

# SUNNYVALE WATER POLLUTION CONTROL PLANT MASTER PLAN – SECONDARY TREATMENT AND DEWATERING FACILITIES

Program Environmental Impact Report Addendum

Prepared for  
City of Sunnyvale

August 2018





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550 Kearny Street  
Suite 800  
San Francisco, CA 94108  
415.896.5900  
[www.esassoc.com](http://www.esassoc.com)



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# CHAPTER 1

## Background and Purpose of the Addendum

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### Background

The City of Sunnyvale (City) owns and operates the Donald M. Somers Water Pollution Control Plant (WPCP), located at 1444 Borregas Avenue in Sunnyvale, Santa Clara County (see **Figure 1**). The WPCP provides treatment of wastewater flows and loads from domestic, commercial, and industrial sources in Sunnyvale, Rancho Rinconada, and Moffett Field. The WPCP includes an approximately 16.6-acre main plant and two oxidation ponds<sup>1</sup> that occupy about 436 acres in total (see **Figure 2**). The WPCP was originally constructed in 1956. With the enactment of the Clean Water Act in 1972, more restrictive water quality standards were established, leading to expansion of and process upgrades to the WPCP. Currently, the WPCP processes about 12 million gallons per day (mgd) average dry weather flow.<sup>2</sup> The surrounding dry land area is primarily used for industrial and recreation purposes: the Sunnyvale Materials Recovery and Transfer Station (SMaRT Station) and the former Household Hazardous Waste Drop-off Site on Carl Road abut the main plant to the east and south, respectively; the Sunnyvale Landfill (now closed and traversed by numerous trails) borders these facilities. The Sunnyvale West Channel forms the main plant's western boundary; the Sunnyvale East Channel borders the landfill further east. Caribbean Drive runs east-west along the southern edge of the Sunnyvale Landfill. The San Francisco Bay Trail borders the WPCP to the west and north, and an existing entrance to the Bay Trail and a parking area are located at the west end of Carl Road.<sup>3</sup>

The City was the lead agency for the Sunnyvale Water Pollution Control Plant Master Plan Program Environmental Impact Report (PEIR) (State Clearinghouse No. 2015062037).<sup>4</sup> The City adopted the PEIR for the WPCP Master Plan and approved implementation of the WPCP Master Plan on August 23, 2016. The PEIR evaluated potential environmental impacts that could occur as a result of implementing the Master Plan, and provided applicable mitigation to reduce the

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<sup>1</sup> The oxidation ponds provide biological oxidation of soluble organic material and physical removal of suspended solids that remain in the wastewater after primary clarification. The ponds also play an important role in the conversion of ammonia to nitrate for 2-3 months during the summer. Their large storage capacity provides a means for equalizing the flow of wastewater to the downstream unit processes, and for storing water to allow reduced (or zero) flow rate to the downstream processes for maintenance or other purposes.

<sup>2</sup> Average dry weather flow, or ADWF, is the average of the daily average flow during the three-month period between June and September (the driest times of the year in Sunnyvale) that produces the minimum flow.

<sup>3</sup> As part of a separate Master Plan project, the Bay Trail trailhead and parking will be relocated to Caribbean Drive.

<sup>4</sup> City of Sunnyvale, Sunnyvale Water Pollution Control Plant Master Plan Program Environmental Impact Report, adopted August 23, 2016. The PEIR can be accessed online at <http://www.sunnyvalecleanwater.com/program-environmental-impact-report>.

intensity of potential environmental impacts. As part of Master Plan approval, the City adopted a Mitigation Monitoring and Reporting Program.

Subsequent to adoption of the PEIR, projects included in the Master Plan have undergone further development. Chapter 2 of this document presents a description of one of these projects: the Secondary Treatment and Dewatering Facilities Project. Chapter 3 presents an evaluation of the environmental impacts of the Secondary Treatment and Dewatering Facilities Project as currently developed in comparison to the impacts disclosed in the PEIR. Chapter 4 summarizes the findings of the evaluation presented in Chapter 3. Chapter 5 contains mitigation measures from the approved Master Plan Mitigation Monitoring and Reporting Program.

## **Purpose of This Addendum**

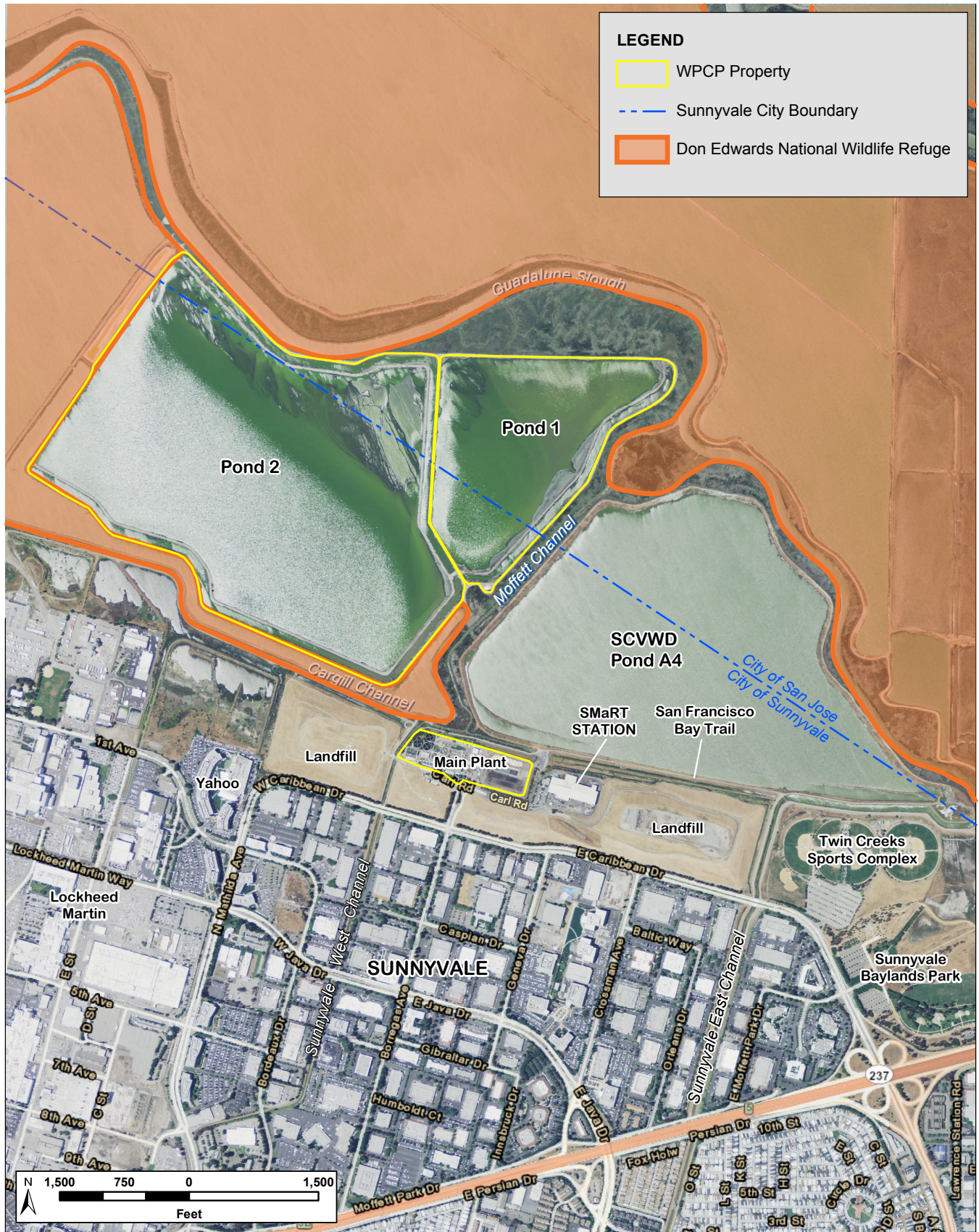
The CEQA Guidelines (Sections 15162 and 15164) allow that a lead agency may prepare an addendum to a previously certified EIR if some changes or additions to the environmental evaluation are necessary, but none of the following occurs:

1. Substantial changes are proposed in the project which will require major revisions to the EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR due to involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was adopted, shows any of the following:
  - a. The project will have one or more significant effects not discussed in the EIR;
  - b. Significant effects previously examined will be substantially more severe than shown;
  - c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
  - d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

This Addendum documents that the Secondary Treatment and Dewatering Facilities Project as modified subsequent to the Master Plan does not trigger any of the conditions described above.







SOURCE: H.T. Harvey & Associates; adapted by ESA

Sunnyvale Secondary Treatment and Dewatering Facilities

**Figure 2**  
Sunnyvale Water Pollution Control Plant Area Map

# CHAPTER 2

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## Project Description

### Summary of Previously Approved Project

As part of the Master Plan process the City identified the need to replace the secondary treatment process to ensure continued reliable treatment and to help meet potential regulatory limits for nutrients (nitrogen and phosphorus). The Master Plan identified a conventional activated sludge<sup>1</sup> (CAS) process, to be phased in over a number of years, to eventually replace all existing secondary treatment facilities (including the oxidation ponds, fixed growth reactors, and air flotation tanks; shown in **Figure 3**). The City proposed to stage replacement of secondary treatment facilities by using a “Split Flow” configuration (Stage 1) prior to full conversion to conventional activated sludge treatment (Stage 2). During the first stage, the City would build a smaller conventional activated sludge facility (than what would ultimately be needed to treat all flows through the plant) and continue to use the existing secondary treatment process to treat a portion of the flow, splitting the flow between the existing and new secondary treatment processes. These facilities as originally proposed were described on PEIR page 3-16.

Split Flow CAS Stage 1, as currently configured, is the project evaluated in this document.

### Components of the Secondary Treatment and Dewatering Facilities

Following certification of the Master Plan PEIR and approval of the Master Plan, the City proceeded with design of the Secondary Treatment and Dewatering Facilities. Further refinement of these facilities, which would be constructed within the plant fenceline, are summarized below in **Table 2-1**. Support facilities have been implemented in stages in concert with implementation of Master Plan projects; as a result, this project includes the second stages of the electrical and supervisory control and data acquisition (SCADA) systems. **Figure 4** illustrates the project site boundaries and the main plant fenceline. Proposed facilities are shown on **Figures 5** and **6**. The capacity of the new facilities is consistent with the capacity described in the PEIR.

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<sup>1</sup> Activated sludge treatment makes use of applied microbiology (using beneficial bacteria and protozoa) to degrade organic materials and remove nutrients from wastewater to produce a high-quality effluent. Blowers and pump stations are used to maintain mixed, aerobic conditions and to route flows where needed. At the end of the process, clarifiers are used to settle out the activated sludge microbes. Most settled sludge is recycled to sustain the process. Excess sludge is “wasted” and then anaerobically digested to produce methane-rich biogas and a biosolids product. The activated sludge process has been in use world-wide for over 100 years.



