Aquatic*, of the Draft EIR has been revised to include the 3:1 ratio. See Chapter 2, *Text Changes to the Draft EIR*, for text changes made to the Draft EIR in response to this comment.

Response to Comment S2-4

Cumulative effects on special-status species in the Sacramento River could occur from the projects presented in Table 4-1, *Projects Included in the Cumulative Impact Analysis*, in Chapter 4, *Cumulative Impacts,* of the Draft EIR. These projects include the Delta Conveyance Project and Sites Reservoir Project. Each of these projects would be subject to project-specific permitting analyses and, if necessary, mitigation to meet regulatory standards (e.g., full mitigation to meet California Endangered Species Act [CESA] requirements for state-listed fish species). Additionally, the CalSim 3 modeling completed for analysis of operational effects on aquatic biological resources makes storage release decisions and routes water through the stream network based on a set of pre-defined rules that represent existing or future assumed regulations and operations criteria. As described in Section 3.12, *Hydrology, Water Quality and Water Supply*, this means the model "behaves" such that reservoirs and facilities of the State Water Project (SWP) and Central Valley Project (CVP) are operated to comply with regulatory flow and water quality requirements, and thus already incorporates the cumulative effects of CVP and SWP operations. Therefore, the CalSim 3 modeling and cumulative impact analysis presented in the Draft EIR considers potential impacts of the proposed project on aquatic and terrestrial biological resources in combination with contemporary, foreseeable, large-scale Sacramento River projects and operations.

Response to Comment S2-5

Chapter 2, Project Description, subsection 2.4.2, and Section 3.5, *Biological Resources – Aquatic*, under Entrainment and Impingement, of the Draft EIR states that the proposed new intake would be designed to meet California Department of Fish and Wildlife (CDFW) and National Marine

Fisheries Service (NMFS) fish screening criteria. This includes an approach velocity of 0.2 feet-per-second and a 1.75-millimeter screen opening size. These design criteria are protective of adult Delta smelt and adult and juvenile salmonids. Detailed design plans would be provided to CDFW during the permitting process and the City would coordinate with CDFW on the design plans.

Response to Comment S2-6

The preconstruction survey window in Mitigation Measure 3.6-1 (ALL) (a) in Section 3.6, *Biological Resources – Terrestrial*, of the Draft EIR has been revised from 14 days to 7 days and survey buffers of 100 feet for migratory birds and 500 feet for birds of prey (excluding Swainson's hawk) have been added. Larger survey buffers are not necessary to avoid disturbance to nesting birds due to the urban location of the project sites and the ongoing, continuous disturbance in the area. Any birds nesting in the vicinity of the proposed project construction areas would be adapted to regular disturbance, including vehicles and traffic, pedestrians, events and noises from Sacramento State University (adjacent to the FWTP project area), nearby construction activities (e.g. development of the railyards south of the SRWTP project area), and other urban activities. At the FWTP, the riparian area along the American River north of the project area is subject to regular disturbance from pedestrians on foot and on bicycles along the paved path as well as on dirt paths through the riparian area. Additionally, this riparian area is buffered from activities at the FWTP by the levee along the northern end of the project area. The increase in noise and activity to construct the project is not expected to substantially increase disturbances to which nesting birds in the region are already accustomed to. See Chapter 2, *Text Changes to the Draft EIR*, for text changes made to the Draft EIR in response to this comment.

Response to Comment S2-7

Mitigation Measure 3.6-1 (ALL) in Section 3.6, *Biological Resources – Terrestrial*, of the Draft EIR includes specific avoidance and minimization measures for nesting birds, including timing construction outside of the nesting season to the extent feasible, establishing no-disturbance buffers around active nests, and daily monitoring by a qualified biologist if the recommended buffers cannot be established. Mitigation Measure 3.6-1 (ALL) (b) further specifies that the buffer size will be determined by the qualified biologist based on the species of bird and site-specific conditions. Additional measures have been added to Mitigation Measure 3.6-1 (ALL) (b) to give the qualified biologist further authority to recommend specific measures to be implemented to avoid take of nesting birds as appropriate, including setting up sound walls and visual barriers. See also Response to Comment S2-6 which addresses the preconstruction survey radius recommendations See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment S2-8

Mitigation Measure 3.6-1 (ALL), in Section 3.6, *Biological Resources – Terrestrial*, describes that the buffer will be determined by the qualified biologist based on the species of bird, the location of the nest relative to the project, project activities during the time the nest is active, and other project-specific conditions. This allows flexibility for the biologist to address the issue that

not all birds tolerate the same level of disturbance. It is understood that it is the City and their contractors' responsibility to avoid take/nest failure.

Response to Comment S2-9

See Response to Comment S2-6 which addresses the preconstruction survey window. The requirement for resurveys after a lapse in construction specified in Mitigation Measure 3.6-1 (ALL) (a) has been revised from 14 days to 7 days. The worker training requirement in Mitigation Measure 3.6-1 (ALL) (f)(i) under Swainson's hawk have been shifted to Mitigation Measure 3.6-1 (ALL) (d) to specify that it applies to all special-status species that may occur on the project site, including nesting birds, and that if an active nest is found on the project site, work must stop at the appropriate buffer distances and the qualified biologist be contacted for further guidance. With clarification of this measure, additional nests that may become active after construction has started will be protected from disturbance. It is understood that it is the City and their contractors' responsibility to comply with Fish and Game Code protecting nesting birds regardless of the time of year. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment S2-10

Mitigation Measure 3.6-3 (ALL) (a) in Section 3.6, *Biological Resources – Terrestrial,* of the Draft EIR has been expanded to include additional requirements for purchase of riparian mitigation credits or replanting of native riparian trees to compensate for permanent impacts to riparian trees. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment S2-11

Mitigation Measure 3.6-1 (ALL) (e) (previously labeled (d) prior to revision of the worker environmental awareness training program measure described in response to comment S2-9) has been revised to include all surveys recommended by the Swainson's Hawk Technical Advisory Committee consisting of a minimum of three surveys completed for the two survey periods immediately prior to the project's initiation. See Response to Comment S2-10 for a description of revisions to the measures mitigating loss of riparian trees. These revisions also address the loss of any potential Swainson's hawk nest trees. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment S2-12

Mitigation Measure 3.6-1 describes measures that will be implemented to avoid take of nesting birds, including Swainson's hawk, including establishment of no-disturbance buffers, monitoring, worker training, and stop-work authority by the biologist. Subsection 3.6.2, *Environmental Setting*, in Section 3.6, *Biological Resources – Terrestrial*, of the Draft EIR describes special-status species that may occur in or be affected by the project, including Swainson's hawk. The subsection describing Swainson's hawk includes information about the closest known California Natural Diversity Database (CNDDB) records of active nests. Currently, there are no records of SWHA nests within 0.25-mile of the project site in the past 5 years, and none were observed

during biological surveys of the project site. No take of active Swainson's hawk nests is anticipated as part of project construction or operation. Subsection 3.6.3, *Regulatory Setting*, describes the regulatory setting, including CESA and the requirements for obtaining an ITP. Additionally, Mitigation Measure 3.6-1 (ALL) (e) has been modified to include a requirement to consult with CDFW regarding the need for a CESA ITP should a Swainson's hawk nest be found in a tree requiring removal. Response to comment S2-10 further describes revisions to the measures mitigating loss of riparian trees. These revisions to the Draft EIR will also compensate for the loss of any potential Swainson's hawk nest trees. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment S2-13

See Response to Comment S2-10.

Response to Comment S2-14

Direct observations of special-status species and natural communities during project-related surveys will be reported to the California Natural Diversity Data Base as requested

Response to Comment S2-15

All required fees will be remitted upon filing of the Notice of Determination.

Response to Comment S2-16

The City appreciates CDFW's comments.

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July 29, 2025

Mr. Scott Johnson
City of Sacramento - Community Development Department
300 Richards Boulevard, Third Floor
Sacramento, CA 95811

Subject: **NOTICE OF AVAILABILITY OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE CITY OF SACRAMENTO WATER+ TREATMENT PLANTS RESILIENCY AND IMPROVEMENTS PROJECT (SCH# 2022040138)**

Dear Mr. Johnson,

The Sacramento Area Sewer District (SacSewer) has reviewed the subject document and has the following comments.

The proposed project is designed to provide treatment resiliency for changing water quality in the American and Sacramento Rivers; to address the reliability of water treatment facilities with aging infrastructure; and to meet the City's projected potable water demands. The proposed project includes two phases of work relating to the City's water treatment plants, raw water supply, and potable water transmission pipelines: an "initial phase" between 2026 and 2037, followed by a "project buildout" between 2040 and 2050.

The initial phase of the proposed project would improve treatment reliability at the EA Fairbairn Water Treatment Plant (FWTP) and the Sacramento River Water Treatment Plant (SRWTP) by replacing facilities that have reached the end of their effective lives. The initial phase would also provide resiliency within each treatment system by adding ozone treatment to help address changing water quality in the Sacramento and American Rivers, and the conversion from chlorine gas to sodium hypochlorite, a safer and more reliably available chemical for disinfection. The project buildout phase of the proposed project would be staged to meet the increasing water demands of the City's service area through 2050 by further increasing the capacity of the SRWTP to treat water diverted from the Sacramento River.

L1-1

SacSewer has the 60" Arden Force Main (SacSewer Operating System N19) and associated easements located within the FWTP site. SacSewer also has 8" and 10" collection-sized facilities located within College Town Drive. Continuous access to these facilities shall be maintained at all times during any upgrade work occurring at the FWTP site. Improvement plans will be provided to SacSewer for review and approval for any improvements that may impact SacSewer facilities.

City of Sacramento Water+ Treatment Plants
Resiliency and Improvement Project
SCH# 2022040138
July 29, 2025

An approved Access Permit will be required from SacSewer for any access to SacSewer facilities. Any new or changed discharge to the SacSewer system will require an approved discharge permit from the SacSewer Wastewater Source Control Section (WSCS) before discharging to the SacSewer system. **L1-2**

This environmental impact report should contemplate this project's on-site and off-site environmental impacts. **L1-3**

In March 2021, the SacSewer Board of Directors approved the most current SacSewer planning document, the 2020 System Capacity Plan Update (SCP). In February 2013, the SacSewer Board of Directors adopted the Interceptor Sequencing Study (ISS). The SCP and ISS are on the SacSewer website at System Capacity Plans - Sacramento Area Sewer District (sacsewer.com). **L1-4**

Customers receiving service from SacSewer are responsible for the rates and fees outlined within the latest SacSewer ordinance. Fees for connecting to the sewer system recover the capital investment of sewer and treatment facilities that serve new customers. SacSewer does not guarantee sewer service or system capacity to the Project site until the proper permits are obtained to connect to the system and all facility impact (capacity) fees are paid. The SacSewer ordinances are on the SacSewer website at Ordinances - Sacramento Area Sewer District (sacsewer.com). **L1-5**

- *References to the Sacramento Regional Wastewater Treatment Plant (SRWTP) are to be revised to accurately reflect the new name as the EchoWater Resource Recovery Facility (EchoWater Facility) throughout the document. Please revise any references to this in the document.* **L1-6**

- *References to the Sacramento Area Sewer District (SASD) are to be revised to accurately reflect the new name as the Sacramento Area Sewer District (SacSewer) throughout the document. Please revise any references to this in the document.* **L1-7**

If you have any questions regarding these comments, please call me at (916) 876-6104.

Sincerely,

Robb Armstrong

Robb Armstrong
Policy & Planning

Letter L1	**Robb Armstrong, Sacramento Area Sewer District (SacSewer)**
Response	July 29, 2025

Response to Comment L1-1

Access to the noted facilities (i.e., 60" Arden Force Main [SacSewer Operating System N19] and associated easements located within the FWTP site, and the 8" and 10" collection-sized facilities located within College Town Drive) would generally be maintained during work occurring in the FWTP project area. Access may be temporarily limited for short periods of time when work is occurring around SacSewer facilities. However, such work activities could be promptly redirected to provide SacSewer access as needed. No permanent impacts are anticipated to SacSewer's facilities at this time. Should any permanent impacts be anticipated, the City would submit the proposed changes to SacSewer for review and approval. These additional details have been added to Chapter 2, *Project Description,* of the Draft EIR. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment L1-2

Any new or changed wastewater discharge to the Sac Sewer system associated with the proposed project would be provided to SacSewer Source Control Section for review and approval of a modification to the existing discharge permit for the site prior to modified discharge to the SacSewer system.

Response to Comment L1-3

As described in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures*, of the Draft EIR, the Draft EIR provides a project-level analysis of the following: treatment plant improvements at both the FWTP and the SRWTP, existing utility upgrades at both the FWTP and SRWTP, and construction at the Sacramento River water intakes. The proposed potable water transmission pipelines proposed in the vicinity of the SRWTP are evaluated at a program-level in this Draft EIR because the specific alignments are not known at this time. Consistent with CEQA Guidelines Section 15125, the physical environmental conditions (as they existed on April 6, 2022, when the NOP was published) are described in this Draft EIR and used as the baseline by which the proposed project is measured for environmental impacts. The impact analysis considers how construction (short-term, temporary) and operation and maintenance (long-term, permanent) activities would result in changes to the resource topics evaluated further in the Draft EIR (refer to subsection 3.1.3, *Resource Topics Evaluated in the Draft EIR*). The thresholds of significance used for this analysis were derived from Appendix G of the CEQA Guidelines.

Response to Comment L1-4

References to the Interceptor Sequencing Study (SacSewer, 2013) and the 2020 System Capacity Plan Update (SacSewer, 2020) were added to Section 3.19, *Utilities and Service Systems,* and Chapter 8, *References*, of the Draft EIR. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment L1-5

Information regarding SacSewer's ordinances has been added to subsection 3.19.3, *Regulatory Setting*, in Section 3.19, *Utilities and Services Systems*, of the Draft EIR. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment L1-6

References to the Sacramento Regional Wastewater Treatment Plant have been revised to reflect the new name of EchoWater Resource Recovery Facility (EchoWater Facility). See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment L1-7

The City confirmed that the Draft EIR references the Sacramento Area Sewer District as the new name SacSewer.

SACRAMENTO METROPOLITAN
AIR QUALITY
MANAGEMENT DISTRICT

August 4, 2025

Charles Tschudin, Senior Planner
City of Sacramento Community Development Department
300 Richards Boulevard, 3rd Floor, Sacramento, CA 95811

Subject: **Draft Environmental Impact Report for the Water + Treatment Plants Resiliency and Improvements Project**
State Clearinghouse # 2022040138
Sac Metro Air District # SAC202503693

Dear Charles Tschudin:

Thank you for providing the Sacramento Metropolitan Air Quality Management District (Sac Metro Air District) with the opportunity to review the Draft Environmental Impact Report (EIR) for the Water + Treatment Plants Resiliency and Improvements Project, pursuant to the California Environmental Quality Act (CEQA). This project includes replacing existing facilities and improving processing methods at both the City of Sacramento's Fairbairn Water Treatment Plant (FWTP) and the Sacramento River Water Treatment Plant (SRWTP). It includes upgrading utilities that serve both plants, construction of a new water intake, pump station and associated raw water conveyance pipeline, improvements to the Sacramento River water intake, and improvements to the potable water transmission system in the vicinity of the SRWTP.

Please accept the following comments on air quality and climate considerations for project CEQA review, consistent with the Sac Metro Air District Guide to Air Quality Assessment in Sacramento County (CEQA Guide). Please note that the Draft EIR Appendix B, "Criteria Air Pollutant and Greenhouse Gas Emission Calculations," contains emission tables but not the actual modeling runs (e.g. CalEEMod) that the Draft EIR text indicates is the source for numbers in its emissions quantification tables. Therefore, we cannot assess those numbers. Sac Metro Air District generally recommends including modeling runs for emissions quantification as appendices for CEQA documents. L2-1

Greenhouse Gas Analysis
The Draft EIR finding on greenhouse gas impacts from project operations and maintenance is that they would be less than significant, and its justification for this finding is qualitative. Under Sac Metro Air District's Greenhouse Gas Thresholds for Sacramento County, project greenhouse gas impacts are less than significant if the lead agency has a qualified Climate Action Plan, and the project is consistent with that plan. While the Draft EIR references some measures from the City of Sacramento Climate Action & Adaptation Plan (CAAP), it does not reference all measures that would be applicable to the proposed project, for example from the listing of measures in CAAP Table 1, and it does not provide a clear description of how the project would be consistent with each measure. L2-2

- To support the Draft EIR's findings of less than significant operational greenhouse gas emissions, Sac Metro Air District recommends including a discussion that describes how the proposed project is consistent with the full range of applicable CAAP measures, for example Measures E-1 and E-2 related to energy and Measure WW-1 related to water.

L2-2

The Draft EIR finding on greenhouse gas impacts from project construction is that they are less than significant because, when amortized over 30 years, the average yearly emissions are below the Sac Metro Air District's greenhouse gas threshold for construction of 1,100 metric tons of carbon dioxide equivalent emissions per year. However, several years during that time span greatly exceed that threshold, for example 2027 when emissions would be 6,008 metric tons. The Draft EIR indicates that "Various agencies, including the SMAQMD … have suggested amortizing short-term construction emissions over the expected life of a project (e.g., 30 years), to evaluate project-level impacts." Our current Greenhouse Gas Thresholds for Sacramento County do not recommend that approach.

- Sac Metro Air District recommends that the EIR include all feasible mitigation to reduce greenhouse gas emissions from project construction to below the 1,100 metric ton per year threshold, for each year of construction, so that any finding of less than significant greenhouse gas impacts can be consistent with our thresholds. We recommend inclusion of measures from our Guidance for Construction GHG [greenhouse gas] Emissions Reductions into the Draft EIR as mitigation for greenhouse gas impacts from project construction.

L2-3

Air Quality Including Toxic Air Contaminant Analysis

The Draft EIR's finding on the impacts of project toxic air contaminant (TAC) emissions on public health is as follows: "Due to the temporary nature of the construction, low levels of emissions, and lack of sensitive receptors in the vicinity of the new water intake, pump station and raw water pipeline site, health risk that would result from construction related DPM [diesel particulate matter] emissions would be minimal, and impacts would be less than significant." There are sensitive receptors in the vicinity of the project; there is a residential apartment complex next to the FWTP, and there are residential uses along Bannon Street adjacent to the SRWTP. Further, it is not clear from the project description how construction would be temporary, intermittent, or sequenced. For example, Table 2-7 indicates that only the 10-year construction would be intermittent for the SRWTP, and indicates that there would be two years of "intensive" construction for the FWTP.

- Sac Metro Air District recommends that the project description provide more clarification on how construction would be sequenced to reduce the exposure of sensitive receptors to project TAC emissions, to support its less than significant finding, if construction sequencing is part of the rationale for that finding.

L2-4

- Sac Metro Air District recommends that Draft EIR's "Health Risk Assessment" section clearly identify all construction areas, for example the specific locations of the 25% of the SRWTP to be disturbed with new structures and facilities, and identify all sensitive receptors located near each construction area. We recommend that this health risk assessment section include or clearly reference quantitative information on project TAC emissions, assess emissions exposure for all sensitive receptor sites near each construction area, and characterize associated risk, in a manner that is generally consistent with professional practices such those identified in the *2015 Office of Environmental Health Hazard Assessment Guidance Manual for Preparation of Health Risk Assessments*.

L2-5

In December 2018 the California Supreme Court issued a decision in the Sierra Club v. County of Fresno case regarding the "Friant Ranch" project ((2018) 6 Cal. 5th 502). The Court determined that CEQA air quality analysis should include a reasonable effort to connect a project's air quality impacts to likely health consequences or explain in meaningful detail why it is not feasible to do so.

- Sac Metro Air District recommends that the EIR include an analysis of health impacts that would result from project implementation, pursuant to the "Friant Ranch" decision. To analyze health effects pursuant to the Friant Ranch decision, please consult Sac Metro Air District's Guidance to Address the Friant Ranch Ruling for CEQA Projects in the Sac Metro Air District.

L2-6

Air Quality Monitoring Station
The EIR's discussion of "Existing Ambient Air Quality" (on Draft EIR page 3.4-7) should note that Sac Metro Air District's Bercut Drive air quality monitoring station is within the SRWTP project site and is representative of ambient air for the project area. When project construction begins, please contact Levi Ford, Air Monitoring Program Supervisor at Sac Metro Air District, at 916-307-0505 or lford@airquality.org, to provide information on project construction. For example, you might clearly identify construction areas such as the exact location(s) of the 25% of the SRWTP to be disturbed with new structures and facilities and specify when intensive construction would occur at the SRWTP.

L2-7

Regulatory Setting & Existing Ambient Air Quality
Draft EIR descriptions of regulatory setting and of existing ambient air quality are important to help decision makers and the public understand the potential impacts of a project. Air quality conditions and regulations change over time and these descriptions need to be current for an accurate portrayal of baseline conditions and regulatory setting.

L2-8

Please update the Tables 3.4-3 and 3.4-4 so that they are consistent with the latest federal and state air quality standards and designations. Sac Metro Air District's website has information on standards and designations here: https://www.airquality.org/Air-Quality-Health/Air-Quality-Pollutants-and-Standards. Additionally, the list of the most recent applicable air quality plans for the region on page 3.4-13 should be updated as follows:

- Instead of the 2008 plan, the list should mention that the "Sacramento Regional 2015 NAAQS [National Ambient Air Quality Standards] 8-Hour Ozone Attainment & Reasonable Further Progress Plan" was adopted and submitted to the Environmental Protection Agency (EPA) in 2023 (available here: https://www.airquality.org/Businesses/Air-Quality-Plans). Footnote 2 should also be updated to reflect that EPA has not yet approved this plan, so the 2008 plan revision is the most recent approved ozone plan for the region.
- Third bullet, instead of the PM10 Implementation/Maintenance Plan and Redesignation Request, should list the "Second 10-year PM10 Maintenance Plan for Sacramento County" that was adopted in 2021.
- Fourth bullet, for the PM2.5 Implementation/Maintenance Plan and Redesignation Request, please add a footnote that this plan was never submitted to EPA for approval.

L2-9

Further, Table 3.4-2 should note that, although not applicable to the years presented (2020-2022), federal annual standards for PM2.5 were lowered from 12ug/m3 to 9ug/m3 in 2024.

L2-10

Generators
The proposed project includes emergency power diesel generators at each plant, and the Draft EIR indicates that "power would be provided to the construction sites by one or more on-site, portable generators (i.e., diesel, gasoline)." For information on the Sac Metro Air District permitting process for these generators, please visit our permitting webpage at https://www.airquality.org/Businesses/Permits-Registration-Programs. You may also contact Steve Mosunic, Program Supervisor with the Sac Metro Air District Permitting Section, at 279-207-1137 or smosunic@airquality.org. The Draft EIR indicates use of diesel generators; please consider utilizing zero-emission generator technology instead. L2-11

Demolition
The proposed project includes demolition of some existing facilities. Due to the health risks posed by public exposure to asbestos, renovation and demolition of existing buildings is subject to Rule 902, to limit asbestos exposure during these activities. Sac Metro Air District staff is available to review notifications and answer asbestos related questions, either by emailing asbestos@airquality.org, or calling 279-207-1122. L2-12

Construction Rules
As a reminder, all projects are subject to Sac Metro Air District rules and regulations in effect at the time of construction. Please visit our website to find a list of the most common rules that apply at the construction phase of projects. L2-13

Conclusion
Thank you for your attention to our comments. If you have questions about them, please contact me at mwright@airquality.org or (279) 207-1157.

Sincerely,

Molly Wright

Molly Wright
Air Quality Planner / Analyst

c: Rich Muzzy, CEQA and Land Use Program Supervisor, Sac Metro Air District

Letter L2 Response	Molly Wright, Sacramento Metropolitan Air Quality Management District (SMAQMD) August 4, 2025

Response to Comment L2-1

Appendix B, Criteria Air Pollutant and Greenhouse Gas Emission Calculations, of the Draft EIR includes all modeling input information, as well as emissions tables, that are referenced in the Draft EIR text.

Response to Comment L2-2

Impact 3.10-3 in Draft EIR Section 3.10, *Greenhouse Gas Emissions,* addresses consistency of the proposed project with the City of Sacramento's Climate Action and Adaptation Plan (CAAP) Measure E-2, and Impact 3.10-4 addresses consistency of the proposed project with CAAP Measure WW-1. Revisions have been made to Impact 3.10-4 to address consistency CAAP Measure E-1. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment L2-3

The method of analysis for addressing greenhouse gas emission described in Draft EIR Section 3.10, *Greenhouse Gas Emissions*, under subsection 3.10.4, *Impacts and Mitigation Measures*, has been revised to reflect refinements made to the anticipated construction schedule for the proposed project. In addition, the analysis presented under Impact 3.10-1 has been revised to present the associated annual construction greenhouse gas emissions compared to the SMAQMD threshold of significance based on the anticipated construction schedule. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment L2-4

In Draft EIR Section 3.4, *Air Quality*, subsection 3.4.2, *Environmental Setting,* has been revised to specify the locations of existing sensitive receptors nearby the FWTP and SRWTP. In addition, the methods of analysis described under subsection 3.4.4, *Impacts and Mitigation Measures,* has been revised to reflect refinements made to the anticipated construction schedule for the proposed project. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment L2-5

A quantitative health risk assessment (HRA), consistent with the Office of Environmental Health Hazard Assessment *Guidance Manual For Preparation of Health Risk Assessments,* has been added to Draft EIR Section 3.4, *Air Quality*. A description of the methods used for the quantitative HRA have been added to the methods of analysis described under subsection 3.10.4, *Impacts and Mitigation Measures*. The impact analysis presented under Impact 3.4-5 has been revised to include results of the health risk assessment. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment L2-6

The impact analysis presented in Draft EIR Section 3.4, *Air Quality,* under Impact 3.4-5 has been revised to include an analysis of health impacts based on the quantitative HRA results that would result from project implementation, pursuant to the "Friant Ranch" decision. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment L2-7

A footnote has been added to Draft EIR Section 3.4, *Air Quality,* subsection 3.4.2, *Environmental Setting,* indicating the location of the SMAQMD's Bercut Drive air quality monitoring station. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment L2-8

The air quality standards presented in Draft EIR Section 3.4, *Air Quality,* Table 3.4-3, have been revised to list current air quality conditions and regulations. Additionally, Table 3.4-4 has been revised to list the current federal attainment status of the region. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment L2-9

The local SMAQMD regulations presented in Draft EIR Section 3.4, *Air Quality,* subsection 3.4.3, *Regulatory Setting*, have been revised to include the most recent applicable air quality plans for the region. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment L2-10

Table 3.4-2 in Draft EIR Section 3.4, *Air Quality,* has been revised to reflect the updated federal standards for $PM_{2.5}$. See Chapter 2, *Text Changes to the Draft EIR,* for text changes made to the Draft EIR in response to this comment.

Response to Comment L2-11

The process for permitting the emergency power diesel generators during proposed project construction is noted and the City will pursue required permitting, as applicable. In addition, the City will assess the potential for generators that use alternative energy sources, as feasible.

Response to Comment L2-12

The information noting that SMAQMD staff are available to review notification and answer asbestos related questions is noted.

Response to Comment L2-13

The City will comply with applicable SMAQMD rules and regulations in effect at the time of proposed project construction.

CHAPTER 4
Mitigation Monitoring and Reporting Program

4.1 Introduction

Public Resources Code section 21081.6 and section 15097 of the California Environmental Quality Act (CEQA) Guidelines require public agencies to establish monitoring or reporting programs for projects approved by a public agency whenever approval involves the adoption of either a mitigated negative declaration or specified environmental findings related to environmental impact reports.

The following is the Mitigation Monitoring and Reporting Program (MMRP) for the Water+ Treatment Plants Resiliency and Improvements Project (proposed project). The intent of the MMRP is to track and successfully implement the mitigation measures identified within the Environmental Impact Report (EIR) for this project. The EIR includes the Draft EIR, as revised in the Final EIR.

4.2 Mitigation Measures

The mitigation measures are taken from the proposed project EIR and are assigned the same number as in the EIR. The MMRP describes the actions that must take place to implement each mitigation measure, the timing of those actions, and the entities responsible for implementing and monitoring the actions.

4.3 MMRP Table

The components of the attached table, which contains applicable mitigation measures, are addressed briefly, below.

Impact: This column identifies the impact stated in the EIR.

Mitigation Measure: All mitigation measures that were identified in the proposed project EIR are presented, as revised in the Final EIR, and numbered accordingly.

Action(s): For every mitigation measure, one or more actions are described. The actions delineate the means by which the mitigation measures will be implemented, and, in some instances, the criteria for determining whether a measure has been successfully implemented. Where mitigation measures are particularly detailed, the action may refer back to the measure.

Component: This column identifies the relevant component of the proposed project to which the mitigation measure applies, using the following abbreviations:

- Treatment Plant Improvements - TPI (FWTP/SRWTP)
- Existing Utility Upgrades - EUU (FWTP/SRWTP)
- Sacramento River Water Intakes - SRWI (Existing/New)
- Potable Water Transmission Pipelines – TP
- All Project Components - ALL

Implementing Party: This item identifies the entity that will undertake the required action; this may be the City of Sacramento (City) or some other responsible party.

Timing: Implementation of the action must occur prior to or during some part of project approval, project design or construction or on an ongoing basis. The timing for each measure is identified.

Monitoring and Reporting Party: The City's Department of Utilities is primarily responsible for ensuring that mitigation measures are successfully implemented. Within the City, a number of departments and divisions would have responsibility for monitoring some aspect of the overall project.

TABLE 4-1
WATER+ TREATMENT PLANTS RESILIENCY AND IMPROVEMENTS PROJECT MITIGATION MONITORING PROGRAM

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
3.2 Air Quality						
3.4-1: Construction of the proposed project could conflict with or obstruct implementation of an applicable air quality plan.	**Mitigation Measure 3.4-1(a) (ALL):** Prior to the initiation of construction at SRWTP, including existing utility upgrades, contractor shall ensure that all heavy-duty off-road diesel-powered equipment (including owned, leased, and subcontractor equipment) shall be CARB Tier 4 Final or cleaner. These requirements shall also be included on improvement plans and submitted for review and approval by SMAQMD.	Ensure that all heavy-duty off-road diesel-powered equipment shall be CARB Tier 4 Final or cleaner. Requirements shall also be included on improvement plans and submitted for review and approval by SMAQMD.	TPI-SRWTP, EUU–SRWTP	Contractor	Prior to construction.	City of Sacramento Department of Utilities
	Mitigation Measure 3.4-1(b) (ALL): The following Basic Construction Emissions Control Practices, required by SMAQMD Rule 403 and enforced by SMAQMD staff, shall be implemented to minimize fugitive dust emissions during construction activities: i. Water all exposed surfaces two times daily. Exposed surfaces include, but are not limited to soil piles, graded areas, unpaved parking areas, staging areas, and access roads; ii. Cover or maintain at least 2 feet of free board space on haul trucks transporting soil, sand, or other loose material on the site. Any haul trucks that would be traveling along freeways or major roadways should be covered; iii. Use wet power vacuum street sweepers to remove any visible track-out mud or dirt onto adjacent public roads at least once a day. Use of dry power sweeping is prohibited; iv. Limit vehicle speeds on unpaved roads to 15 miles per hour; v. All roadways, driveways, sidewalks, parking lots to be paved should be completed as soon as possible. In addition, building pads should be laid as soon as possible after grading unless seeding or soil binders are used; vi. Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes [California Code of Regulations, Title 13, Sections 2449(d)(3) and 2485]. Provide clear signage that posts this requirement for workers at the entrances to the site;[1] vii. Provide current certificate(s) of compliance for CARB's In-Use Off-Road Diesel-Fueled Fleets Regulation [California Code of Regulations, Title 13, Sections 2449 and 2449.1];[2] and viii. Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.	Implement Basic Construction Emissions Control Practices to minimize fugitive dust emissions during construction activities.	All	Contractor	During construction.	City of Sacramento Department of Utilities
3.4-3: Construction of the proposed project could result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard.	**Mitigation Measure 3.4-2 (ALL):** Implement Mitigation Measures 3.4-1(a) and (b).	See Mitigation Measures 3.4-1(a) and 3.4-1(b)	All	See Mitigation Measures 3.4-1(a) and 3.4-1(b)	See Mitigation Measures 3.4-1(a) and 3.4-1(b)	See Mitigation Measures 3.4-1(a) and 3.4-1(b)

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
3.5 Biological Resources – Aquatic						
3.5-1: Construction of the proposed project could result in direct or indirect impacts to listed fish species and their associated habitat and could interfere with movement of native resident or migratory fish.	**Mitigation Measure 3.5-1 (SRWI-New):** Prior to the start of any in-water construction that would require pile driving, the City or its contractors shall prepare a sound attenuation monitoring plan to protect fish and submit to NMFS, CDFW, and USFWS for approval. The approved plan shall be implemented during construction. This plan shall provide detail on the sound attenuation system, detail methods used to monitor and verify sound levels during pile driving activities (if required based on projected in-water noise levels), and describe best management practices to reduce impact pile-driving in the aquatic environment to an intensity level less than 183 dB (sound exposure level, SEL) impulse noise level for fish at a distance of 33 feet. The plan shall incorporate, but not be limited to, the following best management practices: a) To the extent feasible vibratory pile drivers shall be used for the installation of all support piles. b) If impact hammer pile driving will be used, a soft start technique shall be implemented, at the start of each workday or after a break in impact hammer driving of 30 minutes or more, to give fish an opportunity to vacate the area. c) If during the use of an impact hammer, established pile driving thresholds are exceeded (greater than 183 dB), a bubble curtain or other sound attenuation method as described in the approved sound attenuation monitoring plan shall be utilized to reduce sound levels below the criteria described above.	The City or its contractors shall prepare a sound attenuation monitoring plan to protect fish and submit to NMFS, CDFW, and USFWS for approval. The approved plan shall be implemented during construction.	SRWI-New	City of Sacramento or Contractor	Prior to any in-water construction that would require pile driving.	City of Sacramento Department of Utilities
	Mitigation Measure 3.5-2 (SRWI-New): Incorporate best practices to avoid and/or minimize potential impacts from in-water construction. These include the following: a) All in-water construction shall occur during the designated in-water work window of June 1 through October 31 (or as otherwise specified by applicable permits from the Regional Water Quality Control Board, CDFW, NMFS, and/or U.S Army Corps of Engineers [USACE]), when listed fish are least likely to occur. b) All materials placed into the creek channel shall be nontoxic. Any combination of wood, plastic, cured concrete, steel pilings, or other materials used for in-channel structures shall not contain coatings or treatments or consist of substances toxic (e.g., copper, other metals, or pesticides, petroleum-based products, etc.) to aquatic organisms that may leach into the surrounding environment in amounts harmful to aquatic organisms. c) Construction supervisors and managers shall be educated on invasive species identification and the importance of controlling and preventing the spread of invasive species. The City will follow the guidelines in the CDFW's California Aquatic Invasive Species Management Plan (CDFW, 2008) and Aquatic Invasive Species Disinfection/ Decontamination Protocols (CDFW, 2022). d) Construction equipment such as portable equipment, vehicles, and supplies, including chemicals, shall be stored at designated construction staging areas or on barges, exclusive of any riparian or wetland areas. Any equipment that may leak shall be stored over impermeable surfaces, if available, and drip pans (or any other type of impermeable containment measure) will be placed under parked machinery and checked and replaced, when necessary, to prevent drips and leaks from entering the environment.	Incorporate best practices to avoid and/or minimize potential impacts from in-water construction.	SRWI-New	Contractor	During in-water construction.	City of Sacramento Department of Utilities