**TABLE 2-1**  
**SUMMARY OF SECONDARY TREATMENT AND DEWATERING FACILITIES PROJECT**

<b>Project component</b>	<b>Master Plan Facilities Evaluated in PEIR</b>	<b>Proposed Facilities</b>
Split Flow Conventional Activated Sludge Stage 1	<ul style="list-style-type: none"> <li>• Two aeration basins</li> <li>• Blower building and aeration blowers</li> <li>• Three secondary clarifiers located on west side of main plant site</li> <li>• Two combined return activated sludge/waste activated sludge pump stations</li> <li>• Primary effluent distribution structure</li> </ul>	<ul style="list-style-type: none"> <li>• Same, with sidestream ammonia treatment and similar footprint</li> <li>• Same</li> <li>• Four smaller secondary clarifiers on the east side of main plant site</li> <li>• One return activated sludge pump station and one waste activated sludge pump station</li> <li>• Same</li> </ul>
Maintenance Building	One 8,200 square foot building	Same
Thickening and Dewatering Facility	<ul style="list-style-type: none"> <li>• Thickening and Dewatering Building and equipment, maximum height of 50 feet above grade</li> <li>• Digested sludge storage tank</li> <li>• Cake storage and truck loading facility (Cake Loading)</li> <li>• Odor control system (with bioscrubber)</li> <li>• Polymer storage and feed systems</li> </ul>	<ul style="list-style-type: none"> <li>• Same, maximum height of 55 feet above grade</li> <li>• Same, with piping upgrades</li> <li>• Same</li> <li>• Same</li> <li>• Same</li> </ul>
12 kilovolt (kV) Electrical Distribution System (Stage 2)	Stage 2 to be implemented with secondary treatment improvements	Same
Digester Supernatant Pump Station and Drainage Piping	Repairs to these facilities were previously planned as a separate project in PEIR	Structural, piping, and related repairs to pump station and drainage piping
Flood Protection	Wall built to elevation 13 feet NAVD88	Wall built to elevation 14 feet NAVD88
Standby Generator and Fuel Tank	Diesel powered (2.5 megawatt [MW])	Diesel powered (2 MW)





NOTE: New preliminary and primary treatment facilities are currently being constructed at the WPCP.

SOURCE: ESA; Base Map Google Earth

Sunnyvale Secondary Treatment and Dewatering Facilities  
**Figure 3**  
 Existing WPCP Process Areas

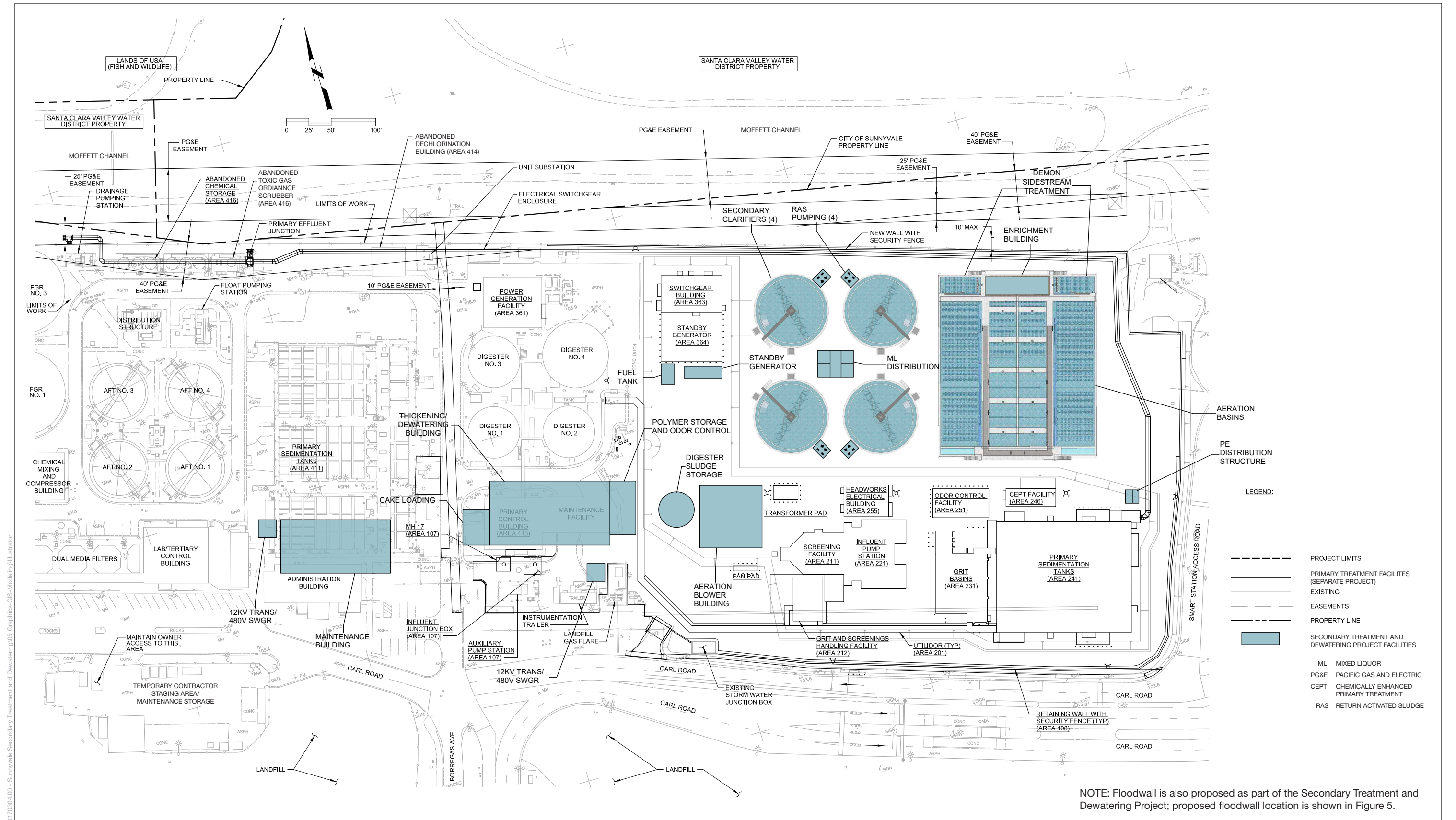




SOURCE: ESA, 2018; Base Map - Google Earth

Sunnyvale Secondary Treatment and Dewatering Facilities  
**Figure 4**  
 Project Area





SOURCE: Carollo, 2018

Sunnyvale Secondary Treatment and Dewatering Facilities

**Figure 5**  
Proposed Secondary Treatment and Dewatering Project



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Sunnyvale Secondary Treatment and Dewatering Facilities  
**Figure 6**  
 Proposed Floodwall

SOURCE: ESA; Base Map Google Earth



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## Split Flow Conventional Activated Sludge Stage 1

Flow would be split between the existing secondary treatment process at the WPCP (oxidation ponds, fixed growth reactors, and air flotation tanks) and the conventional activated sludge (CAS) system proposed in this project. These facilities would include the following components:

- Aeration basins
- Sidestream nitrogen removal facilities
- Aeration blower building and blowers
- Secondary clarifiers
- Return activated sludge and waste activated sludge pumping
- Mixed liquor splitter structure and primary effluent distribution structure

As summarized in Table 2-1, the current project includes four smaller secondary clarifiers instead of three compared with the PEIR project. The CAS process will be configured as a Modified Ludzack Ettinger (MLE) process.<sup>2</sup> The project also includes deammonification<sup>3</sup> as a sidestream nitrogen removal process. The aeration basins and secondary clarifiers would be uncovered and located on the eastern side of the main plant site. The tallest structure associated with these facilities would reach approximately 35 feet above ground elevation.

## Maintenance Building

The size and location of the Maintenance Building are unchanged compared to the PEIR project; the facility is described on PEIR page 3-29, and would replace the functionality of the existing maintenance shop, maintenance storage yard, instrumentation shop, and primary control building (shown on Figure 3). Landscaping and yard space for storage and vehicle access would surround the building.

## Thickening and Dewatering Facility Stage 1

The Thickening and Dewatering Facility would thicken secondary sludge produced by the new secondary treatment improvements and dewater digested biosolids produced by the anaerobic digestion process. The components of this facility would include:

- Building to house equipment
- Thickening equipment
- Thickened waste activated sludge pumps

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<sup>2</sup> The MLE process configuration is one of many activated sludge basin designs. This configuration was established in 1962 and includes an anoxic zone (un-aerated but mixed) at the beginning end of the tank to optimize nitrogen removal.

<sup>3</sup> Deammonification is a two-step biological process where ammonia-oxidizing bacteria aerobically convert half of the ammonia present in the wastewater to nitrite. In the second step, anammox bacteria oxidize the ammonia using nitrite to produce nitrogen gas without the organic carbon substrate required for conventional heterotrophic denitrification. Deammonification requires significantly less oxygen and so less energy is needed for nitrogen removal.

- Thickening polymer storage and feed system
- Digester sludge feed piping upgrades
- Digester sludge storage tank
- Dewatering equipment
- Cake pumps
- Dewatering filtrate return pump station and piping
- Dewatering polymer storage and feed system
- Cake storage hopper and truck loading facility (cake loading)
- Odor control system with bioscrubber

As summarized in Table 2-1, these facilities would generally be the same as the thickening and dewatering facilities described in the PEIR (PEIR pages 3-24 and 3-25). The maximum height of these structures would be 55 feet above grade, approximately five feet taller than the relevant structures evaluated in the PEIR. All components would be located within the thickening and dewatering building with the exception of polymer storage, digester sludge storage, cake loading, and odor control. Polymer storage, cake loading, and odor control facilities would be covered or contained and located adjacent to the thickening and dewatering building. The digester sludge storage tank would be a separate covered structure. Yard piping would be upgraded to connect the new facilities to the existing WPCP facilities.

## Support Facilities

### Electrical Distribution System and Combined Heat and Power

Stage 2 of the 12 kV electrical distribution system would extend the 12kV primary power to all remaining facilities at the WPCP.

A 2 megawatt (MW) standby generator would be installed to provide full backup power for the anticipated electrical loads at the WPCP. This generator would run on diesel and would only be used in an emergency when utility power is not available, and during routine monthly maintenance (up to 50 hours per year). The generator would not be used in normal operations.

### Advanced Control Systems Improvements – Stage 2

The WPCP fiber optic duct banks would be expanded to remaining facilities at the WPCP, including a 72 strand single-mode fiber optics cable installed in a loop and communications cabinets. Computer programming would be conducted to migrate network connectivity of the existing equipment over to the new controls system. No new structures would be constructed for these improvements.

### Digester Supernatant Pump Station and Drainage Piping

Several components of the existing pump station and drainage piping would be rehabilitated. No new structures would be constructed for these improvements. The project includes repair of concrete within the supernatant pump station, replacement of the digester supernatant pumps, and repair of portions of drainage piping from the digesters to the supernatant pump station.

## Flood Protection

A flood wall may be constructed along approximately 750 feet of the southern side of the main plant site, extending from the driveway southwest of the new primary treatment facilities to the west gate driveway. The floodwall top elevation would be approximately 14 feet NAVD88 (approximately 5 feet above ground surface).

## Construction

### Schedule and Workforce

Project construction would proceed in three general phases, with some overlap between phases, and last approximately 3.5 years. The first phase, consisting of site demolition, surcharging, and site preparation, would occur between November 2020 and October 2021. The second phase would include earthwork and site work for structures and would extend for approximately one year between January 2021 and January 2022. Facilities would be constructed during the third phase, lasting from January 2022 through April 2024.

On average, approximately 130 construction personnel would be onsite daily. At peak construction, up to 230 construction personnel may be onsite each day. Project construction would occur primarily within normal City working hours, weekdays between the hours of 7:00 a.m. and 6:00 p.m., and, as necessary, Saturdays between 8:00 a.m. and 5:00 p.m.<sup>4</sup>

### Equipment

Heavy equipment that would be used for construction of this project includes the following equipment (the estimated usage of which is documented in **Appendix A**).

- Excavator
- Grader
- Haul trucks
- Dozer/Loader
- Roller
- Paving equipment
- Concrete trucks
- Water trucks
- Crawler cranes and rough terrain cranes
- Pile drivers

### Access and Staging

Construction activities would occur within the main plant. Construction vehicles would access the main plant via Borregas Avenue and Carl Road. **Figure 7** illustrates potential construction staging areas and site access.

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<sup>4</sup> Sunnyvale Municipal Code Section 16.08.030 normally limits construction activity to these hours.



## Demolition, Surcharging, and Site Preparation

The existing primary sedimentation basins, maintenance shop, administration building, and primary control building would be demolished. Figure 3 identifies these existing facilities. Demolition would require initial shoring around existing structures and foundations, excavation, and removal of structures. Demolition would also require offhaul of debris for disposal or reuse. The areas would be graded after demolition.

On the east area of the site, it is assumed pre-consolidation will likely be necessary to compact the soils prior to construction. Clean fill material would be imported and approximately 10 feet of soil would be deposited on the site for approximately 6 months. When consolidated, this imported fill will need to be offhauled, but some may be used to backfill the primary clarifier area after demolition.

The site would be prepared for the construction of the facilities, including grading to the finished elevation and setting up contractor staging areas and construction trailers.

## Earthwork and Site Work for Structures

Initial steps of site work include driving sheeting and shoring for the excavation of the main structures. Following placement of shoring, the areas for these structures would be excavated. Some of the excavated material would be stockpiled for backfill, while most would be offhauled. This phase also includes the import of stone base material for preparation of the foundations. Average daily construction truck trips would reach a peak of 73 one-way trips per day during these activities.

## Facility Construction

After initial earthwork is complete, concrete slabs and walls for the major structures would be installed. Although it is anticipated that concrete slab foundations would be used, pile driving for structural foundation improvements may also be needed based on the results of geotechnical investigations. Subsequent construction activities include construction of associated mechanical, structural, and electrical facilities. This phase includes excavation throughout the site for yard piping and electrical duct banks. Jack and Bore may be required for a short segment of the secondary effluent pipe within areas of the main plant. The remainder of linear facilities would be installed using trenched construction. Support utilities would also be installed. After structures and piping are complete, the site would be paved.



SOURCE: ESA; Base Map Google Earth

Sunnyvale Secondary Treatment and Dewatering Facilities

**Figure 7**  
Construction Staging and Access



## Operations

As described in PEIR Section 3.4.3, page 3-16, the proposed secondary treatment and dewatering facilities would operate in parallel with the existing secondary treatment system (e.g., Ponds 1 and 2, fixed growth reactors, and air flotation tanks). Primary effluent would be split between the project facilities and Ponds 1 and 2, using an operations approach called “split flow mode.” WPCP operators would maintain flow to the oxidation ponds to meet the process needs of that system. Once the project is complete, the WPCP would operate under “split flow mode” for about 10 years. Eventually the City plans to fully replace the existing secondary treatment process by the end of the Master Plan period (approximately 2035). The City would determine the need for supplemental CEQA documentation on the full transition to CAS once conceptual design of CAS Stage 2 is complete.

The new facilities in this project would increase the power demands at the WPCP. Primary power for the proposed facilities would be supplied by PG&E and Silicon Valley Clean Energy (SVCE)<sup>5</sup> via a new switchgear building being constructed as part of another project and from the power generation facility, an onsite cogeneration facility that runs on digester gas, landfill gas, and natural gas if needed. Along with other projects at the WPCP, the overall WPCP's demand would exceed the capacity of the power generation facility once the project is operational. The project facilities would require an additional average load of approximately 1,000 kilowatts. All of the electrical demand for the facilities proposed in this project would be met by increased PG&E and SVCE supply.

No new staff would be needed to operate the new facilities. The work force would remain at 34 operations and maintenance staff. Operations of the project would require 42 chemical deliveries per month and 19 residuals hauling trucks per week.

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<sup>5</sup> PG&E is responsible for delivering electricity, while SVCE is responsible for securing electricity supply and determining supply portfolio. Currently, the City's electricity accounts use SVCE's “GreenPrime” option, which provides 100% renewable energy.

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# CHAPTER 3

## Evaluation of Environmental Impacts

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The evaluations in the Program Environmental Impact Report (PEIR) were revisited to determine whether any changes to the analyses were warranted based on refinements to the Secondary Treatment and Dewatering Facilities project (project). This chapter describes any changes that have occurred in the existing environmental conditions within and near the project area as well as environmental impacts associated with the project. The analysis includes consideration of the mitigation measures adopted for the Master Plan as part of the Mitigation Monitoring and Reporting Program (MMRP). Chapter 5, *Mitigation Monitoring and Reporting Program*, contains all of the mitigation measures from the adopted MMRP that apply to the project.

The PEIR evaluated impacts of combinations of individual improvements as they were expected to progress at the time of PEIR preparation. The phasing for the Master Plan improvements has changed as design progressed for individual improvements. Project construction is expected to overlap with construction of the Administration/Lab Building and Existing WPCP Rehabilitation projects at the WPCP. Project construction may also overlap with the Sunnyvale East-West Channels Flood Protection project and the 360 Caribbean Drive Project, which would demolish existing office and manufacturing buildings and develop two new research and development buildings in the same location. Where relevant, cumulative impacts of this scenario are discussed.

The topics listed below were sufficiently addressed in the PEIR and required no additional analysis because either the nature, scale, and timing of the project has not changed in ways relevant to the topic or there has not been a substantial change in the circumstances involving the topic on the project site, nor in the local environment surrounding the site.

- **Agriculture and Forestry Resources.** The state and local land use and zoning designations with respect to agricultural and forest resources have not changed for the site and surroundings, and agricultural or forest use of the site has not commenced since adoption of the PEIR. Thus there has not been a substantial change in the circumstances involving agricultural and forest resources at the site or surrounding areas.
- **Biological Resources.** Habitat in the project area has not changed since adoption of the PEIR. The locations of ground disturbance have not changed in ways relevant to biological resources. The state and local plan designations relevant to biological resources within and surrounding the project site have not changed. Applicable mitigation measures are included in Chapter 5.
- **Cultural Resources.** The locations of ground disturbance have not changed in ways relevant to historical, archeological, and paleontological resources at the site or surrounding areas. Applicable mitigation measures are included in Chapter 5.

- **Energy Conservation.** The construction and operation equipment and activities proposed for the project would be similar to that evaluated in the PEIR. The increased electrical demand from PG&E and SCVE for this project is within the demand estimated for Master Plan projects in the PEIR (3,100 kW). The Caribbean Drive Parking and Trail Access Enhancements Project is the only other Master Plan project evaluated in the PEIR that has undergone subsequent review under CEQA, and would not require electricity during operations.
- **Geology, Soils, Seismicity, and Mineral Resources.** The nature, scale, and timing of the project have not changed in a manner that would exacerbate existing geologic and seismic hazards at the project site. The state and local land use and zoning designations with respect to mineral resources have not changed for the site and surroundings.
- **Hazards and Hazardous Materials.** The locations of ground disturbance have not changed in ways relevant to hazards and hazardous materials at the site or surrounding areas. Applicable mitigation measures are included in Chapter 5.
- **Land Use and Recreation.** The state and local land use plans, policies, and regulations applicable at the site have not changed since adoption of the PEIR, and the character of the project would remain industrial.
- **Noise and Vibration.** As described in Chapter 2, the project would not involve construction activity outside of the hours of 7:00 a.m. to 6:00 p.m. The nearest residences to the project site are approximately 0.8 miles away and separated from the area by the intervening commercial and industrial land uses and State Route 237. No new receptors closer than those identified in the PEIR occur in the vicinity of the project site. The types of equipment and number of construction activities occurring concurrently would be similar to those evaluated in the PEIR for other Master Plan projects. The project does not include sources of noise during operations that were not evaluated in the PEIR.
- **Population and Housing.** The project does not alter the effect of the Master Plan on treatment capacity (indirectly inducing population growth) and the types of equipment and number of construction activities occurring concurrently would be similar to that evaluated in the PEIR.
- **Public Services and Facilities.** The nature of the project with respect to population growth and impairment of achieving service performance objectives has not changed.
- **Utilities and Service Systems.** The nature of the project with respect to wastewater collection and treatment, water use, and solid waste disposal has not changed.
- **Mandatory Findings of Significance.** For the reasons identified above, the cultural resources and hazardous materials effects of the project are adequately addressed in the PEIR. One additional project (resurfacing the San Francisco Bay Trail within the City of Sunnyvale and neighboring areas) that was not identified in the PEIR occurred in the vicinity of the project, another project not identified in the PEIR may be under construction concurrently with the project, and the schedule of the Sunnyvale East-West Channels project has shifted into the future; these changes in the cumulative scenario would not alter the cumulative impact conclusions of the PEIR beyond the discussions included in this addendum. The effects of the project on human beings are adequately addressed in the PEIR except for

Transportation, Air Quality, Greenhouse Gas, Hydrology and Water Quality, and Aesthetics impacts, which are discussed in this addendum.

Changes and additions to the PEIR discussion of the remaining topics are included below, pursuant to CEQA *Guidelines* Section 15164. The following discussion describes the environmental impacts of the project as compared to the impacts of the approved Master Plan as addressed in the PEIR adopted August 23, 2016. These additions do not reflect involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; for these reasons, a subsequent EIR was not prepared.



## Transportation

<i>Issues (and Supporting Information Sources):</i>	<i>New Potentially Significant Impact</i>	<i>New Less Than Significant with Mitigation Incorporated</i>	<i>New Less Than Significant Impact</i>	<i>Same Impact as Approved Project</i>	<i>Less Impact than Approved project</i>
<b>16. TRANSPORTATION/TRAFFIC — Would the project:</b>					
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Setting

The environmental setting relevant to Transportation for the project has not changed relative to the setting in the PEIR. Existing traffic patterns, the transit network, and alternative transportation facilities have not changed since adoption of the PEIR. Setting discussions from the adopted PEIR for this resource are therefore applicable to the entire project area.

## Findings of Previously Adopted PEIR

The adopted PEIR determined that all project impacts related to transportation would be less than significant or less than significant with mitigation. Chapter 5, *Mitigation Monitoring and Reporting Program*, reproduces select adopted mitigation measures applicable to transportation impacts.



## Discussion

### ***Congestion Management Program***

As discussed in the PEIR, Caribbean Drive is the CMP system network roadway nearest to the Master Plan and the project area. The project would not generate new (increased) traffic once operational, so the volume of traffic on Caribbean Drive would not change as a result of the project. The average weekday daily traffic on Caribbean Drive (12,883) is slightly less than that identified in the PEIR (13,248 vehicles) (Kimley Horn, 2017).

### ***Air Traffic Patterns***

The project would not construct facilities taller than ground-level in areas not previously evaluated in the PEIR. There would be no impact.

### ***Measures of Effectiveness for the Performance of the Circulation System***

The Master Plan would have a peak of 564 one-way truck trips per day during construction; the project would have a maximum of 73 one-way truck trips per day during construction. The 130 construction workers would likely commute to and from the work site during peak hours. Truck trips and construction worker trips that would coincide with peak-hour traffic could impede traffic flow on local roadways, a potentially significant impact. With implementation of adopted Mitigation Measures TR-1a and TR-1b, this impact would be reduced to less-than-significant levels, and the impact would not be more severe than that identified in the approved PEIR.

### ***Traffic Safety Hazards***

During construction, while the number of haul trucks would be substantially lower than evaluated in the PEIR, traffic safety hazards could occur due to increased truck traffic with associated slower speeds and wider turning radii and where delivery and haul trucks share the roadway with other vehicles, the same impact as discussed in the PEIR. With implementation of adopted Mitigation Measure TR-1b, the impact of these potential construction traffic safety hazards would be less than significant with mitigation. There would be no change to lane or roadway configuration as part of the project; therefore, the operational effects of the project would be the same as those identified in the PEIR (less than significant). No new or more severe environmental impacts related to traffic safety would result from project implementation.

### ***Emergency Access***

The project would not result in new or more adverse impacts related to emergency access because the project would not alter access to facilities served by emergency vehicles and personnel. The project does not include design features that would either impede or restrict emergency vehicle access. No new or more severe environmental impacts related to emergency access would result from project implementation.

### ***Alternative Transportation Facilities***

The project would not directly or indirectly eliminate alternative transportation corridors or facilities, nor would it include changes in adopted policies, plans, or programs that support

alternative transportation. No new or more severe environmental impacts related to alternative transportation facilities would result from project implementation.

### ***Cumulative Transportation Impacts During Construction***

At the time of PEIR preparation, details typically used to determine cumulative transportation effects were not known. The PEIR estimated cumulative transportation effects by assuming a worst-case scenario in which construction peak periods overlap for most of the projects identified in the PEIR cumulative scenario (listed in PEIR Table 6-1). Project construction would overlap with construction of the Administrative/Lab building and existing facilities rehabilitation at the WPCP. Project construction may also overlap with construction of the Sunnyvale East-West Channels Flood Protection project and the 360 Caribbean Drive project. It is possible that service levels along Caribbean Drive could be temporarily degraded by construction activity. With implementation of adopted Mitigation Measure C-TR-1, Implement Coordinated Transportation Management Plan, the project's contribution to a potential cumulative impact along Caribbean Drive would be less than cumulatively considerable.