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
	e) Areas for fuel storage, refueling, and servicing of construction equipment shall be located in an upland location and following industry BMPs. f) The City or contractor shall inspect, maintain and repair all erosion control materials and devices prior to and after any storm event, at 24-hour intervals during extended storm events, and a minimum of every two weeks until all erosion control measures are no longer needed. g) Immediately after project completion and before the close of the seasonal work window, all exposed soil shall be stabilized with erosion control measures such as mulch, seeding, and/or placement of erosion control blankets. Where straw, mulch, or slash is used on bare mineral soil, the minimum coverage shall be 95 percent with two-inch minimum depth.					
	Mitigation Measure 3.5-3 (SRWI-New): During all in-water construction work associated with the installation of the proposed new intake, the City or its contractors shall develop a fish salvage and relocation plan and submit to NMFS, CDFW, and USFWS for approval. The approved plan shall be implemented after cofferdam installation and prior to dewatering to prevent fish stranding during dewatering. The plan will outline methods and procedures for rescue and relocation including: a) Salvage and relocation activities shall be conducted by Qualified Biologists approved by NMFS, CDFW, and USFWS and in accordance with required permits. b) Procedures for excluding fish from the construction zone and for removing fish, should they become trapped. c) Salvage methods including seining, dipnetting, and electrofishing, shall be implemented in a way that minimizes fish stress and mortality.	The City or its contractors shall develop a fish salvage and relocation plan and submit to NMFS, CDFW, and USFWS for approval. The approved plan shall be implemented after cofferdam installation and prior to dewatering to prevent fish stranding during dewatering.	SRWI-New	City of Sacramento or Contractor	During in-water construction work associated with the installation of the proposed new intake.	City of Sacramento Department of Utilities
	Mitigation Measure 3.5-4 (SRWI-New): In order to offset the permanent loss of 0.23 acres of shaded riverine aquatic habitat removed to accommodate the proposed new intake, the City shall purchase mitigation credits from a public or private mitigation bank approved by CDFW. The final number of credits purchased will be in a ratio of 3:1, or another ratio found agreeable to CDFW and other agencies consulted.	The City shall purchase mitigation credits from a public or private mitigation bank approved by CDFW.	SRWI-New	City of Sacramento	Prior to completion of project construction.	City of Sacramento Department of Utilities
3.6 Biological Resources – Terrestrial						
3.6-1: Construction of the proposed project could impact nesting migratory birds and birds of prey.	**Mitigation Measure 3.6-1 (ALL):** a) Project construction shall occur outside of the nesting season to the extent feasible. If project construction begins during the nesting season (Table 3.6-4), a qualified biologist shall conduct a preconstruction survey for active nests on and adjacent to the project area. The pre-construction survey shall be conducted within 7 days prior to commencement of construction activities (e.g. ground disturbing activities, materials staging, demolition activities) and include the project site and publicly accessible areas within 100 feet for active nests of protected migratory birds and areas within 500 feet for active nests of birds of prey. If no active nests are found during the pre-construction survey, no additional mitigation measures are required. If construction does not commence within 7 days of the pre-construction survey, or halts for more than 7 days, an additional pre-construction survey is required. Additional survey requirements for Swainson's hawk are provided below.	If project construction begins during the nesting season, a qualified biologist shall conduct a preconstruction survey for active nests on and adjacent to the project area. The pre-construction survey shall be conducted within 7 days prior to commencement of construction activities (e.g. ground disturbing activities, materials staging, demolition activities). If construction does not commence within 7 days of the pre-construction survey, or halts for more than 7 days, an additional pre-construction survey is required. If an active nest is located on or adjacent to the project area, an appropriate buffer zone shall be established around the nest, as determined by the qualified biologist. Daily monitoring shall occur if buffer distances are reduced until the qualified biologist determines that the nest is no longer active. A worker environmental awareness training program shall be provided to all on-site personnel by a qualified biologist prior to the start of construction.	All	City of Sacramento and Qualified Biologist	Prior to and during project construction.	City of Sacramento Department of Utilities

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
	TABLE 3.6-4 **NESTING SEASON FOR SPECIAL-STATUS AND COMMON NESTING BIRDS** **Species** / **Nesting Season** White-tailed kite — February 1 to September 30 Swainson's hawk — March 1 to September 15 Common nesting birds (raptors, passerines, herons, and egrets) — February 1 to August 31 b) If an active nest is located on or adjacent to the project area, an appropriate buffer zone shall be established around the nest, as determined by the qualified biologist. The biologist shall mark the buffer zone with construction tape or pin flags and maintain the buffer zone until the end of breeding season or until the young have successfully fledged or the nest is determined to no longer be active. Buffer zones are typically 50−100 feet for migratory bird nests and 250−500 feet for bird of prey nests (excluding Swainson's hawk). Buffer size shall be determined by the qualified biologist based on the species of bird, the location of the nest relative to the project, project activities during the time the nest is active, and other project-specific conditions. The qualified biologist will make additional recommendations as needed to protect nesting birds, including, but not limited to, setting up sound walls and/or visual barriers. c) If establishing the typical buffer zone is impractical, the qualified biologist may reduce the buffer depending on the species and daily monitoring would be required to ensure that the nest is not disturbed, and no forced fledging occurs. Daily monitoring shall occur until the qualified biologist determines that the nest is no longer active. d) A worker environmental awareness training program shall be provided to all on-site personnel by a qualified biologist prior to the start of construction. The training will cover special-status species that may occur on the project site and will cover identification, status, avoidance measures, and possible penalties for non-compliance. This training program shall notify project personnel that if at any time during project construction a nesting bird is found on the project site, work should stop within a 100-foot radius if it is a protected migratory bird, a 500-foot radius if it is a bird-of-prey, and a 0.25-mile radius if it is a Swainson's hawk, and that the qualified biologist shall be contacted for further guidance. The crew members shall sign a sign-in sheet documenting that they received the training. ***Additional Measures for Swainson's Hawk*** e) If construction activities are anticipated to commence during the Swainson's hawk nesting season (March 1 to September 15), a qualified biologist shall conduct a minimum of three Swainson's hawk pre-construction surveys during each of the two survey periods prior to construction in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee, 2000). All potential nest trees within 0.25 mile of the project areas shall be visually examined for potential Swainson's hawk nests, as accessible. If no active Swainson's hawk nests are identified on or within 0.25 mile, no additional mitigation measures are required.	If construction activities are anticipated to commence during the Swainson's hawk nesting season (March 1 to September 15), a qualified biologist shall conduct a minimum of three pre-construction surveys during the recommended survey periods in accordance with the *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley* (Swainson's Hawk Technical Advisory Committee, 2000). Mitigate for removal of riparian trees.				

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
	f) If an active Swainson's hawk nest is found within 0.25 mile of the project areas, the following measures will be implemented to avoid and minimize impacts to the nest: i. A no-disturbance buffer zone shall be established and work shall be scheduled to avoid impacting the nest during critical periods. To the extent feasible, no work shall occur within 500 feet of the nest while it is in active use. If work would occur within 500 feet of the nest, then construction shall be monitored daily by a qualified biologist to ensure no disturbance occurs to the nest; ii. A biological monitor shall conduct weekly monitoring of the nest during construction activities; iii. The biologist may halt construction activities if they determine that the construction activities are disturbing the nest. CDFW shall be consulted prior to re-initiation of activities that may disturb the nest; and iv. If at any time during preconstruction surveys or project implementation an active Swainson's hawk nest (used for breeding in the last 5 years) is found in a tree requiring removal, CDFW will be consulted to determine the need for a CESA ITP. g) Implement Mitigation Measures 3.6-3(a) and 3.6-3(b).					
3.6-3: Construction of the proposed project could impact valley elderberry longhorn beetle.	**Mitigation Measure 3.6-2(a) (TPI - FWTP/SRWTP, EUU-FWTP/SRWTP, SRWI-Existing/New): The following measures shall be implemented for avoided elderberry shrubs:** i. Activities that may damage or kill an elderberry shrub (e.g., trenching, paving, etc.) shall have an avoidance area of at least 20 feet from the dripline of the elderberry shrub. ii. All areas within 165 feet of an elderberry shrub to be avoided during construction activities shall be fenced using high visibility construction fencing, followed by silt fencing, as close to construction limits as feasible. The silt fencing shall be installed to prevent migration of soils into the protected zone around the elderberry shrubs. iii. A qualified biologist shall provide training for all contractors, work crews, and any onsite personnel on the status of the VELB, its host plant and habitat, the need to avoid damaging the elderberry shrubs, and the possible penalties for non-compliance. iv. During work within 165 feet of any elderberry shrub, a qualified biologist shall monitor the work area on a weekly basis to ensure that all avoidance and minimization measures are implemented. Time spent onsite will be sufficient to verify that no damage to elderberry shrubs has occurred, to ensure that protective fencing is in place and in good working order, and to coordinate any concerns with the client/contractor. v. As much as feasible, all activities that occur within 165 feet of an elderberry shrub shall be conducted outside the flight season of the VELB (March – July). vi. Herbicides shall not be used within the dripline of any elderberry shrub. Insecticides shall not be used within 98 feet of an elderberry shrub. All chemicals shall be applied using a backpack sprayer or similar direct application method. vii. Mechanical weed removal within the dripline of an elderberry shrub shall be limited to the season when adults are not active (August – February) and shall avoid damaging the elderberry.	The following measures shall be implemented for avoided elderberry shrubs.	TPI - FWTP/SRWTP, EUU-FWTP/SRWTP, SRWI-Existing/New	City of Sacramento and Qualified Biologist	Prior to and during project construction.	City of Sacramento Department of Utilities

<table>
<tr><th>Impact</th><th>Mitigation Measure</th><th>Action(s)</th><th>Component</th><th>Implementing Party</th><th>Timing</th><th>Monitoring and Reporting Party</th></tr>
<tr><td></td><td>Mitigation Measure 3.6-2(b) (TPI - FWTP/SRWTP, EUU-FWTP/SRWTP, SRWI-Existing/New): The following measures shall be implemented for elderberry shrubs which cannot be avoided:
i. If elderberry shrubs cannot be avoided, or if indirect effects would result in death of the shrub, elderberries shall be transplanted. Where possible, the elderberry shrubs shall be relocated as close as possible to their original location. If not possible, the shrub may be transplanted to a USFWS-approved mitigation site.
ii. A qualified biologist shall be on-site for the duration of transplanting activities to assure compliance with avoidance and minimization measures and other conservation measures.
iii. Exit-hole surveys shall be completed immediately before transplanting. The number of exit holes found, GPS location of the plant to be relocated, and the GPS location of where the plant is transplanted shall be reported to the USFWS and to the CNDDB.
iv. Elderberry shrubs shall be transplanted when the shrubs are dormant (November through the first two weeks in February) and after they have lost their leaves. Transplanting during the non-growing season will reduce shock to the shrub and increase transplantation success.
v. Transplanting shall follow the most current version of the ANSI A300 (Part 6) guidelines for transplanting.
vi. Trimming shall occur between November and February and should minimize the removal of branches or stems that exceed 1 inch in diameter.
vii. In addition to transplanting, mitigation credits at a USFWS-approved bank shall be purchased whenever direct impacts cannot be avoided to elderberry shrubs. All elderberry shrubs in the project areas and with potential to be directly impacted are non-riparian. Directly impacted non-riparian elderberry shrubs with exit holes present or directly impacted non-riparian elderberry shrubs located within 165 feet of elderberry shrubs with exit holes present shall be mitigated using the compensation ratio outlined in Table 3.6-5, based on the USFWS Framework (USFWS, 2017):
TABLE 3.6-5
VALLEY ELDERBERRY LONGHORN BEETLE
SHRUB-LEVEL IMPACT COMPENSATION
<table><tr><th>Habitat</th><th>Compensation Ratio[1]</th><th>If the entire shrub will be removed[2]</th></tr><tr><td>Non-riparian (exit holes present on or within 165 feet of project site)</td><td>1:1</td><td>Transplant the shrub + 1:1 compensation</td></tr></table>1. number of credits: number of shrubs trimmed
2. One credit (unit) = 1,800 square feet or 0.041 acre</td><td>The following measures shall be implemented for elderberry shrubs which cannot be avoided</td><td>TPI - FWTP/SRWTP, EUU-FWTP/SRWTP, SRWI-Existing/New</td><td>City of Sacramento and Qualified Biologist</td><td>Prior to and during project construction.</td><td>City of Sacramento Department of Utilities</td></tr>
<tr><td></td><td>Mitigation Measure 3.6-2(c) (TP): After the location of the potable water transmission pipelines are known, and prior to commencement of construction (e.g. ground disturbing activities, materials staging, demolition activities), a survey for elderberry shrubs will be conducted of the pipeline alignment and areas within 165 feet. If no elderberry shrubs with diameter at ground level of one inch are found, no further measures will be required. If elderberry shrubs with at least one stem with a diameter at ground level of one inch or greater are found, Mitigation Measure 3.6-2a shall be implemented.</td><td>A survey for elderberry shrubs will be conducted of the pipeline alignment and areas within 165 feet.
If elderberry shrubs with at least one stem with a diameter at ground level of one inch or greater are found, Mitigation Measure 3.6-2a shall be implemented.</td><td>TP</td><td>City of Sacramento</td><td>After the location of the potable water transmission pipelines are known, and prior to commencement of construction.</td><td>City of Sacramento Department of Utilities</td></tr>
</table>

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
3.6-5: Construction of the proposed project could impact riparian habitat.	**Mitigation Measure 3.6-3(a) (SRWI – Existing/New):** i. Tree removal shall be minimized to the extent possible. ii. Prior to the removal of any protected tree as defined by City Code 12.56, the City shall submit a tree removal permit application for the removal of protected trees and comply with all conditions of any issued permit. iii. Removal of riparian trees along the Sacramento River resulting from project implementation will be mitigated in one of the following ways: • Purchase mitigation credits at a 3:1 ratio of replacement credits to acreage of permanently impacted riparian habitat at a CDFW-approved mitigation or conservation bank for riparian habitat. • Replant removed trees 4 inches diameter at breast height (DBH) or greater located in the riparian habitat with native riparian tree species at a 3:1 replacement to loss ratio within the riparian habitat onsite or other suitable riparian habitat located in Sacramento County. A replanting plan shall be prepared and submitted to CDFW and the City of Sacramento for approval prior to removal of riparian trees.	Submit a tree removal permit application for the removal of protected trees and comply with all conditions of any issued permit. Mitigate for removal of riparian trees.	SRWI – Existing/New	City of Sacramento	Prior to the removal of any protected tree.	City of Sacramento Department of Utilities
	Mitigation Measure 3.6-3(b) (SRWI - Existing/New): i. High-visibility fencing shall be erected at the edge of the project footprint to prevent encroachment into unpermitted areas by construction equipment and personnel. Trucks and other vehicles will not be allowed to park beyond the fencing, nor shall equipment be stored beyond the fencing. No vegetation removal or ground disturbing activities will be permitted beyond the fencing. ii. After project work is completed, any temporary fill and construction debris will be removed, and temporarily disturbed areas will be restored to pre-project or better conditions. Before restoration, all non-biodegradable materials will be removed. Restoration may include recontouring disturbed areas to their original configurations.	High-visibility fencing shall be erected at the edge of the project footprint. Any temporary fill and construction debris will be removed, and temporarily disturbed areas will be restored to pre-project or better conditions.	SRWI – Existing/New	City of Sacramento and Contractor	During construction and after project work Is completed.	City of Sacramento Department of Utilities
3.6-7: Construction of the proposed project could result in net reduction of waters of the U.S. as defined in Section 404 of the Clean Water Act and State jurisdictional waters.	**Mitigation Measure 3.6-4(a) (SRWI - New):** i. All fueling and maintenance of vehicles and other equipment and staging areas shall occur in designated areas away from any water body. ii. Diesel fuel and oil shall be used, stored, and disposed of in accordance with standard protocols for handling hazardous materials. All personnel involved in the use of hazardous materials shall be trained in emergency response and spill control. iii. All concrete washing and spoils dumping shall occur in a designated location away from any water body. iv. Construction stockpiles shall be covered within 24 hours of a weather event to prevent blow-off or runoff during weather events. v. All excavated material will be placed in previously disturbed upland areas where it will not be subject to regular flooding. vi. Erosion control measures shall be placed in areas that are upslope of aquatic habitat to prevent any soil or other materials from entering aquatic habitat. Silt fencing and natural/biodegradable erosion control measures (i.e., straw wattles and hay bales) shall be used. vii. Turbidity curtains, temporary barriers, or similar methods shall be used during in-channel work to control silts and sediments.	Contractor shall implement required measures to avoid impacts to jurisdictional waters	SRWI – Existing/New	Contractor	During project construction	City of Sacramento Department of Utilities

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
	viii. Areas temporarily disturbed on the banks of the Sacramento River will be revegetated and reseeded with native grasses and other native herbaceous annual and perennial species or as specified by USACE. Reseeded areas will be covered with a biodegradable erosion control fabric to prevent erosion and downstream sedimentation. The project engineer will determine the specifications needed for erosion control fabric (e.g., sheer strength) based on anticipated maximum flow velocities and soil types. ix. The City shall purchase mitigation credits at a USACE-approved mitigation bank for placement of fill in the Sacramento River, as required by the 404 permit. Alternatively, the City could contribute to the USACE in-lieu fee program.					
	Mitigation Measure 3.6-4(b) (TP): After the location of the potable water transmission pipelines are known, and prior to commencement of construction (e.g. ground disturbing activities, materials staging, demolition activities), a survey will be conducted to map wetlands and waters potentially subject to USACE and State jurisdiction along the pipeline alignment. If no wetlands and waters potentially subject to USACE and State jurisdiction are found, no further measures will be required. If wetlands and waters potentially subject to USACE and State jurisdiction are found, Mitigation Measure 3.6-4a would be implemented.	A survey will be conducted to map wetlands and waters potentially subject to USACE and State jurisdiction along the pipeline alignment. If wetlands and waters potentially subject to USACE and State jurisdiction are found, Mitigation Measure 3.6-4a would be implemented.	TP	City of Sacramento	After the location of the potable water transmission pipelines are known, and prior to commencement of construction.	City of Sacramento Department of Utilities
3.6-9: Construction of the proposed project could conflict with local policies protecting trees.	**Mitigation Measure 3.6-5 (ALL):** Implement Mitigation Measure 3.6-3(a).	See Mitigation Measure 3.6-3(a).	All	See Mitigation Measure 3.6-3(a).	See Mitigation Measure 3.6-3(a).	See Mitigation Measure 3.6-3(a).
3.7 Cultural Resources						
3.7-1: Construction of the proposed project could cause a substantial adverse change in the significance of a historical resource.	**Mitigation Measure 3.7-1(a) (TPI-SRWTP):** Any proposed new project construction within 200 feet of contributing elements of the SRWTP (including the Pump House, Coagulant Building, or Head House buildings) shall be designed in compliance with the Secretary of the Interior's Standards for the Treatment of Historic Properties, specifically the standards for rehabilitation and new construction within a historic district. While the SRWTP is considered an individual historical resource and not a historic district, the discontiguous nature of the contributing buildings on the property makes it appropriate to treat them under these standards. Standards 9 and 10 for Rehabilitation state that: Standard 9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and shall be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment. Standard 10. New additions and adjacent or related new construction shall be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired. The new construction design shall be consistent with these standards. In addition to compliance with the above, the City shall ensure that any new construction involving the design of a new building shall not have a significant impact on the SRWTP's contributing resources or its features and characteristics. The City of Sacramento Preservation Director, or the Commission, as appropriate per Preservation Development Project Site Plan & Design Review requirements of Title 17 of the City Code, shall review any proposed project's site plan and design to ensure its compatibility with the Secretary of the Interior's Standards.	Any proposed new project construction within 200 feet of contributing elements of the SRWTP shall be designed in compliance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.	TPI-SRWTP	City of Sacramento	Prior to project construction	City of Sacramento Department of Utilities

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
	Mitigation Measure 3.7-1(b) (TPI-SRWTP): Vibration during construction could cause the physical destruction, damage, or alteration of susceptible historic properties. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration and is often used in monitoring of vibration because it is related to the stresses experienced by structures. The FTA building damage thresholds typically applied and described in the City of Sacramento 2035 General Plan Master Environmental Impact Report are 0.2 PPV for historic buildings and 0.5 PPV for non-historic buildings. To mitigate vibration related damage to historical resources, the proposed project shall include measures to limit exposure of historic buildings to less than 0.2 PPV to prevent building damage. i. Pre-Construction: a. To assist with measures regarding impacts to historical resources, the City and construction contractor shall solicit input and review of plan components from a person(s) who meets the Secretary of the Interior's Professional Qualification Standards for Architectural History, and, as appropriate, an architect that meets the Secretary of the Interior's Professional Qualification Standard for Historic Architect. These qualification standards are defined in Title 36 Code of Federal Regulations Part 61. b. A conditions assessment report including photos and narrative descriptions of current conditions of the Pump House, Coagulant Building, and Head House shall be completed. This includes photos of existing damage and other material conditions present on or at the surveyed buildings. Images of interior conditions shall be included if possible. Photos in the report shall be labeled in detail and dated. c. The construction contractor shall determine the number and placement of vibration receptors at the affected historic buildings in consultation with the consulting architectural historian and/or architect. The number of units and their locations shall take into account proposed construction activities so that adequate measurements can be taken illustrating vibration levels during the course of the project, and if/when levels exceed the established threshold. ii. During Demolition and Construction: a. The construction contractor shall collect vibration data from receptors and report vibration levels to the City Preservation Director or their environmental staff on a monthly basis. The reports shall include annotations regarding project activities as necessary to explain changes in vibration levels, along with proposed corrective actions to avoid vibration levels approaching or exceeding the established threshold. b. With regards to historic structures, if vibration levels exceed the threshold and monitoring or inspection indicates that the project is damaging the building, the historic building shall be provided additional protection or stabilization. If necessary, the construction contractor shall install temporary shoring or stabilization to help avoid permanent impacts. Stabilization may involve structural reinforcement or corrections for deterioration that would minimize or avoid potential structural failures or avoid accelerating damage to the historic structure. Stabilization shall be conducted following the Secretary of the Interior's Standards Treatment of Preservation. This treatment shall ensure retention of the historical resource's	Include measures to limit exposure of historic buildings to less than 0.2 PPV to prevent building damage.	TPI-SRWTP	City of Sacramento and Contractor	Prior to, during and after project construction.	City of Sacramento Department of Utilities

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
	character-defining features. Stabilization may temporarily impair the historic integrity of the building's design, material, or setting, and as such, the stabilization must be conducted in a manner that will not permanently impair a building's ability to convey its significance. Measures to shore or stabilize the building shall be installed in a manner that when they are removed, the historic integrity of the building remains, including integrity of material. iii. Post-Construction: a. Following completion of planned construction activities within 100 feet of the contributing elements of the SRWTP, the City (and its construction contractor) shall provide a report to the City Preservation Director or their environmental staff regarding vibration monitoring conducted during demolition and construction. In addition to a narrative summary of the monitoring activities and their findings, this report shall include photographs illustrating the post-construction state of material conditions that were presented in the pre-construction assessment report, along with images of other relevant conditions showing the impact, or lack of impact, of project activities. The photographs shall sufficiently illustrate damage, if any, caused by the project and/or show how the project did not cause physical damage to the historic and non-historic buildings. The report shall include annotated analysis of vibration data related to project activities, as well as summarize efforts undertaken to avoid vibration impacts. b. The City (and its construction contractor) shall be responsible for repairs from damage to historic buildings if damage is caused by vibration during the demolition and/or construction activities. Repairs may be necessary to address, for example, physical damage visible in post-construction assessment, or holes or connection points that were needed for shoring or stabilization. Repairs shall be directly related to project impacts and will not apply to general rehabilitation or restoration activities of the buildings. Repairs on historic structures shall be conducted in compliance with the Secretary of the Interior Standards Treatment of Historic Properties. The City shall provide the City Preservation Director or their environmental staff for review and comment both a work plan for the repairs and a completion report to ensure compliance with the Secretary of the Interior's Standards.					
	Mitigation Measure 3.7-1(c) (TPI-SRWTP): Prior to demolition and construction, the City shall prepare a Historic American Buildings Survey (HABS)-like recordation package for the SRWTP to be filed with the City's Preservation Office and Center for Sacramento History. The HABS-like document shall be prepared by a qualified architectural historian, historic architect, or historic preservation professional who satisfies the Secretary of the Interior's Professional Qualification Standards for History, Architectural History, or Architecture, pursuant to 36 CFR 61. This document shall record the history of the SRWTP, its contributing architecture, and detail the important events or other significant contributions to the patterns and trends of history with which the property is associated, as appropriate. The SRWTP physical condition, both historic and current, shall be documented through design plans; historic maps and photographs; large format photographs; and written data. SRWTP's contributing elements and character-defining features, specifically the Pump House, Head House, Coagulant	Prepare a Historic American Buildings Survey (HABS)-like recordation package for the SRWTP to be filed with the City's Preservation Office and Center for Sacramento History. The completed HABS-like documents shall be sent to the City as well as tote the Center for Sacramento History.	TPI-SRWTP	City of Sacramento Qualified Architectural Historian, Historic Architect, or Historic Preservation Professional	Prior to demolition and construction.	City of Sacramento Department of Utilities

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
	Building, West Filter Building and Filters, Sedimentation Basin 1, the 5-MG Clearwell, as well as the property Beaux Arts setting and contextual views shall be documented. The completed HABS-like documents shall be sent to the City as well as tote the Center for Sacramento History. The original intake facility has already been subject to HAER recordation in 2003, which can be appended or incorporated into the current HABS package and does not need to be redocumented as part of this mitigation.					
	Mitigation Measure 3.7-1(d) (TPI-SRWTP): Following completion of Mitigation Measure 3.7-1(c), the City or its qualified contractor, shall create and install an interpretive exhibit discussing the historic significance of the SRWTP. This exhibit shall be publicly accessible, such as an informational kiosk or a website and installation of a temporary exhibit (in the Public Library or City Hall). The exhibit will be created using information previously compiled in the HABS-like recordation package, as well as information and materials compiled in consultation with the City's Preservation Commission in order to determine the ideal format, informational content, and installation location of the interpretive exhibit.	Create and install an interpretive exhibit discussing the historic significance of the SRWTP.	TPI-SRWTP	City of Sacramento Qualified Professional Architectural Historian	Following completion of Mitigation Measure 3.7-1(c).	City of Sacramento Department of Utilities
	Mitigation Measure 3.7-1(e) (TP): i. Following identification of the project footprint associated with the proposed potable water transmission pipelines and associated construction activities, the City shall engage a professional architectural historian meeting the U.S. Secretary of the Interior's Standards to review the proposed project for historical resources located adjacent to or intersecting the alignment or its associated elements. This will include a records search at the NCIC of the CHRIS, and initial reconnaissance survey for all project components that involve ground disturbance or alterations to buildings dating 50 years or older. If no resources previously determined eligible or unevaluated resources dating 50 years or older are identified, no further measures are needed. ii. If the architectural historian determines that known historical resources or potentially eligible historic age buildings or structures may be impacted by project construction, the City shall re-route the pipeline alignment to avoid identified historic resources. iii. If the alignment cannot be re-routed to avoid adversely effecting an identified historic resource, a Historic Resource Evaluation Report (HRER) shall be completed. This report shall include the results of an intensive survey, identification of known historical resources within or adjacent to the project footprint, and recordation/evaluation of all previously unrecorded potential historical resources within the study area. In the unlikely event that proposed project activities shall directly or indirectly impact historical resources identified in the HRER, additional mitigation measures such as project redesign, resource protection plans, or HABS/HAER recordation would be recommended and implemented as appropriate. The HRER detailing the results of the research and impact analysis shall be prepared and submitted for review by the City and a final draft shall be submitted to the NCIC.	Engage a professional architectural historian meeting the U.S. Secretary of the Interior's Standards to review the proposed project for historical resources located adjacent to or intersecting the alignment or its associated elements. If the architectural historian determines that known historical resources or potentially eligible historic age buildings or structures may be impacted by project construction, the City shall re-route the pipeline alignment to avoid identified historic resources. If the alignment cannot be re-routed to avoid adversely effecting an identified historic resource, a Historic Resource Evaluation Report (HRER) shall be completed. The HRER detailing the results of the research and impact analysis shall be prepared and submitted for review by the City and a final draft shall be submitted to the NCIC.	TP	City of Sacramento Qualified Professional Architectural Historian	Following identification of the project footprint associated with the proposed potable water transmission pipelines and associated construction activities	City of Sacramento Department of Utilities

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
3.7-2: Construction of the proposed project could cause a substantial adverse change in the significance of an archaeological resource.	**Mitigation Measure 3.7-2(a) (ALL):** i. If pre-contact or historic-era archaeological resources are encountered during project construction and implementation, all construction activities within 100 feet shall halt and the City shall be notified. Pre-contact archaeological materials might include obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or toolmaking debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish food remains from precontact populations; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-age materials might include stone, concrete, or adobe footings and walls; filled wells or privies; and archaeological deposits of metal, glass, and/or ceramic refuse indicating historic period refuse. An archaeologist meeting the U.S. Secretary of the Interior's Standards for Archeology shall inspect the findings within 24 hours of discovery. ii. If the City determines that the resource qualifies as a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines) and that the project has potential to damage or destroy the resource, mitigation shall be implemented in accordance with PRC Section 21083.2 and CEQA Guidelines Section 15126.4, with a preference for preservation in place. iii. If avoidance is not feasible, the City shall consult with appropriate Native American tribes (if the resource is pre-contact), and other appropriate interested parties to determine treatment measures to avoid, minimize, or mitigate any potential impacts to the resource pursuant to PRC Section 21083.2, and CEQA Guidelines Section 15126.4. This shall include documentation of the resource and may include data recovery (according to PRC Section 21083.2), if deemed appropriate, or other actions such as treating the resource with culturally appropriate dignity and protecting the cultural character and integrity of the resource (according to PRC Section 21084.3).	Cease work within 100 feet if discovery is made and notify the project's City representative	All	City of Sacramento Qualified Archeologist Contractor	During project construction	City of Sacramento Department of Utilities
	Mitigation Measure 3.7-2(b) (ALL): Before any ground-disturbing and/or construction activities, an archaeologist meeting or under the supervision of an archaeologist meeting the Secretary of the Interior's Standards for Archeology shall conduct a training program for all construction and field personnel involved in ground disturbance. Native American tribal representative(s) associated with compliance with Mitigation Measures 3.18-1(a) through (c) will be invited to participate in the training program. On-site personnel shall attend mandatory pre-project training that shall outline the general archaeological sensitivity of the area and the procedures to follow in the event an archaeological resource and/or human remains are inadvertently discovered. A training program shall be established for new project personnel before they begin project work.	Conduct a training program for all construction and field personnel involved in ground disturbance.	All	City of Sacramento Qualified Archeologist Contractor	Prior to any ground-disturbing and/or construction activities.	City of Sacramento Department of Utilities
	Mitigation Measure 3.7-2(c) (ALL): i. Following 30 percent design of the underground utility installation plans, the City shall engage an archaeologist that meets the U.S. Secretary of the Interior's Standards for Archeology to conduct a records search at the NCIC of the CHRIS for all project components that require ground disturbance (i.e., excavation, trenching, grading, etc.) in areas that have not been reviewed as part of the project-level analysis.	Engage a qualified archaeologist to conduct a records search at the NCIC of the CHRIS for all project components that require ground disturbance in areas that have not been reviewed as part of the project-level analysis.	All	City of Sacramento Qualified Archeologist	Following 30 percent design of the underground utility installation plans.	City of Sacramento Department of Utilities

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
	ii. If the archaeologist determines that known cultural resources or potential archaeologically sensitive areas may be impacted by the project, a pedestrian survey must be conducted under the supervision of a qualified archaeologist of all accessible portions of the project area, if one has not been completed within the previous five years. A cultural report detailing the results of the research shall be prepared and submitted for review by the City and a final draft shall be submitted to the NCIC. Once the report has been approved by the City, the City may issue appropriate permits. iii. Additional research, including subsurface testing or monitoring during construction may be required to identify, evaluate, and mitigate impacts to archaeological resources, as recommended by the qualified archaeologist. If avoidance is not feasible, the City shall consult with California Native American tribes identified by the NAHC to be affiliated with the proposed project area (if the resource is pre-contact or indigenous) and the tribal representative(s) associated with compliance with Mitigation Measure 3.18-1(a), to determine treatment measures to avoid, minimize, or mitigate any potential impacts to the resource pursuant to PRC Section 21083.2 and CEQA Guidelines Section 15126.4. This shall include documentation of the resource and may include data recovery (according to PRC Section 21083.2), if deemed appropriate, or other actions such as treating the resource with culturally appropriate dignity and protecting the cultural character and integrity of the resource (according to PRC Section 21084.3).					
3.7-3: Construction of the proposed project may disturb human remains, including those interred outside of designated cemeteries.	**Mitigation Measure 3.7-3 (ALL):** Procedures of conduct following the discovery of human remains have been mandated by Health and Safety Code Section 7050.5, PRC Section 5097.98 and the California Code of Regulations Section 15064.5 (CEQA). According to the provisions in CEQA, if human remains are encountered, the City shall ensure that all work in the immediate vicinity of the discovery shall cease and necessary steps are taken to ensure the integrity of the immediate area. The Sacramento County Coroner shall be notified immediately. The Coroner shall then determine whether the remains are Native American. If the Coroner determines the remains are Native American, the Coroner shall notify the NAHC within 24 hours, who will, in turn, notify the person the NAHC identifies as the Most Likely Descendant (MLD) of any human remains. Further actions shall be determined, in part, by the desires of the MLD. The MLD has 48 hours to make recommendations regarding the disposition of the remains following notification from the NAHC of the discovery. If the MLD does not make recommendations within 48 hours, the landowner shall, with appropriate dignity, reinter the remains in an area of the property secure from further disturbance.	All work in the immediate vicinity of the discovery shall cease and necessary steps are taken to ensure the integrity of the immediate area.	All	City of Sacramento Qualified Archeologist Contractor	During project construction.	City of Sacramento Department of Utilities

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
3.11 Hazards and Hazardous Materials						
3.11-6: Construction of the proposed project could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	**Mitigation Measure 3.11-1 (ALL):** Prior to the start of construction, the construction contractor shall prepare a Traffic Control Plan in accordance with City of Sacramento Municipal Code Sections 12.20.020 and 12.20.030 that shall be subject to review and approval by the City of Sacramento Utilities Department, in consultation with local emergency service providers including the City of Sacramento Fire and Police departments. The plan shall ensure that acceptable operating conditions on local roadways are maintained. A copy of the approved Traffic Control Plan shall be submitted to local emergency response agencies, and these agencies shall be notified at least 30 days before the commencement of construction that would partially or fully obstruct roadways. At a minimum, the plan shall include: (a) The number of truck trips, time, and day of street closures. (b) Time of day of arrival and departure of trucks. (c) Limitations on the size and type of trucks, provision of a staging area with a limitation on the number of trucks that can be waiting. (d) Provision of a truck circulation pattern. (e) Identification of detour routes and signing plan for street closures. (f) Provision of driveway access plan so that safe vehicular, pedestrian, and bicycle movements are maintained (e.g., steel plates, minimum distances of open trenches, and private vehicle pick up and drop off areas). (g) Identification of safe and efficient access routes for emergency vehicles and transit. (h) Manual traffic control when necessary. (i) Proper advance warning and posted signage concerning street/lane closures. (j) Provisions for pedestrian and bicycle safety.	Prepare a Traffic Control Plan. A copy of the approved Traffic Control Plan shall be submitted to local emergency response agencies, and these agencies shall be notified at least 30 days before the commencement of construction that would partially or fully obstruct roadways.	All	City of Sacramento	Prior to start of construction.	City of Sacramento Department of Utilities
3.14 Noise and Vibration						
3.14-1: Construction of the proposed project could generate a substantial temporary or permanent increase in ambient noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	**Mitigation Measure 3.14-1 (ALL):** The City shall require contractors to implement the measures below, as a condition of contract, to avoid and minimize temporary and short-term construction noise effects on sensitive receptors. These measures will be implemented during construction, to avoid and minimize temporary and short-term construction noise effects on sensitive receptors: (a) All construction activity on the project sites shall comply with the provisions of City Code Chapter 8.68 relating to noise between the hours of 7:00 a.m. and 6:00 p.m. Monday through Saturday, and between the hours of 9:00 a.m. and 6:00 p.m. on Sunday. Construction outside of these hours would require approval by the Director of Community Development or their designee that the construction noise mitigation measures would be adequate to prevent excessive noise disturbance of affected residential uses. Because it is anticipated that certain construction activities (such pipeline work outside the treatment plants at major street intersections) may require work outside normally permitted construction hours (e.g., overnight), such construction activities would be allowed, subject to conditions of approval, including performance standards, imposed by the City to limit noise impacts.	Implement noise measures	All	City of Sacramento Contractor	During project construction.	City of Sacramento Department of Utilities