### **Conclusion**

The project would not generate substantially more operational or construction vehicle trips than those identified in the previously approved PEIR, and therefore would not conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, or conflict with an applicable congestion management program. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

Implementation of the adopted mitigation measures applicable to transportation would reduce possible impacts associated with a reduction in roadway capacity and potential impacts to emergency access during construction of the project to a less than significant level, and the project would not result in any new or more significant impacts. **(Same Impact as Previously Approved Project [Less than Significant Impact with Mitigation])**

The Project would not result in new or more significant impacts to public transit, bicycle and pedestrian facilities, or traffic-related hazards than those identified in the previously approved PEIR. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

With the implementation of adopted Mitigation Measure C-TR-1 to reduce the project's possible contribution to cumulative transportation impacts, the project would not result in any new or more significant impacts than those identified in the previously adopted PEIR. **(Same Impact as Previously Approved Project [Less than Significant Impact with Mitigation])**

## Air Quality

<i>Issues (and Supporting Information Sources):</i>	<i>New Potentially Significant Impact</i>	<i>New Less Than Significant with Mitigation Incorporated</i>	<i>New Less Than Significant Impact</i>	<i>Same Impact as Approved Project</i>	<i>Less Impact than Approved Project</i>
<b>3. AIR QUALITY — Would the project:</b>					
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Setting

### ***Air Quality Plans***

Regional air quality planning has proceeded since adoption of the PEIR. On April 19, 2017, the BAAQMD adopted the most recent revision to the Clean Air Plan – the *2017 Clean Air Plan: Spare the Air Cool the Climate (2017 CAP)*. The primary goals of the *2017 CAP* are to protect public health and protect the climate (BAAQMD, 2017). The plan includes a wide range of control measures to reduce emissions from combustion-related activities, reduce fossil fuel combustion, improve energy efficiency, and decrease emissions of potent greenhouse gases (GHGs). Some measures focus on reducing individual pollutants such as potent GHGs like methane and black carbon, or harmful fine particles that affect public health. Many of the measures, however, reduce multiple pollutants and serve both to protect public health and to protect the climate.

The 2017 Plan updates the *2010 Clean Air Plan*, pursuant to air quality planning requirements defined in the California Health and Safety Code. It describes a multi-pollutant strategy to simultaneously reduce emissions and ambient concentrations of ozone, fine particulate matter, toxic air contaminants, as well as greenhouse gases that contribute to climate change. To fulfill state ozone planning requirements, the 2017 control strategy includes all feasible measures to reduce emissions of ozone precursors—reactive organic gases (ROG) and nitrogen oxides (NOx)—and to reduce transport of ozone and its precursors to neighboring air basins. In addition, the Plan builds upon and enhances the Air District’s efforts to reduce emissions of fine particulate matter and toxic air contaminants (BAAQMD, 2017). In addition, the 2017 CAP includes the Bay Area’s first-ever comprehensive Regional Climate Protection Strategy (RCPS), which will identify potential rules, control measures, and strategies that the BAAQMD can pursue to reduce

greenhouse gases in the Bay Area and lay the groundwork to attain ambitious GHG reduction targets for 2030 and 2050.

The state and federal non-attainment status of the San Francisco Bay Area Air Basin (SFBAAB) has not changed since adoption of the PEIR. At the time of PEIR adoption, the SFBAAB was designated as a nonattainment area for state and national ozone standards, state particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) standards, and federal PM<sub>2.5</sub> (24-hour) standard.

### ***BAAQMD Rules, Regulations, and CEQA Guidelines***

Since adoption of the PEIR, the BAAQMD CEQA Air Quality Guidelines, which were used to evaluate the potential effects of the project on air quality, faced legal challenge in the State Supreme Court. While the significance thresholds originally adopted by BAAQMD in 2011 are not currently recommended by the BAAQMD, there is no court order preventing their use, and they are frequently employed by lead agencies when conducting CEQA reviews because the BAAQMD 2011 guidelines provides substantial evidence for the derivation of the thresholds and the approach to employing them in an air quality impact analysis (BAAQMD, 2009). The State Court of Appeals agreed with BAAQMD that there were scenarios in which the thresholds could be used to properly assess whether and in what amount a project would add pollution to the environment. Consequently, the approach implemented in the PEIR remains the latest state-of-the-art guidance and no changes to the approach used in the PEIR are warranted at this time.

The BAAQMD is also the agency responsible for investigating and controlling odor complaints in the area. The BAAQMD enforces odor control by helping the public document a public nuisance. Upon receipt of a complaint, the BAAQMD sends an investigator to interview the complainant and to locate the odor source if possible. The BAAQMD typically brings a public nuisance court action when there are a substantial number of confirmed odor events within a 24-hour period. An odor source with five or more confirmed complaints per year averaged over three years is considered to have a substantial effect on receptors.

There are several BAAQMD regulations and rules that apply to odorous emissions that could be generated by the WPCP. Regulation 1, Rule 301 is the nuisance provision that states sources cannot emit air contaminants that cause nuisance to a considerable number of persons. Regulation 9, Rule 2 limits ground level concentration of H<sub>2</sub>S.<sup>1</sup> Regulation 7 specifies limits for the discharge of odorous substances where the BAAQMD receives complaints from ten or more complainants within a 90-day period. Among other things, Regulation 7 precludes discharge of an odorous substance that causes the ambient air at or beyond the property line to be odorous after dilution with four parts of odor-free air (i.e., 5 D/T), and specifies maximum limits on the emission of certain odorous compounds.<sup>2</sup>

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<sup>1</sup> BAAQMD, Rules & Regulations, Regulation 9 – Inorganic Gaseous Pollutants, Rule 2 – Hydrogen Sulfide, last amended October 6, 1999.

<sup>2</sup> BAAQMD, Rules & Regulations, Regulation 7 – Odorous Substances, last amended March 17, 1982.

The WPCP is currently subject to the Operating Permit requirements of Title V of the federal Clean Air Act. BAAQMD is responsible for issuing Title V permits. The most recent application for renewal of the permit for the WPCP (Facility #A0733) was submitted in November 2017.

### **Sensitive Receptors**

No new residential buildings, schools, colleges or universities, daycare facilities, hospitals, or senior-care facilities have been constructed closer to the WPCP than the sensitive receptors identified in the PEIR (located immediately south of State Route 237, 0.8-mile from the project site).

### **Findings of the Previously Adopted PEIR**

The PEIR identified significant and unavoidable impacts associated with the project related to the potential to conflict with the applicable air quality plan and the potential to violate any air quality standard or contribute to an air quality violation. The extent to which the project could result in a cumulatively considerable net increase of criteria air pollutant emissions, expose sensitive receptors to pollutant concentrations, and the potential of the project to create objectionable odors affecting a substantial number of people were determined to be less than significant impacts. One of the mitigation measures identified in the PEIR and subsequently adopted by the City (Mitigation Measure AQ-2a) is reproduced in Chapter 5, *Mitigation Monitoring and Reporting Program*.

**Table 3-1** reproduces relevant portions of PEIR Table 4.5-4 (from PEIR page 4.5-17) for reference, and summarizes emissions estimated for construction of the proposed project and relevant WPCP projects that may overlap with proposed project construction.

**TABLE 3-1  
MASTER PLAN AVERAGE DAILY CONSTRUCTION EXHAUST EMISSIONS**

Master Plan Construction Stage <sup>a</sup>	Average Daily Emissions (pounds per day)				Likely to be Significant?
	ROG	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	
1A – Existing WPCP Rehabilitation	NA	NA	NA	NA	Yes
1B – Demolition of Primary Sedimentation Tanks and Relocation of Bay Trail head	2.2	20.1	1.5	1.6	No
2A – Split Flow Conventional Activated Sludge Milestone 1	0.8	4.4	0.3	0.2	No
2B – Construction of Administration/Lab building	0.8	3.5	0.2	0.1	No
2D – Maintenance Building	0.3	1.6	0.1	0.1	No
2E - Split Flow Conventional Activated Sludge Milestone 2	1.8	10.6	0.6	0.6	No
2F - Split Flow Conventional Activated Sludge Milestone 3 (Thickening & Dewatering)	1.3	5.9	0.3	0.2	No
<b>Significance Thresholds</b>	<b>54</b>	<b>54</b>	<b>82</b>	<b>54</b>	<b>--</b>

NA = Not Available

<sup>a</sup> Includes the proposed project evaluated in this document (Secondary Treatment and Dewatering Facilities, reflected as part of stages 1B, 2A, 2D, 2E, and 2F in this table) and the other Master Plan project that, based on the current Master Plan implementation schedule, could be constructed concurrent with the proposed project (i.e., 1A and 2B in this table).

NOTE: Refer to PEIR Appendix B for assumptions and emissions estimate calculations.

SOURCE: *Sunnyvale Water Pollution Control Plant Master Plan Program Environmental Impact Report*, City of Sunnyvale, August 2016.

## Discussion

### *Violation of Air Quality Standards*

#### Construction

At the time of PEIR preparation, details typically used to calculate air pollutant emissions (such as the number of pieces of each type of off- and on-road equipment and daily equipment usage rates in terms of hours per day and total days of use) were not known. The PEIR estimated the anticipated air pollutant emissions of WPCP projects by estimating the relative magnitude of construction activity compared to other, better defined projects planned at the site. The City anticipated that when project-level CEQA review of Master Plan improvements is initiated, the PEIR analysis would be reviewed in light of updated construction information and analysis of air pollutant emissions would be revised accordingly.

Construction details of the project are sufficiently known to calculate conservative air pollutant emissions during construction. Air pollutant emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> that would be generated by off-road construction equipment (e.g., excavators, graders, loaders) were estimated using the OFFROAD2017 emission factors along with the Project-specific construction schedule and equipment requirements that would be used during the following construction phases of the project:

- Phase 1: Site demolition, surcharging & site preparation – November 2020 to October 2021
- Phase 2: Earthwork & site work for structures – January 2021 - January 2022
- Phase 3: Facility Construction – January 2022 to April 2024

Project construction emissions were estimates assuming that construction would begin in November 2020 and would take approximately 1,176 workdays to complete over a period of approximately 42 months. Average daily construction emissions were estimated by dividing the total construction emissions by the number of workdays.

Emissions from construction equipment were estimated using project-specific information such as the types and number of construction equipment used, their horsepower rating, daily usage in terms of hours per day, and the number of days each piece of equipment is used within the construction period.

Emissions from on-road motor vehicles used during construction were estimated by multiplying EMFAC2014 emissions factors with the estimated total miles travelled by project-related worker vehicles and trucks. Based on data from the applicant, the project is assumed to generate an average of 260 worker commute trips per day throughout the construction period. The number of material delivery and off-haul trips varies by construction phase and are detailed in Appendix A. The exact end points for the daily trips are not known at this time, so the on-road emission estimates were developed under the assumption that each worker trip would be 25 miles round trip, and each haul truck and material delivery trip would be 50 miles round trip. Daily emissions by vehicle class (i.e., light-duty gasoline-fueled trucks and heavy-duty trucks) were estimated using the EMFAC2014 emission factors multiplied by the estimated project-related vehicle trips and the estimated daily mileage traveled by the vehicles.

All assumptions and calculations used to estimate the project-related construction emissions are provided in Appendix A. Estimated average daily emissions are shown in **Table 3-2** and are compared to the BAAQMD thresholds.