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
	(b) All construction equipment shall be equipped with noise-reduction devices, such as mufflers, to minimize construction noise, and all internal combustion engines will be equipped with exhaust and intake silencers, in accordance with manufacturers' specifications. (c) The use of bells, whistles, alarms, and horns will be restricted to safety warning purposes only. (d) Excessive noise-generating activities such as concrete cutting and pile driving shall be conducted during daytime hours only. (e) Impact tools shall be restricted to daytime construction hours. (f) Impact tools and equipment that are particularly loud (e.g., concrete saws) shall have the working area/impact area shrouded or shielded, with intake and exhaust ports on power equipment muffled or suppressed. The use of temporary or portable, application-specific noise shields or barriers, or temporary construction barriers adjacent to or at the boundary of the construction area may be necessary to reduce associated noise levels. (g) Stationary noise-generating equipment such as air compressors or portable power generators shall be located as far as possible from sensitive receptors. Temporary noise barriers shall be constructed, if needed, to screen stationary noise-generating equipment when located near adjoining noise-sensitive land uses.					
3.14-3: Construction of the proposed project could generate excessive groundborne vibration or groundborne noise levels.	**Mitigation Measure 3.14-2 (EUU-FWTP – storm drainage improvements only, SRWI-Existing/New, TP):** The City shall require contractors to implement the following measures at work sites within 90 feet of sensitive receptors during project construction to avoid and minimize the effects of temporary and short-term construction-related groundborne vibration on sensitive receptors. (a) Equipment shall be operated as far away as practical from vibration-sensitive receptors. (b) As a condition of the construction contract, compaction activities shall be limited to the hours of 8:00 a.m. to 6:00 p.m. when work is within 90 feet of a sensitive land use. (c) Where practicable, contractors use smaller vibratory rollers to minimize vibration levels during compaction activities where needed to meet vibration standards.	Implement vibration measures at work sites within 90 feet of sensitive receptors.	EUU-FWTP – storm drainage improvements only, SRWI-Existing/New, TP	City of Sacramento Contractor	During project construction.	City of Sacramento Department of Utilities
3.17 Transportation						
3.17-5: Construction of the proposed project could result in inadequate emergency access.	**Mitigation Measure 3.17-1 (ALL):** Implement Mitigation Measure 3.11-1.	See Mitigation Measure 3.11-1.	All	See Mitigation Measure 3.11-1.	See Mitigation Measure 3.11-1.	See Mitigation Measure 3.11-1.
3.18 Tribal Cultural Resources						
3.18-1: Implementation of the proposed project may cause a substantial adverse change to tribal cultural resources	**Mitigation Measures 3.18-1(a) (ALL):** Prior to Ground-Disturbing Activities, the City shall require the contractor to provide a tribal cultural resources sensitivity and awareness training program (Worker Environmental Awareness Program [WEAP]) conducted by a qualified archaeologist or representative from a culturally affiliated tribe for all personnel involved in project construction, including field consultants and construction workers in conjunction with Mitigation Measure 3.7-2(b). The WEAP will be developed in coordination with the culturally affiliated Tribe. The WEAP shall be conducted before any project-related construction activities begin at the project site. The WEAP will include relevant information regarding sensitive tribal cultural resources, including applicable regulations, protocols for avoidance, and consequences of violating State laws and regulations.	Provide a tribal cultural resources sensitivity and awareness training program	All	City of Sacramento Contractor Qualified Archeologist	Prior to ground-disturbing activities.	City of Sacramento Department of Utilities

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
	The WEAP will also describe appropriate avoidance and impact minimization measures for tribal cultural resources that could be located at the project site and will outline what to do and who to contact if any potential tribal cultural resources are encountered. The WEAP will emphasize the requirement for confidentiality and culturally appropriate treatment of any discovery of significance to Native Americans and will discuss appropriate behaviors and responsive actions, consistent with Native American tribal values.					
	Mitigation Measure 3.18-1(b) (ALL): If any suspected TCRs or resources of cultural significance to Native American Tribes, including but not limited to features, anthropogenic/cultural soils, cultural belongings or objects (artifacts), shell, bone, shaped stones or bone, or ash/charcoal deposits are discovered by any person during construction activities including ground disturbing activities, all work shall pause immediately within 100 feet of the find, or an agreed upon distance based on the project area and nature of the find. Work shall cease in and within the immediate vicinity of the find regardless of whether the construction is being actively monitored by a qualified Tribal Monitor, cultural resources specialist, or professional archaeologist. A representative from the culturally affiliated Tribe and the proposed project's City representative shall be immediately notified, and the representative from the culturally affiliated Tribe in coordination with the City's representative shall determine if the find is a TCR (PRC Section 21074) and the representative from the culturally affiliated Tribe shall make recommendations for further evaluation and treatment as necessary. i. Further evaluation and treatment of an identified TCR may include but is not limited to: a. identification of the boundaries of the new TCR; b. recordation of the resource; c. if feasible, appropriate preservation in place and avoidance measures, including redesign or adjustments to the existing construction process, and long-term management; or d. if avoidance is infeasible, a reburial location in proximity of the find where no future disturbance is anticipated. Permanent curation of TCRs shall not take place unless approved in writing by the culturally affiliated Tribe. ii. The construction contractor(s) shall provide secure, on-site storage for culturally sensitive soils or objects that are components of TCRs that are found or recovered during construction. Only representatives from the culturally affiliated Tribe shall have access to the storage. Storage size shall be determined by the nature of the TCR and can range from a small lock box to a conex box (shipping container). A secure (locked), fenced area can also provide adequate on-site storage if larger amounts of material must be stored. iii. The construction contractor(s) and the City, in consultation with the culturally affiliated Tribe shall facilitate the respectful reburial of the culturally sensitive soils or objects. This includes providing a reburial location that is consistent with the culturally affiliated Tribe's preferences, excavation of the reburial location, and assisting with the reburial, upon request.	All work shall pause immediately within 100 feet of the find, or an agreed upon distance based on the project area and nature of the find. Work shall cease in and within the immediate vicinity of the find regardless of whether the construction is being actively monitored by a qualified Tribal Monitor, cultural resources specialist, or professional archaeologist. A representative from the culturally affiliated Tribe and the proposed project's City representative shall be immediately notified, and the representative from the culturally affiliated Tribe in coordination with the City's representative shall determine if the find is a TCR and the representative from the culturally affiliated Tribe shall make recommendations for further evaluation and treatment as necessary.	All	City of Sacramento Contractor Qualified Tribal Monitor, Cultural Resources Specialist, or Professional Archaeologist	During construction that involves ground disturbance.	City of Sacramento Department of Utilities

Impact	Mitigation Measure	Action(s)	Component	Implementing Party	Timing	Monitoring and Reporting Party
	iv. Any discoveries shall be documented on a Department of Parks and Recreation (DPR) 523 form within 2 weeks of the discovery and submitted to the appropriate CHRIS center in a timely manner. v. Work at the TCR discovery location shall not resume until authorization is granted by the City in coordination with the culturally affiliated Tribe. vi. If articulated or disarticulated human remains, or human remains in any state of decomposition or skeletal completeness are discovered during construction activities, the City of Sacramento Coroner and the culturally affiliated Tribe shall be contacted immediately. Upon determination by the City of Sacramento County Coroner that the find is Native American in origin, the Native American Heritage Commission will assign the Most Likely Descendent who will work with the City to define appropriate treatment and disposition of the burials.					
	Mitigation Measure 3.18-1(c) (ALL): The following measures shall be implemented to assist with identification of TCRs at the earliest possible time during proposed project construction-related activities that involve ground disturbance: i. The City of Sacramento, or the designated construction project manager, shall reach out to and retain the services of a qualified Tribal Monitor(s) in a reasonable amount of time prior to initiating any proposed project construction-related ground disturbing activities. The schedule of construction-related ground disturbing activities shall be made available to the identified qualified Tribal Monitor so that the monitoring schedule can be coordinated. ii. Prior to initiating monitoring activities, the qualified Tribal Monitor(s) shall participate in all required on-site safety training and shall comply with all required safety measures, including wearing required safety gear while on the construction site. iii. A qualified Tribal Monitor(s) shall monitor project construction-related ground disturbing activities including vegetation grubbing, stripping, grading, trenching, and other ground disturbing activities in the project area. All project construction related ground disturbing activities, including rebuild or previously disturbed, shall be subject to Tribal Monitoring unless otherwise determined unnecessary by the qualified Tribal Monitor. iv. The qualified Tribal Monitor(s) in coordination with the City of Sacramento and the designated contracted construction project manager r shall have the authority to direct that work be temporarily paused, diverted, or slowed within 100 feet of the immediate impact area if sites, cultural soils, or objects of potential significance are identified. The temporary pause/diversion shall be of an adequate duration for the culturally affiliated Tribal representative to be notified and to examine the resource and determine the appropriate treatment of the identified TCR consistent with the measures included in Mitigation Measure 3.18-1(b).	Reach out and retain the services of a qualified Tribal Monitor(s) and coordinate as required by the mitigation measure	All	City of Sacramento Contractor Qualified Tribal Monitor, Cultural Resources Specialist, or Professional Archaeologist	During construction that involves ground disturbance.	City of Sacramento Department of Utilities
3.20 Wildfire						
3.20-1: Construction of the proposed project could potentially impair an adopted emergency response plan or emergency evacuation plan.	**Mitigation Measure 3.20-1 (ALL):** Implement Mitigation Measure 3.11-1.	See Mitigation Measure 3.11-1.	All	See Mitigation Measure 3.11-1.	See Mitigation Measure 3.11-1.	See Mitigation Measure 3.11-1.

NOTES:
1. This BMP for idling specifically applies to diesel-powered equipment. Non-diesel vehicles are not required to limit idling time.
2. This BMP specifically applies to diesel-powered equipment.

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Updated Appendix B

Criteria Air Pollutant and Greenhouse Gas Emission Calculations

Water Plus- On-site Construction Emissions

Phase Equipment Lists

	SRWTP Initial Phase 1.a (includes Treatment Plant Improvements and Existing Utility Upgrades, Existing Intake, FWTP)					SRWTP Later Phase (Buildout, includes new water intake, potable transmission pipelines)					SRWTP Initial Phase 1.b (includes Treatment Plant Improvements and Existing Utility Upgrades)				
Type of equipment	Max. No. of Use Per Bldg / Area Per Day (no.)	Size (hp)	Fuel (gal)	Total (hrs)	Daily Ave (hrs/day)	Max. No. of Use Per Bldg / Area Per Day (no.)	Size (hp)	Fuel (gal)	Total (hrs)	Daily Ave (hrs/day)	Max. No. of Use Per Bldg / Area Per Day (no.)	Size (hp)	Fuel (gal)	Total (hrs)	Daily Ave (hrs/day)
Aerial Lifts	1	90	3,480	1,301	1	1	90	3,350	1,253	0	1	90	2,006	750	1
Air Compressors	0	10	0	0	0	0	10	0	0	0	0	10	0	0	0
Bore/Drill Rigs	1	300	2,120	326	1	1	300	13,979	2,152	1	1	300	9,377	1,443	1
Concrete/Industrial Saws	2	2	118	1,989	2	2	2	168	2,833	1	2	2	146	2,462	2
Cranes	0	300	0	0	0	0	300	0	0	0	0	300	0	0	0
Crawler Tractors	1	300	11,281	1,266	1	1	300	20,112	2,256	1	1	300	13,332	1,496	1
Dumpers/Tenders	0	400	0	0	0	0	400	0	0	0	0	400	0	0	0
Excavators	1	400	19,774	1,664	1	1	400	22,845	1,922	1	1	400	13,338	1,122	1
Forklifts	1	100	1,980	666	1	1	100	4,419	1,487	0	1	100	3,019	1,016	1
Generator Sets	1	100	3,321	1,118	1	1	100	6,704	2,256	1	1	100	4,004	1,348	1
Graders	1	400	1,759	148	0	1	400	2,482	209	0	1	400	0	0	0
Paving Equipment	1	300	2,246	252	0	1	300	2,606	292	0	1	300	0	0	0
Plate Compactors	1	10	353	1,187	1	1	10	299	1,007	0	1	10	172	577	0
Pumps	2	10	1,039	3,496	3	2	10	6,556	22,064	7	2	10	3,377	11,367	9
Rollers	1	400	6,327	532	1	1	400	4,467	376	0	1	400	0	0	0
Concrete Pumps	0	350	0	0	0	0	350	0	0	0	0	350	0	0	0
Watertruck	1	275	4,540	556	0	1	275	3,687	451	0	1	275	2,444	299	0
Welders	2	25	602	811	1	2	25	3,227	4,344	1	2	25	1,072	1,443	1
Rubber Tired Loaders	2	250	4,660	1,763	2	2	250	9,638	3,645	1	1	250	5,932	2,244	2
Rubber Tired Backhoe	0	150	0	0	0	0	150	0	0	0	0	150	0	0	0
Concrete Truck	1	325	0	0	0	1	325	221	84	0	1	325	0	0	0

Phase Schedule

SRWTP 1.a Treatment Plant Improvements and Existing Utility Upgrades (5 years)			SRWTP buildout (10 years)			SRWTP 1.b Treatment Plant Improvements and Existing Utility Upgrades (5 years)		
Start date	**1/1/2027**	12/31/2027	Start date	**1/1/2039**	12/31/2039	Start date	**1/1/2033**	12/31/2033
	1/1/2028	12/31/2028		**1/1/2040**	12/31/2040		**1/1/2034**	12/31/2034
	1/1/2029	12/31/2029		**1/1/2041**	12/31/2041		**1/1/2035**	12/31/2035
	1/1/2030	12/31/2030		**1/1/2042**	12/31/2042		**1/1/2036**	12/31/2036
	1/1/2031	12/31/2031		**1/1/2043**	12/31/2043		**1/1/2037**	12/31/2037
End date	1/1/2032	7/1/2032		**1/1/2044**	12/31/2044	End date	**1/1/2038**	7/1/2038
				1/1/2045	12/31/2045			
				1/1/2046	12/31/2046			
				1/1/2047	12/31/2047			
				1/1/2048	12/31/2048			
				1/1/2049	12/31/2049			
			End date	1/1/2050	6/1/2050			
Years	5.5		Years	11.4		Years	5.5	
Workdays	1,435		Workdays	2,978		Workdays	1,434	

Pollutant	CO2	CH4	N2O
Global Warming Potential	**1**	**25**	**298**

Conversions		
1 pound =	454	g
1 MT =	1,000,000	g
1 ton =	907,185	g

	SRWTP (Phase 1.a)	Tier	Equipment HP	HP bin for EF	LF	Total hours per calendar year	hp-hr	EF year	ROG	NOx	Ex PM-10	Ex PM2.5	ROG	NOx	Ex PM-10	Ex PM2.5	CO2	CH4	N2O	CO2	CH4	N2O	CO2e
2027	Aerial Lifts	Average	90	100	0.31	237	21302.4017	2027	0.083	1.409	0.017	0.015	0.00	0.01	0.00	0.00	527.884	0.021	0.004	3.49	0.00	0.00	3.50
	Crawler Tractors	Average	300	300	0.43	230.189268	69056.7805	2027	0.224	2.189	0.089	0.082	0.01	0.07	0.00	0.00	527.027	0.021	0.004	15.65	0.00	0.00	15.70
	Excavators	Average	400	600	0.38	302.60722	121042.888	2027	0.112	0.62	0.022	0.02	0.01	0.03	0.00	0.00	527.012	0.021	0.004	24.24	0.00	0.00	24.32
	Forklifts	Average	100	50	0.2	121.220404	12122.0404	2027	0.577	3.746	0.142	0.131	0.00	0.01	0.00	0.00	587.187	0.024	0.005	1.42	0.00	0.00	1.43
	Generator Sets	Average	100	50	0.74	203.270801	20327.0801	2027	0.314	3.286	0.066	0.06	0.01	0.05	0.00	0.00	568.333	0.023	0.005	8.55	0.00	0.00	8.58
	Graders	Average	400	600	0.41	26.9184669	10767.3868	2027	0.24	2.318	0.087	0.08	0.00	0.01	0.00	0.00	522.633	0.021	0.004	2.31	0.00	0.00	2.31
	Paving Equipment	Average	300	300	0.36	45.8341463	13750.2439	2027	0.147	1.164	0.048	0.044	0.00	0.01	0.00	0.00	529.152	0.021	0.004	2.62	0.00	0.00	2.63
	Plate Compactors	Average	10	25	0.43	215.857003	2158.57003	2027	0.547	4.143	0.162	0.149	0.00	0.00	0.00	0.00	568.318	0.023	0.005	0.53	0.00	0.00	0.53
	Pumps	Average	10	25	0.74	635.785087	6357.85087	2027	0.565	4.288	0.173	0.16	0.00	0.02	0.00	0.00	568.297	0.023	0.005	2.67	0.00	0.00	2.68
	Rollers	Average	400	600	0.38	96.8191777	38727.6711	2027	0.151	1.503	0.053	0.048	0.00	0.02	0.00	0.00	528.733	0.021	0.004	7.78	0.00	0.00	7.81
	Other Material Handling Equipment	Average	275	300	0.4	101.06793	27793.6808	2027	0.234	1.809	0.077	0.071	0.00	0.02	0.00	0.00	528.104	0.021	0.004	5.87	0.00	0.00	5.89
	Welders	Average	25	25	0.45	147.513199	3687.82997	2027	0.568	4.316	0.173	0.159	0.00	0.01	0.00	0.00	568.317	0.023	0.005	0.94	0.00	0.00	0.95
	Rubber Tired Loaders	Average	250	300	0.36	320.58439	80146.0976	2027	0.16	1.076	0.037	0.034	0.01	0.03	0.00	0.00	526.664	0.021	0.004	15.20	0.00	0.00	15.25
	Off-Highway Trucks	Average	325	600	0.38	347.659481	112989.331	2027	0.176	0.965	0.034	0.031	0.01	0.05	0.00	0.00	529.01	0.021	0.004	22.71	0.00	0.00	22.79
	Other Material Handling Equipment	Average	350	600	0.4	287.605631	100661.971	2027	0.14	0.903	0.031	0.029	0.01	0.04	0.00	0.00	527.861	0.021	0.004	21.25	0.00	0.00	21.32
2028	Aerial Lifts	Average	90	100	0.31	236	21220.7833	2028	0.079	1.406	0.015	0.014	0.00	0.01	0.00	0.00	527.892	0.021	0.004	3.47	0.00	0.00	3.48
	Bore/Drill Rigs	Average	300	300	0.5	59.138676	17741.6028	2028	0.112	1.008	0.033	0.03	0.00	0.01	0.00	0.00	524.552	0.021	0.004	4.65	0.00	0.00	4.67
	Concrete/Industrial Saws	Average	2	25	0.73	360.441533	720.883066	2028	0.587	4.491	0.168	0.154	0.00	0.00	0.00	0.00	589.166	0.024	0.005	0.31	0.00	0.00	0.31
	Crawler Tractors	Average	300	300	0.43	229.307317	68792.1951	2028	0.219	2.05	0.085	0.078	0.01	0.07	0.00	0.00	527.365	0.021	0.004	15.60	0.00	0.00	15.65
	Excavators	Average	400	600	0.38	301.447805	120579.122	2028	0.11	0.579	0.021	0.019	0.01	0.03	0.00	0.00	527.04	0.021	0.004	24.15	0.00	0.00	24.23
	Forklifts	Average	100	50	0.2	120.755958	12075.5958	2028	0.569	3.708	0.133	0.123	0.00	0.01	0.00	0.00	587.187	0.024	0.005	1.42	0.00	0.00	1.42
	Generator Sets	Average	100	50	0.74	202.491986	20249.1986	2028	0.292	3.197	0.053	0.049	0.00	0.05	0.00	0.00	568.314	0.023	0.005	8.52	0.00	0.00	8.55
	Graders	Average	400	600	0.41	26.815331	10726.1324	2028	0.239	2.285	0.084	0.078	0.00	0.01	0.00	0.00	520.049	0.021	0.004	2.29	0.00	0.00	2.29
	Paving Equipment	Average	300	300	0.36	45.6585366	13697.561	2028	0.152	1.168	0.048	0.044	0.00	0.01	0.00	0.00	529.15	0.021	0.004	2.61	0.00	0.00	2.62
	Plate Compactors	Average	10	25	0.43	215.029965	2150.29965	2028	0.547	4.143	0.162	0.149	0.00	0.00	0.00	0.00	568.389	0.023	0.005	0.53	0.00	0.00	0.53
	Pumps	Average	10	25	0.74	633.349129	6333.49129	2028	0.561	4.27	0.171	0.157	0.00	0.02	0.00	0.00	568.344	0.023	0.005	2.66	0.00	0.00	2.67
	Rollers	Average	400	600	0.38	96.448223	38579.2892	2028	0.144	1.294	0.047	0.044	0.00	0.02	0.00	0.00	530.685	0.022	0.004	7.78	0.00	0.00	7.81
	Other Material Handling Equipment	Average	275	300	0.4	100.680697	27687.1916	2028	0.22	1.608	0.068	0.063	0.00	0.02	0.00	0.00	528.007	0.021	0.004	5.85	0.00	0.00	5.87
	Welders	Average	25	25	0.45	146.948014	3673.70035	2028	0.565	4.299	0.17	0.157	0.00	0.01	0.00	0.00	568.314	0.023	0.005	0.94	0.00	0.00	0.94
	Rubber Tired Loaders	Average	250	300	0.36	319.356098	79839.0244	2028	0.157	0.964	0.033	0.031	0.00	0.03	0.00	0.00	526.776	0.021	0.004	15.14	0.00	0.00	15.19
	Off-Highway Trucks	Average	325	600	0.38	346.327452	112556.422	2028	0.174	0.889	0.032	0.029	0.01	0.04	0.00	0.00	529.297	0.021	0.004	22.64	0.00	0.00	22.71
	Other Material Handling Equipment	Average	350	600	0.4	286.503693	100276.293	2028	0.131	0.745	0.026	0.024	0.01	0.03	0.00	0.00	527.857	0.021	0.004	21.17	0.00	0.00	21.24
2029	Aerial Lifts	Average	90	100	0.31	237	21302.4017	2029	0.082	1.395	0.014	0.012	0.00	0.01	0.00	0.00	527.896	0.021	0.004	3.49	0.00	0.00	3.50
	Bore/Drill Rigs	Average	300	300	0.5	59.3661324	17809.8397	2029	0.111	0.974	0.032	0.029	0.00	0.01	0.00	0.00	525.142	0.021	0.004	4.68	0.00	0.00	4.69
	Concrete/Industrial Saws	Average	2	25	0.73	361.827847	723.655693	2029	0.585	4.474	0.167	0.154	0.00	0.00	0.00	0.00	586.916	0.024	0.005	0.31	0.00	0.00	0.31
	Crawler Tractors	Average	300	300	0.43	230.189268	69056.7805	2029	0.21	1.858	0.078	0.072	0.01	0.06	0.00	0.00	527.287	0.021	0.004	15.66	0.00	0.00	15.71
	Excavators	Average	400	600	0.38	302.60722	121042.888	2029	0.108	0.549	0.02	0.018	0.01	0.03	0.00	0.00	527.304	0.021	0.004	24.25	0.00	0.00	24.33
	Forklifts	Average	100	50	0.2	121.220404	12122.0404	2029	0.558	3.655	0.122	0.112	0.00	0.01	0.00	0.00	587.137	0.024	0.005	1.42	0.00	0.00	1.43
	Generator Sets	Average	100	50	0.74	203.270801	20327.0801	2029	0.275	3.144	0.045	0.041	0.00	0.05	0.00	0.00	568.304	0.023	0.005	8.55	0.00	0.00	8.58
	Graders	Average	400	600	0.41	26.9184669	10767.3868	2029	0.197	1.679	0.061	0.056	0.00	0.01	0.00	0.00	525.026	0.021	0.004	2.32	0.00	0.00	2.33
	Paving Equipment	Average	300	300	0.36	45.8341463	13750.2439	2029	0.157	1.197	0.05	0.046	0.00	0.01	0.00	0.00	528.738	0.021	0.004	2.62	0.00	0.00	2.63
	Plate Compactors	Average	10	25	0.43	215.857003	2158.57003	2029	0.547	4.143	0.162	0.149	0.00	0.00	0.00	0.00	568.343	0.023	0.005	0.53	0.00	0.00	0.53
	Pumps	Average	10	25	0.74	635.785087	6357.85087	2029	0.559	4.255	0.168	0.155	0.00	0.02	0.00	0.00	568.32	0.023	0.005	2.67	0.00	0.00	2.68
	Rollers	Average	400	600	0.38	96.8191777	38727.6711	2029	0.146	1.297	0.048	0.044	0.00	0.02	0.00	0.00	531.116	0.022	0.004	7.82	0.00	0.00	7.84
	Other Material Handling Equipment	Average	275	300	0.4	101.06793	27793.6808	2029	0.207	1.449	0.059	0.054	0.00	0.02	0.00	0.00	528.016	0.021	0.004	5.87	0.00	0.00	5.89
	Welders	Average	25	25	0.45	147.513199	3687.82997	2029	0.562	4.286	0.168	0.155	0.00	0.01	0.00	0.00	568.308	0.023	0.005	0.94	0.00	0.00	0.95
	Rubber Tired Loaders	Average	250	300	0.36	320.58439	80146.0976	2029	0.158	0.906	0.032	0.029	0.01	0.03	0.00	0.00	526.689	0.021	0.004	15.20	0.00	0.00	15.25
	Off-Highway Trucks	Average	325	600	0.38	347.659481	112989.331	2029	0.172	0.823	0.029	0.027	0.01	0.04	0.00	0.00	529.508	0.021	0.004	22.73	0.00	0.00	22.81
	Other Material Handling Equipment	Average	350	600	0.4	287.605631	100661.971	2029	0.131	0.727	0.025	0.023	0.01	0.03	0.00	0.00	527.856	0.021	0.004	21.25	0.00	0.00	21.32
2030	Aerial Lifts	Average	90	100	0.31	237	21302.4017	2030	0.082	1.382	0.013	0.012	0.00	0.01	0.00	0.00	527.896	0.021	0.004	3.49	0.00	0.00	3.50
	Bore/Drill Rigs	Average	300	300	0.5	59.3661324	17809.8397	2030	0.106	0.881	0.029	0.027	0.00	0.01	0.00	0.00	525.275	0.021	0.004	4.68	0.00	0.00	4.69
	Concrete/Industrial Saws	Average	2	25	0.73	361.827847	723.655693	2030	0.587	4.485	0.168	0.154	0.00	0.00	0.00	0.00	588.267	0.024	0.005	0.31	0.00	0.00	0.31
	Crawler Tractors	Average	300	300	0.43	230.189268	69056.7805	2030	0.202	1.719	0.074	0.068	0.01	0.06	0.00	0.00	527.287	0.021	0.004	15.66	0.00	0.00	15.71
	Excavators	Average	400	600	0.38	302.60722	121042.888	2030	0.107	0.516	0.019	0.018	0.01	0.03	0.00	0.00	527.304	0.021	0.004	24.25	0.00	0.00	24.33
	Forklifts	Average	100	50	0.2	121.220404	12122.0404	2030	0.529	3.59	0.109	0.1	0.00	0.01	0.00	0.00	587.137	0.024	0.005	1.42	0.00	0.00	1.43
	Generator Sets	Average	100	50	0.74	203.270801	20327.0801	2030	0.261	3.107	0.038	0.035	0.00	0.05	0.00	0.00	568.301	0.023	0.005	8.55	0.00	0.00	8.58
	Graders	Average	400	600	0.41	26.9184669	10767.3868	2030	0.195	1.551	0.061	0.056	0.00	0.01	0.00	0.00	525.026	0.021	0.004	2.32	0.00	0.00	2.33
	Paving Equipment	Average	300	300	0.36	45.8341463	13750.2439	2030	0.153	1.136	0.045	0.041	0.00	0.01	0.00	0.00	528.738	0.021	0.004	2.62	0.00	0.00	2.63
	Plate Compactors	Average	10	25	0.43	215.857003	2158.57003	2030	0.547	4.143	0.162	0.149	0.00	0.00	0.00	0.00	568.372	0.023	0.005	0.53	0.00	0.00	0.53
	Pumps	Average	10	25	0.74	635.785087	6357.85087	2030	0.557	4.245	0.166	0.153	0.00	0.02	0.00	0.00	568.352	0.023	0.005	2.67	0.00	0.00	2.68
	Rollers	Average	400	600	0.38	96.8191777	38727.6711	2030	0.141	1.213	0.043	0.04	0.00	0.02	0.00	0.00	531.116	0.022	0.004	7.82	0.00	0.00	7.84
	Other Material Handling Equipment	Average	275	300	0.4	101.06793	27793.6808	2030	0.202	1.378	0.058	0.053	0.00	0.02	0.00	0.00	528.016	0.021	0.004	5.87	0.00	0.00	5.89
	Welders	Average	25	25	0.45	147.513199	3687.82997	2030	0.561	4.277	0.166	0.153	0.00	0.01	0.00	0.00	568.333	0.023	0.005	0.94	0.00	0.00	0.95
	Rubber Tired Loaders	Average	250	300	0.36	320.58439	80146.0976	2030	0.156	0.851	0.03	0.028	0.00	0.03	0.00	0.00	526.689	0.021	0.004	15.20	0.00	0.00	15.25
	Off-Highway Trucks	Average	325	600	0.38	347.659481	112989.331	2030	0.169	0.779	0.028	0.026	0.01	0.04	0.00	0.00	529.508	0.021	0.004	22.73	0.00	0.00	22.81
	Other Material Handling Equipment	Average	350	600	0.4	287.605631	100661.971	2030	0.129	0.651	0.024	0.022	0.01	0.03	0.00	0.00	527.856	0.021	0.004	21.25	0.00	0.00	21.32

	SRWTP (Phase 1.a)	Tier	Equipment HP	HP bin for EF	LF	Total hours per calendar year	hp-hr	EF year	ROG	NOx	Ex PM-10	Ex PM2.5	ROG	NOx	Ex PM-10	Ex PM2.5	CO2	CH4	N2O	CO2	CH4	N2O	CO2e
	Aerial Lifts	Average	90	100	0.31	237	21302.4017	2031	0.08	1.376	0.013	0.012	0.00	0.01	0.00	0.00	527.896	0.021	0.004	3.49	0.00	0.00	3.50
	Bore/Drill Rigs	Average	300	300	0.5	59.3661324	17809.8397	2031	0.106	0.875	0.03	0.028	0.00	0.01	0.00	0.00	525.142	0.021	0.004	4.68	0.00	0.00	4.69
	Concrete/Industrial Saws	Average	2	25	0.73	361.827847	723.655693	2031	0.587	4.49	0.168	0.154	0.00	0.00	0.00	0.00	589.005	0.024	0.005	0.31	0.00	0.00	0.31
	Crawler Tractors	Average	300	300	0.43	230.189268	69056.7805	2031	0.198	1.636	0.072	0.066	0.01	0.05	0.00	0.00	527.287	0.021	0.004	15.66	0.00	0.00	15.71
	Excavators	Average	400	600	0.38	302.60722	121042.888	2031	0.105	0.484	0.018	0.017	0.01	0.02	0.00	0.00	527.304	0.021	0.004	24.25	0.00	0.00	24.33
	Forklifts	Average	100	50	0.2	121.220404	12122.0404	2031	0.503	3.559	0.098	0.09	0.00	0.01	0.00	0.00	587.137	0.024	0.005	1.42	0.00	0.00	1.43
	Generator Sets	Average	100	50	0.74	203.270801	20327.0801	2031	0.25	3.077	0.033	0.03	0.00	0.05	0.00	0.00	568.336	0.023	0.005	8.55	0.00	0.00	8.58
	Graders	Average	400	600	0.41	26.9184669	10767.3868	2031	0.193	1.334	0.061	0.056	0.00	0.01	0.00	0.00	525.026	0.021	0.004	2.32	0.00	0.00	2.33
2031	Paving Equipment	Average	300	300	0.36	45.8341463	13750.2439	2031	0.156	1.121	0.047	0.043	0.00	0.01	0.00	0.00	528.731	0.021	0.004	2.62	0.00	0.00	2.63
	Plate Compactors	Average	10	25	0.43	215.857003	2158.57003	2031	0.547	4.143	0.162	0.149	0.00	0.00	0.00	0.00	568.294	0.023	0.005	0.53	0.00	0.00	0.53
	Pumps	Average	10	25	0.74	635.785087	6357.85087	2031	0.556	4.238	0.165	0.152	0.00	0.02	0.00	0.00	568.325	0.023	0.005	2.67	0.00	0.00	2.68
	Rollers	Average	400	600	0.38	96.8191777	38727.6711	2031	0.133	1.059	0.039	0.036	0.00	0.02	0.00	0.00	531.116	0.022	0.004	7.82	0.00	0.00	7.84
	Other Material Handling Equipment	Average	275	300	0.4	101.06793	27793.6808	2031	0.197	1.286	0.057	0.052	0.00	0.02	0.00	0.00	528.016	0.021	0.004	5.87	0.00	0.00	5.89
	Welders	Average	25	25	0.45	147.513199	3687.82997	2031	0.56	4.271	0.165	0.152	0.00	0.01	0.00	0.00	568.324	0.023	0.005	0.94	0.00	0.00	0.95
	Rubber Tired Loaders	Average	250	300	0.36	320.58439	80146.0976	2031	0.155	0.799	0.029	0.027	0.00	0.03	0.00	0.00	526.689	0.021	0.004	15.20	0.00	0.00	15.25
	Off-Highway Trucks	Average	325	600	0.38	347.659481	112989.331	2031	0.167	0.731	0.028	0.025	0.01	0.03	0.00	0.00	529.508	0.021	0.004	22.73	0.00	0.00	22.81
	Other Material Handling Equipment	Average	350	600	0.4	287.605631	100661.971	2031	0.126	0.611	0.024	0.022	0.01	0.03	0.00	0.00	527.856	0.021	0.004	21.25	0.00	0.00	21.32
	Aerial Lifts	Average	90	100	0.31	119	10692.01	2032	0.08	1.375	0.012	0.011	0.00	0.01	0.00	0.00	527.896	0.021	0.004	1.75	0.00	0.00	1.76
	Bore/Drill Rigs	Average	300	300	0.5	29.7967944	8939.03833	2032	0.104	0.836	0.029	0.027	0.00	0.00	0.00	0.00	525.142	0.021	0.004	2.35	0.00	0.00	2.35
	Concrete/Industrial Saws	Average	2	25	0.73	181.60708	363.21416	2032	0.585	4.474	0.167	0.154	0.00	0.00	0.00	0.00	586.839	0.024	0.005	0.16	0.00	0.00	0.16
	Crawler Tractors	Average	300	300	0.43	115.53561	34660.6829	2032	0.193	1.525	0.067	0.062	0.00	0.03	0.00	0.00	527.287	0.021	0.004	7.86	0.00	0.00	7.88
	Excavators	Average	400	600	0.38	151.883317	60753.3268	2032	0.105	0.467	0.018	0.017	0.00	0.01	0.00	0.00	527.304	0.021	0.004	12.17	0.00	0.00	12.21
	Forklifts	Average	100	50	0.2	60.8424251	6084.24251	2032	0.486	3.53	0.091	0.084	0.00	0.00	0.00	0.00	587.137	0.024	0.005	0.71	0.00	0.00	0.72
	Generator Sets	Average	100	50	0.74	102.024808	10202.4808	2032	0.241	3.051	0.028	0.026	0.00	0.03	0.00	0.00	568.308	0.023	0.005	4.29	0.00	0.00	4.31
	Graders	Average	400	600	0.41	13.5108014	5404.32056	2032	0.193	1.252	0.061	0.056	0.00	0.00	0.00	0.00	525.026	0.021	0.004	1.16	0.00	0.00	1.17
2032	Paving Equipment	Average	300	300	0.36	23.004878	6901.46341	2032	0.141	0.926	0.035	0.032	0.00	0.00	0.00	0.00	528.738	0.021	0.004	1.31	0.00	0.00	1.32
	Plate Compactors	Average	10	25	0.43	108.342021	1083.42021	2032	0.547	4.143	0.162	0.149	0.00	0.00	0.00	0.00	568.291	0.023	0.005	0.26	0.00	0.00	0.27
	Pumps	Average	10	25	0.74	319.110523	3191.10523	2032	0.556	4.234	0.164	0.151	0.00	0.01	0.00	0.00	568.328	0.023	0.005	1.34	0.00	0.00	1.35
	Rollers	Average	400	600	0.38	48.5950662	19438.0265	2032	0.127	0.936	0.033	0.031	0.00	0.01	0.00	0.00	531.116	0.022	0.004	3.92	0.00	0.00	3.94
	Other Material Handling Equipment	Average	275	300	0.4	50.7275819	13950.085	2032	0.178	1.015	0.031	0.029	0.00	0.01	0.00	0.00	528.016	0.021	0.004	2.95	0.00	0.00	2.96
	Welders	Average	25	25	0.45	74.0391916	1850.97979	2032	0.559	4.267	0.164	0.151	0.00	0.00	0.00	0.00	568.336	0.023	0.005	0.47	0.00	0.00	0.48
	Rubber Tired Loaders	Average	250	300	0.36	160.906341	40226.5854	2032	0.152	0.737	0.027	0.025	0.00	0.01	0.00	0.00	526.689	0.021	0.004	7.63	0.00	0.00	7.65
	Off-Highway Trucks	Average	325	600	0.38	174.495755	56711.1203	2032	0.166	0.686	0.027	0.024	0.00	0.02	0.00	0.00	529.508	0.021	0.004	11.41	0.00	0.00	11.45
	Other Material Handling Equipment	Average	350	600	0.4	144.353784	50,524	2032	0.124	0.58	0.024	0.022	0.00	0.01	0.00	0.00	527.856	0.021	0.004	10.67	0.00	0.00	10.70

	SRWTP (Phase 1.b)	Tier	Equipment HP	HP bin for EF	LF	Total hours per calendar year	hp-hr	EF year	ROG	NOx	Ex PM-10	Ex PM2.5	ROG	NOx	Ex PM-10	Ex PM2.5	CO2	CH4	N2O	CO2	CH4	N2O	CO2e
2033	Aerial Lifts	Average	90	100	0.31	236.693352	21,302	2033	0.08	1.369	0.012	0.011	0.00	0.01	0.00	0.00	527.896	0.021	0.004	3.49	0.00	0.00	3.50
	Bore/Drill Rigs	Average	300	300	0.5	59.3661324	17809.8397	2033	0.1	0.755	0.026	0.024	0.00	0.01	0.00	0.00	525.142	0.021	0.004	4.68	0.00	0.00	4.69
	Concrete/Industrial Saws	Average	2	25	0.73	361.827847	723.655693	2033	0.584	4.462	0.167	0.153	0.00	0.00	0.00	0.00	585.302	0.024	0.005	0.31	0.00	0.00	0.31
	Crawler Tractors	Average	300	300	0.43	230.189268	69056.7805	2033	0.188	1.455	0.063	0.058	0.01	0.05	0.00	0.00	527.287	0.021	0.004	15.66	0.00	0.00	15.71
	Excavators	Average	400	600	0.38	302.60722	121042.888	2033	0.104	0.445	0.017	0.016	0.01	0.02	0.00	0.00	527.304	0.021	0.004	24.25	0.00	0.00	24.33
	Forklifts	Average	100	50	0.2	121.220404	12122.0404	2033	0.467	3.512	0.083	0.077	0.00	0.01	0.00	0.00	587.137	0.024	0.005	1.42	0.00	0.00	1.43
	Generator Sets	Average	100	50	0.74	203.270801	20327.0801	2033	0.235	3.027	0.024	0.022	0.00	0.05	0.00	0.00	568.314	0.023	0.005	8.55	0.00	0.00	8.58
	Plate Compactors	Average	10	25	0.43	215.857003	2158.57003	2033	0.547	4.143	0.162	0.149	0.00	0.00	0.00	0.00	568.358	0.023	0.005	0.53	0.00	0.00	0.53
	Pumps	Average	10	25	0.74	635.785087	6357.85087	2033	0.556	4.23	0.163	0.15	0.00	0.02	0.00	0.00	568.301	0.023	0.005	2.67	0.00	0.00	2.68
	Other Material Handling Equipment	Average	275	300	0.4	101.06793	27793.6808	2033	0.173	0.964	0.025	0.023	0.00	0.01	0.00	0.00	528.024	0.021	0.004	5.87	0.00	0.00	5.89
	Welders	Average	25	25	0.45	147.513199	3687.82997	2033	0.559	4.263	0.163	0.15	0.00	0.01	0.00	0.00	568.317	0.023	0.005	0.94	0.00	0.00	0.95
	Rubber Tired Loaders	Average	250	300	0.36	320.58439	80146.0976	2033	0.15	0.691	0.026	0.024	0.00	0.02	0.00	0.00	526.689	0.021	0.004	15.20	0.00	0.00	15.25
	Off-Highway Trucks	Average	325	600	0.38	347.659481	112989.331	2033	0.165	0.647	0.025	0.023	0.01	0.03	0.00	0.00	529.508	0.021	0.004	22.73	0.00	0.00	22.81
	Other Material Handling Equipment	Average	350	600	0.4	287.605631	100661.971	2033	0.124	0.553	0.023	0.022	0.01	0.02	0.00	0.00	527.855	0.021	0.004	21.25	0.00	0.00	21.32
2034	Aerial Lifts	Average	90	100	0.31	236	21220.7833	2034	0.08	1.369	0.012	0.011	0.00	0.01	0.00	0.00	527.896	0.021	0.004	3.47	0.00	0.00	3.48
	Bore/Drill Rigs	Average	300	300	0.5	59.138676	17741.6028	2034	0.099	0.724	0.025	0.023	0.00	0.01	0.00	0.00	525.142	0.021	0.004	4.66	0.00	0.00	4.67
	Concrete/Industrial Saws	Average	2	25	0.73	360.441533	720.883066	2034	0.585	4.472	0.167	0.154	0.00	0.00	0.00	0.00	586.602	0.024	0.005	0.31	0.00	0.00	0.31
	Crawler Tractors	Average	300	300	0.43	229.307317	68792.1951	2034	0.183	1.384	0.059	0.054	0.01	0.05	0.00	0.00	527.287	0.021	0.004	15.60	0.00	0.00	15.65
	Excavators	Average	400	600	0.38	301.447805	120579.122	2034	0.103	0.425	0.016	0.014	0.01	0.02	0.00	0.00	527.304	0.021	0.004	24.16	0.00	0.00	24.24
	Forklifts	Average	100	50	0.2	120.755958	12075.5958	2034	0.448	3.464	0.074	0.068	0.00	0.01	0.00	0.00	587.137	0.024	0.005	1.42	0.00	0.00	1.42
	Generator Sets	Average	100	50	0.74	202.491986	20249.1986	2034	0.231	3.008	0.021	0.02	0.00	0.05	0.00	0.00	568.314	0.023	0.005	8.52	0.00	0.00	8.55
	Plate Compactors	Average	10	25	0.43	215.029965	2150.29965	2034	0.547	4.143	0.162	0.149	0.00	0.00	0.00	0.00	568.347	0.023	0.005	0.53	0.00	0.00	0.53
	Pumps	Average	10	25	0.74	633.349129	6333.49129	2034	0.556	4.228	0.163	0.15	0.00	0.02	0.00	0.00	568.339	0.023	0.005	2.66	0.00	0.00	2.67
	Other Material Handling Equipment	Average	275	300	0.4	100.680697	27687.1916	2034	0.17	0.901	0.024	0.022	0.00	0.01	0.00	0.00	528.016	0.021	0.004	5.85	0.00	0.00	5.87
	Welders	Average	25	25	0.45	146.948014	3673.70035	2034	0.559	4.261	0.163	0.15	0.00	0.01	0.00	0.00	568.307	0.023	0.005	0.94	0.00	0.00	0.94
	Rubber Tired Loaders	Average	250	300	0.36	319.356098	79839.0244	2034	0.148	0.649	0.024	0.022	0.00	0.02	0.00	0.00	526.689	0.021	0.004	15.14	0.00	0.00	15.19
	Off-Highway Trucks	Average	325	600	0.38	346.327452	112556.422	2034	0.162	0.61	0.023	0.021	0.01	0.03	0.00	0.00	529.508	0.021	0.004	22.65	0.00	0.00	22.72
	Other Material Handling Equipment	Average	350	600	0.4	286.503693	100276.293	2034	0.124	0.543	0.024	0.022	0.01	0.02	0.00	0.00	527.856	0.021	0.004	21.17	0.00	0.00	21.24
2035	Aerial Lifts	Average	90	100	0.31	237	21302.4017	2035	0.08	1.365	0.012	0.011	0.00	0.01	0.00	0.00	527.896	0.021	0.004	3.49	0.00	0.00	3.50
	Bore/Drill Rigs	Average	300	300	0.5	59.3661324	17809.8397	2035	0.095	0.68	0.022	0.02	0.00	0.01	0.00	0.00	525.142	0.021	0.004	4.68	0.00	0.00	4.69
	Concrete/Industrial Saws	Average	2	25	0.73	361.827847	723.655693	2035	0.584	4.469	0.167	0.154	0.00	0.00	0.00	0.00	586.211	0.024	0.005	0.31	0.00	0.00	0.31
	Crawler Tractors	Average	300	300	0.43	230.189268	69056.7805	2035	0.179	1.314	0.055	0.051	0.01	0.04	0.00	0.00	527.287	0.021	0.004	15.66	0.00	0.00	15.71
	Excavators	Average	400	600	0.38	302.60722	121042.888	2035	0.102	0.408	0.015	0.014	0.01	0.02	0.00	0.00	527.304	0.021	0.004	24.25	0.00	0.00	24.33
	Forklifts	Average	100	50	0.2	121.220404	12122.0404	2035	0.432	3.431	0.067	0.062	0.00	0.01	0.00	0.00	587.137	0.024	0.005	1.42	0.00	0.00	1.43
	Generator Sets	Average	100	50	0.74	203.270801	20327.0801	2035	0.229	2.992	0.019	0.017	0.00	0.05	0.00	0.00	568.291	0.023	0.005	8.55	0.00	0.00	8.58
	Plate Compactors	Average	10	25	0.43	215.857003	2158.57003	2035	0.547	4.143	0.162	0.149	0.00	0.00	0.00	0.00	568.362	0.023	0.005	0.53	0.00	0.00	0.53
	Pumps	Average	10	25	0.74	635.785087	6357.85087	2035	0.556	4.227	0.162	0.149	0.00	0.02	0.00	0.00	568.332	0.023	0.005	2.67	0.00	0.00	2.68
	Other Material Handling Equipment	Average	275	300	0.4	101.06793	27793.6808	2035	0.151	0.638	0.023	0.021	0.00	0.01	0.00	0.00	528.016	0.021	0.004	5.87	0.00	0.00	5.89
	Welders	Average	25	25	0.45	147.513199	3687.82997	2035	0.559	4.26	0.162	0.149	0.00	0.01	0.00	0.00	568.326	0.023	0.005	0.94	0.00	0.00	0.95
	Rubber Tired Loaders	Average	250	300	0.36	320.58439	80146.0976	2035	0.146	0.605	0.022	0.021	0.00	0.02	0.00	0.00	526.689	0.021	0.004	15.20	0.00	0.00	15.25
	Off-Highway Trucks	Average	325	600	0.38	347.659481	112989.331	2035	0.161	0.58	0.022	0.02	0.01	0.03	0.00	0.00	529.508	0.021	0.004	22.73	0.00	0.00	22.81
	Other Material Handling Equipment	Average	350	600	0.4	287.605631	100661.971	2035	0.121	0.508	0.021	0.019	0.01	0.02	0.00	0.00	527.856	0.021	0.004	21.25	0.00	0.00	21.32

	SRWTP (Phase 1.b)	Tier	Equipment HP	HP bin for EF	LF	Total hours per calendar year	hp-hr	EF year	ROG	NOx	Ex PM-10	Ex PM2.5	ROG	NOx	Ex PM-10	Ex PM2.5	CO2	CH4	N2O	CO2	CH4	N2O	CO2e
2036	Aerial Lifts	Average	90	100	0.31	237	21302.4017	2036	0.079	1.363	0.011	0.011	0.00	0.01	0.00	0.00	527.896	0.021	0.004	3.49	0.00	0.00	3.50
	Bore/Drill Rigs	Average	300	300	0.5	59.3661324	17809.8397	2036	0.092	0.639	0.02	0.019	0.00	0.01	0.00	0.00	525.142	0.021	0.004	4.68	0.00	0.00	4.69
	Concrete/Industrial Saws	Average	2	25	0.73	361.827847	723.655693	2036	0.583	4.458	0.167	0.153	0.00	0.00	0.00	0.00	584.739	0.024	0.005	0.31	0.00	0.00	0.31
	Crawler Tractors	Average	300	300	0.43	230.189268	69056.7805	2036	0.174	1.236	0.051	0.047	0.01	0.04	0.00	0.00	527.287	0.021	0.004	15.66	0.00	0.00	15.71
	Excavators	Average	400	600	0.38	302.60722	121042.888	2036	0.1	0.387	0.014	0.013	0.01	0.02	0.00	0.00	527.304	0.021	0.004	24.25	0.00	0.00	24.33
	Forklifts	Average	100	50	0.2	121.220404	12122.0404	2036	0.422	3.386	0.06	0.055	0.00	0.01	0.00	0.00	587.137	0.024	0.005	1.42	0.00	0.00	1.43
	Generator Sets	Average	100	50	0.74	203.270801	20327.0801	2036	0.228	2.977	0.017	0.015	0.00	0.05	0.00	0.00	568.303	0.023	0.005	8.55	0.00	0.00	8.58
	Plate Compactors	Average	10	25	0.43	215.857003	2158.57003	2036	0.547	4.143	0.162	0.149	0.00	0.00	0.00	0.00	568.351	0.023	0.005	0.53	0.00	0.00	0.53
	Pumps	Average	10	25	0.74	635.785087	6357.85087	2036	0.555	4.226	0.162	0.149	0.00	0.02	0.00	0.00	568.318	0.023	0.005	2.67	0.00	0.00	2.68
	Other Material Handling Equipment	Average	275	300	0.4	101.06793	27793.6808	2036	0.147	0.585	0.022	0.021	0.00	0.01	0.00	0.00	528.024	0.021	0.004	5.87	0.00	0.00	5.89
	Welders	Average	25	25	0.45	147.513199	3687.82997	2036	0.559	4.26	0.162	0.149	0.00	0.01	0.00	0.00	568.312	0.023	0.005	0.94	0.00	0.00	0.95
	Rubber Tired Loaders	Average	250	300	0.36	320.58439	80146.0976	2036	0.143	0.552	0.021	0.019	0.00	0.02	0.00	0.00	526.689	0.021	0.004	15.20	0.00	0.00	15.25
	Off-Highway Trucks	Average	325	600	0.38	347.659481	112989.331	2036	0.159	0.541	0.02	0.019	0.01	0.03	0.00	0.00	529.508	0.021	0.004	22.73	0.00	0.00	22.81
	Other Material Handling Equipment	Average	350	600	0.4	287.605631	100661.971	2036	0.121	0.502	0.02	0.019	0.01	0.02	0.00	0.00	527.855	0.021	0.004	21.25	0.00	0.00	21.32
2037	Aerial Lifts	Average	90	100	0.31	237	21302.4017	2037	0.079	1.361	0.011	0.01	0.00	0.01	0.00	0.00	527.896	0.021	0.004	3.49	0.00	0.00	3.50
	Bore/Drill Rigs	Average	300	300	0.5	59.3661324	17809.8397	2037	0.089	0.58	0.018	0.017	0.00	0.01	0.00	0.00	525.142	0.021	0.004	4.68	0.00	0.00	4.69
	Concrete/Industrial Saws	Average	2	25	0.73	361.827847	723.655693	2037	0.581	4.443	0.166	0.153	0.00	0.00	0.00	0.00	582.773	0.024	0.005	0.31	0.00	0.00	0.31
	Crawler Tractors	Average	300	300	0.43	230.189268	69056.7805	2037	0.167	1.149	0.048	0.044	0.01	0.04	0.00	0.00	527.287	0.021	0.004	15.66	0.00	0.00	15.71
	Excavators	Average	400	600	0.38	302.60722	121042.888	2037	0.099	0.365	0.013	0.012	0.01	0.02	0.00	0.00	527.304	0.021	0.004	24.25	0.00	0.00	24.33
	Forklifts	Average	100	50	0.2	121.220404	12122.0404	2037	0.412	3.364	0.055	0.051	0.00	0.01	0.00	0.00	587.137	0.024	0.005	1.42	0.00	0.00	1.43
	Generator Sets	Average	100	50	0.74	203.270801	20327.0801	2037	0.226	2.964	0.015	0.014	0.00	0.05	0.00	0.00	568.306	0.023	0.005	8.55	0.00	0.00	8.58
	Plate Compactors	Average	10	25	0.43	215.857003	2158.57003	2037	0.547	4.143	0.162	0.149	0.00	0.00	0.00	0.00	568.316	0.023	0.005	0.53	0.00	0.00	0.53
	Pumps	Average	10	25	0.74	635.785087	6357.85087	2037	0.555	4.226	0.162	0.149	0.00	0.02	0.00	0.00	568.319	0.023	0.005	2.67	0.00	0.00	2.68
	Other Material Handling Equipment	Average	275	300	0.4	101.06793	27793.6808	2037	0.146	0.559	0.021	0.019	0.00	0.01	0.00	0.00	528.016	0.021	0.004	5.87	0.00	0.00	5.89
	Welders	Average	25	25	0.45	147.513199	3687.82997	2037	0.559	4.26	0.162	0.149	0.00	0.01	0.00	0.00	568.315	0.023	0.005	0.94	0.00	0.00	0.95
	Rubber Tired Loaders	Average	250	300	0.36	320.58439	80146.0976	2037	0.141	0.518	0.02	0.018	0.00	0.02	0.00	0.00	526.689	0.021	0.004	15.20	0.00	0.00	15.25
	Off-Highway Trucks	Average	325	600	0.38	347.659481	112989.331	2037	0.156	0.505	0.019	0.017	0.01	0.02	0.00	0.00	529.508	0.021	0.004	22.73	0.00	0.00	22.81
	Other Material Handling Equipment	Average	350	600	0.4	287.605631	100661.971	2037	0.118	0.492	0.019	0.017	0.01	0.02	0.00	0.00	527.856	0.021	0.004	21.25	0.00	0.00	21.32
2038	Aerial Lifts	Average	90	100	0.31	119	10692.01	2038	0.079	1.359	0.011	0.01	0.00	0.00	0.00	0.00	527.896	0.021	0.004	1.75	0.00	0.00	1.76
	Bore/Drill Rigs	Average	300	300	0.5	29.7967944	8939.03833	2038	0.088	0.546	0.018	0.016	0.00	0.00	0.00	0.00	525.142	0.021	0.004	2.35	0.00	0.00	2.35
	Concrete/Industrial Saws	Average	2	25	0.73	181.60708	363.21416	2038	0.585	4.473	0.167	0.154	0.00	0.00	0.00	0.00	586.698	0.024	0.005	0.16	0.00	0.00	0.16
	Crawler Tractors	Average	300	300	0.43	115.53561	34660.6829	2038	0.163	1.077	0.046	0.043	0.00	0.02	0.00	0.00	527.287	0.021	0.004	7.86	0.00	0.00	7.88
	Excavators	Average	400	600	0.38	151.883317	60753.3268	2038	0.098	0.35	0.013	0.012	0.00	0.01	0.00	0.00	527.304	0.021	0.004	12.17	0.00	0.00	12.21
	Forklifts	Average	100	50	0.2	60.8424251	6084.24251	2038	0.409	3.332	0.05	0.046	0.00	0.00	0.00	0.00	587.137	0.024	0.005	0.71	0.00	0.00	0.72
	Generator Sets	Average	100	50	0.74	102.024808	10202.4808	2038	0.226	2.954	0.014	0.013	0.00	0.02	0.00	0.00	568.301	0.023	0.005	4.29	0.00	0.00	4.31
	Plate Compactors	Average	10	25	0.43	108.342021	1083.42021	2038	0.547	4.143	0.162	0.149	0.00	0.00	0.00	0.00	568.38	0.023	0.005	0.26	0.00	0.00	0.27
	Pumps	Average	10	25	0.74	319.110523	3191.10523	2038	0.555	4.226	0.162	0.149	0.00	0.01	0.00	0.00	568.343	0.023	0.005	1.34	0.00	0.00	1.35
	Other Material Handling Equipment	Average	275	300	0.4	50.7275819	13950.085	2038	0.143	0.504	0.02	0.018	0.00	0.00	0.00	0.00	528.016	0.021	0.004	2.95	0.00	0.00	2.96
	Welders	Average	25	25	0.45	74.0391916	1850.97979	2038	0.559	4.259	0.162	0.149	0.00	0.00	0.00	0.00	568.304	0.023	0.005	0.47	0.00	0.00	0.48
	Rubber Tired Loaders	Average	250	300	0.36	160.906341	40226.5854	2038	0.139	0.484	0.019	0.017	0.00	0.01	0.00	0.00	526.689	0.021	0.004	7.63	0.00	0.00	7.65
	Off-Highway Trucks	Average	325	600	0.38	174.495755	56711.1203	2038	0.156	0.473	0.018	0.016	0.00	0.01	0.00	0.00	529.508	0.021	0.004	11.41	0.00	0.00	11.45
	Other Material Handling Equipment	Average	350	600	0.4	144.353784	50523.8244	2038	0.114	0.451	0.017	0.016	0.00	0.01	0.00	0.00	527.856	0.021	0.004	10.67	0.00	0.00	10.70

	SRWTP (Phase 2)	Tier	Equipment HP	HP bin for EF	LF	Total hours per calendar year	hp-hr	EF year	ROG	NOx	Ex PM-10	Ex PM2.5	ROG	NOx	Ex PM-10	Ex PM2.5	CO2	CH4	N2O	CO2	CH4	N2O	CO2e
2039	Aerial Lifts	Average	90	100	0.31	109.378106	9844.02955	2039	0.078	1.358	0.01	0.009	0.00026238	0.00456813	0.00	3.02748E-05	527.896	0.021	0.004	1.610953	6E-05	1.2E-05	1.616193
	Bore/Drill Rigs	Average	300	300	0.5	188	56361.8536	2039	0.087	0.528	0.017	0.016	0.00270258	0.01640187	0.00	0.000497026	525.142	0.021	0.004	14.79899	6E-04	0.00011	14.84737
	Concrete/Industrial Saws	Average	2	25	0.73	247	494.646071	2039	0.584	4.462	0.167	0.153	0.00023245	0.00177603	0.00	6.08994E-05	585.266	0.024	0.005	0.211335	9E-06	1.8E-06	0.212089
	Crawler Tractors	Average	300	300	0.43	197	59096.3062	2039	0.159	1.016	0.045	0.041	0.00445379	0.02845946	0.00	0.001148462	527.287	0.021	0.004	13.39911	5E-04	0.0001	13.44274
	Excavators	Average	400	600	0.38	168	67128.077	2039	0.097	0.338	0.012	0.011	0.00272749	0.00950405	0.00	0.000309303	527.304	0.021	0.004	13.45082	5E-04	0.0001	13.49462
	Forklifts	Average	100	50	0.2	130	12983.8191	2039	0.403	3.31	0.046	0.042	0.00115356	0.00947468	0.00	0.000120223	587.137	0.024	0.005	1.524656	6E-05	1.3E-05	1.530083
	Generator Sets	Average	100	50	0.74	197	19698.7687	2039	0.226	2.947	0.013	0.012	0.00363148	0.04735383	0.00	0.000192822	568.295	0.023	0.005	8.284087	3E-04	7.3E-05	8.314188
	Graders	Average	400	600	0.41	18	7291.87374	2039	0.131	0.377	0.013	0.012	0.00043172	0.00124242	0.00	3.95465E-05	525.026	0.021	0.004	1.569654	6E-05	1.2E-05	1.574787
	Paving Equipment	Average	300	300	0.36	26	7656.46743	2039	0.117	0.509	0.022	0.02	0.00035548	0.00154651	0.00	6.07666E-05	528.738	0.021	0.004	1.457375	6E-05	1.1E-05	1.462108
	Plate Compactors	Average	10	25	0.43	88	879.099172	2039	0.547	4.143	0.162	0.149	0.00022793	0.00172634	0.00	6.20864E-05	568.301	0.023	0.005	0.214825	9E-06	1.9E-06	0.215606
	Pumps	Average	10	25	0.74	1926	19263.3983	2039	0.555	4.226	0.162	0.149	0.00872091	0.06640461	0.00	0.002341289	568.302	0.023	0.005	8.101097	3E-04	7.1E-05	8.130533
	Rollers	Average	400	600	0.38	33	13125.3727	2039	0.109	0.65	0.025	0.023	0.00059927	0.00357366	0.00	0.000126452	531.116	0.022	0.004	2.649016	1E-04	2E-05	2.657705
	Other Material Handling Equipment	Average	275	300	0.4	39	10834.3228	2039	0.142	0.483	0.019	0.018	0.00067835	0.00230735	0.00	8.59881E-05	528.016	0.021	0.004	2.288278	9E-05	1.7E-05	2.295719
	Welders	Average	25	25	0.45	379	9482.11328	2039	0.559	4.26	0.162	0.149	0.00262926	0.02003694	0.00	0.000700823	568.318	0.023	0.005	2.424985	1E-04	2.1E-05	2.433796
	Rubber Tired Loaders	Average	250	300	0.36	318	79567.1592	2039	0.137	0.456	0.018	0.016	0.00432575	0.0143981	0.00	0.000505197	526.689	0.021	0.004	15.08657	6E-04	0.00011	15.13576
	Tractors/Loaders/Backhoes	Average	325	600	0.37	7	2369.85897	2039	0.112	0.41	0.016	0.015	0.00010825	0.00039629	0.00	1.44984E-05	529.211	0.021	0.004	0.46	2E-05	3.5E-06	0.465543
	Off-Highway Trucks	Average	325	600	0.38	405	131782.002	2039	0.154	0.442	0.017	0.016	0.00850089	0.02439867	0.00	0.00088321	529.508	0.021	0.004	27	0.001	0.0002	26.60224
	Other Material Handling Equipment	Average	350	600	0.4	130	45443.3669	2039	0.113	0.435	0.016	0.015	0.00226419	0.00871613	0.00	0.000300556	527.856	0.021	0.004	9.595022	4E-04	7.3E-05	9.626232
2040	Aerial Lifts	Average	90	100	0.31	109.378106	9844.02955	2040	0.078	1.352	0.01	0.009	0.00026238	0.00454795	0.00	3.02748E-05	527.896	0.021	0.004	1.610953	6E-05	1.2E-05	1.616193
	Bore/Drill Rigs	Average	300	300	0.5	188	56361.8536	2040	0.086	0.486	0.016	0.015	0.00267152	0.01509717	0.00	0.000465962	525.142	0.021	0.004	14.79899	6E-04	0.00011	14.84737
	Concrete/Industrial Saws	Average	2	25	0.73	247	494.646071	2040	0.581	4.439	0.166	0.153	0.00023126	0.00176688	0.00	6.08994E-05	582.321	0.024	0.005	0.210271	9E-06	1.8E-06	0.211026
	Crawler Tractors	Average	300	300	0.43	197	59096.3062	2040	0.155	0.965	0.043	0.04	0.00434175	0.02703088	0.00	0.001120451	527.287	0.021	0.004	13.39911	5E-04	0.0001	13.44274
	Excavators	Average	400	600	0.38	168	67128.077	2040	0.097	0.329	0.012	0.011	0.00272749	0.00925098	0.00	0.000309303	527.304	0.021	0.004	13.45082	5E-04	0.0001	13.49462
	Forklifts	Average	100	50	0.2	130	12983.8191	2040	0.398	3.294	0.043	0.04	0.00113925	0.00942888	0.00	0.000114498	587.137	0.024	0.005	1.524656	6E-05	1.3E-05	1.530083
	Generator Sets	Average	100	50	0.74	197	19698.7687	2040	0.226	2.941	0.013	0.012	0.00363148	0.04725742	0.00	0.000192822	568.301	0.023	0.005	8.284174	3E-04	7.3E-05	8.314276
	Graders	Average	400	600	0.41	18	7291.87374	2040	0.127	0.319	0.013	0.012	0.00041853	0.00105128	0.00	3.95465E-05	525.026	0.021	0.004	1.569654	6E-05	1.2E-05	1.574787
	Paving Equipment	Average	300	300	0.36	26	7656.46743	2040	0.116	0.497	0.021	0.019	0.00035245	0.00151005	0.00	5.77283E-05	528.738	0.021	0.004	1.457375	6E-05	1.1E-05	1.462108
	Plate Compactors	Average	10	25	0.43	88	879.099172	2040	0.547	4.143	0.162	0.149	0.00022793	0.00172634	0.00	6.20864E-05	568.358	0.023	0.005	0.214847	9E-06	1.9E-06	0.215627
	Pumps	Average	10	25	0.74	1926	19263.3983	2040	0.555	4.226	0.162	0.149	0.00872091	0.06640461	0.00	0.002341289	568.32	0.023	0.005	8.101353	3E-04	7.1E-05	8.13079
	Rollers	Average	400	600	0.38	33	13125.3727	2040	0.103	0.624	0.022	0.02	0.00056629	0.00343071	0.00	0.000109959	531.116	0.022	0.004	2.649016	1E-04	2E-05	2.657705
	Other Material Handling Equipment	Average	275	300	0.4	39	10834.3228	2040	0.14	0.461	0.018	0.017	0.0006688	0.00220225	0.00	8.1211E-05	528.016	0.021	0.004	2.288278	9E-05	1.7E-05	2.295719
	Welders	Average	25	25	0.45	379	9482.11328	2040	0.559	4.26	0.162	0.149	0.00262926	0.02003694	0.00	0.000700823	568.319	0.023	0.005	2.424989	1E-04	2.1E-05	2.433801
	Rubber Tired Loaders	Average	250	300	0.36	318	79567.1592	2040	0.136	0.435	0.017	0.016	0.00429417	0.01373503	0.00	0.000505197	526.689	0.021	0.004	15.08657	6E-04	0.00011	15.13576
	Tractors/Loaders/Backhoes	Average	325	600	0.37	7	2369.85897	2040	0.112	0.402	0.016	0.015	0.00010825	0.00038856	0.00	1.44984E-05	529.211	0.021	0.004	0.46	2E-05	3.5E-06	0.465543
	Off-Highway Trucks	Average	325	600	0.38	405	131782.002	2040	0.152	0.418	0.017	0.016	0.00839049	0.02307385	0.00	0.00088321	529.508	0.021	0.004	27	0.001	0.0002	26.60224
	Other Material Handling Equipment	Average	350	600	0.4	130	45443.3669	2040	0.113	0.432	0.016	0.014	0.00226419	0.00865602	0.00	0.000280519	527.856	0.021	0.004	9.595022	4E-04	7.3E-05	9.626232
2041	Aerial Lifts	Average	90	100	0.31	110	9881.8912	2041	0.078	1.352	0.01	0.009	0.00026339	0.00456544	0.00	3.03912E-05	527.896	0.021	0.004	1.617149	6E-05	1.2E-05	1.622409
	Bore/Drill Rigs	Average	300	300	0.5	189	56578.63	2041	0.084	0.445	0.015	0.014	0.00261942	0.01387671	0.00	0.000436571	525.142	0.021	0.004	14.85591	6E-04	0.00011	14.90448
	Concrete/Industrial Saws	Average	2	25	0.73	248	496.548556	2041	0.581	4.439	0.166	0.153	0.00023215	0.00177367	0.00	6.11336E-05	582.321	0.024	0.005	0.21108	9E-06	1.8E-06	0.211838
	Crawler Tractors	Average	300	300	0.43	198	59323.5997	2041	0.153	0.937	0.042	0.039	0.00430221	0.02634752	0.00	0.001096642	527.287	0.021	0.004	13.45064	5E-04	0.0001	13.49444
	Excavators	Average	400	600	0.38	168	67386.2619	2041	0.096	0.318	0.012	0.011	0.00270976	0.00897607	0.00	0.000310493	527.304	0.021	0.004	13.50256	5E-04	0.0001	13.54652
	Forklifts	Average	100	50	0.2	130	13033.7569	2041	0.394	3.278	0.041	0.038	0.00113214	0.00941917	0.00	0.000109191	587.137	0.024	0.005	1.53052	6E-05	1.3E-05	1.535968
	Generator Sets	Average	100	50	0.74	198	19774.5332	2041	0.226	2.941	0.013	0.012	0.00364544	0.04743917	0.00	0.000193563	568.301	0.023	0.005	8.316036	3E-04	7.3E-05	8.346254
	Graders	Average	400	600	0.41	18	7319.91941	2041	0.127	0.319	0.013	0.012	0.00042014	0.00105532	0.00	3.96986E-05	525.026	0.021	0.004	1.575691	6E-05	1.2E-05	1.580844
	Paving Equipment	Average	300	300	0.36	26	7685.91538	2041	0.114	0.478	0.019	0.017	0.0003477	0.00145791	0.00	5.18503E-05	528.738	0.021	0.004	1.462981	6E-05	1.1E-05	1.467732
	Plate Compactors	Average	10	25	0.43	88	882.480322	2041	0.547	4.143	0.162	0.149	0.0002288	0.00173298	0.00	6.23252E-05	568.358	0.023	0.005	0.215673	9E-06	1.9E-06	0.216456
	Pumps	Average	10	25	0.74	1934	19337.4882	2041	0.555	4.226	0.162	0.149	0.00875445	0.06666002	0.00	0.002350294	568.32	0.023	0.005	8.1325	3E-04	7.2E-05	8
	Rollers	Average	400	600	0.38	33	13175.8549	2041	0.103	0.624	0.022	0.02	0.00056847	0.0034439	0.00	0.000110382	531.116	0.022	0.004	2.659205	1E-04	2E-05	2.667927
	Other Material Handling Equipment	Average	275	300	0.4	40	10875.9933	2041	0.139	0.451	0.018	0.017	0.00066657	0.00216277	0.00	8.15233E-05	528.016	0.021	0.004	2.297079	9E-05	1.7E-05	2.304549
	Welders	Average	25	25	0.45	381	9518.58294	2041	0.559	4.26	0.162	0.149	0.00263937	0.020114	0.00	0.000703518	568.319	0.023	0.005	2.434316	1E-04	2.1E-05	2.443161
	Rubber Tired Loaders	Average	250	300	0.36	319	79873.1867	2041	0.134	0.413	0.016	0.014	0.0042473	0.01309054	0.00	0.000443747	526.689	0.021	0.004	15.1446	6E-04	0.00012	15.19397
	Tractors/Loaders/Backhoes	Average	325	600	0.37	7	2378.97381	2041	0.111	0.388	0.015	0.014	0.0001077	0.00037647	0.00	1.35839E-05	529.211	0.021	0.004	0.465822	2E-05	3.5E-06	0.467334
	Off-Highway Trucks	Average	325	600	0.38	407	132288.856	2041	0.152	0.402	0.016	0.015	0.00842276	0.02227599	0.00	0.000831194	529.508	0.021	0.004	26.61824	0.001	0.0002	26.70456
	Other Material Handling Equipment	Average	350	600	0.4	130	45618.1491	2041	0.112	0.425	0.016	0.014	0.00225279	0.00854852	0.00	0.000281598	527.856	0.021	0.004	9.631925	4E-04	7.3E-05	9.663256