**TABLE 3-2  
AVERAGE DAILY CONSTRUCTION-RELATED POLLUTANT EMISSIONS FOR THE PROPOSED PROJECT  
(POUNDS/DAY)**

Construction Phase	Number of workdays	ROG	NOx	Exhaust PM <sub>10</sub> <sup>a</sup>	Exhaust PM <sub>2.5</sub> <sup>a</sup>
Phase 1	336	2.3	24.3	1.1	0.7
Phase 2	252	2.5	29.6	1.3	0.8
Phase 3	588	1.9	13.8	0.8	0.5
Project Average	1176	2.1	20.2	1.0	0.6
BAAQMD Construction Threshold	---	54	54	82	54
Significant Impact?	---	No	No	No	No

NOTES:

<sup>a</sup> BAAQMD's construction-related significance thresholds for PM<sub>10</sub> and PM<sub>2.5</sub> apply to exhaust emissions only and not to fugitive dust.

SOURCE: Appendix A

In addition to exhaust emissions, the PEIR evaluated emissions of fugitive dust from construction activities. As described in the PEIR, for all projects, the BAAQMD recommends the implementation of its Basic Control Mitigation Measures whether or not construction-related exhaust emissions exceed the applicable significance thresholds. The BAAQMD Basic Control Mitigation Measures were adopted by the City as Mitigation Measure AQ-2a (included in Chapter 5 of this document). As indicated in Table 3-2, the average daily construction exhaust emissions would not exceed the BAAQMD's significance thresholds. Therefore, impacts associated with the potential for construction-related exhaust emissions to result in or contribute to a violation of an air quality standard would be less than significant.

Table 3-1 includes emissions estimates from the PEIR for the Administration Building project (stage 2B). The Existing WPCP Rehabilitation project (stage 1A) has not yet progressed into design; as was the case in the PEIR, the scale of construction of this project remains not well understood. Combining the current emissions estimates for the proposed project shown in Table 3-2 with the emissions estimates for these other Master Plan project that could be constructed concurrently (shown in Table 3-1), the average daily construction exhaust emissions for the projects together could therefore exceed the BAAQMD's significance thresholds, despite the fact that the project's construction emissions shown in Table 3-2 would be substantially lower than the combined emissions of the equivalent stages in the Master Plan PEIR (the combination of emissions for stages 1B, 2A, 2D, 2E, and 2F shown in Table 3-1). Without sufficient information to estimate construction-related air pollutant emissions that would be associated with the Existing WPCP Rehabilitation project, it cannot be substantiated that implementation of adopted Mitigation Measures 2a and 2b would be adequate to reduce the associated impact of concurrent Master Plan project construction to a less-than-significant level.

## Operation

No new staff would be required to operate the project, therefore there would be no increase in the employee commute trips to the facility. Criteria air pollutant emissions during project operation would result primarily from truck trips for material delivery and hauling of residuals. It is estimated that the project would result in 42 chemical deliveries per month and 19 residuals hauling trucks per week (same as buildout for PEIR). In addition, emissions would be generated from the testing and maintenance of the 2,000 kW emergency standby generator proposed as part of the project. Emissions from truck trips were estimated using EMFAC2014 emission factors assuming a one-way trip length of 25 miles. Consistent with BAAQMD Regulation 9, Rule 8, a maximum operation of 50 hours per year and 1 hour per day was used for testing and maintenance. As shown in **Table 3-3** below, operational emissions would be less than the BAAQMD significance thresholds. Therefore, the impact would be less than significant.

**TABLE 3-3  
PROJECT OPERATIONAL POLLUTANT EMISSIONS (POUNDS/DAY)**

Construction Phase	ROG	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Chemical delivery & Residual Haul Truck Trips	<0.1	2.0	<0.1	<0.1
Emergency Generator	0.2	3.2	<0.1	<0.1
Project Total	0.2	5.2	0.1	0.07
BAAQMD Operational Threshold	54	54	82	54
Significant Impact?	No	No	No	No

SOURCE: Appendix A

## Consistency with Air Quality Plan

As described in the PEIR, the BAAQMD recommends that a project's consistency with the current air quality plan be evaluated using the following three criteria:

- The project supports the goals of the air quality plan
- The project includes applicable control measures from the air quality plan, and
- The project does not disrupt or hinder implementation of any control measures from the air quality plan.

Since approval of the PEIR, the air quality plan has been updated. The primary goals of the *2017 Clean Air Plan* are to protect public health and protect the climate. The BAAQMD-recommended method for determining if a project supports the goals of the current air quality plan is consistency with BAAQMD thresholds of significance. As discussed in this addendum, the project could result in significant construction emissions, but would not result in long-term adverse air quality impacts. Therefore, project construction could be inconsistent with the *2017 Clean Air Plan*. Project operations would be considered supportive of the primary goals of the *2017 Clean Air Plan*.



The 2017 Clean Air Plan has 85 control measures, more than the 55 included in the 2010 Clean Air Plan. Two of the stationary source control measures are applicable to operation of water pollution control plants: WR1 (Limit GHGs from POTWs [Publicly-Owned Treatment Works]) and WR2 (Support Water Conservation). While both of these measures do not contain specific emissions control strategies, the project would not be inconsistent with these measures as the project would not affect existing methane capture at the WPCP, would not affect production of recycled water at the WPCP, and would not exceed BAAQMD operational thresholds for criteria air pollutants. For these reasons, the project with modifications would not be inconsistent with nor hinder implementation of the 2017 Clean Air Plan control measures.

### ***Cumulative Increase in Pollutants***

As described in the PEIR (page 4.5-12), a project's emissions would be considered cumulatively considerable if the project emissions exceed the identified significance thresholds. For the reasons described above, the project along with other Master Plan projects at the WPCP could result in significant and unavoidable impacts associated with construction emissions, and less-than-significant impacts associated with operational emissions of criteria air pollutants. Therefore, the project could result in a cumulatively considerable net increase in the criteria pollutants for which the Bay Area is in nonattainment.

### ***Exposure of Sensitive Receptors***

As noted above, no new sensitive receptors are located closer to the project area than those identified in the PEIR. For this reason, the project's effects associated with exposure of sensitive receptors to pollutants would be no greater than those identified in the PEIR and would be less than significant.

### ***Odorous Emissions***

Odors can be generated and released from many wastewater treatment processes. Most odor-producing compounds found in domestic wastewater result from biological activity that consumes organic material, sulfur, and nitrogen found in wastewater. These odor-producing compounds can be organic or inorganic molecules; the two primary odorous inorganic gases are hydrogen sulfide (H<sub>2</sub>S) and ammonia.<sup>3</sup>

The BAAQMD has developed a list of recommended odor screening distances for specific odor-generating facilities such as wastewater treatment plants. If a proposed project would include the operation of an odor source, the screening distances should be used to evaluate the potential impact to existing sensitive receptors. The BAAQMD recommends that the screening distances be used as indicators of how much additional analysis would be required rather than the sole indicator of impact significance. The BAAQMD odor screening distance for wastewater treatment plants is 2 miles. The closest residences to the WPCP are single-family residences immediately south of SR 237, which are approximately 0.8 miles from the WPCP's boundary. In

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<sup>3</sup> H<sub>2</sub>S is regulated as a nuisance based on its odor detection level. If the standard were based on adverse health effects, it would be set at a much higher level. The H<sub>2</sub>S standard was adopted for the purpose of odor control. The current standard, 0.03 ppm for a one hour average, was adopted by ARB in 1969.

addition, winds in the area tend to be southeasterly. In response, additional analysis, including a review of existing odor complaint data, is presented in this addendum.

A review of BAAQMD odor complaint data compiled for the Sunnyvale WPCP indicates that there has been one confirmed odor complaint south of the WPCP in the January 2007 through August 2014 period (BAAQMD, 2015); there have been no odor complaints directly to the City about the WPCP in the past five years (Berdeen, 2015; Tovar, 2018). Although BAAQMD records do not identify the specific source of the confirmed odor incident, which occurred in 2009, WPCP staff investigating the incident detected a slight hydrogen sulfide odor along the south boundary of Pond 2, took measurements of dissolved oxygen levels in the ponds, and sampled for hydrogen sulfide around the ponds. Plant operators were unable to confirm that the source of the odor that led to the complaint was one of the ponds (as opposed to Bay muds).

The BAAQMD considers an existing source to have a substantial number of odor complaints and an associated significant odor impact if the complaint history for the facility includes five or more confirmed complaints per year averaged over a 3-year period. There was one confirmed odor complaint identified by BAAQMD during the time period referenced above; the WPCP has not been notified by the BAAQMD of any additional odor complaints since 2014. Therefore, in accordance with BAAQMD standards, the WPCP would not be considered to have a substantial number of odor complaints nor constitute an existing significant source of odors.

Under existing conditions, the ponds are not covered and sludge dewatering occurs in mechanized dewatering units, where emissions of potentially odorous compounds may escape directly to the atmosphere. Prior to construction activities associated with the Primary Treatment Facility, digested sludge was dewatered on open-air tile beds. The proposed aeration basins, which would treat a portion of wastewater that would otherwise be treated in the ponds, would also be uncovered.

The ponds as currently used, while a potential source of odorous emissions such as hydrogen sulfide and ammonia, have not been the subject of odor complaints. The proposed aeration basins may result in emissions of odorous compounds that could result in potential odor complaints. However, once the new Thickening and Dewatering Building is operational, solids dewatering would occur within the building and would include odor abatement technology, such as a bioscrubber or biotrickling filter to treat ventilated air from the building. With implementation of the project, the dewatering facilities, a process with greater odor potential than the proposed aeration basins, are more likely to have lower emissions of odorous gases such as hydrogen sulfide compared to existing conditions and the project as a whole is likely to have a decreased potential for odor complaints. Health impacts associated with odorous compounds like hydrogen sulfide that may be potentially emitted after the implementation of the project are also likely to be lower than under the existing conditions and will be further addressed, as required, as part of the BAAQMD permitting process. Since the nearest sensitive receptors have not changed, the overall treatment capacity of the WPCP would remain unchanged, the current WPCP operations do not have a history of odor complaints, and the project would reduce emissions of odorous gases from dewatering of sludge, it is likely that odors emitted from the project would be reduced compared to the current operation and impacts would be less than significant.

## Conclusion

While construction emissions associated with the Secondary Treatment and Dewatering Facilities project would be below BAAQMD thresholds with the implementation of adopted Mitigation Measure AQ-2a, insufficient information is available at this time to substantiate whether mitigation would be adequate to reduce emissions from construction of the project along with other projects at the WPCP (in particular the Existing WPCP Rehabilitation) to a less-than-significant level. **(Same Impact as Previously Approved Project [Significant and Unavoidable])**

The project would not result in additional exposure of sensitive receptors to substantial pollutant concentrations, or create additional objectionable odors affecting a substantial number of people and thus would not result in any new or more significant impacts than those identified in the previously adopted PEIR. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

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## Greenhouse Gas Emissions

<i>Issues (and Supporting Information Sources):</i>	<i>New Potentially Significant Impact</i>	<i>New Less Than Significant with Mitigation Incorporated</i>	<i>New Less Than Significant Impact</i>	<i>Same Impact as Approved Project</i>	<i>Less Impact than Approved Project</i>
<b>7. GREENHOUSE GAS EMISSIONS — Would the project:</b>					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Setting

Updates to two of the three planning documents identified in the PEIR – the Sunnyvale Climate Action Plan (CAP) and CARB’s Climate Change Scoping Plan – have not been adopted since PEIR approval. As discussed above in Air Quality, the BAAQMD 2017 Clean Air Plan was released after approval of the PEIR.

### Findings of the Previously Adopted PEIR

The PEIR identified less than significant impacts associated with the project related to conflict with plans adopted regarding GHG emissions and generation of GHG emissions.

### Discussion

#### ***GHG Emissions***

##### **Construction**

At the time of PEIR preparation, details typically used to calculate GHG emissions (such as the number of pieces of each type of off- and on-road equipment and daily equipment usage rates in terms of hours per day and total days of use) were not known. The PEIR estimated the anticipated GHG emissions of Master Plan by estimating the relative magnitude of construction activity compared to other, better defined projects planned at the site. The City anticipated that when project-level CEQA review of Master Plan improvements is initiated, the PEIR analysis would be reviewed in light of updated construction information and analysis of GHG emissions would be revised accordingly.

The combustion of diesel fuel to provide power for the operation of various construction equipment results in the generation of GHGs. Construction emissions that would be associated with the project were estimated using project-specific information such as the types and number of construction equipment used, their horsepower rating, daily usage in terms of hours per day, and the number of days each piece of equipment is used within the construction period. Appendix A contains the data and assumptions used to estimate the construction-phase GHG emissions that would be associated with the project.

Carbon dioxide (CO<sub>2</sub>) emissions for off-road construction equipment were estimated using OFFROAD2017 emission factors. Emission factors for methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) was obtained from The Climate Registry (TCR) for diesel fuel combustion in construction equipment (The Climate Registry, 2017a). N<sub>2</sub>O and CH<sub>4</sub> emissions were multiplied by their respective global warming potentials (28 and 265) based on the IPCC Fifth Assessment Report, 2014 (AR5) and added to the CO<sub>2</sub> emissions to obtain carbon dioxide equivalent (CO<sub>2</sub>e) emissions (IPCC, 2016).

GHG emissions from on-road motor vehicles used during construction were estimated using EMFAC2014 emissions factors. EMFAC provides GHG emission factors only for CO<sub>2</sub> and N<sub>2</sub>O emissions; CH<sub>4</sub> emission factors for gasoline and diesel combustion were obtained from TCR. GHG emissions in the form of CO<sub>2</sub>e were calculated by multiplying the estimated total miles travelled by project-related worker vehicles and trucks by the GHG emission factors, then multiplying the N<sub>2</sub>O and CH<sub>4</sub> emissions by their respective global warming potential, and then adding the CO<sub>2</sub>, N<sub>2</sub>O, and CH<sub>4</sub> emissions. The project is assumed to generate an average of 260 worker commute trips per day throughout the construction period. The number of material delivery and off-haul trips varies by construction phase and are detailed in Appendix A. The exact end points for the daily trips are not known at this time, so the on-road emission estimates were developed under the assumption that each worker trip would be 25 miles round trip, and each haul truck and material delivery trip would be 50 miles round trip. Daily emissions by vehicle class (i.e., light-duty gasoline-fueled trucks and heavy-duty trucks) were estimated using the EMFAC2014 emission factors multiplied by the estimated project-related vehicle trips and the estimated daily mileage traveled by the vehicles.

**Table 3-4** shows the GHG emissions estimated to be generated by construction activities that would be associated with the project. As shown in the table, project construction would generate a total of approximately 4,225 metric tons CO<sub>2</sub>e. Refer to Appendix A for details on the calculations and assumptions used to estimate construction GHG emissions. Based on a minimum life span of 14 years for project facilities (2021 to 2035), the project's annualized construction-related GHG emissions would average 302 metric tons CO<sub>2</sub>e. The BAAQMD does not identify a significance threshold for construction-related GHG emissions. However, when the project's construction-related annualized GHG emissions are compared to the BAAQMD's annual threshold for stationary sources of 10,000 metric tons CO<sub>2</sub>e, the project's construction-related emissions would remain well below this threshold and would be considered less than significant.

**TABLE 3-4**  
**TOTAL ESTIMATED GHG EMISSIONS FROM CONSTRUCTION**

Source	GHG Emissions (metric tons)			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
Off-road Construction Equipment	596	<0.1	<0.1	600.7
On-road Vehicle Trips	3520	0.3	0.4	3624.3
<b>Total GHG Emissions</b>				<b>4225.0</b>

SOURCE: Appendix A.

## Operation

The project would generate long-term GHG emissions associated with electrical power consumption, vehicle travel, and the emergency generator.

Direct emission sources that would generate GHGs during operation of the project would include 42 truck trips per month associated with chemical deliveries and 76 truck trips per month associated with hauling residuals. In addition, the emergency generator will be routinely operated for testing and maintenance purposes but such activities would be limited to a maximum of 50 hours per year consistent with BAAQMD Regulation 9, Rule 8. The new facilities in this project will increase the power demands at the WPCP. After the Primary Treatment Facility project is complete, the WPCP's demand will exceed the capacity of the cogeneration facility. All of the electrical demand for the facilities proposed in this project will be met by increased SVCE supply, the generation of which will generate indirect GHG emissions.<sup>4</sup> The additional power demand for the project would be approximately 1,000 kW. **Table 3-5** shows GHG emissions associated with project operation.

**TABLE 3-5  
GHG EMISSIONS FROM PROJECT OPERATION**

Source	GHG Emissions expressed as CO <sub>2</sub> e (metric tons)
Chemical delivery & Residual Haul Truck Trips	122.6
Emergency Generator	32.6
Electricity Generation	2320.9
<b>Total GHG Emissions</b>	<b>2476.1</b>

SOURCE: Appendix A.

When the project's operation-related GHG emissions are compared to the BAAQMD's annual threshold for stationary sources of 10,000 metric tons CO<sub>2</sub>e, the project's construction-related emissions would remain below this threshold and would be considered less than significant.

### **Consistency with GHG Plans, Policies, or Regulations**

The 2017 Clean Air Plan does not include any stationary source measures applicable to the project. The project would not disrupt or hinder implementation of any of the GHG-related 2017 Clean Air Plan control measures.

The BAAQMD GHG thresholds referenced in the discussion above were designed to meet the AB32 goal of reducing GHG emissions to 1990 levels by 2020. As discussed above, the project would not result in any temporary or new permanent sources of GHG emissions that would exceed the BAAQMD's CO<sub>2</sub>e significance threshold of 10,000 metric tons per year. Since the BAAQMD GHG significance threshold would not be exceeded, the project would not result in a

<sup>4</sup> Currently, the City's electricity accounts use SVCE's "Green Prime" option, which comes from 100% renewable energy. However, for this analysis, PG&E's energy portfolio was used to generate conservative GHG emissions estimates.

cumulatively considerable increase in GHG emissions that would impair the State's ability to implement AB32.

For these reasons, the project would not result in any new or more severe environmental effects related to GHG emissions beyond those identified in the PEIR.

## **Conclusion**

The project would not result in any new or more severe environmental effects related to GHG emissions, or conflicts with plans, policies, and regulations adopted regarding GHG emissions, than those identified in the previously adopted PEIR. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

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## Hydrology and Water Quality

<i>Issues (and Supporting Information Sources):</i>	<i>New Potentially Significant Impact</i>	<i>New Less Than Significant with Mitigation Incorporated</i>	<i>New Less Than Significant Impact</i>	<i>Same Impact as Approved Project</i>	<i>Less Impact than Approved Project</i>
<b>9. HYDROLOGY AND WATER QUALITY — Would the project:</b>					
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Setting

The environmental setting relevant to hydrology and water quality for the project site has not changed since adoption of the PEIR, with the exception of one NPDES permit under which the



Sunnyvale WPCP is co-permittee (described below). Setting discussions from the adopted PEIR for water quality standards, groundwater, surface water drainage patterns, and flood and inundation hazards are applicable to the project.

Effective January 1, 2018, Order No. R2-2012-0096 (Mercury and PCBs Watershed Permit, NPDES No. CA0038849) issued by the San Francisco Bay RWQCB was rescinded and replaced by Order No. R2-2017-0041. The Sunnyvale WPCP is co-permittee to this order, which sets requirements for mercury and PCB concentrations in the WPCP effluent. The effluent limitations for average monthly and maximum daily PCB concentrations are the same as those specified for the Sunnyvale WPCP in the previous order and shown in PEIR Table 4.10-7. Similarly, the effluent limitations for average weekly and monthly mercury concentrations are the same as shown in PEIR Table 4.10-7.

## Findings of Previously Adopted PEIR

The adopted PEIR determined that all project impacts related to hydrology and water quality would be less than significant or less than significant with mitigation. Chapter 5, *Mitigation Monitoring and Reporting Program*, reproduces select adopted mitigation measures applicable to transportation impacts.

## Discussion

The nature, scale, and timing of project construction have not changed in a manner that would deplete additional groundwater, further affect drainage patterns or systems, alter water quality or further affect flooding because the facilities would be located at the same site evaluated in the PEIR. The project would not change the wastewater treatment technologies beyond what was evaluated in the PEIR with the exception of the addition of deammonification as a sidestream nitrogen removal process. The floodwall elevation would be one foot taller than evaluated in the adopted PEIR. The following discussion focuses on differences in effluent quality and flooding during operations compared with the analysis conducted in the adopted PEIR.

### **Water Quality**

As discussed in PEIR Impact HYD-1, stormwater from the site is routed to the preliminary treatment facility, treated, and released in compliance with the WPCP's individual NPDES permit; this would continue during project operations. Additionally, the potential for hazardous materials releases would be minimized by adherence to an updated Hazardous Materials Business Plan, which would be required under state law, and which would be updated to include project facilities.

The PEIR evaluated conversion of secondary treatment to conventional activated sludge. As discussed in PEIR Section 4.10, Water Quality, through the upgraded and new secondary treatment process, reliability and effectiveness of the secondary treatment process would be improved, and the effectiveness of subsequent treatment processes would also be improved. The use of deammonification as a sidestream nitrogen removal process was not evaluated in the PEIR. Treatment of the sidestream (the internal wastewater stream generated during treatment processes at the WPCP) would reduce the ammonia and total nitrogen in the WPCP effluent. The

deammonification process proposed would not require additional treatment chemicals beyond those identified in the PEIR and any sludge generated would be treated in the digesters similar to the existing secondary treatment process. The upgraded treatment process would allow for more reliable ammonia and total nitrogen removal throughout the year than is currently achieved using Ponds 1 and 2.

The project would result in enhancements and increased reliability of the wastewater treatment process at the WPCP and would continue to comply with the water quality requirements in the NPDES Permit, which would be reissued or modified to reflect the changes in the treatment processes. The NPDES Permit incorporates the water quality objectives from the Basin Plan that are protective and the beneficial uses of the receiving waters and the receiving water quality and the effluent resulting from the wastewater treatment at the WPCP would be subject to and required to comply with the NPDES permit.

### ***Groundwater***

As discussed in PEIR Impact HYD-4 (beginning on PEIR page 4.9-36), shallow groundwater beneath the landfill is influenced by surface water ponds, channels, ditches, storm drain pipelines, and sanitary sewers, which result in a generally radial flow of groundwater toward the center of the landfill (San Francisco Bay Regional Water Quality Control Board [RWQCB], 2004). An aquitard separates the shallow aquifer from the deeper aquifer and prevents leachate and groundwater impacted by landfill waste from moving downward (RWQCB, 2004). A Corrective Action Program (CAP) is in place to monitor and control the flow of leachate and impacted groundwater from the landfill (Order No. R2-2004-0030). The CAP is based on the hydraulic capture of groundwater by flow toward existing groundwater sinks (areas of relatively low groundwater pressure, toward which groundwater will preferentially flow), primarily stormwater and sanitary sewer pipelines that discharge to the headworks of the main plant site. Project construction activities, such as excavation and associated dewatering, and construction of a floodwall designed to protect the WPCP from rising sea levels, may affect these general groundwater flow patterns and may require the relocation of the monitoring components of the existing CAP. In addition, the depth of the floodwall may alter patterns of groundwater flow between the landfill and the main plant site. Sanitary sewers along Borregas Avenue and Carl Road, and within the main plant site, capture impacted groundwater and leachate under the existing CAP. The City would prepare a technical report describing components of the construction, any modeling done in efforts to predict potential changes to groundwater flow patterns, and design changes deemed necessary to maintain the integrity of the landfill CAP. The project report would be submitted to the RWQCB and project work would not proceed until the RWQCB concurs with the findings and the proposed methods to prevent a negative impact on the efficacy of the CAP. Compliance with these requirements would limit impacts related to changes in groundwater flow patterns to less-than-significant levels.