	SRWTP (Phase 2)	Tier	Equipment HP	HP bin for EF	LF	Total hours per calendar year	hp-hr	EF year	ROG	NOx	Ex PM-10	Ex PM2.5	ROG	NOx	Ex PM-10	Ex PM2.5	CO2	CH4	N2O	CO2	CH4	N2O	CO2e
2042	Aerial Lifts	Average	90	100	0.31	110	9881.8912	2042	0.078	1.35	0.01	0.009	0	0.00455869	0.00	3.03912E-05	527.896	0.021	0.004	1.617149	6E-05	1.2E-05	1.622409
	Bore/Drill Rigs	Average	300	300	0.5	189	56578.63	2042	0.083	0.426	0.015	0.014	0.00258824	0.01328422	0.00	0.000436571	525.142	0.021	0.004	14.85591	6E-04	0.00011	14.90448
	Concrete/Industrial Saws	Average	2	25	0.73	248	496.548556	2042	0.581	4.439	0.166	0.153	0.00023215	0.00177367	0.00	6.11336E-05	582.321	0.024	0.005	0.21108	9E-06	1.8E-06	0.211838
	Crawler Tractors	Average	300	300	0.43	198	59323.5997	2042	0.152	0.911	0.041	0.037	0.00427409	0.02561642	0.00	0.001040404	527.287	0.021	0.004	13.45064	5E-04	0.0001	13.49444
	Excavators	Average	400	600	0.38	168	67386.2619	2042	0.096	0.313	0.012	0.011	0.00270976	0.00883494	0.00	0.000310493	527.304	0.021	0.004	13.50256	5E-04	0.0001	13.54652
	Forklifts	Average	100	50	0.2	130	13033.7569	2042	0.389	3.264	0.039	0.035	0.00111777	0.00937894	0.00	0.000100571	587.137	0.024	0.005	1.53052	6E-05	1.3E-05	1.535968
	Generator Sets	Average	100	50	0.74	198	19774.5332	2042	0.226	2.941	0.013	0.012	0.00364544	0.04743917	0.00	0.000193563	568.301	0.023	0.005	8.316036	3E-04	7.3E-05	8.346254
	Graders	Average	400	600	0.41	18	7319.91941	2042	0.127	0.319	0.013	0.012	0.00042014	0.00105532	0.00	3.96986E-05	525.026	0.021	0.004	1.575691	6E-05	1.2E-05	1.580844
	Paving Equipment	Average	300	300	0.36	26	7685.91538	2042	0.113	0.471	0.018	0.017	0.00034465	0.00143656	0.00	5.18503E-05	528.731	0.021	0.004	1.462961	6E-05	1.1E-05	1.467712
	Plate Compactors	Average	10	25	0.43	88	882.480322	2042	0.547	4.143	0.162	0.149	0.0002288	0.00173298	0.00	6.23252E-05	568.358	0.023	0.005	0.215673	9E-06	1.9E-06	0.216456
	Pumps	Average	10	25	0.74	1934	19337.4882	2042	0.555	4.226	0.162	0.149	0.00875445	0.06666002	0.00	0.002350294	568.32	0.023	0.005	8.132512	3E-04	7.2E-05	8.162062
	Rollers	Average	400	600	0.38	33	13175.8549	2042	0.099	0.559	0.02	0.018	0.00054639	0.00308516	0.00	9.93434E-05	531.116	0.022	0.004	2.659205	1E-04	2E-05	2.667927
	Other Material Handling Equipment	Average	275	300	0.4	40	10875.9933	2042	0.136	0.421	0.015	0.014	0.00065219	0.0020189	0.00	6.71369E-05	528.016	0.021	0.004	2.297079	9E-05	1.7E-05	2.304549
	Welders	Average	25	25	0.45	381	9518.58294	2042	0.559	4.26	0.162	0.149	0.00263937	0.020114	0.00	0.000703518	568.319	0.023	0.005	2.434316	1E-04	2.1E-05	2.443161
	Rubber Tired Loaders	Average	250	300	0.36	319	79873.1867	2042	0.133	0.401	0.015	0.014	0.0042156	0.01271019	0.00	0.000443747	526.689	0.021	0.004	15.1446	6E-04	0.00012	15.19397
	Tractors/Loaders/Backhoes	Average	325	600	0.37	7	2378.97381	2042	0.111	0.395	0.016	0.015	0.0001077	0.00038326	0.00	1.45541E-05	529.211	0.021	0.004	0.465822	2E-05	3.5E-06	0.467334
	Off-Highway Trucks	Average	325	600	0.38	407	132288.856	2042	0.151	0.392	0.016	0.014	0.00836735	0.02172186	0.00	0.000775781	529.508	0.021	0.004	26.61824	0.001	0.0002	26.70456
	Other Material Handling Equipment	Average	350	600	0.4	130	45618.1491	2042	0.111	0.403	0.015	0.014	0.00223267	0.008106	0.00	0.000281598	527.856	0.021	0.004	9.631925	4E-04	7.3E-05	9.663256
2043	Aerial Lifts	Average	90	100	0.31	110	9881.8912	2043	0.078	1.349	0.01	0.009	0.00026339	0.00455531	0.00	3.03912E-05	527.896	0.021	0.004	1.617149	6E-05	1.2E-05	1.622409
	Bore/Drill Rigs	Average	300	300	0.5	189	56578.63	2043	0.082	0.408	0.014	0.013	0.00255706	0.01272292	0.00	0.000405387	525.142	0.021	0.004	14.85591	6E-04	0.00011	14.90448
	Concrete/Industrial Saws	Average	2	25	0.73	248	496.548556	2043	0.581	4.439	0.166	0.153	0.00023215	0.00177367	0.00	6.11336E-05	582.321	0.024	0.005	0.21108	9E-06	1.8E-06	0.211838
	Crawler Tractors	Average	300	300	0.43	198	59323.5997	2043	0.149	0.875	0.039	0.036	0.00418973	0.02460414	0.00	0.001012285	527.287	0.021	0.004	13.45064	5E-04	0.0001	13.49444
	Excavators	Average	400	600	0.38	168	67386.2619	2043	0.095	0.308	0.011	0.01	0.00268153	0.0086938	0.00	0.000282266	527.304	0.021	0.004	13.50256	5E-04	0.0001	13.54652
	Forklifts	Average	100	50	0.2	130	13033.7569	2043	0.387	3.246	0.036	0.033	0.00111203	0.00932722	0.00	9.48239E-05	587.137	0.024	0.005	1.53052	6E-05	1.3E-05	1.535968
	Generator Sets	Average	100	50	0.74	198	19774.5332	2043	0.226	2.941	0.013	0.012	0.00364544	0.04743917	0.00	0.000193563	568.301	0.023	0.005	8.316036	3E-04	7.3E-05	8.346254
	Graders	Average	400	600	0.41	18	7319.91941	2043	0.128	0.301	0.011	0.01	0.00042345	0.00099577	0.00	3.30822E-05	525.232	0.021	0.004	1.576309	6E-05	1.2E-05	1.581462
	Paving Equipment	Average	300	300	0.36	26	7685.91538	2043	0.11	0.437	0.016	0.015	0.0003355	0.00133286	0.00	4.57503E-05	528.738	0.021	0.004	1.462981	6E-05	1.1E-05	1.467732
	Plate Compactors	Average	10	25	0.43	88	882.480322	2043	0.547	4.143	0.162	0.149	0.0002288	0.00173298	0.00	6.23252E-05	568.358	0.023	0.005	0.215673	9E-06	1.9E-06	0.216456
	Pumps	Average	10	25	0.74	1934	19337.4882	2043	0.555	4.226	0.162	0.149	0.00875445	0.06666002	0.00	0.002350294	568.32	0.023	0.005	8.132512	3E-04	7.2E-05	8.162062
	Rollers	Average	400	600	0.38	33	13175.8549	2043	0.099	0.559	0.02	0.018	0.00054639	0.00308516	0.00	9.93434E-05	531.116	0.022	0.004	2.659205	1E-04	2E-05	2.667927
	Other Material Handling Equipment	Average	275	300	0.4	40	10875.9933	2043	0.136	0.421	0.015	0.014	0.00065219	0.0020189	0.00	6.71369E-05	528.016	0.021	0.004	2.297079	9E-05	1.7E-05	2.304549
	Welders	Average	25	25	0.45	381	9518.58294	2043	0.559	4.26	0.162	0.149	0.00263937	0.020114	0.00	0.000703518	568.319	0.023	0.005	2.434316	1E-04	2.1E-05	2.443161
	Rubber Tired Loaders	Average	250	300	0.36	319	79873.1867	2043	0.132	0.384	0.014	0.013	0.0041839	0.01217135	0.00	0.000412051	526.689	0.021	0.004	15.1446	6E-04	0.00012	15.19397
	Tractors/Loaders/Backhoes	Average	325	600	0.37	7	2378.97381	2043	0.11	0.381	0.015	0.014	0.00010673	0.00036968	0.00	1.35839E-05	529.211	0.021	0.004	0.465822	2E-05	3.5E-06	0.467334
	Off-Highway Trucks	Average	325	600	0.38	407	132288.856	2043	0.15	0.375	0.015	0.013	0.00831194	0.02077984	0.00	0.000720368	529.508	0.021	0.004	26.61824	0.001	0.0002	26.70456
	Other Material Handling Equipment	Average	350	600	0.4	130	45618.1491	2043	0.11	0.386	0.015	0.014	0.00221256	0.00776406	0.00	0.000281598	527.856	0.021	0.004	9.631925	4E-04	7.3E-05	9.663256
2044	Aerial Lifts	Average	90	100	0.31	110	9881.8912	2044	0.078	1.349	0.01	0.009	0.00026339	0.00455531	0.00	3.03912E-05	527.896	0.021	0.004	1.617149	6E-05	1.2E-05	1.622409
	Bore/Drill Rigs	Average	300	300	0.5	189	56578.63	2044	0.081	0.381	0.013	0.012	0.00252587	0.01188096	0.00	0.000374203	525.142	0.021	0.004	14.85591	6E-04	0.00011	14.90448
	Concrete/Industrial Saws	Average	2	25	0.73	248	496.548556	2044	0.581	4.439	0.166	0.153	0.00023215	0.00177367	0.00	6.11336E-05	582.321	0.024	0.005	0.21108	9E-06	1.8E-06	0.211838
	Crawler Tractors	Average	300	300	0.43	198	59323.5997	2044	0.146	0.834	0.037	0.034	0.00410538	0.02345126	0.00	0.000956046	527.286	0.021	0.004	13.45062	5E-04	0.0001	13.49442
	Excavators	Average	400	600	0.38	168	67386.2619	2044	0.095	0.305	0.011	0.01	0.00268153	0.00860912	0.00	0.000282266	527.304	0.021	0.004	13.50256	5E-04	0.0001	13.54652
	Forklifts	Average	100	50	0.2	130	13033.7569	2044	0.381	3.234	0.034	0.031	0.00109478	0.00929274	0.00	8.9077E-05	587.137	0.024	0.005	1.53052	6E-05	1.3E-05	1.535968
	Generator Sets	Average	100	50	0.74	198	19774.5332	2044	0.226	2.941	0.013	0.012	0.00364544	0.04743917	0.00	0.000193563	568.301	0.023	0.005	8.316036	3E-04	7.3E-05	8.346254
	Graders	Average	400	600	0.41	18	7319.91941	2044	0.125	0.301	0.011	0.01	0.00041353	0.00099577	0.00	3.30822E-05	525.026	0.021	0.004	1.575691	6E-05	1.2E-05	1.580844
	Paving Equipment	Average	300	300	0.36	26	7685.91538	2044	0.109	0.418	0.016	0.015	0.00033245	0.00127491	0.00	4.57503E-05	528.738	0.021	0.004	1.462981	6E-05	1.1E-05	1.467732
	Plate Compactors	Average	10	25	0.43	88	882.480322	2044	0.547	4.143	0.162	0.149	0.0002288	0.00173298	0.00	6.23252E-05	568.358	0.023	0.005	0.215673	9E-06	1.9E-06	0.216456
	Pumps	Average	10	25	0.74	1934	19337.4882	2044	0.555	4.226	0.162	0.149	0.00875445	0.06666002	0.00	0.002350294	568.32	0.023	0.005	8.132512	3E-04	7.2E-05	8.162062
	Rollers	Average	400	600	0.38	33	13175.8549	2044	0.099	0.539	0.019	0.018	0.00054639	0.00297478	0.00	9.93434E-05	531.116	0.022	0.004	2.659205	1E-04	2E-05	2.667927
	Other Material Handling Equipment	Average	275	300	0.4	40	10875.9933	2044	0.136	0.407	0.015	0.014	0.00065219	0.00195176	0.00	6.71369E-05	528.016	0.021	0.004	2.297079	9E-05	1.7E-05	2.304549
	Welders	Average	25	25	0.45	381	9518.58294	2044	0.559	4.26	0.162	0.149	0.00263937	0.020114	0.00	0.000703518	568.319	0.023	0.005	2.434316	1E-04	2.1E-05	2.443161
	Rubber Tired Loaders	Average	250	300	0.36	319	79873.1867	2044	0.131	0.363	0.014	0.012	0.00415221	0.01150573	0.00	0.000380355	526.689	0.021	0.004	15.1446	6E-04	0.00012	15.19397
	Tractors/Loaders/Backhoes	Average	325	600	0.37	7	2378.97381	2044	0.11	0.377	0.015	0.014	0.00010673	0.00036579	0.00	1.35839E-05	529.211	0.021	0.004	0.465822	2E-05	3.5E-06	0.467334
	Off-Highway Trucks	Average	325	600	0.38	407	132288.856	2044	0.149	0.362	0.014	0.013	0.00825652	0.02005948	0.00	0.000720368	529.51	0.021	0.004	26.61834	0.001	0.0002	26.70466
	Other Material Handling Equipment	Average	350	600	0.4	130	45618.1491	2044	0.11	0.376	0.014	0.013	0.00221256	0.00756292	0.00	0.000261484	527.856	0.021	0.004	9.631925	4E-04	7.3E-05	9.663256

	SRWTP (Phase 2)	Tier	Equipment HP	HP bin for EF	LF	Total hours per calendar year	hp-hr	EF year	ROG	NOx	Ex PM-10	Ex PM2.5	ROG	NOx	Ex PM-10	Ex PM2.5	CO2	CH4	N2O	CO2	CH4	N2O	CO2e
2045	Aerial Lifts	Average	90	100	0.31	110	9881.8912	2045	0.078	1.349	0.01	0.009	0.00026339	0.00455531	0.00	3.03912E-05	527.896	0.021	0.004	1.617149	6E-05	1.2E-05	1.622409
	Bore/Drill Rigs	Average	300	300	0.5	189	56578.63	2045	0.081	0.373	0.013	0.012	0.00252587	0.01163149	0.00	0.000374203	525.142	0.021	0.004	14.85591	6E-04	0.00011	14.90448
	Concrete/Industrial Saws	Average	2	25	0.73	248	496.548556	2045	0.581	4.439	0.166	0.153	0.00023215	0.00177367	0.00	6.11336E-05	582.321	0.024	0.005	0.21108	9E-06	1.8E-06	0.211838
	Crawler Tractors	Average	300	300	0.43	198	59323.5997	2045	0.143	0.816	0.036	0.033	0.00402102	0.02294512	0.00	0.000927927	527.287	0.021	0.004	13.45064	5E-04	0.0001	13.49444
	Excavators	Average	400	600	0.38	168	67386.2619	2045	0.095	0.301	0.011	0.01	0.00268153	0.00849622	0.00	0.000282266	527.304	0.021	0.004	13.50256	5E-04	0.0001	13.54652
	Forklifts	Average	100	50	0.2	130	13033.7569	2045	0.379	3.228	0.033	0.03	0.00108904	0.0092755	0.00	8.62035E-05	587.137	0.024	0.005	1.53052	6E-05	1.3E-05	1.535968
	Generator Sets	Average	100	50	0.74	198	19774.5332	2045	0.226	2.941	0.013	0.012	0.00364544	0.04743917	0.00	0.000193563	568.301	0.023	0.005	8.316036	3E-04	7.3E-05	8.346254
	Graders	Average	400	600	0.41	18	7319.91941	2045	0.125	0.301	0.011	0.01	0.00041353	0.00099577	0.00	3.30822E-05	525.026	0.021	0.004	1.575691	6E-05	1.2E-05	1.580844
	Paving Equipment	Average	300	300	0.36	26	7685.91538	2045	0.105	0.402	0.014	0.013	0.00032025	0.00122611	0.00	3.96502E-05	528.738	0.021	0.004	1.462981	6E-05	1.1E-05	1.467732
	Plate Compactors	Average	10	25	0.43	88	882.480322	2045	0.547	4.143	0.162	0.149	0.0002288	0.00173298	0.00	6.23252E-05	568.358	0.023	0.005	0.215673	9E-06	1.9E-06	0.216456
	Pumps	Average	10	25	0.74	1934	19337.4882	2045	0.555	4.226	0.162	0.149	0.00875445	0.06666002	0.00	0.002350294	568.32	0.023	0.005	8.132512	3E-04	7.2E-05	8.162062
	Rollers	Average	400	600	0.38	33	13175.8549	2045	0.098	0.512	0.019	0.017	0.00054087	0.00282577	0.00	9.38243E-05	531.116	0.022	0.004	2.659205	1E-04	2E-05	2.667927
	Other Material Handling Equipment	Average	275	300	0.4	40	10875.9933	2045	0.135	0.386	0.015	0.014	0.00064739	0.00185106	0.00	6.71369E-05	528.016	0.021	0.004	2.297079	9E-05	1.7E-05	2.304549
	Welders	Average	25	25	0.45	381	9518.58294	2045	0.559	4.26	0.162	0.149	0.00263937	0.020114	0.00	0.000703518	568.319	0.023	0.005	2.434316	1E-04	2.1E-05	2.443161
	Rubber Tired Loaders	Average	250	300	0.36	319	79873.1867	2045	0.13	0.354	0.013	0.012	0.00412051	0.01122047	0.00	0.000380355	526.689	0.021	0.004	15.1446	6E-04	0.00012	15.19397
	Tractors/Loaders/Backhoes	Average	325	600	0.37	7	2378.97381	2045	0.109	0.372	0.015	0.013	0.00010576	0.00036094	0.00	1.26136E-05	529.211	0.021	0.004	0.465822	2E-05	3.5E-06	0.467334
	Off-Highway Trucks	Average	325	600	0.38	407	132288.856	2045	0.148	0.353	0.014	0.013	0.00820111	0.01956076	0.00	0.000720368	529.508	0.021	0.004	26.61824	0.001	0.0002	26.70456
	Other Material Handling Equipment	Average	350	600	0.4	130	45618.1491	2045	0.11	0.376	0.014	0.013	0.00221256	0.00756292	0.00	0.000261484	527.856	0.021	0.004	9.631925	4E-04	7.3E-05	9.663256
2046	Aerial Lifts	Average	90	100	0.31	109	9844.02955	2046	0.078	1.349	0.01	0.009	0.00026238	0.00453786	0.00	3.02748E-05	527.896	0.021	0.004	1.610953	6E-05	1.2E-05	1.616193
	Bore/Drill Rigs	Average	300	300	0.5	188	56361.8536	2046	0.08	0.346	0.013	0.012	0.00248513	0.01074819	0.00	0.00037277	525.142	0.021	0.004	14.79899	6E-04	0.00011	14.84737
	Concrete/Industrial Saws	Average	2	25	0.73	247	494.646071	2046	0.581	4.439	0.166	0.153	0.00023126	0.00176688	0.00	6.08994E-05	582.321	0.024	0.005	0.210271	9E-06	1.8E-06	0.211026
	Crawler Tractors	Average	300	300	0.43	197	59096.3062	2046	0.14	0.786	0.034	0.032	0.00392158	0.02201686	0.00	0.000896361	527.287	0.021	0.004	13.39911	5E-04	0.0001	13.44274
	Excavators	Average	400	600	0.38	168	67128.077	2046	0.094	0.296	0.011	0.01	0.00264314	0.00832307	0.00	0.000281185	527.304	0.021	0.004	13.45082	5E-04	0.0001	13.49462
	Forklifts	Average	100	50	0.2	130	12983.8191	2046	0.372	3.223	0.031	0.029	0.00106483	0.00922565	0.00	8.30108E-05	587.137	0.024	0.005	1.524656	6E-05	1.3E-05	1.530083
	Generator Sets	Average	100	50	0.74	197	19698.7687	2046	0.226	2.941	0.013	0.012	0.00363148	0.04725742	0.00	0.000192822	568.301	0.023	0.005	8.284174	3E-04	7.3E-05	8.314276
	Graders	Average	400	600	0.41	18	7291.87374	2046	0.124	0.283	0.011	0.01	0.00040865	0.00093264	0.00	3.29554E-05	525.026	0.021	0.004	1.569654	6E-05	1.2E-05	1.574787
	Paving Equipment	Average	300	300	0.36	26	7656.46743	2046	0.104	0.394	0.013	0.012	0.00031599	0.0011971	0.00	3.646E-05	528.738	0.021	0.004	1.457375	6E-05	1.1E-05	1.462108
	Plate Compactors	Average	10	25	0.43	88	879.099172	2046	0.547	4.143	0.162	0.149	0.00022793	0.00172634	0.00	6.20864E-05	568.358	0.023	0.005	0.214847	9E-06	1.9E-06	0.215627
	Pumps	Average	10	25	0.74	1926	19263.3983	2046	0.555	4.226	0.162	0.149	0.00872091	0.06640461	0.00	0.002341289	568.32	0.023	0.005	8.101353	3E-04	7.1E-05	8.13079
	Rollers	Average	400	600	0.38	33	13125.3727	2046	0.098	0.502	0.019	0.017	0.0005388	0.00275996	0.00	9.34648E-05	531.116	0.022	0.004	2.649016	1E-04	2E-05	2.657705
	Other Material Handling Equipment	Average	275	300	0.4	39	10834.3228	2046	0.133	0.38	0.014	0.013	0.00063536	0.0018153	0.00	6.21025E-05	528.016	0.021	0.004	2.288278	9E-05	1.7E-05	2.295719
	Welders	Average	25	25	0.45	379	9482.11328	2046	0.559	4.26	0.162	0.149	0.00262926	0.02003694	0.00	0.000700823	568.319	0.023	0.005	2.424989	1E-04	2.1E-05	2.433801
	Rubber Tired Loaders	Average	250	300	0.36	318	79567.1592	2046	0.13	0.344	0.013	0.012	0.00410472	0.01086173	0.00	0.000378897	526.689	0.021	0.004	15.08657	6E-04	0.00011	15.13576
	Tractors/Loaders/Backhoes	Average	325	600	0.37	7	2369.85897	2046	0.109	0.367	0.014	0.013	0.00010535	0.00035473	0.00	1.25653E-05	529.211	0.021	0.004	0.464038	2E-05	3.5E-06	0.465543
	Off-Highway Trucks	Average	325	600	0.38	405	131782.002	2046	0.147	0.338	0.014	0.012	0.00811449	0.0186578	0.00	0.000662407	529.508	0.021	0.004	26.51626	0.001	0.0002	26.60224
	Other Material Handling Equipment	Average	350	600	0.4	130	45443.3669	2046	0.11	0.373	0.014	0.013	0.00220408	0.00747383	0.00	0.000260482	527.856	0.021	0.004	9.595022	4E-04	7.3E-05	9.626232
2047	Aerial Lifts	Average	90	100	0.31	110	9881.8912	2047	0.078	1.347	0.01	0.009	0.00026339	0.00454856	0.00	3.03912E-05	527.896	0.021	0.004	1.617149	6E-05	1.2E-05	1.622409
	Bore/Drill Rigs	Average	300	300	0.5	189	56578.63	2047	0.08	0.336	0.012	0.011	0.00249469	0.0104777	0.00	0.00034302	525.142	0.021	0.004	14.85591	6E-04	0.00011	14.90448
	Concrete/Industrial Saws	Average	2	25	0.73	248	496.548556	2047	0.581	4.439	0.166	0.153	0.00023215	0.00177367	0.00	6.11336E-05	582.321	0.024	0.005	0.21108	9E-06	1.8E-06	0.211838
	Crawler Tractors	Average	300	300	0.43	198	59323.5997	2047	0.138	0.746	0.032	0.03	0.00388042	0.02097678	0.00	0.00084357	527.287	0.021	0.004	13.45064	5E-04	0.0001	13.49444
	Excavators	Average	400	600	0.38	168	67386.2619	2047	0.094	0.295	0.011	0.01	0.0026533	0.00832686	0.00	0.000282266	527.304	0.021	0.004	13.50256	5E-04	0.0001	13.54652
	Forklifts	Average	100	50	0.2	130	13033.7569	2047	0.369	3.216	0.03	0.028	0.0010603	0.00924102	0.00	8.04566E-05	587.137	0.024	0.005	1.53052	6E-05	1.3E-05	1.535968
	Generator Sets	Average	100	50	0.74	198	19774.5332	2047	0.226	2.941	0.013	0.012	0.00364544	0.04743917	0.00	0.000193563	568.301	0.023	0.005	8.316036	3E-04	7.3E-05	8.346254
	Graders	Average	400	600	0.41	18	7319.91941	2047	0.124	0.283	0.011	0.01	0.00041022	0.00093623	0.00	3.30822E-05	525.026	0.021	0.004	1.575691	6E-05	1.2E-05	1.580844
	Paving Equipment	Average	300	300	0.36	26	7685.91538	2047	0.106	0.416	0.013	0.012	0.0003233	0.00126881	0.00	3.66002E-05	528.731	0.021	0.004	1.462961	6E-05	1.1E-05	1.467712
	Plate Compactors	Average	10	25	0.43	88	882.480322	2047	0.547	4.143	0.162	0.149	0.0002288	0.00173298	0.00	6.23252E-05	568.358	0.023	0.005	0.215673	9E-06	1.9E-06	0.216456
	Pumps	Average	10	25	0.74	1934	19337.4882	2047	0.555	4.226	0.162	0.149	0.00875445	0.06666002	0.00	0.002350294	568.32	0.023	0.005	8.132512	3E-04	7.2E-05	8.162062
	Rollers	Average	400	600	0.38	33	13175.8549	2047	0.098	0.498	0.018	0.017	0.00054087	0.0027485	0.00	9.38243E-05	531.116	0.022	0.004	2.659205	1E-04	2E-05	2.667927
	Other Material Handling Equipment	Average	275	300	0.4	40	10875.9933	2047	0.133	0.372	0.014	0.013	0.0006378	0.00178392	0.00	6.23414E-05	528.016	0.021	0.004	2.297079	9E-05	1.7E-05	2.304549
	Welders	Average	25	25	0.45	381	9518.58294	2047	0.559	4.26	0.162	0.149	0.00263937	0.020114	0.00	0.000703518	568.319	0.023	0.005	2.434316	1E-04	2.1E-05	2.443161
	Rubber Tired Loaders	Average	250	300	0.36	319	79873.1867	2047	0.129	0.337	0.013	0.012	0.00408881	0.01068163	0.00	0.000380355	526.689	0.021	0.004	15.1446	6E-04	0.00012	15.19397
	Tractors/Loaders/Backhoes	Average	325	600	0.37	7	2378.97381	2047	0.108	0.363	0.014	0.013	0.00010479	0.00035221	0.00	1.26136E-05	529.211	0.021	0.004	0.465822	2E-05	3.5E-06	0.467334
	Off-Highway Trucks	Average	325	600	0.38	407	132288.856	2047	0.147	0.333	0.013	0.012	0.0081457	0.0184525	0.00	0.000664955	529.508	0.021	0.004	26.61824	0.001	0.0002	26.70456
	Other Material Handling Equipment	Average	350	600	0.4	130	45618.1491	2047	0.109	0.357	0.014	0.013	0.00219244	0.00718075	0.00	0.000261484	527.856	0.021	0.004	9.631925	4E-04	7.3E-05	9.663256

	SRWTP (Phase 2)	Tier	Equipment HP	HP bin for EF	LF	Total hours per calendar year	hp-hr	EF year	ROG	NOx	Ex PM-10	Ex PM2.5	ROG	NOx	Ex PM-10	Ex PM2.5	CO2	CH4	N2O	CO2	CH4	N2O	CO2e
2048	Aerial Lifts	Average	90	100	0.31	110	9881.8912	2048	0.078	1.347	0.01	0.009	0.00026339	0.00454856	0.00	3.03912E-05	527.896	0.021	0.004	1.617149	6E-05	1.2E-05	1.622409
	Bore/Drill Rigs	Average	300	300	0.5	189	56578.63	2048	0.079	0.323	0.012	0.011	0.00246351	0.01007231	0.00	0.00034302	525.142	0.021	0.004	14.85591	6E-04	0.00011	14.90448
	Concrete/Industrial Saws	Average	2	25	0.73	248	496.548556	2048	0.581	4.439	0.166	0.153	0.00023215	0.00177367	0.00	6.11336E-05	582.321	0.024	0.005	0.21108	9E-06	1.8E-06	0.211838
	Crawler Tractors	Average	300	300	0.43	198	59323.5997	2048	0.133	0.69	0.029	0.026	0.00373983	0.01940212	0.00	0.000731094	527.287	0.021	0.004	13.45064	5E-04	0.0001	13.49444
	Excavators	Average	400	600	0.38	168	67386.2619	2048	0.094	0.292	0.011	0.01	0.0026533	0.00824218	0.00	0.000282266	527.304	0.021	0.004	13.50256	5E-04	0.0001	13.54652
	Forklifts	Average	100	50	0.2	130	13033.7569	2048	0.365	3.212	0.029	0.027	0.00104881	0.00922952	0.00	7.75832E-05	587.137	0.024	0.005	1.53052	6E-05	1.3E-05	1.535968
	Generator Sets	Average	100	50	0.74	198	19774.5332	2048	0.226	2.941	0.013	0.012	0.00364544	0.04743917	0.00	0.000193563	568.301	0.023	0.005	8.316036	3E-04	7.3E-05	8.346254
	Graders	Average	400	600	0.41	18	7319.91941	2048	0.124	0.283	0.011	0.01	0.00041022	0.00093623	0.00	3.30822E-05	525.026	0.021	0.004	1.575691	6E-05	1.2E-05	1.580844
	Paving Equipment	Average	300	300	0.36	26	7685.91538	2048	0.103	0.398	0.013	0.012	0.00031415	0.00121391	0.00	3.66002E-05	528.77	0.021	0.004	1.463069	6E-05	1.1E-05	1.46782
	Plate Compactors	Average	10	25	0.43	88	882.480322	2048	0.547	4.143	0.162	0.149	0.0002288	0.00173298	0.00	6.23252E-05	568.358	0.023	0.005	0.215673	9E-06	1.9E-06	0.216456
	Pumps	Average	10	25	0.74	1934	19337.4882	2048	0.555	4.226	0.162	0.149	0.00875445	0.06666002	0.00	0.002350294	568.32	0.023	0.005	8.132512	3E-04	7.2E-05	8.162062
	Rollers	Average	400	600	0.38	33	13175.8549	2048	0.098	0.494	0.018	0.017	0.00054087	0.00272642	0.00	9.38243E-05	531.116	0.022	0.004	2.659205	1E-04	2E-05	2.667927
	Other Material Handling Equipment	Average	275	300	0.4	40	10875.9933	2048	0.132	0.363	0.013	0.012	0.000633	0.00174076	0.00	5.75459E-05	528.016	0.021	0.004	2.297079	9E-05	1.7E-05	2.304549
	Welders	Average	25	25	0.45	381	9518.58294	2048	0.559	4.26	0.162	0.149	0.00263937	0.020114	0.00	0.000703518	568.319	0.023	0.005	2.434316	1E-04	2.1E-05	2.443161
	Rubber Tired Loaders	Average	250	300	0.36	319	79873.1867	2048	0.129	0.33	0.013	0.012	0.00408881	0.01045976	0.00	0.000380355	526.689	0.021	0.004	15.1446	6E-04	0.00012	15.19397
	Tractors/Loaders/Backhoes	Average	325	600	0.37	7	2378.97381	2048	0.107	0.354	0.013	0.012	0.00010382	0.00034348	0.00	1.16433E-05	529.212	0.021	0.004	0.465823	2E-05	3.5E-06	0.467334
	Off-Highway Trucks	Average	325	600	0.38	407	132288.856	2048	0.146	0.326	0.013	0.012	0.00809029	0.01806461	0.00	0.000664955	529.508	0.021	0.004	26.61824	0.001	0.0002	26.70456
	Other Material Handling Equipment	Average	350	600	0.4	130	45618.1491	2048	0.109	0.353	0.014	0.013	0.00219244	0.0071003	0.00	0.000261484	527.856	0.021	0.004	9.631925	4E-04	7.3E-05	9.663256
2049	Aerial Lifts	Average	90	100	0.31	110	9919.75285	2049	0.078	1.347	0.009	0.009	0.0002644	0.00456598	0.00	3.05077E-05	527.896	0.021	0.004	1.623345	6E-05	1.2E-05	1.628625
	Bore/Drill Rigs	Average	300	300	0.5	189	56795.4063	2049	0.078	0.317	0.011	0.01	0.00244164	0.00992308	0.00	0.000313031	525.142	0.021	0.004	14.91283	6E-04	0.00011	14.96159
	Concrete/Industrial Saws	Average	2	25	0.73	249	498.451041	2049	0.581	4.439	0.166	0.153	0.00023304	0.00178047	0.00	6.13679E-05	582.321	0.024	0.005	0.211889	9E-06	1.8E-06	0.212649
	Crawler Tractors	Average	300	300	0.43	199	59550.8932	2049	0.132	0.676	0.028	0.026	0.00372593	0.01908128	0.00	0.000733895	527.287	0.021	0.004	13.50218	5E-04	0.0001	13.54614
	Excavators	Average	400	600	0.38	169	67644.4468	2049	0.094	0.29	0.011	0.01	0.00266347	0.00821709	0.00	0.000283348	527.304	0.021	0.004	13.55429	5E-04	0.0001	13.59843
	Forklifts	Average	100	50	0.2	131	13083.6946	2049	0.362	3.207	0.028	0.026	0.00104417	0.00925046	0.00	7.4996E-05	587.137	0.024	0.005	1.536384	6E-05	1.3E-05	1.541853
	Generator Sets	Average	100	50	0.74	199	19850.2977	2049	0.226	2.941	0.013	0.012	0.00365941	0.04762093	0.00	0.000194305	568.301	0.023	0.005	8.347899	3E-04	7.3E-05	8.378232
	Graders	Average	400	600	0.41	18	7347.96508	2049	0.127	0.284	0.011	0.01	0.00042175	0.00094313	0.00	3.32089E-05	525.232	0.021	0.004	1.582348	6E-05	1.2E-05	1.587521
	Paving Equipment	Average	300	300	0.36	26	7715.36333	2049	0.103	0.372	0.013	0.012	0.00031536	0.00113895	0.00	3.67404E-05	528.738	0.021	0.004	1.468586	6E-05	1.1E-05	1.473355
	Plate Compactors	Average	10	25	0.43	89	885.861473	2049	0.547	4.143	0.162	0.149	0.00022968	0.00173962	0.00	6.2564E-05	568.358	0.023	0.005	0.216499	9E-06	1.9E-06	0.217286
	Pumps	Average	10	25	0.74	1941	19411.5782	2049	0.555	4.226	0.162	0.149	0.00878799	0.06691542	0.00	0.002359299	568.32	0.023	0.005	8.163671	3E-04	7.2E-05	8.193334
	Rollers	Average	400	600	0.38	33	13226.3371	2049	0.098	0.468	0.018	0.017	0.00054294	0.00259282	0.00	9.41838E-05	531.116	0.022	0.004	2.669393	1E-04	2E-05	2.678149
	Other Material Handling Equipment	Average	275	300	0.4	40	10917.6638	2049	0.132	0.355	0.013	0.012	0.00063543	0.00170892	0.00	5.77664E-05	528.024	0.021	0.004	2.305915	9E-05	1.7E-05	2.313414
	Welders	Average	25	25	0.45	382	9555.05261	2049	0.559	4.26	0.162	0.149	0.00264949	0.02019107	0.00	0.000706213	568.319	0.023	0.005	2.443643	1E-04	2.1E-05	2.452522
	Rubber Tired Loaders	Average	250	300	0.36	321	80179.2142	2049	0.129	0.324	0.013	0.012	0.00410448	0.01030893	0.00	0.000381812	526.689	0.021	0.004	15.20262	6E-04	0.00012	15.25218
	Tractors/Loaders/Backhoes	Average	325	600	0.37	7	2388.08865	2049	0.107	0.348	0.013	0.012	0.00010422	0.00033895	0.00	1.16879E-05	529.211	0.021	0.004	0.467607	2E-05	3.5E-06	0.469124
	Off-Highway Trucks	Average	325	600	0.38	409	132795.709	2049	0.146	0.322	0.013	0.012	0.00812128	0.01791132	0.00	0.000667503	529.508	0.021	0.004	26.72023	0.001	0.0002	26.80687
	Other Material Handling Equipment	Average	350	600	0.4	131	45792.9313	2049	0.109	0.351	0.014	0.013	0.00220084	0.00708712	0.00	0.000262486	527.855	0.021	0.004	9.668811	4E-04	7.3E-05	9.700262
2050	Aerial Lifts	Average	90	100	0.31	45	4089.05843	2050	0.078	1.346	0.009	0.009	0.00010899	0.00188076	0.00	1.25757E-05	527.896	0.021	0.004	0.669165	3E-05	5.1E-06	0.671342
	Bore/Drill Rigs	Average	300	300	0.5	78	23411.8469	2050	0.077	0.308	0.01	0.01	0.00099357	0.0039743	0.00	0.000129036	525.142	0.021	0.004	6.147272	2E-04	4.7E-05	6.167371
	Concrete/Industrial Saws	Average	2	25	0.73	103	205.468368	2050	0.581	4.439	0.166	0.153	9.6061E-05	0.00073393	0.00	2.52967E-05	582.321	0.024	0.005	0.087343	4E-06	7.5E-07	0.087657
	Crawler Tractors	Average	300	300	0.43	82	24547.6964	2050	0.131	0.666	0.027	0.025	0.00152424	0.00774921	0.00	0.000290886	527.287	0.021	0.004	5.565783	2E-04	4.2E-05	5.583907
	Excavators	Average	400	600	0.38	70	27883.9704	2050	0.094	0.289	0.011	0.01	0.00109792	0.00337552	0.00	0.0001168	527.304	0.021	0.004	5.587265	2E-04	4.2E-05	5.605458
	Forklifts	Average	100	50	0.2	54	5393.27871	2050	0.36	3.205	0.027	0.024	0.00042805	0.00381079	0.00	2.85363E-05	587.137	0.024	0.005	0.633319	3E-05	5.4E-06	0.635573
	Generator Sets	Average	100	50	0.74	82	8182.56548	2050	0.226	2.941	0.013	0.012	0.00150846	0.01963	0.00	8.00952E-05	568.301	0.023	0.005	3.441119	1E-04	3E-05	3.453622
	Graders	Average	400	600	0.41	8	3028.93217	2050	0.124	0.283	0.011	0.01	0.00016975	0.0003874	0.00	1.36892E-05	525.026	0.021	0.004	0.65201	3E-05	5E-06	0.654142
	Paving Equipment	Average	300	300	0.36	11	3180.37878	2050	0.103	0.368	0.013	0.012	0.00012999	0.00046444	0.00	1.51449E-05	528.738	0.021	0.004	0.605371	2E-05	4.6E-06	0.607337
	Plate Compactors	Average	10	25	0.43	37	365.164271	2050	0.547	4.143	0.162	0.149	9.4678E-05	0.00071709	0.00	2.57898E-05	568.358	0.023	0.005	0.089244	4E-06	7.9E-07	0.089568
	Pumps	Average	10	25	0.74	800	8001.71927	2050	0.555	4.226	0.162	0.149	0.00362253	0.02758345	0.00	0.000972535	568.32	0.023	0.005	3.365177	1E-04	3E-05	3.377405
	Rollers	Average	400	600	0.38	14	5452.0779	2050	0.092	0.42	0.015	0.014	0.00021011	0.00095918	0.00	3.19726E-05	531.116	0.022	0.004	1.100361	5E-05	8.3E-06	1.10397
	Other Material Handling Equipment	Average	275	300	0.4	16	4500.41101	2050	0.131	0.35	0.013	0.012	0.00025995	0.00069452	0.00	2.38121E-05	528.024	0.021	0.004	0.95053	4E-05	7.2E-06	0.953621
	Welders	Average	25	25	0.45	158	3938.72398	2050	0.559	4.26	0.162	0.149	0.00109215	0.00832304	0.00	0.000291111	568.319	0.023	0.005	1.007303	4E-05	8.9E-06	1.010963
	Rubber Tired Loaders	Average	250	300	0.36	132	33050.9738	2050	0.128	0.32	0.013	0.012	0.00167881	0.00419702	0.00	0.000157388	526.689	0.021	0.004	6.26673	2E-04	4.8E-05	6.28716
	Tractors/Loaders/Backhoes	Average	325	600	0.37	3	984.402955	2050	0.107	0.345	0.013	0.012	4.296E-05	0.00013852	0.00	4.81792E-06	529.211	0.021	0.004	0.192754	8E-06	1.5E-06	0.193379
	Off-Highway Trucks	Average	325	600	0.38	168	54740.2161	2050	0.146	0.32	0.013	0.012	0.0033477	0.00733743	0.00	0.000275154	529.508	0.021	0.004	11.01445	4E-04	8.3E-05	11.05016
	Other Material Handling Equipment	Average	350	600	0.4	54	18876.4755	2050	0.109	0.351	0.014	0.013	0.00090722	0.00292141	0.00	0.0001082	527.855	0.021	0.004	3.985617	2E-04	3E-05	3.998581

SRWTP 1.a

	ROG	NOx	Ex PM-10	Ex PM2.5	CO2	CH4	N2O	CO2e
2027	0.05	0.41	0.01	0.01	140.23	0.01	0.00	140.69
2028	0.05	0.38	0.01	0.01	139.72	0.01	0.00	140.18
2029	0.05	0.36	0.01	0.01	140.31	0.01	0.00	140.77
2030	0.05	0.34	0.01	0.01	140.31	0.01	0.00	140.77
2031	0.05	0.33	0.01	0.01	140.31	0.01	0.00	140.77
2032	0.02	0.16	0.01	0.00	70.42	0.00	0.00	70.65

CAP Emissions Summary (ppd)				
	ROG	NOx	Ex PM-10	Ex PM2.5
2027	0.4	3.1	0.1	0.1
2028	0.4	2.9	0.1	0.1
2029	0.4	2.8	0.1	0.1
2030	0.4	2.6	0.1	0.1
2031	0.4	2.5	0.1	0.1
2032	0.2	1.2	0.0	0.0

SRWTP Phase 1.b

	ROG	NOx	Ex PM-10	Ex PM2.5	CO2	CH4	N2O	CO2e
2033	0.04	0.27	0.01	0.01	127.56	0.01	0.00	127.98
2034	0.04	0.26	0.01	0.01	127.07	0.01	0.00	127.49
2035	0.04	0.25	0.01	0.01	127.56	0.01	0.00	127.98
2036	0.04	0.24	0.01	0.01	127.55	0.01	0.00	127.98
2037	0.04	0.24	0.01	0.01	127.55	0.01	0.00	127.97
2038	0.02	0.11	0.00	0.00	64.02	0.00	0.00	64.23

	CAP Emissions Summary (ppd)			
	ROG	NOx	Ex PM-10	Ex PM2.5
2033	0.33	2.10	0.07	0.06
2034	0.33	2.03	0.06	0.06
2035	0.32	1.94	0.06	0.05
2036	0.32	1.88	0.06	0.05
2037	0.31	1.81	0.05	0.05
2038	0.15	0.88	0.03	0.02

SRWTP (Phase 2)

	CAP Emissions Summary (tpy)				GHG Emissions Summary (MT per year)			
	ROG	NOx	Ex PM-10	Ex PM2.5	CO2	CH4	N2O	CO2e
2039	0.04	0.26	0.01	0.01	123.65	0.00	0.00	124.06
2040	0.04	0.26	0.01	0.01	123.65	0.00	0.00	124.06
2041	0.04	0.25	0.01	0.01	124.12	0.00	0.00	124.53
2042	0.04	0.25	0.01	0.01	124.12	0.00	0.00	124.53
2043	0.04	0.25	0.01	0.01	124.12	0.00	0.00	124.53
2044	0.04	0.24	0.01	0.01	124.12	0.00	0.00	124.53
2045	0.04	0.24	0.01	0.01	124.12	0.00	0.00	124.53
2046	0.04	0.24	0.01	0.01	123.65	0.00	0.00	124.06
2047	0.04	0.23	0.01	0.01	124.12	0.00	0.00	124.53
2048	0.04	0.23	0.01	0.01	124.12	0.00	0.00	124.53
2049	0.04	0.23	0.01	0.01	124.60	0.00	0.00	125.01
2050	0.02	0.09	0.00	0.00	51.36	0.00	0.00	51.53

	CAP Emissions Summary (ppd)			
	ROG	NOx	Ex PM-10	Ex PM2.5
2039	0.3	2.0	0.1	0.1
2040	0.3	2.0	0.1	0.1
2041	0.3	1.9	0.1	0.1
2042	0.3	1.9	0.1	0.1
2043	0.3	1.9	0.1	0.1
2044	0.3	1.9	0.1	0.1
2045	0.3	1.8	0.1	0.1
2046	0.3	1.8	0.1	0.1
2047	0.3	1.8	0.1	0.0
2048	0.3	1.8	0.1	0.0
2049	0.3	1.8	0.1	0.0
2050	0.1	0.7	0.0	0.0

Total Emissions from On-Site Equipment

	CAP Emissions Summary (tpy)				GHG Emissions Summary(MT per year)			
	ROG	NOx	Ex PM-10	Ex PM2.5	CO2	CH4	N2O	CO2e
2027	0.05	0.41	0.01	0.01	140.2	0.0	0.0	140.7
2028	0.05	0.38	0.01	0.01	139.7	0.0	0.0	140.2
2029	0.05	0.36	0.01	0.01	140.3	0.0	0.0	140.8
2030	0.05	0.34	0.01	0.01	140.3	0.0	0.0	140.8
2031	0.05	0.33	0.01	0.01	140.3	0.0	0.0	140.8
2032	0.02	0.16	0.01	0.00	70.4	0.0	0.0	70.7
2033	0.04	0.27	0.01	0.01	127.6	0.0	0.0	128.0
2034	0.04	0.26	0.01	0.01	127.1	0.0	0.0	127.5
2035	0.04	0.25	0.01	0.01	127.6	0.0	0.0	128.0
2036	0.04	0.24	0.01	0.01	127.6	0.0	0.0	128.0
2037	0.04	0.24	0.01	0.01	127.6	0.0	0.0	128.0
2038	0.02	0.11	0.00	0.00	64.0	0.0	0.0	64.2
2039	0.04	0.26	0.01	0.01	123.6	0.0	0.0	124.1
2040	0.04	0.26	0.01	0.01	123.6	0.0	0.0	124.1
2041	0.04	0.25	0.01	0.01	124.1	0.0	0.0	124.5
2042	0.04	0.25	0.01	0.01	124.1	0.0	0.0	124.5
2043	0.04	0.25	0.01	0.01	124.1	0.0	0.0	124.5
2044	0.04	0.24	0.01	0.01	124.1	0.0	0.0	124.5
2045	0.04	0.24	0.01	0.01	124.1	0.0	0.0	124.5
2046	0.04	0.24	0.01	0.01	123.6	0.0	0.0	124.1
2047	0.04	0.23	0.01	0.01	124.1	0.0	0.0	124.5
2048	0.04	0.23	0.01	0.01	124.1	0.0	0.0	124.5
2049	0.04	0.23	0.01	0.01	124.6	0.0	0.0	125.0
2050	0.02	0.09	0.00	0.00	51.4	0.0	0.0	51.5

	CAP Emissions Summary (ppd)			
	ROG	NOx	Ex PM-10	Ex PM2.5
2025	0.0	0.0	0.0	0.0
2026	0.0	0.0	0.0	0.0
2027	0.4	3.1	0.1	0.1
2028	0.4	2.9	0.1	0.1
2029	0.4	2.8	0.1	0.1
2030	0.4	2.6	0.1	0.1
2031	0.4	2.5	0.1	0.1
2032	0.2	1.2	0.0	0.0
2033	0.3	2.1	0.1	0.1
2034	0.3	2.0	0.1	0.1
2035	0.3	1.9	0.1	0.1
2036	0.3	1.9	0.1	0.1
2037	0.3	1.8	0.1	0.0
2038	0.2	0.9	0.0	0.0
2039	0.3	2.0	0.1	0.1
2040	0.3	2.0	0.1	0.1
2041	0.3	1.9	0.1	0.1
2042	0.3	1.9	0.1	0.1
2043	0.3	1.9	0.1	0.1
2044	0.3	1.9	0.1	0.1
2045	0.3	1.8	0.1	0.1
2046	0.3	1.8	0.1	0.1
2047	0.3	1.8	0.1	0.0
2048	0.3	1.8	0.1	0.0
2049	0.3	1.8	0.1	0.0
2050	0.1	0.7	0.0	0.0

Water Plus-On-site Fugitive Dust Calculations

Material Movement

Phase Name	Total (CY)	Net Annual Trips
FWTP	69,250	8,656
SRWTP phase 1.a	58,000	7,250
SRWTP phase 1.b	58,000	7,250
SRWTP phase 2	58,700	7,338
Potable Water Transmission Pipelines	9,000	2,519
Sacramento River Water Intakes	20,150	1,125

Emission Reduction on PM

Speed < 25 mph	44%	*unpaved roads*
Watering 2x daily	55%	*unpaved roads*

Construction Schedule

Phase Number	Phase Name	Phase Type	Start Date	End Date	Duration (Yrs)	Day/Year
	SRWTP phase 1.a	Grading	1/1/2027	7/1/2032	5.50	260
	SRWTP phase 1.a	Grading	1/1/2027	7/1/2032	5.50	260
	SRWTP phase 1.b	Grading	1/1/2033	7/1/2038	5.50	260
	SRWTP phase 2	Grading	1/1/2039	6/1/2050	11.42	260
	SRWTP phase 2	Grading	1/1/2039	6/1/2050	11.42	260
	SRWTP phase 2	Grading	1/1/2039	6/1/2050	11.42	260
	SRWTP phase 2	Grading	1/1/2039	6/1/2050	11.42	261

Off-Road Equipment Info

Phase Number	Phase Name	Offroad Equipment Type	NAME MATCH Offroad Equipment Type	Fuel Type	Amount	Days Used	Hours/Day Usage	Annual Hours Use	Acre graded/8 hr	Acre Graded per yr
	SRWTP phase 1.a	Crawler Tractors	Crawler Tractors	Diesel	1			230	0.5	14.386829
	SRWTP phase 1.a	Crawler Tractors	Crawler Tractors	Diesel	1			230	0.5	14.386829
	SRWTP phase 1.a	Graders	Graders	Diesel	1			27	0.5	1.6824042
	SRWTP phase 1.b	Crawler Tractors	Crawler Tractors	Diesel	1			197	0.5	12.31173
	SRWTP phase 2	Crawler Tractors	Crawler Tractors	Diesel	1			197	0.5	12.31173
	SRWTP phase 2	Graders	Graders	Diesel	1			18	0.5	1.1393553
	SRWTP phase 2	Crawler Tractors	Crawler Tractors	Diesel	1			197	0.5	12.31173

Grading Emissions Estimates

Constants

S =	7.1	mph
$F_{PM2.5}$ =	0.031	
F_{PM10} =	0.6	
Wb =	12	ft
UC_1 =	43560	sqft/acre
UC_2 =	5280	ft/mi

Emission Factors

EF_{PM15} =	2.57	lb/VMT
EF_{TSP} =	5.37	lb/VMT
EF_{PM10} =	1.54	lb/VMT
$EF_{PM2.5}$ =	0.17	lb/VMT

Grading Activity

Phase Name	Phase Type	Activity Type	**Area Graded** Acres	**Grading VMT** total VMT
SRWTP phase 1.a	Grading	Grading	30.46	20.94
SRWTP phase 1.b	Grading	Grading	12.31	8.46
SRWTP phase 2	Grading	Grading	25.76	17.71

Grading Emissions

Phase Name	Phase Type	Activity Type	**PM10** Lbs/yr	**PM2.5** Lbs/yr
SRWTP phase 1.a	Grading	Grading	32.299	3.487
SRWTP phase 1.b	Grading	Grading	13.057	1.410
SRWTP phase 2	Grading	Grading	27.321	2.950

Bulldozing Emissions Estimates

Constants		
C_{TSP} =	5.7	
C_{PM15} =	1	
M =	7.9	%
s =	6.9	%
F_{PM10} =	0.75	
$F_{PM2.5}$ =	0.105	

Emission Factors		
EF_{TSP} =	3.94	lb/hr
EF_{PM15} =	1.00	lb/hr
EF_{PM10} =	0.75	lb/hr
$EF_{PM2.5}$ =	0.41	lb/hr

C_{TSP} =	5.7	
C_{PM15} =	1	
M =	7.9	%
s =	6.9	%
F_{PM10} =	0.75	
$F_{PM2.5}$ =	0.105	

Dozer Activity

Phase Name	Phase Type	Activity Type	Equipment Type	**Dozer Activity** Hours
SRWTP phase 1.a	Grading	Bulldozing	Rubber Tired Dozers	0.0
SRWTP phase 1.a	Grading	Bulldozing	Rubber Tired Dozers	0.0
SRWTP phase 2	Grading	Bulldozing	Rubber Tired Dozers	0.0
SRWTP phase 2	Grading	Bulldozing	Rubber Tired Dozers	0.0

Bulldozing Emissions

Phase Name	Phase Type	Activity Type	**PM10** Lbs/yr	**PM2.5** Lbs/yr
SRWTP phase 1.a	Grading	Bulldozing	0.000	0.000
SRWTP phase 1.a	Grading	Bulldozing	0.000	0.000
SRWTP phase 1.b	Grading	Bulldozing	0.000	0.000
SRWTP phase 2	Grading	Bulldozing	0.000	0.000
SRWTP phase 2	Grading	Bulldozing	0.000	0.000

Truck Loading Emissions Estimates

Constants		
K_{PM10} =	0.35	
$K_{PM2.5}$ =	0.053	
U =	2.7	m/s
M =	12	%
UC_1 =	2.23694	mph/[m/s]
UC_2 =	1.2641662	short ton/cubic yard

Emission Factors		
EF_{PM10} =	0.00	lb/short ton
$EF_{PM2.5}$ =	0.00	lb/short ton

Truck Loading Activity

Phase Name	Phase Type	Activity Type	**Material Movement** short ton
SRWTP phase 1.a	Grading	Material Movement	73321.640
SRWTP phase 1.a	Grading	Material Movement	73321.640
SRWTP phase 1.b	Grading	Material Movement	73321.640
SRWTP phase 2	Grading	Material Movement	74206.556
SRWTP phase 2	Grading	Material Movement	74206.556

Truck Loading Emissions

Phase Name	Phase Type	Activity Type	**PM10** Lbs/yr	**PM2.5** Lbs/yr
SRWTP phase 1.a	Grading	Material Movement	2	0
SRWTP phase 1.a	Grading	Material Movement	2	0
SRWTP phase 1.b	Grading	Material Movement	2	0
SRWTP phase 2	Grading	Material Movement	1	0
SRWTP phase 2	Grading	Material Movement	1	0

On-site, Unpaved Roads Emissions Estimates

Constants			Emission Factors			
Google earth Distance =	0	m	EF_{PM10} =	2.09	lb/vmt	*see road dust tab for calculations*
UC_1 =	1609.34	m/mile	$EF_{PM2.5}$ =	0.21	lb/vmt	*see road dust tab for calculations*
	0					

Emission Factors w/ control requirements

EF_{PM10} =	0.53	lb/vmt
$EF_{PM2.5}$ =	0.05	lb/vmt

Truck Loading Activity

Phase Name	Phase Type	Activity Type	**Unpaved Distance** miles
SRWTP phase 1.a	Grading	On-site Unpaved Roads	0
SRWTP phase 1.a	Grading	On-site Unpaved Roads	0
SRWTP phase 1.b	Grading	On-site Unpaved Roads	0
SRWTP phase 2	Grading	On-site Unpaved Roads	0
SRWTP phase 2	Grading	On-site Unpaved Roads	0

Truck Loading Emissions

Phase Name	Phase Type	Activity Type	**PM10** Lbs/yr	**PM2.5** Lbs/yr
SRWTP phase 1.a	Grading	On-site Unpaved Roads	0.0	0.0
SRWTP phase 1.a	Grading	On-site Unpaved Roads	0.0	0.0
SRWTP phase 1.b	Grading	On-site Unpaved Roads	0.0	0.0
SRWTP phase 2	Grading	On-site Unpaved Roads	0.0	0.0
SRWTP phase 2	Grading	On-site Unpaved Roads	0.0	0.0

Annual Onsite Fugitive Dust Emissions

SRWTP phase 1.a

1/1/2027 7/1/2032

Activity Type	**PM10** Lbs/yr	**PM2.5** Lbs/yr	**PM10** tpy	**PM2.5** tpy	**PM10** ppd	**PM2.5** ppd
Grading	32.3	3.5	0.016	0.002	0.124	0.013
Bulldozing	0.0	0.0	0.000	0.000	0.000	0.000
Material Movement	1.6	0.2	0.001	0.000	0.006	0.001
On-site Unpaved Roads	0.0	0.0	0.000	0.000	0.000	0.000
			0.017	0.002	0.130	0.014

SRWTP phase 2

1/1/2039 6/1/2050

Activity Type	**PM10** Lbs/yr	**PM2.5** Lbs/yr	**PM10** tpy	**PM2.5** tpy	**PM10** ppd	**PM2.5** ppd
Grading	27.3	3.0	0.014	0.001	0.105	0.011
Bulldozing	0.0	0.0	0.000	0.000	0.000	0.000
Material Movement	0.8	0.1	0.000	0.000	0.003	0.000
On-site Unpaved Roads	0.0	0.0	0.000	0.000	0.000	0.000
			0.014	0.002	0.108	0.012

SRWTP phase 1.b

1/1/2033 7/1/2038

Activity Type	**PM10** Lbs/yr	**PM2.5** Lbs/yr	**PM10** tpy	**PM2.5** tpy	**PM10** ppd	**PM2.5** ppd
Grading	13.1	1.4	0.007	0.001	0.050	0.005
Bulldozing	0.0	0.0	0.000	0.000	0.000	0.000
Material Movement	1.6	0.2	0.001	0.000	0.006	0.001
On-site Unpaved Roads	0.0	0.0	0.000	0.000	0.000	0.000
			0.007	0.001	0.056	0.006

Water Plus-Mobile Fugitive Dust Calculations

Accounts for trucks driving to and from the site

Background Information

Conversions

Tons	Pounds	Grams
1	2000	907185

Mile	Feet
1	5280

Year	Day
1	260

Vehicle Weight

80000	pounds
40	tons

CA Vehicle Code - VEH
Div 15, Ch 5, Art 1, 35551

Roadway Travel Fractions and VMT Estimates

County	Sacramento
Freeway	0.37
Major	0.32
Collector	0.1
Local	0.21

SOURCE:
CARB MPM 7.9, March 2021, Table 2

Silt Loading Content

County	Sacramento
Freeway	0.015
Major	0.032
Collector	0.032
Local	0.32

SOURCE:
CARB MPM 7.9, March 2021, Table 4

Composite Silt Load

0.08619

Operational Trips

	Annual One-Way Trips	Trip Length (mi)	VMT/ Year
SRWTP phase 1.a	1,574	20	31,477
SRWTP phase 1.a	2,636	20	52,727
SRWTP phase 2	643	20	12,854
SRWTP phase 2	99	20	1,971
SRWTP phase 2	221	20	4,412
SRWTP phase 1.b	2,636	20	52,727

42 Paved Roads - Re-entrained PAVED Road Dust and Emission Factors for PM10

Calculation Methodology: CARB Miscellaneous Process Methodology - Paved Road Dust, March 2021. This methodology is based on USEPA AP-42, Paved Roads, Section 13.2.1, Revised January 2011.
USEPA AP-42, Paved Roads, Section 13.2.1, Revised January 2011 http://www.epa.gov/ttn/chief/ap42/ch13/final/c13s0201.pdf
2021_paved_roads_7_9.pdf (ca.gov)

Road Dust Equation	E [lb/VMT] = k*(sL)^0.91 * (W)^1.02 * (1-P/4N)

Variables	PM10	Where:	Source:
k (lb/VMT)	0.0022	E = the particulate emission factor in units of pounds of particulate matter per VMT	*calculation*
sL	0.08619	k = the U.S. EPA AP-42 particle size multiplier (PM10 = 0.0022 lb/VMT)	*Table 13.2.1-1, USEPA AP-42 Section 13.2.1, revised January 2011*
W	40	sL = the roadway-specific silt loading in grams/square meter (g/m2)	*Calculated above (silt loading factor)*
P	74	W = the maximum weight of fully loaded tractor trailer traveling the road (California Vehicle Code = 40 tons)	*CA Vehicle Code VEH Div 15, Ch 5, Art 1, 35551*
N	365	P = number of "wet" days, when at least one site per county received at least 0.01 inch of precipitation during the annual averaging period	*Table 5 of CARB MPM 7.9, 2021*
		N = the number of days in the annual averaging period (default = 365)	annual days (365)

Emission Factor
0.009665 lbs/mi

CARB Miscellaneous Process Methodology - Paved Road Dust - Emission Factors for PM2.5

Calculation Methodology: CARB Miscellaneous Process Methodology - Paved Road Dust, Table 6, March 2021. 2021_paved_roads_7_9.pdf (ca.gov)
Exerpt from this document describing how to calculate PM2.5 emissions based off of PM10 emissions:

Particle Size Weight Fractions-Carb Speciation Profiles

CARB's database system maintains particulate emissions as Total PM (total particulate matter) using CARB's specification profile #471 for paved road dust based on paved road dust sampling conducted in California and on evaluations conducted by CARB and MRI. It is estimated that PM10 is 45.72% of Total PM. Based on 2006 updates to CARB speciation profiles for PM2.5 (particulate matter less than 2.5 microns in diameter), PM2.5 is estimated to be 6.86% of Total PM, or 15% of PM10.

	Source:
Total PM = PM10/0.4572	*calculation*
PM2.5 = [PM10 x (0.0686/0.4572)]	*Table 13.2.1-1, USEPA AP-42 Section 13.2.1, revised January 2011*
=PM10 x 15%	*Calculated above (silt loading factor)*
PM2.5 emission factor = 0.00966 * 15%	*Table 7 of CARB, 2018.*
Emission Factor	*Table 5 of CARB MPM 7.9, 2021*
0.00145 lbs/mi	annual days (365)

Off-Site Fugitive Dust Emissions of PM10

SRWTP phase 1.a

lb/year	PM10
	304.2265

PPD	PM10
	1.170102

TPY	PM10
	0.152113

SRWTP phase 1.a

lb/year	PM10
	509.6069

PPD	PM10
	1.960027

TPY	PM10
	0.254803

SRWTP phase 2

lb/year	PM10
	124

PPD	PM10
	0.477821

TPY	PM10
	0.062117

SRWTP phase 2

lb/year	PM10
	19.04773

PPD	PM10
	0.07326

TPY	PM10
	0.009524

SRWTP phase 2

lb/year	PM10
	42.64574895

PPD	PM10
	0.164022111

TPY	PM10
	0.021322874

SRWTP phase 1.b

lb/year	PM10
	510

PPD	PM10
	1.960026614

TPY	PM10
	0.25480346

Off-Site Fugitive Dust Emissions of PM2.5

SRWTP phase 1.a

lb/year	PM2.5
	46

PPD	PM2.5
	0.1755153

TPY	PM2.5
	0.022817

SRWTP phase 1.a

lb/year	PM2.5
	76.44104

PPD	PM2.5
	0.294004

TPY	PM2.5
	0.038221

SRWTP phase 2

lb/year	PM2.5
	18.63503

PPD	PM2.5
	0.071673

TPY	PM2.5
	0.009318

SRWTP phase 2

lb/year	PM2.5
	2.857159

PPD	PM2.5
	0.010989

TPY	PM2.5
	0.001429

SRWTP phase 2

lb/year	PM2.5
	6.396862

PPD	PM2.5
	0.024603

TPY	PM2.5
	0.003198

SRWTP phase 1.b

lb/year	PM2.5
	76.44104

PPD	PM2.5
	0.294004

TPY	PM2.5
	0.038221

Water Plus- Mobile Emissions

SRWTP Treatment Plant Improvements and Existing Utility Upgrades		
Start date	**1/1/2027**	12/31/2027
	1/1/2028	12/31/2028
	1/1/2029	12/31/2029
	1/1/2030	12/31/2030
	1/1/2031	12/31/2031
End date	1/1/2032	1/31/2032
Workdays	1,304	
Total hours	11,736	

SRWTP buildout		
Start date	**1/1/2039**	12/31/2039
	1/1/2040	12/31/2040
	1/1/2041	12/31/2041
	1/1/2042	12/31/2042
	1/1/2043	12/31/2043
	1/1/2044	12/31/2044
	1/1/2045	12/31/2045
	1/1/2046	12/31/2046
	1/1/2047	12/31/2047
	1/1/2048	12/31/2048
	1/1/2049	12/31/2049
End date	1/1/2050	6/1/2050
Workdays	2,978	
Total hours	26,802	

SRWTP Treatment Plant Improvements and Existing Utility Upgrades		
Start date	**1/1/2033**	12/31/2033
	1/1/2034	12/31/2034
	1/1/2035	12/31/2035
	1/1/2036	12/31/2036
	1/1/2037	12/31/2037
End date	1/1/2038	1/31/2038
Workdays	1,304	
Total hours	11,736	