### ***Flooding***

As discussed in PEIR Impact HYD-2, to address flooding at the WPCP, Master Plan improvements include establishment of a floodwall around the main plant site to protect it from tidal flooding. Segments of the floodwall are being constructed in stages along with the individual

Master Plan projects at the main plant site. The project would construct one segment of this floodwall, to an elevation of 14 feet. A floodwall of this elevation would meet the protection criteria established by Santa Clara County<sup>5</sup> (as noted in the PEIR, the base flood elevation at the WPCP mapped by FEMA is 11 feet), and once connected with the other segments of the floodwall would maintain WPCP operations under the predicted 100-year tidal flood event with sea level rise up to 50 years into the future, which is predicted at 12.24 feet (Carollo/HDR, 2013).

## Conclusion

The project would improve effluent quality and continue to comply with existing waste discharge requirements applicable to the WPCP, and would not otherwise degrade water quality. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

The project would construct a portion of a floodwall around the WPCP to elevation 14 feet, which would not result in new or more significant impacts related to impedance or redirection of flood flows. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

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<sup>5</sup> On April 18 2009, the Santa Clara County Floodplain Ordinance was revised to require flood protection to a level two feet above the Base Flood Elevation, which is one foot higher than previous requirements.

## Aesthetics

<i>Issues (and Supporting Information Sources):</i>	<i>New Potentially Significant Impact</i>	<i>New Less Than Significant with Mitigation Incorporated</i>	<i>New Less Than Significant Impact</i>	<i>Same Impact as Approved Project</i>	<i>Less Impact than Approved Project</i>
<b>1. AESTHETICS — Would the project:</b>					
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Setting

The environmental setting relevant to Aesthetics for the project site has not changed since adoption of the PEIR. Setting discussions from the adopted PEIR for scenic vistas, scenic resources, existing visual character or quality, and light and glare are applicable to the project.

## Findings of Previously Adopted PEIR

The adopted PEIR found that Master Plan components outside the main plant site (in Ponds 1 and 2) would alter the visual quality of Moffett Channel and Cargill Channel, a significant impact that could be reduced with mitigation. The Secondary Treatment and Dewatering project would not construct facilities outside of the main plant site, and would not affect the high quality views near Ponds 1 and 2 identified in the PEIR.

The adopted PEIR determined that within the main plant the Thickening and Dewatering Building would exceed the current heights of existing structures, and that landscaping planted along the fenceline would partially screen views of these structures from Borregas Avenue and Carl Road. In addition, the PEIR found that these new facilities would be consistent with the existing industrial nature of the main plant site and these facilities would not be visible to motorists on nearby Caribbean Drive due to the intervening landfill topography.

The adopted PEIR found that given (a) the limited publicly accessible viewpoints of the main plant, (b) the existing visual character of the site (see PEIR Figure 4.15-7, Photo 12), and (c) the anticipated future appearance of proposed facilities, implementation of the Master Plan would not substantially degrade the visual character of the main plant.

## Discussion

### ***Scenic Vistas, Resources, and Highways***

There are no state- or locally-designated scenic vistas in the vicinity of the WPCP, nor is the project site visible from a state scenic highway (Caltrans, 2018; City of Sunnyvale, 2011). Given the absence of designated scenic vistas in the area, construction and operation of the project with modifications would not result in a substantial adverse effect on a scenic vista, highway, or other scenic resource, and no mitigation is required.

### ***Visual Character***

The WPCP has an industrial character. The Thickening and Dewatering Building would be approximately 55 feet tall, instead of 50 feet as evaluated in the PEIR. While the Thickening and Dewatering Building would be the tallest building included in the project and would exceed the height of existing structures at the site (the tallest structure at the WPCP main plant is approximately 31 feet tall, excluding appurtenant features), the facility along with the other project facilities would be consistent with the existing industrial character of the WPCP main plant site and would not be visible to motorists on nearby Caribbean Drive due to the intervening landfill topography. The increased height of the Thickening and Dewatering Building would thus not substantially degrade the existing visual character of the site and surroundings, and the impact would not be more significant than that identified in the previously approved PEIR.

### ***Light and Glare***

The project would install the same lighting as described in the PEIR; thus, the impact would be the same as that identified in the previously approved PEIR.

## Conclusion

No new or more significant impacts related to a scenic vista, highway, or other scenic resource would result from the project with modifications compared to the impacts identified in the previously adopted PEIR. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

The project with modifications would not result in additional new or more significant impacts related to the visual character of the project site and its surroundings than those identified in the previously adopted PEIR. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

The project with modifications would not result in new or more significant impacts related to the effects of light and glare on daytime or nighttime views than those identified in the previously adopted PEIR. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

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Tovar, Melody, Regulatory Programs Division Manager, City of Sunnyvale, personal communication with Karen Lancelle, ESA, June 12, 2018.

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# CHAPTER 4

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## Conclusion

The modifications to the Secondary Treatment and Dewatering Facilities Project would result in impacts similar to, or less than, those attributable to the project described in the Sunnyvale Water Pollution Control Plant (WPCP) Master Plan Program Environmental Impact Report (PEIR).

The analyses and discussion in Chapter 3 do not reflect involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. There have been no changes in circumstances under which the project is undertaken that would result in new significant environmental impacts or substantially more severe impacts, and no new information has become available that would indicate the potential for new significant impacts or substantially more severe impacts than were discussed in the PEIR. Therefore, no further evaluation is required, and no Subsequent EIR is needed pursuant to CEQA Guidelines Section 15162.

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## CHAPTER 5

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# Mitigation Monitoring and Reporting Program – Secondary Treatment and Dewatering Facilities

**Table 5-1** presents mitigation measures and City actions to implement, monitor and report on these measures that apply to the Secondary Treatment and Dewatering Facilities project. These measures were adopted by the City Council on August 23, 2016. **Table 5-2** presents other mitigation measures contained within the Sunnyvale Water Pollution Control Plant Master Plan Mitigation Monitoring and Reporting Program that do not apply to the project, and the reasons that they do not apply.

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**TABLE 5-1  
MITIGATION MONITORING PROGRAM – SECONDARY TREATMENT AND DEWATERING FACILITIES PROJECT**

Mitigation Measures Adopted as Conditions of Approval	Implementation Procedures	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
<b>Transportation</b>					
<p><b>Mitigation Measure TR-1a: Truck Route Plan.</b></p> <p>As part of pre-construction submittals, the contractor(s) shall submit a truck route plan to the City of Sunnyvale Public Works Department for review and approval to help minimize impacts to adjacent roadways.</p>	<p>Contractor(s) shall obtain approval of truck route plan and implement plan during construction</p>	<p>City of Sunnyvale Public Works Department</p>	<p>Verify, review and approve truck route plan.</p>	<p>Prior to construction</p>	<p>Verified by: Date:</p>
<p><b>Mitigation Measure TR-1b: Implement a Temporary Traffic Control Plan.</b></p> <p>The City contractor(s) shall prepare and implement a traffic control plan using the City’s Temporary Traffic Control guidelines to reduce traffic impacts on the roadways at and near the work site, as well as to reduce potential traffic safety hazards and ensure adequate access for emergency responders. The City shall coordinate development and implementation of this plan with City departments (e.g., Emergency Services, Fire, Police, Transportation), as appropriate. To the extent applicable, the traffic control plan shall conform to the Caltrans’ <i>California Manual on Uniform Traffic Control Devices</i>, Part 6 (Temporary Traffic Control; Caltrans, 2014). The traffic control plan shall include, but not be limited to, the following elements:</p> <ul style="list-style-type: none"> <li>• Circulation and detour plans to minimize impacts on local road circulation during road and lane closures. Flaggers and/or signage shall be used to guide vehicles through and/or around the construction zone.</li> <li>• Controlling and monitoring construction vehicle movement through the enforcement of standard construction specifications by onsite inspectors.</li> <li>• Sufficient staging areas for trucks accessing construction zones to minimize disruption of access to adjacent public rights-of-way.</li> <li>• Scheduling truck trips outside the peak morning and evening commute hours to the extent possible.</li> <li>• Maintaining pedestrian and bicycle access and circulation during project construction where safe to do so. If construction activities encroach on bicycle routes or multi-use paths, advance warning signs (e.g., “Bicyclists Allowed Use of Full Lane” and/or “Share the Road”) shall be posted that indicate the presence of such users.</li> <li>• Identifying detours for bicycles and pedestrians, where applicable, in all areas affected by project construction.</li> <li>• Implementing roadside safety protocols. Advance “Road Work Ahead” warning and speed control signs (including those informing drivers of State legislated double fines for speed infractions in a construction zone) shall be posted to reduce speeds and provide safe traffic flow through the work zone.</li> <li>• Coordinating construction with administrators of police and fire stations (including all fire protection agencies), and recreational facility managers. Operators shall be notified in advance of the timing, location, and duration of construction activities and the locations of detours and lane closures, where applicable.</li> <li>• Storing all equipment and materials in designated contractor staging areas on or adjacent to the worksite, such that traffic obstruction is minimized.</li> </ul>	<p>Contractor(s) shall prepare plan that adheres to all measures listed</p> <p>Contractor(s) shall implement plan</p>	<p>City of Sunnyvale Public Works Department</p>	<p>Verify inclusion of plan in contract specifications</p>	<p>Prior to construction</p>	<p>Verified by: Date:</p>
<p><b>Mitigation Measure C-TR-1: Implement Coordinated Transportation Management Plan.</b></p> <p>Prior to construction, the City’s respective contractor(s) shall develop a Coordinated Transportation Management Plan, and the City and its contractor(s) shall work with other projects’ contractors and appropriate County and/or City departments (e.g., Emergency Services, Fire, Police, Transportation) as needed to prepare and implement a transportation management plan for roadways adjacent to and directly affected by the Master Plan improvements or the WPF, and to address the transportation impact of the overlapping construction projects within the vicinity of the Master Plan or the WPF in the region. The transportation management plan shall include, but not be limited to, the following requirements:</p> <ul style="list-style-type: none"> <li>• Coordination of individual traffic control plans for the Master Plan or WPF with nearby projects.</li> <li>• Coordination between the contractor and other project contractors in developing circulation and detour plans that include safety features (e.g., signage and flaggers). The circulation and detour plans shall address: <ul style="list-style-type: none"> <li>– Full and partial roadways closures</li> <li>– Circulation and detour plans to include the use of signage and flagging to guide vehicles through and/or around the construction zone, as well as any temporary traffic control devices</li> <li>– Bicycle/Pedestrian detour plans, where applicable</li> <li>– Parking along public roadways</li> <li>– Haul routes for construction trucks and staging areas for instances when multiple trucks arrive at the work sites</li> <li>– Protocols for updating the transportation management plan to account for delays or changes in the schedules of individual projects.</li> </ul> </li> </ul>	<p>City’s contractor(s) shall develop a plan that adheres to all measures listed.</p> <p>The City and its contractor(s) shall work with other project contractors, if necessary, and appropriate County and/or City departments for preparation and implementation of this plan.</p>	<p>City of Sunnyvale Public Works Department</p>	<p>Verify inclusion of this plan in the contract specifications.</p>	<p>Prior to construction</p>	<p>Verified by: Date:</p>