GHG	CO2	CH4	N2O
GWP	1	25	298
1 MT =	1,000,000	g	

1 ton = 907185 g

													EMFAC2021 Emission factors (g/mile)						CAP Emissions (tons per year)						EMFAC2021 Emission factors			GHG Emissions (MT per year)			
Phase		No. of workers/ day	Ave daily truck trips (trips/day)	Trips/day (one-way)	Start date	End date	EF Year	Workdays/ year	Total trips (one-way trips/year)	Trip length (one way)	Miles per year)		ROG	NOx	Ex PM10	Ex PM2.5	Total PM10	Total PM2.5	ROG	NOx	Ex PM10	Ex PM2.5	otal PM1	Total PM2.5	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	CO_2e
SRWTP Treatment Plant Improvements and Existing Utility Upgrades (1a)	Worker trip	14		28	1/1/2027	12/31/2027	2027	261	7,308	15	109,620		0.0148	0.0688	0.0015	0.0014	0.0128	0.0066	0.0018	0.008	0.000	0.000	0.002	0.001	314.654	0.0036	0.0061	34.49	0.00	0.00	**34.70**
	Truck trips		10	20	1/1/2027	12/31/2027	2027	261	5,273	20	105,455		0.0293	2.6317	0.0292	0.0280	0.1482	0.0661	0.0034	0.306	0.003	0.003	0.017	0.008	1604.399	0.0014	0.2528	169.19	0.00	0.03	**177.14**
	Worker trip	14		28	1/1/2028	12/31/2028	2028	260	7,280	15	109,200		0.0134	0.0624	0.0014	0.0013	0.0127	0.0066	0.0016	0.008	0.000	0.000	0.002	0.001	308.190	0.0033	0.0058	33.65	0.00	0.00	**33.85**
	Truck trips		10	20	1/1/2028	12/31/2028	2028	260	5,273	20	105,455		0.0278	2.5003	0.0287	0.0275	0.1479	0.0657	0.0032	0.291	0.003	0.003	0.017	0.008	1574.940	0.0013	0.2481	166.08	0.00	0.03	**173.89**
	Worker trip	14		28	1/1/2029	12/31/2029	2029	261	7,308	15	109,620		0.0121	0.0567	0.0013	0.0012	0.0126	0.0065	0.0015	0.007	0.000	0.000	0.002	0.001	302.746	0.0030	0.0054	33.19	0.00	0.00	**33.37**
	Truck trips		10	20	1/1/2029	12/31/2029	2029	261	5,273	20	105,455		0.0265	2.3801	0.0282	0.0270	0.1476	0.0653	0.0031	0.277	0.003	0.003	0.017	0.008	1546.814	0.0012	0.2437	163.12	0.00	0.03	**170.78**
	Worker trip	14		28	1/1/2030	12/31/2030	2030	261	7,308	15	109,620		0.0110	0.0516	0.0012	0.0011	0.0125	0.0064	0.0013	0.006	0.000	0.000	0.002	0.001	297.671	0.0027	0.0051	32.63	0.00	0.00	**32.81**
	Truck trips		10	20	1/1/2030	12/31/2030	2030	261	5,273	20	105,455		0.0249	2.2546	0.0276	0.0264	0.1471	0.0647	0.0029	0.262	0.003	0.003	0.017	0.008	1519.671	0.0012	0.2394	160.26	0.00	0.03	**167.78**
	Worker trip	14		28	1/1/2031	12/31/2031	2031	261	7,308	15	109,620		0.0134	0.0624	0.0014	0.0011	0.0125	0.0064	0.0016	0.008	0.000	0.000	0.002	0.001	308.190	0.0033	0.0058	33.78	0.00	0.00	**33.98**
	Truck trips		10	20	1/1/2031	12/31/2031	2031	261	5,273	20	105,455		0.0232	2.1307	0.0270	0.0258	0.1465	0.0641	0.0027	0.248	0.003	0.003	0.017	0.007	1493.260	0.0011	0.2353	157.47	0.00	0.02	**164.87**
	Worker trip	14		14	1/1/2032	1/31/2032	2032	22	308	21	6,468		0.0090	0.0428	0.0011	0.0010	0.0124	0.0063	0.0001	0.000	0.000	0.000	0.000	0.000	288.609	0.0023	0.0046	1.87	0.00	0.00	**1.88**
	Truck trips		10	22	1/1/2032	1/31/2032	2032	22	484	22	10,648		0.0218	2.0282	0.0265	0.0254	0.1462	0.0637	0.0003	0.024	0.000	0.000	0.002	0.001	1469.471	0.0010	0.2315	15.65	0.00	0.00	**16.38**
SRWTP Phase 2	Worker trip	14		28	1/1/2039	12/31/2039	2039	260	7,280	15	109,200		0.0048	0.0270	0.0007	0.0007	0.0120	0.0060	0.0006	0.003	0.000	0.000	0.001	0.001	267.882	0.0015	0.0037	29.25	0.00	0.00	**29.38**
	Truck trips		28	28	1/1/2039	12/31/2039	2039	260	7,280	20	145,600		0.0152	1.5333	0.0251	0.0241	0.1450	0.0625	0.0024	0.246	0.004	0.004	0.023	0.010	1357.848	0.0007	0.2139	197.70	0.00	0.03	**206.99**
	Worker trip	14		28	1/1/2040	12/31/2040	2040	261	7,308	15	109,620		0.0045	0.0258	0.0007	0.0006	0.0120	0.0059	0.0005	0.003	0.000	0.000	0.001	0.001	266.129	0.0014	0.0036	29.17	0.00	0.00	**29.30**
	Truck trips		28	28	1/1/2040	12/31/2040	2040	261	7,308	20	146,160		0.0147	1.4929	0.0251	0.0240	0.1449	0.0624	0.0024	0.241	0.004	0.004	0.023	0.010	1348.190	0.0007	0.2124	197.05	0.00	0.03	**206.31**
	Worker trip	14		28	1/1/2041	12/31/2041	2041	261	7,308	15	109,620		0.0042	0.0247	0.0006	0.0006	0.0119	0.0059	0.0005	0.0030	0.0001	0.0001	0.0014	0.0007	264.5967	0.0013	0.0035	29.0051	0.0001	0.0004	**29.1246**
	Truck trips		28	28	1/1/2041	12/31/2041	2041	261	7,308	20	146,160		0.0143	1.4586	0.0251	0.0240	0.1449	0.0624	0.0023	0.2350	0.0040	0.0039	0.0233	0.0101	1339.7221	0.0007	0.2111	195.8138	0.0001	0.0309	**205.0097**
	Worker trip	14		28	1/1/2042	12/31/2042	2042	261	7,308	15	109,620		0.0039	0.0237	0.0006	0.0006	0.0119	0.0059	0.0005	0.003	0.000	0.000	0.001	0.001	263.266	0.0013	0.0035	28.86	0.00	0.00	**28.98**
	Truck trips		28	28	1/1/2042	12/31/2042	2042	261	7,308	20	146,160		0.0139	1.4286	0.0251	0.0241	0.1448	0.0624	0.0022	0.230	0.004	0.004	0.023	0.010	1332.434	0.0006	0.2099	194.75	0.00	0.03	**203.89**
	Worker trip	14		28	1/1/2043	12/31/2043	2043	261	7,308	15	109,620		0.0038	0.0230	0.0006	0.0006	0.0119	0.0058	0.0005	0.003	0.000	0.000	0.001	0.001	262.129	0.0012	0.0034	28.73	0.00	0.00	**28.85**
	Truck trips		28	28	1/1/2043	12/31/2043	2043	261	7,308	20	146,160		0.0136	1.4045	0.0252	0.0241	0.1448	0.0624	0.0022	0.226	0.004	0.004	0.023	0.010	1325.825	0.0006	0.2089	193.78	0.00	0.03	**202.88**
	Worker trip	14		28	1/1/2044	12/31/2044	2044	261	7,308	15	109,620		0.0037	0.0224	0.0006	0.0005	0.0119	0.0058	0.0004	0.003	0.000	0.000	0.001	0.001	261.167	0.0012	0.0034	28.63	0.00	0.00	**28.74**
	Truck trips		28	28	1/1/2044	12/31/2044	2044	261	7,308	20	146,160		0.0133	1.3736	0.0252	0.0241	0.1448	0.0624	0.0021	0.221	0.004	0.004	0.023	0.010	1319.599	0.0006	0.2079	192.87	0.00	0.03	**201.93**
	Worker trip	14		28	1/1/2045	12/31/2045	2045	260	7,280	15	109,200		0.0036	0.0220	0.0006	0.0005	0.0119	0.0058	0.0004	0.003	0.000	0.000	0.001	0.001	260.342	0.0012	0.0034	28.43	0.00	0.00	**28.54**
	Truck trips		28	28	1/1/2045	12/31/2045	2045	260	7,280	20	145,600		0.0130	1.3512	0.0252	0.0241	0.1448	0.0624	0.0021	0.217	0.004	0.004	0.023	0.010	1314.277	0.0006	0.2071	191.36	0.00	0.03	**200.35**
	Worker trip	14		28	1/1/2046	12/31/2046	2046	261	7,308	15	109,620		0.0035	0.0216	0.0006	0.0005	0.0118	0.0058	0.0004	0.003	0.000	0.000	0.001	0.001	259.658	0.0012	0.0034	28.46	0.00	0.00	**28.58**
	Truck trips		28	28	1/1/2046	12/31/2046	2046	261	7,308	20	146,160		0.0127	1.3296	0.0253	0.0242	0.1447	0.0624	0.0021	0.214	0.004	0.004	0.023	0.010	1309.471	0.0006	0.2063	191.39	0.00	0.03	**200.38**
	Worker trip	14		28	1/1/2047	12/31/2047	2047	261	7,308	15	109,620		0.0035	0.0213	0.0005	0.0005	0.0118	0.0058	0.0004	0.003	0.000	0.000	0.001	0.001	259.084	0.0012	0.0033	28.40	0.00	0.00	**28.51**
	Truck trips		28	28	1/1/2047	12/31/2047	2047	261	7,308	20	146,160		0.0125	1.3128	0.0253	0.0242	0.1447	0.0625	0.0020	0.212	0.004	0.004	0.023	0.010	1305.082	0.0006	0.2056	190.75	0.00	0.03	**199.71**
	Worker trip	14		28	1/1/2048	12/31/2048	2048	262	7,336	15	110,040		0.0034	0.0211	0.0005	0.0005	0.0118	0.0058	0.0004	0.003	0.000	0.000	0.001	0.001	258.627	0.0012	0.0033	28.46	0.00	0.00	**28.57**
	Truck trips		28	28	1/1/2048	12/31/2048	2048	262	7,336	20	146,720		0.0124	1.3010	0.0254	0.0243	0.1447	0.0625	0.0020	0.210	0.004	0.004	0.023	0.010	1301.178	0.0006	0.2050	190.91	0.00	0.03	**199.87**
	Worker trip	14		28	1/1/2049	12/31/2049	2049	261	7,308	15	109,620		0.0034	0.0211	0.0005	0.0005	0.0118	0.0058	0.0004	0.003	0.000	0.000	0.001	0.001	258.250	0.0012	0.0033	28.31	0.00	0.00	**28.42**
	Truck trips		28	28	1/1/2049	12/31/2049	2049	261	7,308	20	146,160		0.0122	1.2907	0.0255	0.0243	0.1447	0.0625	0.0020	0.208	0.004	0.004	0.023	0.010	1297.711	0.0006	0.2045	189.67	0.00	0.03	**198.58**
	Worker trip	14		28	1/1/2050	6/1/2050	2050	108	3,024	15	45,360		0.0034	0.0211	0.0005	0.0005	0.0118	0.0058	0.0002	0.001	0.000	0.000	0.001	0.000	257.941	0.0012	0.0033	11.70	0.00	0.00	**11.75**
	Truck trips		28	28	1/1/2050	6/1/2050	2050	108	3,024	20	60,480		0.0120	1.2816	0.0255	0.0244	0.1447	0.0626	0.0008	0.085	0.002	0.002	0.010	0.004	1294.481	0.0006	0.2039	78.29	0.00	0.01	**81.97**
SRWTP Treatment Plant Improvements and Existing Utility Upgrades (1b)	Worker trip	14		28	1/1/2033	12/31/2033	2033	260	7,280	15	109,200		0.0082	0.0395	0.0010	0.0009	0.0123	0.0062	0.0010	0.005	0.000	0.000	0.001	0.001	284.640	0.0021	0.0045	31.08	0.00	0.00	**31.23**
	Truck trips		11	22	1/1/2033	12/31/2033	2033	260	5,720	20	114,400		0.0205	1.9335	0.0261	0.0250	0.1459	0.0634	0.0026	0.244	0.003	0.003	0.018	0.008	1447.681	0.0010	0.2281	165.61	0.00	0.03	**173.39**
	Worker trip	14		28	1/1/2034	12/31/2034	2034	260	7,280	15	109,200		0.0074	0.0365	0.0010	0.0009	0.0123	0.0062	0.0009	0.004	0.000	0.000	0.001	0.001	281.003	0.0020	0.0043	30.69	0.00	0.00	**30.83**
	Truck trips		11	22	1/1/2034	12/31/2034	2034	260	5,720	20	114,400		0.0193	1.8432	0.0257	0.0246	0.1455	0.0630	0.0024	0.232	0.003	0.003	0.018	0.008	1427.678	0.0009	0.2249	163.33	0.00	0.03	**171.00**
	Worker trip	14		28	1/1/2035	12/31/2035	2035	261	7,308	15	109,620		0.0068	0.0341	0.0009	0.0008	0.0122	0.0061	0.0008	0.004	0.000	0.000	0.001	0.001	277.717	0.0019	0.0041	30.44	0.00	0.00	**30.58**
	Truck trips		11	22	1/1/2035	12/31/2035	2035	261	5,742	20	114,840		0.0181	1.7647	0.0254	0.0243	0.1453	0.0627	0.0023	0.223	0.003	0.003	0.018	0.008	1410.082	0.0008	0.2222	161.93	0.00	0.03	**169.54**
	Worker trip	14		28	1/1/2036	12/31/2036	2036	262	7,336	15	110,040		0.0062	0.0319	0.0008	0.0008	0.0122	0.0061	0.0007	0.004	0.000	0.000	0.001	0.001	274.857	0.0017	0.0040	30.25	0.00	0.00	**30.38**
	Truck trips		11	22	1/1/2036	12/31/2036	2036	262	5,764	20	115,280		0.0174	1.7007	0.0253	0.0242	0.1452	0.0627	0.0022	0.216	0.003	0.003	0.018	0.008	1394.529	0.0008	0.2197	160.76	0.00	0.03	**168.31**
	Worker trip	14		28	1/1/2037	12/31/2037	2037	261	7,308	15	109,620		0.0057	0.0301	0.0008	0.0007	0.0121	0.0060	0.0007	0.004	0.000	0.000	0.001	0.001	272.235	0.0016	0.0039	29.84	0.00	0.00	**29.97**
	Truck trips		11	22	1/1/2037	12/31/2037	2037	261	5,742	20	114,840		0.0165	1.6307	0.0252	0.0241	0.1451	0.0626	0.0021	0.206	0.003	0.003	0.018	0.008	1380.215	0.0008	0.2175	158.50	0.00	0.02	**165.95**
	Worker trip	14		14	1/1/2038	1/31/2038	2038	21	294	21	6,174		0.0052	0.0284	0.0008	0.0007	0.0121	0.0060	0.0000	0.000	0.000	0.000	0.000	0.000	269.916	0.0015	0.0038	1.67	0.00	0.00	**1.67**
	Truck trips		11	22	1/1/2038	1/31/2038	2038	21	462	22	10,164		0.0158	1.5739	0.0251	0.0241	0.1450	0.0625	0.0002	0.018	0.000	0.000	0.002	0.001	1368.142	0.0007	0.2156	13.91	0.00	0.00	**14.56**

	CAP Emissions Summary (tpy)						CAP Emissions Summary (ppd)						GHG Emissions Summary (MT per year)			
	ROG	NOx	Ex PM10	Ex PM2.5	Total PM10	Total PM2.5	ROG	NOx	Ex PM10	Ex PM2.5	Total PM10	Total PM2.5	CO_2	CH_4	N_2O	CO_2e
2027	0.005	0.314	0.004	0.003	0.019	0.008	0.040	2.417	0.028	0.026	0.144	0.065	203.6835	0.0005	0.0273	**211.8**
2028	0.005	0.298	0.004	0.003	0.019	0.008	0.037	2.294	0.027	0.026	0.144	0.065	199.7389	0.0005	0.0268	**207.7**
2029	0.005	0.284	0.003	0.003	0.019	0.008	0.035	2.181	0.026	0.025	0.144	0.064	196.3056	0.0005	0.0263	**204.2**
2030	0.004	0.268	0.003	0.003	0.019	0.008	0.032	2.064	0.026	0.025	0.143	0.064	192.8869	0.0004	0.0258	**200.6**
2031	0.004	0.255	0.003	0.003	0.019	0.008	0.033	1.963	0.025	0.024	0.143	0.063	191.2549	0.0005	0.0254	**198.8**
2032	0.000	0.024	0.000	0.000	0.002	0.001	0.002	0.185	0.002	0.002	0.014	0.006	17.5136	0.0000	0.0025	**18.3**
2033	0.004	0.249	0.003	0.003	0.020	0.009	0.027	1.912	0.026	0.025	0.153	0.067	196.6974	0.0003	0.0266	**204.6**
2034	0.003	0.237	0.003	0.003	0.020	0.009	0.026	1.822	0.026	0.025	0.153	0.067	194.0120	0.0003	0.0262	**201.8**
2035	0.003	0.228	0.003	0.003	0.020	0.009	0.024	1.750	0.026	0.024	0.153	0.067	192.3771	0.0003	0.0260	**200.1**
2036	0.003	0.220	0.003	0.003	0.020	0.009	0.023	1.692	0.026	0.024	0.153	0.067	191.0066	0.0003	0.0258	**198.7**
2037	0.003	0.210	0.003	0.003	0.020	0.009	0.021	1.616	0.025	0.024	0.153	0.067	188.3462	0.0003	0.0254	**195.9**
2038	0.000	0.018	0.000	0.000	0.002	0.001	0.002	0.137	0.002	0.002	0.013	0.006	15.5723	0.0000	0.0022	**16.2**
2039	0.003	0.249	0.004	0.004	0.025	0.011	0.023	1.918	0.032	0.030	0.190	0.083	226.9555	0.0003	0.0316	**236.4**
2040	0.003	0.244	0.004	0.004	0.025	0.011	0.022	1.874	0.032	0.030	0.191	0.083	226.2246	0.0003	0.0314	**235.6**
2041	0.003	0.238	0.004	0.004	0.025	0.011	0.022	1.831	0.032	0.030	0.191	0.083	224.8189	0.0002	0.0312	**234.1**
2042	0.003	0.233	0.004	0.004	0.025	0.011	0.021	1.793	0.032	0.030	0.191	0.083	223.6077	0.0002	0.0311	**232.9**
2043	0.003	0.229	0.004	0.004	0.025	0.011	0.020	1.762	0.032	0.030	0.191	0.083	222.5172	0.0002	0.0309	**231.7**
2044	0.003	0.224	0.004	0.004	0.025	0.011	0.020	1.723	0.032	0.030	0.190	0.083	221.5018	0.0002	0.0308	**230.7**
2045	0.003	0.220	0.004	0.004	0.025	0.011	0.019	1.689	0.032	0.030	0.190	0.082	219.7881	0.0002	0.0305	**228.9**
2046	0.002	0.217	0.004	0.004	0.025	0.011	0.019	1.668	0.032	0.030	0.190	0.083	219.8559	0.0002	0.0305	**229.0**
2047	0.002	0.214	0.004	0.004	0.025	0.011	0.019	1.647	0.032	0.030	0.190	0.083	219.1516	0.0002	0.0304	**228.2**
2048	0.002	0.213	0.004	0.004	0.025	0.011	0.019	1.638	0.032	0.031	0.191	0.083	219.3682	0.0002	0.0304	**228.4**
2049	0.002	0.210	0.004	0.004	0.025	0.011	0.018	1.619	0.032	0.031	0.190	0.083	217.9828	0.0002	0.0302	**227.0**
2050	0.001	0.086	0.002	0.002	0.010	0.004	0.007	0.665	0.013	0.013	0.079	0.034	89.9904	0.0001	0.0125	**93.7**

	CAP Emissions SRWTP Phase 1.a Summary (tpy)						CAP Emissions SRWTP Phase 1.a Summary (ppd)						GHG Emissions SRWTP Phase 1.a (MT per year)			
	ROG	NOx	Ex PM10	Ex PM2.5	Total PM10	Total PM2.5	ROG	NOx	Ex PM10	Ex PM2.5	Total PM10	Total PM2.5	CO_2	CH_4	N_2O	CO_2e
2027	0.005	0.314	0.004	0.003	0.019	0.008	0.040	2.417	0.028	0.026	0.144	0.065	203.68	0.00	0.03	211.84
2028	0.005	0.298	0.004	0.003	0.019	0.008	0.037	2.294	0.027	0.026	0.144	0.065	199.74	0.00	0.03	207.74
2029	0.005	0.284	0.003	0.003	0.019	0.008	0.035	2.181	0.026	0.025	0.144	0.064	196.31	0.00	0.03	204.15
2030	0.004	0.268	0.003	0.003	0.019	0.008	0.032	2.064	0.026	0.025	0.143	0.064	192.89	0.00	0.03	200.59
2031	0.004	0.255	0.003	0.003	0.019	0.008	0.033	1.963	0.025	0.024	0.143	0.063	191.25	0.00	0.03	198.85
2032	0.000	0.024	0.000	0.000	0.000	0.000	0.002	0.185	0.002	0.002	0.000	0.000	17.51	0.00	0.00	18.26

	CAP Emissions Summary SRWTP Phase 2 (tpy)						CAP Emissions Summary SRWTP Phase 2 (ppd)						GHG Emissions SRWTP Phase 2 (MT per year)			
	ROG	NOx	Ex PM10	Ex PM2.5	Total PM10	Total PM2.5	ROG	NOx	Ex PM10	Ex PM2.5	Total PM10	Total PM2.5	CO_2	CH_4	N_2O	CO_2e
2039	0.003	0.249	0.004	0.004	0.025	0.011	0.023	1.918	0.032	0.030	0.190	0.083	226.96	0.00	0.03	236.36
2040	0.003	0.244	0.004	0.004	0.025	0.011	0.022	1.874	0.032	0.030	0.191	0.083	226.22	0.00	0.03	235.60
2041	0.003	0.238	0.004	0.004	0.025	0.011	0.022	1.831	0.032	0.030	0.191	0.083	224.82	0.00	0.03	234.13
2042	0.003	0.233	0.004	0.004	0.025	0.011	0.021	1.793	0.032	0.030	0.191	0.083	223.61	0.00	0.03	232.87
2043	0.003	0.229	0.004	0.004	0.025	0.011	0.020	1.762	0.032	0.030	0.191	0.083	222.52	0.00	0.03	231.73
2044	0.003	0.224	0.004	0.004	0.025	0.011	0.020	1.723	0.032	0.030	0.190	0.083	221.50	0.00	0.03	230.67
2045	0.003	0.220	0.004	0.004	0.025	0.011	0.019	1.689	0.032	0.030	0.190	0.082	219.79	0.00	0.03	228.89
2046	0.002	0.217	0.004	0.004	0.025	0.011	0.019	1.668	0.032	0.030	0.190	0.083	219.86	0.00	0.03	228.96
2047	0.002	0.214	0.004	0.004	0.025	0.011	0.019	1.647	0.032	0.030	0.190	0.083	219.15	0.00	0.03	228.22
2048	0.002	0.213	0.004	0.004	0.025	0.011	0.019	1.638	0.032	0.031	0.191	0.083	219.37	0.00	0.03	228.45
2049	0.002	0.210	0.004	0.004	0.025	0.011	0.018	1.619	0.032	0.031	0.190	0.083	217.98	0.00	0.03	227.00
2050	0.001	0.086	0.002	0.002	0.010	0.004	0.007	0.665	0.013	0.013	0.079	0.034	89.99	0.00	0.01	93.71

	CAP Emissions Summary SRWTP Phase 1.b (tpy)						CAP Emissions Summary SRWTP Phase 1.b (ppd)						GHG Emissions SRWTP Phase 1.b (MT per year)			
	ROG	NOx	Ex PM10	Ex PM2.5	Total PM10	Total PM2.5	ROG	NOx	Ex PM10	Ex PM2.5	Total PM10	Total	CO_2	CH_4	N_2O	CO_2e
2033	0.004	0.249	0.003	0.003	0.020	0.009	0.027	1.912	0.026	0.025	0.153	0.067	196.70	0.00	0.03	204.63
2034	0.003	0.237	0.003	0.003	0.020	0.009	0.026	1.822	0.026	0.025	0.153	0.067	194.01	0.00	0.03	201.83
2035	0.003	0.228	0.003	0.003	0.020	0.009	0.024	1.750	0.026	0.024	0.153	0.067	192.38	0.00	0.03	200.12
2036	0.003	0.220	0.003	0.003	0.020	0.009	0.023	1.692	0.026	0.024	0.153	0.067	191.01	0.00	0.03	198.69
2037	0.003	0.210	0.003	0.003	0.020	0.009	0.021	1.616	0.025	0.024	0.153	0.067	188.35	0.00	0.03	195.92
2038	0.000	0.018	0.000	0.000	0.002	0.001	0.002	0.137	0.002	0.002	0.013	0.006	15.57	0.00	0.00	16.23

Water Plus-Emissions Summary

	CAP Emissions Summary (ppd)				Emissions Summary (tpy)		GHG Emissions Summary(MT per year)			
	ROG	NOx	Total PM 10	Total PM 2.5	Total PM 10	Total PM 2.5	CO2	CH4	N2O	CO2e
2027	0.45	5.56	3.40	0.61	0.44	0.08	343.9	0.0	0.0	353
2028	0.43	5.21	3.39	0.60	0.44	0.08	339.5	0.0	0.0	348
2029	0.42	4.95	3.38	0.59	0.44	0.08	336.6	0.0	0.0	345
2030	0.41	4.70	3.37	0.59	0.44	0.08	333.2	0.0	0.0	341
2031	0.41	4.48	3.37	0.59	0.44	0.08	331.6	0.0	0.0	340
2032	0.19	1.38	3.30	0.52	0.43	0.07	87.9	0.0	0.0	89
2033	0.36	4.01	2.11	0.39	0.27	0.05	324.3	0.0	0.0	333
2034	0.35	3.85	2.11	0.38	0.27	0.05	321.1	0.0	0.0	329
2035	0.35	3.69	2.10	0.38	0.27	0.05	319.9	0.0	0.0	328
2036	0.34	3.57	2.10	0.38	0.27	0.05	318.6	0.0	0.0	327
2037	0.33	3.43	2.09	0.37	0.27	0.05	315.9	0.0	0.0	324
2038	0.16	1.01	2.04	0.33	0.27	0.04	79.6	0.0	0.0	80
2039	0.36	3.94	0.92	0.21	0.03	0.03	350.6	0.0	0.0	360
2040	0.36	3.85	0.92	0.21	0.12	0.03	349.9	0.0	0.0	360
2041	0.36	3.78	0.92	0.20	0.12	0.03	348.9	0.0	0.0	359
2042	0.35	3.71	0.91	0.20	0.12	0.03	347.7	0.0	0.0	357
2043	0.35	3.66	0.91	0.20	0.12	0.03	346.6	0.0	0.0	356
2044	0.35	3.59	0.91	0.20	0.12	0.03	345.6	0.0	0.0	355
2045	0.35	3.54	0.91	0.20	0.12	0.03	343.9	0.0	0.0	353
2046	0.34	3.48	0.91	0.20	0.12	0.03	343.5	0.0	0.0	353
2047	0.34	3.45	0.91	0.20	0.12	0.03	343.3	0.0	0.0	353
2048	0.34	3.42	0.91	0.20	0.12	0.03	343.5	0.0	0.0	353
2049	0.34	3.40	0.91	0.20	0.12	0.03	342.6	0.0	0.0	352
2050	0.14	1.40	0.86	0.15	0.11	0.02	141.4	0.0	0.0	145

	CAP Emissions Summary SRWTP Phase 1.a (ppd)				Emissions Summary (tpy)		GHG Emissions Summary SRWTP Phase 1A (MT per year)			
	ROG	NOx	Total PM 10	Total PM 2.5	Total PM 10	Total PM 2.5	CO2	CH4	N2O	CO2e
2027	0.45	5.56	2.23	0.43	0.29	0.06	343.91	0.01	0.03	352.53
2028	0.43	5.21	2.22	0.43	0.29	0.06	339.46	0.01	0.03	347.92
2029	0.42	4.95	2.21	0.42	0.29	0.05	336.61	0.01	0.03	344.92
2030	0.41	4.70	2.20	0.41	0.29	0.05	333.20	0.01	0.03	341.36
2031	0.41	4.48	2.20	0.41	0.29	0.05	331.56	0.01	0.03	339.62
2032	0.19	1.38	2.13	0.35	0.28	0.05	87.94	0.00	0.00	88.91

	CAP Emissions Summary SRWTP Phase 2 (ppd)				Emissions Summary (tpy)		GHG Emissions Summary SRWTP Phase 2 (MT per year)			
	ROG	NOx	Total PM 10	Total PM 2.5	Total PM 10	Total PM 2.5	CO2	CH4	N2O	CO2e
2039	0.36	3.94	0.68	0.17	0.09	0.02	123.65	0.00	0.00	124.06
2040	0.36	3.85	0.68	0.17	0.09	0.02	350.60	0.01	0.03	360.42
2041	0.36	3.78	0.68	0.17	0.09	0.02	350.35	0.01	0.03	360.13
2042	0.35	3.71	0.68	0.17	0.09	0.02	348.94	0.01	0.03	358.67
2043	0.35	3.66	0.68	0.17	0.09	0.02	347.73	0.01	0.03	357.41
2044	0.35	3.59	0.67	0.17	0.09	0.02	346.64	0.01	0.03	356.27
2045	0.35	3.54	0.67	0.17	0.09	0.02	345.62	0.01	0.03	355.21
2046	0.34	3.48	0.67	0.16	0.09	0.02	343.43	0.01	0.03	352.94
2047	0.34	3.45	0.67	0.16	0.09	0.02	343.98	0.01	0.03	353.49
2048	0.34	3.42	0.67	0.16	0.09	0.02	343.27	0.01	0.03	352.76
2049	0.34	3.40	0.67	0.16	0.09	0.02	342.58	0.01	0.03	352.01
2050	0.14	1.40	0.62	0.12	0.08	0.02	141.35	0.00	0.01	145.24

	CAP Emissions Summary SRWTP Phase 1.b (ppd)				Emissions Summary (tpy)		GHG Emissions Summary SRWTP Phase 1B (MT per year)			
	ROG	NOx	Total PM 10	Total PM 2.5	Total PM 10	Total PM 2.5	CO2	CH4	N2O	CO2e
2033	0.36	4.01	2.11	0.39	0.27	0.05	324.25	0.01	0.03	332.60
2034	0.35	3.85	2.11	0.38	0.27	0.05	321.08	0.01	0.03	329.31
2035	0.35	3.69	2.10	0.38	0.27	0.05	319.93	0.01	0.03	328.10
2036	0.34	3.57	2.10	0.38	0.27	0.05	318.56	0.01	0.03	326.67
2037	0.33	3.43	2.09	0.37	0.27	0.05	315.90	0.01	0.03	323.90
2038	0.16	1.01	2.04	0.33	0.27	0.04	79.59	0.00	0.00	80.47

Energy Construction Fuel Usage and Operational Estimates

Sacramento Water+ Energy Fuel Estimates

SRWTP Treatment Plant Improvements and Existing Utility Upgrades (1A)		Total Years	Construction Equpment	Construction Trips	Totals	Annual Average	Project Percentage	2023 Sac County usage
Diesel Fuel Usage		5	75,792.14	85,292.51	161,084.65	32,216.93	0.06%	51,000,000.00
Gasoline Fuel Usage		5	-	19,429.40	19,429.40	3,885.88	0.001%	535,000,000.00

SRWTP Phase 2			Construction Equpment	Construction Trips	Totals	Annual Average	Project Percentage	Sac County usage
Diesel Fuel Usage		12	139,123.45	225,913.10	365,036.54	30,419.71	0.06%	51,000,000.00
Gasoline Fuel Usage		12		37,458.83	37,458.83	3,121.57	0.001%	535,000,000.00

SRWTP Treatment Plant Improvements and Existing Utility Upgrades (1B)			Construction Equpment	Construction Trips	Totals	Annual Average	Project Percentage	Sac County usage
Diesel Fuel Usage		5	68,914.77	84,500.23	153,414.99	30,683.00	0.06%	51,000,000.00
Gasoline Fuel Usage		5	-	17,616.79	17,616.79	3,523.36	0.001%	535,000,000.00

Sacramento Water+Construction Equipment Fuel Estimates

SRWTP 1.a

	ROG	NOx	Ex PM-10	Ex PM2.5	CO2	CH4	N2O	CO2e
2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.05	0.41	0.01	0.01	140.23	0.01	0.00	140.69
2028	0.05	0.38	0.01	0.01	139.72	0.01	0.00	140.18
2029	0.05	0.36	0.01	0.01	140.31	0.01	0.00	140.77
2030	0.05	0.34	0.01	0.01	140.31	0.01	0.00	140.77
2031	0.05	0.33	0.01	0.01	140.31	0.01	0.00	140.77
2032	0.02	0.16	0.01	0.00	70.42	0.00	0.00	70.65
2033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2035	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2036	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2038	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2039	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2040	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2041	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2042	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase 1A Fuel Use	
CO2e Totals	774
Gals of Diesel	75,792

SRWTP Phase 1.b

	ROG	NOx	Ex PM-10	Ex PM2.5	CO2	CH4	N2O	CO2e
2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2029	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2030	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2031	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2032	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2033	0.04	0.27	0.01	0.01	127.56	0.01	0.00	127.98
2034	0.04	0.26	0.01	0.01	127.07	0.01	0.00	127.49
2035	0.04	0.25	0.01	0.01	127.56	0.01	0.00	127.98
2036	0.04	0.24	0.01	0.01	127.55	0.01	0.00	127.98
2037	0.04	0.24	0.01	0.01	127.55	0.01	0.00	127.97
2038	0.02	0.11	0.00	0.00	64.02	0.00	0.00	64.23
2039	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2040	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2041	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2042	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase 1B Fuel Use	
CO2e Totals	704
Gals of Diesel	68,915

SRWTP Phase 2

	CAP Emissions Summary (tpy)				GHG Emissions Summary(MT per year)			
	ROG	NOx	Ex PM-10	Ex PM2.5	CO2	CH4	N2O	CO2e
2025	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2026	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2027	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2028	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2029	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2030	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2031	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2032	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2033	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2034	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2035	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2036	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2037	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2038	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2039	0.04	0.26	0.01	0.01	123.65	0.00	0.00	124.06
2040	0.04	0.26	0.01	0.01	123.65	0.00	0.00	124.06
2041	0.04	0.25	0.01	0.01	124.12	0.00	0.00	124.53
2042	0.04	0.25	0.01	0.01	124.12	0.00	0.00	124.53
2043	0.04	0.25	0.01	0.01	124.12	0.00	0.00	124.53
2044	0.04	0.24	0.01	0.01	124.12	0.00	0.00	124.53
2045	0.04	0.24	0.01	0.01	124.12	0.00	0.00	124.53
2046	0.04	0.24	0.01	0.01	123.65	0.00	0.00	124.06
2047	0.04	0.23	0.01	0.01	124.12	0.00	0.00	124.53
2048	0.04	0.23	0.01	0.01	124.12	0.00	0.00	124.53
2049	0.04	0.23	0.01	0.01	124.60	0.00	0.00	125.01
2050	0.02	0.09	0.00	0.00	51.36	0.00	0.00	51.53

Phase 2 Fuel Use	
CO2e Totals	1,420
Gals of Diesel	139,123

Gasoline Emissions		
kg/MT Conversion	1000	kg/MT
Gasoline combustion rate	8.78	kg/gallon

Diesel Emissions		
kg/MT Conversion	1000	kg/MT
Diesel fuel combustion rate	10.21	kg/gallon

Note: (The Climate Registry, 2022) Combustion rates taken from The Climate Registry 2022 default emission factors (Table 2.1)

Sacramento Water+ Construction Trips Fuel Estimates

SRWTP Treatment Plant Improvements and Existing Utility Upgrades		
Start date	**1/1/2027**	12/31/2027
	1/1/2028	12/31/2028
	1/1/2029	12/31/2029
	1/1/2030	12/31/2030
	1/1/2031	12/31/2031
End date	1/1/2032	1/31/2032
Workdays	1,304	
Total hours	11,736	

SRWTP buildout		
Start date	**1/1/2039**	12/31/2039
	1/1/2040	12/31/2040
	1/1/2041	12/31/2041
	1/1/2042	12/31/2042
	1/1/2043	12/31/2043
	1/1/2044	12/31/2044
	1/1/2045	12/31/2045
	1/1/2046	12/31/2046
	1/1/2047	12/31/2047
	1/1/2048	12/31/2048
	1/1/2049	12/31/2049
End date	1/1/2050	6/1/2050
Workdays	2,978	
Total hours	26,802	

SRWTP Treatment Plant Improvements and Existing Utility Upgrades		
Start date	**1/1/2033**	12/31/2033
	1/1/2034	12/31/2034
	1/1/2035	12/31/2035
	1/1/2036	12/31/2036
	1/1/2037	12/31/2037
End date	1/1/2038	1/31/2038
Workdays	1,304	
Total hours	11,736	

GHG	CO2	CH4	N2O
GWP	1	25	298
1 MT =	######## g		

1 ton = 907185 g

Gasoline Emissions
kg/MT Conversion 1000 kg/MT
Gasoline combustion rate 8.78 kg/gallon

Diesel Emissions
kg/MT Conversion 1000 kg/MT
Diesel fuel combustion rate 10.21 kg/gallon

Note: (The Climate Registry, 2022) Combustion rates taken from The Climate Registry 2022 default emission factors (Table 2.1)

												EMFAC2021 Emission factors (g/mile)						CAP Emissions (tons per year)						EMFAC2021 Emission factors			GHG Emissions (MT per year)					
Phase		No. of workers/ day	Ave daily truck trips (trips/day)	Trips/day (one-way)	Start date	End date	EF Year	Workdays/ year	Total trips (one-way trips/year)	Trip length (one way)	Miles per year)	ROG	NOx	Ex PM10	Ex PM2.5	Total PM10	Total PM2.5	ROG	NOx	Ex PM10	Ex PM2.5	Total PM10	Total PM2.5	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	CO_2e	Diesel / gal	Gasoline / gal
SRWTP Treatment Plant Improvements and Existing Utility Upgrades (1a)	Worker trips	14		28	1/1/2027	12/31/2027	2027	261	7,308	15	109,620	0.0148	0.0688	0.0015	0.0014	0.0128	0.0066	0.0018	0.008	0.000	0.000	0.002	0.001	314.654	0.0036	0.0061	34.49	0.00	0.00	**34.70**	-	3,952.47
	Truck trips		10	20	1/1/2027	12/31/2027	2027	261	5,273	20	105,455	0.0293	2.6317	0.0292	0.0280	0.1482	0.0661	0.0034	0.306	0.003	0.003	0.017	0.008	1604.399	0.0014	0.2528	169.19	0.00	0.03	**177.14**	17,349.49	-
	Worker trips	14		28	1/1/2028	12/31/2028	2028	260	7,280	15	109,200	0.0134	0.0624	0.0014	0.0013	0.0127	0.0066	0.0016	0.008	0.000	0.000	0.002	0.001	308.190	0.0033	0.0058	33.65	0.00	0.00	**33.85**	-	3,855.47
	Truck trips		10	20	1/1/2028	12/31/2028	2028	260	5,273	20	105,455	0.0278	2.5003	0.0287	0.0275	0.1479	0.0657	0.0032	0.291	0.003	0.003	0.017	0.008	1574.940	0.0013	0.2481	166.08	0.00	0.03	**173.89**	17,030.92	-
	Worker trips	14		28	1/1/2029	12/31/2029	2029	261	7,308	15	109,620	0.0121	0.0567	0.0013	0.0012	0.0126	0.0065	0.0015	0.007	0.000	0.000	0.002	0.001	302.746	0.0030	0.0054	33.19	0.00	0.00	**33.37**	-	3,801.02
	Truck trips		10	20	1/1/2029	12/31/2029	2029	261	5,273	20	105,455	0.0265	2.3801	0.0282	0.0270	0.1476	0.0653	0.0031	0.277	0.003	0.003	0.017	0.008	1546.814	0.0012	0.2437	163.12	0.00	0.03	**170.78**	16,726.76	-
	Worker trips	14		28	1/1/2030	12/31/2030	2030	261	7,308	15	109,620	0.0110	0.0516	0.0012	0.0011	0.0125	0.0064	0.0013	0.006	0.000	0.000	0.002	0.001	297.671	0.0027	0.0051	32.63	0.00	0.00	**32.81**	-	3,736.47
	Truck trips		10	20	1/1/2030	12/31/2030	2030	261	5,273	20	105,455	0.0249	2.2546	0.0276	0.0264	0.1471	0.0647	0.0029	0.262	0.003	0.003	0.017	0.008	1519.671	0.0012	0.2394	160.26	0.00	0.03	**167.78**	16,433.23	-
	Worker trips	14		28	1/1/2031	12/31/2031	2031	261	7,308	15	109,620	0.0134	0.0624	0.0014	0.0011	0.0125	0.0064	0.0016	0.008	0.000	0.000	0.002	0.001	308.190	0.0033	0.0058	33.78	0.00	0.00	**33.98**	-	3,870.30
	Truck trips		10	20	1/1/2031	12/31/2031	2031	261	5,273	20	105,455	0.0232	2.1307	0.0270	0.0258	0.1465	0.0641	0.0027	0.248	0.003	0.003	0.017	0.007	1493.260	0.0011	0.2353	157.47	0.00	0.02	**164.87**	16,147.62	-
	Worker trips	14		14	1/1/2032	1/31/2032	2032	22	308	21	6,468	0.0090	0.0428	0.0011	0.0010	0.0124	0.0063	0.0001	0.000	0.000	0.000	0.000	0.000	288.609	0.0023	0.0046	1.87	0.00	0.00	**1.88**	-	213.67
	Truck trips		10	22	1/1/2032	1/31/2032	2032	22	484	22	10,648	0.0218	2.0282	0.0265	0.0254	0.1462	0.0637	0.0003	0.024	0.000	0.000	0.002	0.001	1469.471	0.0010	0.2315	15.65	0.00	0.00	**16.38**	1,604.49	-
																														Total	85,292.51	19,429.40
SRWTP Phase 2	Worker trips	14		28	1/1/2039	12/31/2039	2039	260	7,280	15	109,200	0.0048	0.0270	0.0007	0.0007	0.0120	0.0060	0.0006	0.003	0.000	0.000	0.001	0.001	267.882	0.0015	0.0037	29.25	0.00	0.00	**29.38**	-	3,345.88
	Truck trips		28	28	1/1/2039	12/31/2039	2039	260	7,280	20	145,600	0.0152	1.5333	0.0251	0.0241	0.1450	0.0625	0.0024	0.246	0.004	0.004	0.023	0.010	1357.848	0.0007	0.2139	197.70	0.00	0.03	**206.99**	20,273.01	-
	Worker trips	14		28	1/1/2040	12/31/2040	2040	261	7,308	15	109,620	0.0045	0.0258	0.0007	0.0006	0.0120	0.0059	0.0005	0.003	0.000	0.000	0.001	0.001	266.129	0.0014	0.0036	29.17	0.00	0.00	**29.30**	-	3,336.57
	Truck trips		28	28	1/1/2040	12/31/2040	2040	261	7,308	20	146,160	0.0147	1.4929	0.0251	0.0240	0.1449	0.0624	0.0024	0.241	0.004	0.004	0.023	0.010	1348.190	0.0007	0.2124	197.05	0.00	0.03	**206.31**	20,206.22	-
	Worker trips	14		28	1/1/2041	12/31/2041	2041	261	7,308	15	109,620	0.0042	0.0247	0.0006	0.0006	0.0119	0.0059	0.0005	0.0030	0.0001	0.0001	0.0014	0.0007	264.5967	0.0013	0.0035	29.0051	0.0001	0.0004	**29.1246**	-	3,317.15
	Truck trips		28	28	1/1/2041	12/31/2041	2041	261	7,308	20	146,160	0.0143	1.4586	0.0251	0.0240	0.1449	0.0624	0.0023	0.2350	0.0040	0.0039	0.0233	0.0101	1339.7221	0.0007	0.2111	195.8138	0.0001	0.0309	**205.0097**	20,079.30	-
	Worker trips	14		28	1/1/2042	12/31/2042	2042	261	7,308	15	109,620	0.0039	0.0237	0.0006	0.0006	0.0119	0.0059	0.0005	0.003	0.000	0.000	0.001	0.001	263.266	0.0013	0.0035	28.86	0.00	0.00	**28.98**	-	3,300.31
	Truck trips		28	28	1/1/2042	12/31/2042	2042	261	7,308	20	146,160	0.0139	1.4286	0.0251	0.0241	0.1448	0.0624	0.0022	0.230	0.004	0.004	0.023	0.010	1332.434	0.0006	0.2099	194.75	0.00	0.03	**203.89**	19,970.06	-
	Worker trips	14		28	1/1/2043	12/31/2043	2043	261	7,308	15	109,620	0.0038	0.0230	0.0006	0.0006	0.0119	0.0058	0.0005	0.003	0.000	0.000	0.001	0.001	262.129	0.0012	0.0034	28.73	0.00	0.00	**28.85**	-	3,285.92
	Truck trips		28	28	1/1/2043	12/31/2043	2043	261	7,308	20	146,160	0.0136	1.4045	0.0252	0.0241	0.1448	0.0624	0.0022	0.226	0.004	0.004	0.023	0.010	1325.825	0.0006	0.2089	193.78	0.00	0.03	**202.88**	19,871.01	-
	Worker trips	14		28	1/1/2044	12/31/2044	2044	261	7,308	15	109,620	0.0037	0.0224	0.0006	0.0005	0.0119	0.0058	0.0004	0.003	0.000	0.000	0.001	0.001	261.167	0.0012	0.0034	28.63	0.00	0.00	**28.74**	-	3,273.77
	Truck trips		28	28	1/1/2044	12/31/2044	2044	261	7,308	20	146,160	0.0133	1.3736	0.0252	0.0241	0.1448	0.0624	0.0021	0.221	0.004	0.004	0.023	0.010	1319.599	0.0006	0.2079	192.87	0.00	0.03	**201.93**	19,777.70	-
	Worker trips	14		28	1/1/2045	12/31/2045	2045	260	7,280	15	109,200	0.0036	0.0220	0.0006	0.0005	0.0119	0.0058	0.0004	0.003	0.000	0.000	0.001	0.001	260.342	0.0012	0.0034	28.43	0.00	0.00	**28.54**	-	3,250.85
	Truck trips		28	28	1/1/2045	12/31/2045	2045	260	7,280	20	145,600	0.0130	1.3512	0.0252	0.0241	0.1448	0.0624	0.0021	0.217	0.004	0.004	0.023	0.010	1314.277	0.0006	0.2071	191.36	0.00	0.03	**200.35**	19,622.46	-
	Worker trips	14		28	1/1/2046	12/31/2046	2046	261	7,308	15	109,620	0.0035	0.0216	0.0006	0.0005	0.0118	0.0058	0.0004	0.003	0.000	0.000	0.001	0.001	259.658	0.0012	0.0034	28.46	0.00	0.00	**28.58**	-	3,254.73
	Truck trips		28	28	1/1/2046	12/31/2046	2046	261	7,308	20	146,160	0.0127	1.3296	0.0253	0.0242	0.1447	0.0624	0.0021	0.214	0.004	0.004	0.023	0.010	1309.471	0.0006	0.2063	191.39	0.00	0.03	**200.38**	19,625.89	-
	Worker trips	14		28	1/1/2047	12/31/2047	2047	261	7,308	15	109,620	0.0035	0.0213	0.0005	0.0005	0.0118	0.0058	0.0004	0.003	0.000	0.000	0.001	0.001	259.084	0.0012	0.0033	28.40	0.00	0.00	**28.51**	-	3,247.49
	Truck trips		28	28	1/1/2047	12/31/2047	2047	261	7,308	20	146,160	0.0125	1.3128	0.0253	0.0242	0.1447	0.0625	0.0020	0.212	0.004	0.004	0.023	0.010	1305.082	0.0006	0.2056	190.75	0.00	0.03	**199.71**	19,560.11	-
	Worker trips	14		28	1/1/2048	12/31/2048	2048	262	7,336	15	110,040	0.0034	0.0211	0.0005	0.0005	0.0118	0.0058	0.0004	0.003	0.000	0.000	0.001	0.001	258.627	0.0012	0.0033	28.46	0.00	0.00	**28.57**	-	3,254.15
	Worker trips		28	28	1/1/2048	12/31/2048	2048	262	7,336	15	110,040	0.0034	0.0211	0.0005	0.0005	0.0118	0.0058	0.0004	0.003	0.000	0.000	0.001	0.001	258.627	0.0012	0.0033	28.46	0.00	0.00	**28.57**	-	3,254.15
	Truck trips	14		28	1/1/2049	12/31/2049	2049	261	7,308	20	146,160	0.0122	1.2907	0.0255	0.0243	0.1447	0.0625	0.0020	0.208	0.004	0.004	0.023	0.010	1297.711	0.0006	0.2045	189.67	0.00	0.03	**198.58**	19,449.62	-
	Truck trips		28	28	1/1/2049	12/31/2049	2049	261	7,308	20	146,160	0.0122	1.2907	0.0255	0.0243	0.1447	0.0625	0.0020	0.208	0.004	0.004	0.023	0.010	1297.711	0.0006	0.2045	189.67	0.00	0.03	**198.58**	19,449.62	-
	Worker trips	14		28	1/1/2050	6/1/2050	2050	108	3,024	15	45,360	0.0034	0.0211	0.0005	0.0005	0.0118	0.0058	0.0002	0.001	0.000	0.000	0.001	0.000	257.941	0.0012	0.0033	11.70	0.00	0.00	**11.75**	-	1,337.85
	Truck trips		28	28	1/1/2050	6/1/2050	2050	108	3,024	20	60,480	0.0120	1.2816	0.0255	0.0244	0.1447	0.0626	0.0008	0.085	0.002	0.002	0.010	0.004	1294.481	0.0006	0.2039	78.29	0.00	0.01	**81.97**	8,028.09	-
																														Total	225,913.10	37,458.83
SRWTP Treatment Plant Improvements and Existing Utility Upgrades (1b)	Worker trips	14		28	1/1/2033	12/31/2033	2033	260	7,280	15	109,200	0.0082	0.0395	0.0010	0.0009	0.0123	0.0062	0.0010	0.005	0.000	0.000	0.001	0.001	284.640	0.0021	0.0045	31.08	0.00	0.00	**31.23**	-	3,557.34
	Truck trips		11	22	1/1/2033	12/31/2033	2033	260	5,720	20	114,400	0.0205	1.9335	0.0261	0.0250	0.1459	0.0634	0.0026	0.244	0.003	0.003	0.018	0.008	1447.681	0.0010	0.2281	165.61	0.00	0.03	**173.39**	16,982.67	-
	Worker trips	14		28	1/1/2034	12/31/2034	2034	260	7,280	15	109,200	0.0074	0.0365	0.0010	0.0009	0.0123	0.0062	0.0009	0.004	0.000	0.000	0.001	0.001	281.003	0.0020	0.0043	30.69	0.00	0.00	**30.83**	-	3,511.41
	Truck trips		11	22	1/1/2034	12/31/2034	2034	260	5,720	20	114,400	0.0193	1.8432	0.0257	0.0246	0.1455	0.0630	0.0024	0.232	0.003	0.003	0.018	0.008	1427.678	0.0009	0.2249	163.33	0.00	0.03	**171.00**	16,748.00	-
	Worker trips	14		28	1/1/2035	12/31/2035	2035	261	7,308	15	109,620	0.0068	0.0341	0.0009	0.0008	0.0122	0.0061	0.0008	0.004	0.000	0.000	0.001	0.001	277.717	0.0019	0.0041	30.44	0.00	0.00	**30.58**	-	3,483.29
	Truck trips		11	22	1/1/2035	12/31/2035	2035	261	5,742	20	114,840	0.0181	1.7647	0.0254	0.0243	0.1453	0.0627	0.0023	0.223	0.003	0.003	0.018	0.008	1410.082	0.0008	0.2222	161.93	0.00	0.03	**169.54**	16,605.19	-
	Worker trips	14		28	1/1/2036	12/31/2036	2036	262	7,336	15	110,040	0.0062	0.0319	0.0008	0.0008	0.0122	0.0061	0.0007	0.004	0.000	0.000	0.001	0.001	274.857	0.0017	0.0040	30.25	0.00	0.00	**30.38**	-	3,460.26
	Truck trips		11	22	1/1/2036	12/31/2036	2036	262	5,764	20	115,280	0.0174	1.7007	0.0253	0.0242	0.1452	0.0627	0.0022	0.216	0.003	0.003	0.018	0.008	1394.529	0.0008	0.2197	160.76	0.00	0.03	**168.31**	16,484.96	-
	Worker trips	14		28	1/1/2037	12/31/2037	2037	261	7,308	15	109,620	0.0057	0.0301	0.0008	0.0007	0.0121	0.0060	0.0007	0.004	0.000	0.000	0.001	0.001	272.235	0.0016	0.0039	29.84	0.00	0.00	**29.97**	-	3,413.87
	Truck trips		11	22	1/1/2037	12/31/2037	2037	261	5,742	20	114,840	0.0165	1.6307	0.0252	0.0241	0.1451	0.0626	0.0021	0.206	0.003	0.003	0.018	0.008	1380.215	0.0008	0.2175	158.50	0.00	0.02	**165.95**	16,253.46	-
	Worker trips	14		14	1/1/2038	1/31/2038	2038	21	294	21	6,174	0.0052	0.0284	0.0008	0.0007	0.0121	0.0060	0.0000	0.000	0.000	0.000	0.000	0.000	269.916	0.0015	0.0038	1.67	0.00	0.00	**1.67**	-	190.62
	Truck trips		11	22	1/1/2038	1/31/2038	2038	21	462	22	10,164	0.0158	1.5739	0.0251	0.0241	0.1450	0.0625	0.0002	0.018	0.000	0.000	0.002	0.001	1368.142	0.0007	0.2156	13.91	0.00	0.00	**14.56**	1,425.94	-
																														Total	84,500.23	17,616.79

Sacramento Water+ Operational Energy Estimates

5.11. Operational Energy Consumption Source: (CalEEMod - Sac Water+ | Operational Energy Caculations Only 11/12/2025)

5.11.1 Unmitigated

Land Use	Electricity (kWh/yr	CO2	CH4	N2O	Natural Gas (kBTU/yr	Description	
General Light Industry	62,937	374.84	0.0129	0.0017	0	High-Service Pump Station 2	SRWTP
General Light Industry	89,910	374.84	0.0129	0.0017	0	Electrical Building 2	FWTP
General Light Industry	8,991	374.84	0.0129	0.0017	0	Chemical Building - South	SRWTP
General Light Industry	152,846	374.84	0.0129	0.0017	0	Dewatering Building - 2	SRWTP
General Light Industry	197,801	374.84	0.0129	0.0017	0	Electrical & Instrumentation Building	SRWTP
General Light Industry	89,910	374.84	0.0129	0.0017	0	Maintenance Building	SRWTP

Total Operational SRWTP **512,485** kWh

Total Operational FWTP **89,910** kWh

			GWh	kWh
Sacramento County Usage	11410	GWh	1	1000000

Project Operational % **0.00%**

Sac Water+ | Operational Energy Calculations Only Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Sac Water+ | Operational Energy Calculations Only
Operational Year	2050
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.0
Precipitation (days)	36
Location	1 Water St, Sacramento, CA 95811, USA
County	Sacramento
City	Sacramento
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	508
EDFZ	13
Electric Utility	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.32

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	1.00	1000sqft	0.02	7,000	0.00	—	—	High-Service Pump Station 2

General Light Industry	2.0	1000sqft	0.05	10,000	0.00	—	—	Electrical Building 2
General Light Industry	1.00	1000sqft	0.02	1,000	0.00	—	—	Chemical Building - South
General Light Industry	3.0	1000sqft	0.07	17,000	0.00	—	—	Dewatering Building - 2
General Light Industry	3.0	1000sqft	0.07	22,000	0.00	—	—	Electrical & Instrumentation Building
General Light Industry	2.0	1000sqft	0.05	10,000	0.00	—	—	Maintenance Building

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.2	2.2	0.12	4.5	< 0.005	0.01	0.47	0.48	0.01	0.12	0.12	14	1,075	1,089	0.85	0.03	17	1,137
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.7	1.7	0.12	1.2	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	14	1,023	1,037	0.86	0.03	17	1,085
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.0	2.0	0.11	3.1	< 0.005	< 0.005	0.42	0.42	< 0.005	0.11	0.11	14	1,002	1,016	0.85	0.03	17	1,064

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.37	0.37	0.02	0.57	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	2.3	166	168	0.14	0.01	2.9	176

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.14	0.13	0.10	1.6	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	—	436	436	0.01	0.02	0.05	441
Area	2.1	2.0	0.02	2.9	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	12	12	< 0.005	< 0.005	—	12
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	619	619	0.02	< 0.005	—	620
Water	—	—	—	—	—	—	—	—	—	—	—	5.9	7.7	14	0.02	0.01	—	18
Waste	—	—	—	—	—	—	—	—	—	—	—	8.0	0.00	8.0	0.80	0.00	—	28
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
Total	2.2	2.2	0.12	4.5	< 0.005	0.01	0.47	0.48	0.01	0.12	0.12	14	1,075	1,089	0.85	0.03	17	1,137
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.14	0.12	0.12	1.2	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	—	396	396	0.01	0.02	< 0.005	401
Area	1.6	1.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	619	619	0.02	< 0.005	—	620
Water	—	—	—	—	—	—	—	—	—	—	—	5.9	7.7	14	0.02	0.01	—	18
Waste	—	—	—	—	—	—	—	—	—	—	—	8.0	0.00	8.0	0.80	0.00	—	28
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
Total	1.7	1.7	0.12	1.2	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	14	1,023	1,037	0.86	0.03	17	1,085
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.12	0.11	0.10	1.1	< 0.005	< 0.005	0.42	0.42	< 0.005	0.11	0.11	—	367	367	0.01	0.01	0.02	372

Area	1.9	1.9	0.02	2.0	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.2	8.2	< 0.005	< 0.005	—	8.2
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	619	619	0.02	< 0.005	—	620
Water	—	—	—	—	—	—	—	—	—	—	—	5.9	7.7	14	0.02	0.01	—	18
Waste	—	—	—	—	—	—	—	—	—	—	—	8.0	0.00	8.0	0.80	0.00	—	28
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
Total	2.0	2.0	0.11	3.1	< 0.005	< 0.005	0.42	0.42	< 0.005	0.11	0.11	14	1,002	1,016	0.85	0.03	17	1,064
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.02	0.21	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	61	61	< 0.005	< 0.005	< 0.005	62
Area	0.35	0.34	< 0.005	0.36	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.4	1.4	< 0.005	< 0.005	—	1.4
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	102	102	< 0.005	< 0.005	—	103
Water	—	—	—	—	—	—	—	—	—	—	—	0.98	1.3	2.3	< 0.005	< 0.005	—	3.0
Waste	—	—	—	—	—	—	—	—	—	—	—	1.3	0.00	1.3	0.13	0.00	—	4.6
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.9	2.9
Total	0.37	0.37	0.02	0.57	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	2.3	166	168	0.14	0.01	2.9	176

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.14	0.13	0.10	1.6	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	—	436	436	0.01	0.02	0.05	441
Total	0.14	0.13	0.10	1.6	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	—	436	436	0.01	0.02	0.05	441

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.14	0.12	0.12	1.2	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	—	396	396	0.01	0.02	< 0.005	401
Total	0.14	0.12	0.12	1.2	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	—	396	396	0.01	0.02	< 0.005	401
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.02	0.02	0.02	0.21	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	61	61	< 0.005	< 0.005	< 0.005	62
Total	0.02	0.02	0.02	0.21	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	61	61	< 0.005	< 0.005	< 0.005	62

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	619	619	0.02	< 0.005	—	620
Total	—	—	—	—	—	—	—	—	—	—	—	—	619	619	0.02	< 0.005	—	620
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	619	619	0.02	< 0.005	—	620
Total	—	—	—	—	—	—	—	—	—	—	—	—	619	619	0.02	< 0.005	—	620
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	102	102	< 0.005	< 0.005	—	103
Total	—	—	—	—	—	—	—	—	—	—	—	—	102	102	< 0.005	< 0.005	—	103

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.4	1.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.13	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.52	0.48	0.02	2.9	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	12	12	< 0.005	< 0.005	—	12
Total	2.1	2.0	0.02	2.9	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	12	12	< 0.005	< 0.005	—	12
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.4	1.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.13	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.6	1.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.26	0.26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landsca Equipment	0.06	0.06	< 0.005	0.36	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.4	1.4	< 0.005	< 0.005	—	1.4
Total	0.35	0.34	< 0.005	0.36	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.4	1.4	< 0.005	< 0.005	—	1.4

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	5.9	7.7	14	0.02	0.01	—	18
Total	—	—	—	—	—	—	—	—	—	—	—	5.9	7.7	14	0.02	0.01	—	18
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	5.9	7.7	14	0.02	0.01	—	18
Total	—	—	—	—	—	—	—	—	—	—	—	5.9	7.7	14	0.02	0.01	—	18
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.98	1.3	2.3	< 0.005	< 0.005	—	3.0
Total	—	—	—	—	—	—	—	—	—	—	—	0.98	1.3	2.3	< 0.005	< 0.005	—	3.0

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	8.0	0.00	8.0	0.80	0.00	—	28
Total	—	—	—	—	—	—	—	—	—	—	—	8.0	0.00	8.0	0.80	0.00	—	28
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	8.0	0.00	8.0	0.80	0.00	—	28
Total	—	—	—	—	—	—	—	—	—	—	—	8.0	0.00	8.0	0.80	0.00	—	28
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	1.3	0.00	1.3	0.13	0.00	—	4.6
Total	—	—	—	—	—	—	—	—	—	—	—	1.3	0.00	1.3	0.13	0.00	—	4.6

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.9	2.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.9	2.9

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	5.0	2.0	5.0	1,658	55	22	55	18,318
General Light Industry	9.9	4.0	10.0	3,315	110	44	111	36,636
General Light Industry	5.0	2.0	5.0	1,658	55	22	55	18,318
General Light Industry	15	6.0	15	4,973	164	66	166	54,953
General Light Industry	15	6.0	15	4,973	164	66	166	54,953
General Light Industry	9.9	4.0	10.0	3,315	110	44	111	36,636

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0

General Light Industry	Pellet Wood Stoves	0	0
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

—	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
undefined	0.00	0.00	100,500	33,500	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	62,937	375	0.0129	0.0017	0.00
General Light Industry	89,910	375	0.0129	0.0017	0.00
General Light Industry	8,991	375	0.0129	0.0017	0.00
General Light Industry	152,846	375	0.0129	0.0017	0.00
General Light Industry	197,801	375	0.0129	0.0017	0.00
General Light Industry	89,910	375	0.0129	0.0017	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	231,250	0.00
General Light Industry	462,500	0.00

General Light Industry	231,250	0.00
General Light Industry	693,750	0.00
General Light Industry	693,750	0.00
General Light Industry	462,500	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	1.2	0.00
General Light Industry	2.5	0.00
General Light Industry	1.2	0.00
General Light Industry	3.7	0.00
General Light Industry	3.7	0.00
General Light Industry	2.5	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.0	4.0	18
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.0	4.0	18
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.0	4.0	18
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.0	4.0	18
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.0	4.0	18

General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.0	4.0	18

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	20	annual days of extreme heat
Extreme Precipitation	6.0	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	2	1	1	3
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	47

AQ-PM	39
AQ-DPM	86
Drinking Water	17
Lead Risk Housing	82
Pesticides	54
Toxic Releases	32
Traffic	85
Effect Indicators	—
CleanUp Sites	100
Groundwater	98
Haz Waste Facilities/Generators	99
Impaired Water Bodies	98
Solid Waste	92
Sensitive Population	—
Asthma	98
Cardio-vascular	76
Low Birth Weights	100
Socioeconomic Factor Indicators	—
Education	64
Housing	56
Linguistic	8.5
Poverty	99
Unemployment	100

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—

Above Poverty	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	3.2

Asthma ER Admissions	17.3
High Blood Pressure	0.9
Cancer (excluding skin)	66.1
Asthma	0.4
Coronary Heart Disease	2.1
Chronic Obstructive Pulmonary Disease	0.3
Diagnosed Diabetes	1.0
Life Expectancy at Birth	0.0
Cognitively Disabled	0.1
Physically Disabled	0.8
Heart Attack ER Admissions	33.9
Mental Health Not Good	0.6
Chronic Kidney Disease	2.7
Obesity	0.0
Pedestrian Injuries	0.0
Physical Health Not Good	0.4
Stroke	1.2
Health Risk Behaviors	—
Binge Drinking	84.3
Current Smoker	0.0
No Leisure Time for Physical Activity	7.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	3.5
Elderly	95.0
English Speaking	0.0
Foreign-born	0.0

Outdoor Workers	73.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	25.0
Traffic Density	0.0
Traffic Access	59.5
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	99
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Land Use	Project Specific Building sqft for SRWTP
Operations: Energy Use	No Natural Gas Usage in New Construction

Emergency Generator GHG Emission Estimates

Sac Water+ | Emergency Generator Calculations Only Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Sac Water+ | Emergency Generator Calculations Only
Operational Year	2050
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.0
Precipitation (days)	36
Location	1 Water St, Sacramento, CA 95811, USA
County	Sacramento
City	Sacramento
Air District	Sacramento Metropolitan AQMD
Air Basin	Sacramento Valley
TAZ	508
EDFZ	13
Electric Utility	Sacramento Municipal Utility District
Gas Utility	Pacific Gas & Electric
App Version	2022.1.1.35

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	1.00	1000sqft	0.02	7,000	0.00	—	—	High-Service Pump Station 2

General Light Industry	2.0	1000sqft	0.05	10,000	0.00	—	—	Electrical Building 2
General Light Industry	1.00	1000sqft	0.02	1,000	0.00	—	—	Chemical Building - South
General Light Industry	3.0	1000sqft	0.07	17,000	0.00	—	—	Dewatering Building - 2
General Light Industry	3.0	1000sqft	0.07	22,000	0.00	—	—	Electrical & Instrumentation Building
General Light Industry	2.0	1000sqft	0.05	10,000	0.00	—	—	Maintenance Building

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.4. Operations Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.2	2.2	0.12	4.5	< 0.005	0.01	0.47	0.48	0.01	0.12	0.12	14	1,075	1,089	0.85	0.03	17	1,137
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.7	1.7	0.12	1.2	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	14	1,023	1,037	0.86	0.03	17	1,085
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	20	19	74	45	0.08	2.4	0.42	2.9	2.4	0.11	2.5	14	9,455	9,469	1.2	0.10	17	9,545

Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.7	3.4	14	8.3	0.02	0.44	0.08	0.52	0.44	0.02	0.46	2.3	1,565	1,568	0.20	0.02	2.9	1,580

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.14	0.13	0.10	1.6	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	—	436	436	0.01	0.02	0.05	441
Area	2.1	2.0	0.02	2.9	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	12	12	< 0.005	< 0.005	—	12
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	619	619	0.02	< 0.005	—	620
Water	—	—	—	—	—	—	—	—	—	—	—	5.9	7.7	14	0.02	0.01	—	18
Waste	—	—	—	—	—	—	—	—	—	—	—	8.0	0.00	8.0	0.80	0.00	—	28
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
Stationary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	2.2	2.2	0.12	4.5	< 0.005	0.01	0.47	0.48	0.01	0.12	0.12	14	1,075	1,089	0.85	0.03	17	1,137
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.14	0.12	0.12	1.2	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	—	396	396	0.01	0.02	< 0.005	401
Area	1.6	1.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	619	619	0.02	< 0.005	—	620
Water	—	—	—	—	—	—	—	—	—	—	—	5.9	7.7	14	0.02	0.01	—	18
Waste	—	—	—	—	—	—	—	—	—	—	—	8.0	0.00	8.0	0.80	0.00	—	28
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
Stationary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	1.7	1.7	0.12	1.2	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	14	1,023	1,037	0.86	0.03	17	1,085

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.12	0.11	0.10	1.1	< 0.005	< 0.005	0.42	0.42	< 0.005	0.11	0.11	—	367	367	0.01	0.01	0.02	372
Area	1.9	1.9	0.02	2.0	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.2	8.2	< 0.005	< 0.005	—	8.2
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	619	619	0.02	< 0.005	—	620
Water	—	—	—	—	—	—	—	—	—	—	—	5.9	7.7	14	0.02	0.01	—	18
Waste	—	—	—	—	—	—	—	—	—	—	—	8.0	0.00	8.0	0.80	0.00	—	28
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
Stationary	18	17	74	42	0.08	2.4	0.00	2.4	2.4	0.00	2.4	0.00	8,453	8,453	0.34	0.07	0.00	8,481
Total	20	19	74	45	0.08	2.4	0.42	2.9	2.4	0.11	2.5	14	9,455	9,469	1.2	0.10	17	9,545
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.02	0.02	0.02	0.21	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	61	61	< 0.005	< 0.005	< 0.005	62
Area	0.35	0.34	< 0.005	0.36	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.4	1.4	< 0.005	< 0.005	—	1.4
Energy	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	102	102	< 0.005	< 0.005	—	103
Water	—	—	—	—	—	—	—	—	—	—	—	0.98	1.3	2.3	< 0.005	< 0.005	—	3.0
Waste	—	—	—	—	—	—	—	—	—	—	—	1.3	0.00	1.3	0.13	0.00	—	4.6
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.9	2.9
Stationary	3.3	3.0	13	7.7	0.01	0.44	0.00	0.44	0.44	0.00	0.44	0.00	1,399	1,399	0.06	0.01	0.00	1,404
Total	3.7	3.4	14	8.3	0.02	0.44	0.08	0.52	0.44	0.02	0.46	2.3	1,565	1,568	0.20	0.02	2.9	1,580

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.14	0.13	0.10	1.6	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	—	436	436	0.01	0.02	0.05	441
Total	0.14	0.13	0.10	1.6	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	—	436	436	0.01	0.02	0.05	441
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.14	0.12	0.12	1.2	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	—	396	396	0.01	0.02	< 0.005	401
Total	0.14	0.12	0.12	1.2	< 0.005	< 0.005	0.47	0.47	< 0.005	0.12	0.12	—	396	396	0.01	0.02	< 0.005	401
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.02	0.02	0.02	0.21	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	61	61	< 0.005	< 0.005	< 0.005	62
Total	0.02	0.02	0.02	0.21	< 0.005	< 0.005	0.08	0.08	< 0.005	0.02	0.02	—	61	61	< 0.005	< 0.005	< 0.005	62

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	619	619	0.02	< 0.005	—	620
Total	—	—	—	—	—	—	—	—	—	—	—	—	619	619	0.02	< 0.005	—	620

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	619	619	0.02	< 0.005	—	620
Total	—	—	—	—	—	—	—	—	—	—	—	—	619	619	0.02	< 0.005	—	620
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	102	102	< 0.005	< 0.005	—	103
Total	—	—	—	—	—	—	—	—	—	—	—	—	102	102	< 0.005	< 0.005	—	103

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

4.3. Area Emissions by Source

4.3.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.4	1.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.13	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.52	0.48	0.02	2.9	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	12	12	< 0.005	< 0.005	—	12
Total	2.1	2.0	0.02	2.9	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	12	12	< 0.005	< 0.005	—	12
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.4	1.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectural Coatings	0.13	0.13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.6	1.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.26	0.26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.06	0.06	< 0.005	0.36	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.4	1.4	< 0.005	< 0.005	—	1.4
Total	0.35	0.34	< 0.005	0.36	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.4	1.4	< 0.005	< 0.005	—	1.4

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	5.9	7.7	14	0.02	0.01	—	18
Total	—	—	—	—	—	—	—	—	—	—	—	5.9	7.7	14	0.02	0.01	—	18

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	5.9	7.7	14	0.02	0.01	—	18
Total	—	—	—	—	—	—	—	—	—	—	—	5.9	7.7	14	0.02	0.01	—	18
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	0.98	1.3	2.3	< 0.005	< 0.005	—	3.0
Total	—	—	—	—	—	—	—	—	—	—	—	0.98	1.3	2.3	< 0.005	< 0.005	—	3.0

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	8.0	0.00	8.0	0.80	0.00	—	28
Total	—	—	—	—	—	—	—	—	—	—	—	8.0	0.00	8.0	0.80	0.00	—	28
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	8.0	0.00	8.0	0.80	0.00	—	28
Total	—	—	—	—	—	—	—	—	—	—	—	8.0	0.00	8.0	0.80	0.00	—	28
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Light Industry	—	—	—	—	—	—	—	—	—	—	—	1.3	0.00	1.3	0.13	0.00	—	4.6
Total	—	—	—	—	—	—	—	—	—	—	—	1.3	0.00	1.3	0.13	0.00	—	4.6

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	17
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.9	2.9
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.9	2.9

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	3.3	3.0	13	7.7	0.01	0.44	0.00	0.44	0.44	0.00	0.44	0.00	1,399	1,399	0.06	0.01	0.00	1,404
Total	3.3	3.0	13	7.7	0.01	0.44	0.00	0.44	0.44	0.00	0.44	0.00	1,399	1,399	0.06	0.01	0.00	1,404

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Light Industry	5.0	2.0	5.0	1,658	55	22	55	18,318
General Light Industry	9.9	4.0	10.0	3,315	110	44	111	36,636
General Light Industry	5.0	2.0	5.0	1,658	55	22	55	18,318
General Light Industry	15	6.0	15	4,973	164	66	166	54,953
General Light Industry	15	6.0	15	4,973	164	66	166	54,953
General Light Industry	9.9	4.0	10.0	3,315	110	44	111	36,636

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)

General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0
General Light Industry	Wood Fireplaces	0	0

General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

—	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
undefined	0.00	0.00	100,500	33,500	—

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	62,937	375	0.0129	0.0017	0.00
General Light Industry	89,910	375	0.0129	0.0017	0.00
General Light Industry	8,991	375	0.0129	0.0017	0.00
General Light Industry	152,846	375	0.0129	0.0017	0.00
General Light Industry	197,801	375	0.0129	0.0017	0.00
General Light Industry	89,910	375	0.0129	0.0017	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	231,250	0.00
General Light Industry	462,500	0.00
General Light Industry	231,250	0.00

General Light Industry	693,750	0.00
General Light Industry	693,750	0.00
General Light Industry	462,500	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	1.2	0.00
General Light Industry	2.5	0.00
General Light Industry	1.2	0.00
General Light Industry	3.7	0.00
General Light Industry	3.7	0.00
General Light Industry	2.5	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.0	4.0	18
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.0	4.0	18
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.0	4.0	18
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.0	4.0	18
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.0	4.0	18

General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088	0.30	4.0	4.0	18

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor
Emergency Generator	Diesel	7.0	0.00	150	3,500	0.73

5.16.2. Process Boilers

5.17. User Defined

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	20	annual days of extreme heat
Extreme Precipitation	6.0	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	2	0	0	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	0	0	N/A

Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	2	1	1	3
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	1	1	1	2
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	47
AQ-PM	39
AQ-DPM	86
Drinking Water	17
Lead Risk Housing	82
Pesticides	54
Toxic Releases	32
Traffic	85
Effect Indicators	—
CleanUp Sites	100
Groundwater	98
Haz Waste Facilities/Generators	99
Impaired Water Bodies	98
Solid Waste	92
Sensitive Population	—
Asthma	98
Cardio-vascular	76
Low Birth Weights	100
Socioeconomic Factor Indicators	—
Education	64
Housing	56
Linguistic	8.5
Poverty	99
Unemployment	100

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—

Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	3.2
Asthma ER Admissions	17.3
High Blood Pressure	0.9
Cancer (excluding skin)	66.1
Asthma	0.4
Coronary Heart Disease	2.1
Chronic Obstructive Pulmonary Disease	0.3
Diagnosed Diabetes	1.0
Life Expectancy at Birth	0.0
Cognitively Disabled	0.1
Physically Disabled	0.8
Heart Attack ER Admissions	33.9
Mental Health Not Good	0.6
Chronic Kidney Disease	2.7
Obesity	0.0
Pedestrian Injuries	0.0
Physical Health Not Good	0.4
Stroke	1.2
Health Risk Behaviors	—
Binge Drinking	84.3
Current Smoker	0.0
No Leisure Time for Physical Activity	7.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0

Children	3.5
Elderly	95.0
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	73.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	25.0
Traffic Density	0.0
Traffic Access	59.5
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	99
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Land Use	Project Specific Building sqft for SRWTP
Operations: Energy Use	No Natural Gas Usage in New Construction
Operations: Emergency Generators and Fire Pumps	Total assumed use for Emergency Diesel Generator. Conservative assumption of 50 hours of testing and 100 hours of emergency operations. Horsepower estimated based on 2,500 kW.