**TABLE 5-1 (CONTINUED)**  
**MITIGATION MONITORING PROGRAM – SECONDARY TREATMENT AND DEWATERING FACILITIES PROJECT**

Mitigation Measures Adopted as Conditions of Approval	Implementation Procedures	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
<b>Air Quality</b>					
<p><b>Mitigation Measure AQ-2a: Implement BAAQMD Basic Construction Mitigation Measures.</b></p> <p>The City shall implement the following applicable BAAQMD Basic Construction Mitigation Measures to reduce emissions of fugitive dust and equipment exhaust:</p> <ul style="list-style-type: none"> <li>All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.</li> <li>All haul trucks transporting soil, sand, or other loose material offsite shall be covered.</li> <li>All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.</li> <li>All vehicle speeds on unpaved roads shall be limited to 15 mph.</li> <li>All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.</li> <li>Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.</li> <li>All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.</li> <li>Post a publicly visible sign with the telephone number and person to contact at the City or City's contractor regarding dust complaints. This person shall respond and the contractor shall take corrective action within 48 hours.</li> </ul>	City or its contractor(s) implement BAAQMD Basic Construction Measures	City of Sunnyvale Public Works Department	<p>Verify inclusion of measures in contract specifications and construction plans.</p> <p>Inspect construction site to confirm compliance by the contractor, report non-compliance and ensure corrective action.</p>	<p>Prior to construction</p> <p>During construction</p>	<p><i>Verified by:</i></p> <p><i>Date:</i></p>
<p><b>Mitigation Measure AQ-2b: Implement BAAQMD Additional Construction Mitigation Measures.</b></p> <p>The City shall implement the following applicable BAAQMD Additional Construction Mitigation Measures Recommended for Projects with Construction Emissions Above the Thresholds to further reduce emissions of fugitive dust and exhaust:</p> <ul style="list-style-type: none"> <li>All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.</li> <li>All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.</li> <li>Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity.</li> <li>Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.</li> <li>The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.</li> <li>All trucks and equipment, including their tires, shall be washed off prior to leaving the site.</li> <li>Site accesses to a distance of 100 feet from the paved road shall be treated with a 6 to 12 inch compacted layer of wood chips, mulch, or gravel.</li> <li>Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.</li> <li>Minimizing the idling time of diesel powered construction equipment to two minutes.</li> <li>The City shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20 percent NOx reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions include the use of newer model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.</li> <li>All construction equipment, diesel trucks, and generators must be equipped with Best Available Control Technology for emission reductions of NOx and PM.</li> <li>All contractors must use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.</li> </ul>	City or its contractor(s) implement BAAQMD additional measures	City of Sunnyvale Public Works Department	<p>Verify inclusion of measures in contract specifications and construction plans.</p> <p>Inspect construction site to confirm compliance by the contractor, report non-compliance and ensure corrective action.</p>	<p>Prior to construction</p> <p>During construction</p>	<p><i>Verified by:</i></p> <p><i>Date:</i></p>
<b>Biological Resources</b>					
<p><b>Mitigation Measure BIO-1a: Reduce Impacts on Congdon's Tarplant.</b></p> <ul style="list-style-type: none"> <li>Within 2 years prior to initial ground disturbance for activities outside the main plant fenceline, the City will retain a qualified biologist, or require the contractor to retain a qualified biologist, to conduct protocol-level surveys for Congdon's tarplant in suitable habitat in, and within 50 feet of, the proposed construction footprint. These surveys will be conducted in accordance with the protocols established by the CDFW and CNPS, and shall coincide with the bloom period for the species (May through November).</li> <li>If Congdon's tarplant is present in the survey area, the City contractor will avoid impacts on individuals of this species to the extent feasible during implementation of the Master Plan.</li> </ul>	<p>Contractor(s) shall prepare construction plans that incorporate protocol-level pre-construction surveys for Congdon's tarplant.</p> <p>The Contractor shall identify a qualified biologist.</p>	City of Sunnyvale Public Works Department	<p>Review qualifications of Contractor-nominated biologist and either approve or recommend identification of additional candidates.</p> <p>Review pre-construction survey reports for recommended</p>	<p>Prior to commencement of construction.</p> <p>After completion of pre-construction survey report.</p>	<p><i>Verified by:</i></p> <p><i>Date:</i></p>

**TABLE 5-1 (CONTINUED)**  
**MITIGATION MONITORING PROGRAM – SECONDARY TREATMENT AND DEWATERING FACILITIES PROJECT**

Mitigation Measures Adopted as Conditions of Approval	Implementation Procedures	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
<ul style="list-style-type: none"> <li>If Congdon's tarplant is present near the limits of disturbance, the City contractor will maintain a buffer free from construction-related activities around the tarplant occurrence; this buffer will be at least 50 feet if feasible, but large enough to avoid indirect impacts such as dust mobilization and alteration of hydrology. The City contractor shall demarcate the buffer in the field with orange fencing. No equipment or vehicles shall be permitted within the buffer area during construction.</li> <li>If 15 percent or more of the known population of Congdon's tarplant within five miles of the Master Plan area at the time of impact would be affected by the Master Plan, the City will provide compensatory mitigation. To compensate for loss of individual Congdon's tarplants, offsite habitat either occupied by the species or suitable for restoration to support the species and revegetated with this species (such as Sunnyvale Baylands Park) shall be preserved and managed in perpetuity at a minimum 1:1 mitigation ratio (at least one plant preserved for each plant affected). Seeds from the affected population shall be collected and used to seed the mitigation area.</li> </ul>	<p>Qualified biologist will conduct pre-construction surveys.</p> <p>Qualified biologist to inspect construction site to confirm implementation of measures.</p> <p>Locate compensatory mitigation site, as needed, and select qualified biologist to collect and disseminate seeds from affected population during appropriate season (generally September/October)</p> <p>Qualified biologist shall collect and disseminate seeds from affected population during appropriate season</p>		<p>avoidance, buffer, and/or need for compensatory mitigation.</p> <p>Inspect and confirm implementation of construction buffer zone(s) based on pre-construction survey results.</p> <p>Review pre-construction survey reports for recommended avoidance, buffer, and/or need for compensatory mitigation.</p> <p>Secure record of planting from qualified biologist</p>	<p>One inspection shall occur during each phase of construction.</p> <p>After completion of pre-construction survey report.</p> <p>After completion of planting.</p>	
<p><b>Mitigation Measure BIO-1b: Prevent the Introduction and Spread of Non-native, Invasive Species.</b></p> <ul style="list-style-type: none"> <li>The City will retain a qualified biologist, or require the contractor to retain a qualified biologist, to develop an Invasive Species Management Plan to reduce the presence and spread of non-native, invasive plant species in the Master Plan area. The Invasive Species Management Plan shall be developed prior to any grading or import of fill material outside of, or within 20 feet of the western and northern sections of the main plant fenceline. Once a concrete flood wall is built around the facility, no invasive species management will be necessary for project activities within the main plant fenceline. The overarching goal of this mitigation is to halt the further expansion of existing invasive species and introduction of new invasives into sensitive habitats in project areas. The Invasive Species Management Plan shall include, but not be limited to, the following: <ul style="list-style-type: none"> <li>Prior to construction outside of, or within 20 feet of the western and northern sections of, the main plant fenceline, the extent and locations of invasive species occurrences will be mapped within all areas proposed to be graded, including access roads and staging areas, and within all sensitive habitats (e.g., wetlands) across the project areas.</li> <li>Areas identified to have weed infestations shall be treated prior to ground disturbance according to weed control methods detailed below: <ul style="list-style-type: none"> <li>Weed control treatments shall include all legally permitted herbicide, manual, and mechanical methods approved for application. The application of herbicides shall be in compliance with all state and federal laws and regulations under the prescription of a Pest Control Advisor (PCA), where concurrence has been provided by the City of Sunnyvale, and implemented by a Licensed Qualified Applicator. Herbicides shall not be applied during or within 72 hours of a scheduled rain event. Where manual and/or mechanical methods are used, disposal of the plant debris will take place at an appropriate offsite location. The timing of the weed control treatment shall be determined for each plant species with the goal of controlling populations before they start producing seeds and/or encroach into adjacent areas from rhizomatous shoots. Consultation with a qualified wildlife biologist and plant ecologist shall be required prior to weed control treatments in sensitive habitats with the intent of avoiding any adverse impacts on special-status species in the area.</li> <li>Surveying and monitoring for weed infestations shall occur over the course of any grading operations outside of, or within 20 feet of the western and northern sections of, the main plant fenceline. Treatment of all identified weed populations shall occur at a minimum of once annually.</li> <li>Once grading ceases, invasive plant populations within all sensitive habitats (such as wetlands) that are not impacted, but that are within 200 feet of grading/construction areas located outside of or within 20 feet of the western and northern sections of the main plant fenceline, shall be mapped and the areal extent and location of invasive populations documented. Sensitive habitats include portions of the Sunnyvale West Channel, the Cargill Channel, Ponds 1 and 2, and SCVWD Pond A4. This shall occur on an annual basis for a minimum of 3 years following grading operations.</li> </ul> </li> <li>If, in any monitoring year, the size of existing populations within sensitive habitats expands by 20 percent or more in terms of surface area in comparison to the population size documented prior to construction, the weed control measures described above shall be implemented (inter-annual variation due to climate differences may account for as much as 10 percent of change).</li> <li>During construction activities located outside of or within 20 feet of the western and northern sections of the main plant fenceline, all seeds and straw materials used on site shall be weed-free rice straw, and all gravel and fill material shall be certified weed free.</li> <li>During construction activities located outside of or within 20 feet of the western and northern sections of the main plant fenceline, vehicles and all equipment shall be washed (including wheels, undercarriages, and bumpers) before entering the project areas adequately to ensure that weed seeds from other sites are not transported to these construction areas. Vehicles shall be cleaned at existing construction yards or legally operating car washes. In addition, tools such as chainsaws, hand clippers, pruners, etc., shall be washed before entering the work areas.</li> </ul> </li> </ul>	<p>City or contractor shall retain qualified biologist</p> <p>Qualified biologist will develop Invasive Species Management Plan</p> <p>City or Contractor to implement Plan prior to and during construction</p>	<p>City of Sunnyvale Public Works Department</p>	<p>Review qualifications of Contractor-nominated biologist and either approve or recommend identification of additional candidates.</p> <p>Verify inclusion of the Plan in contract specifications.</p> <p>Review annual monitoring report for compliance with measure</p>	<p>Prior to construction</p> <p>During construction</p>	<p>Verified by:</p> <p>Date:</p>

**TABLE 5-1 (CONTINUED)**  
**MITIGATION MONITORING PROGRAM – SECONDARY TREATMENT AND DEWATERING FACILITIES PROJECT**

Mitigation Measures Adopted as Conditions of Approval	Implementation Procedures	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
<p><b>Mitigation Measure BIO-2a: Worker Environmental Awareness Training.</b></p> <p>The City will retain, or require the contractor to retain, a qualified biologist to conduct mandatory contractor/worker environmental awareness training for all construction personnel working on project activities outside of the main plant, including but not limited to Ponds 1 and 2, the diurnal equalization and emergency storage basins, channel levees, and the Bay Trail parking relocation area. The awareness training will be provided to all construction personnel to brief them on the potential for special-status species to occur on the site, the need to avoid effects to special-status species and their habitats, and all project mitigation measures pertaining to biological resources and water quality. If new construction personnel are added, the contractor will ensure that the personnel receive the mandatory training before starting work. A representative will be appointed during the employee education program to be the contact for any employee or contractor who might inadvertently kill or injure a special-status species or who finds a dead, injured, or entrapped individual. The representative's name and telephone number will be provided to the City prior to the initiation of construction activities outside of the main plant.</p>	<p>City or contractor(s) to retain a qualified biologist to conduct environmental awareness training for construction personnel.</p> <p>Qualified biologist to conduct training(s)</p>	<p>City of Sunnyvale Public Works Department</p>	<p>Review qualifications of Contractor-nominated biologist and either approve or recommend identification of additional candidates.</p> <p>Verify inclusion of the Plan in contract specifications.</p> <p>Record name of appointed representative to contact</p> <p>Record date(s) of training</p>	<p>Prior to construction outside of the main plant</p>	<p><i>Verified by:</i></p> <p><i>Date:</i></p>



**TABLE 5-1 (CONTINUED)**  
**MITIGATION MONITORING PROGRAM – SECONDARY TREATMENT AND DEWATERING FACILITIES PROJECT**

Mitigation Measures Adopted as Conditions of Approval	Implementation Procedures	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
<p><b>Mitigation Measure BIO-2e: Burrowing Owl Measures.</b></p> <p>The following measures will be implemented to avoid and minimize impacts on burrowing owls in the Master Plan area, particularly on the closed landfill and along the Sunnyvale West Channel but also including areas within the main plant fenceline that may support ground squirrel burrows:</p> <ul style="list-style-type: none"> <li>Preconstruction surveys for burrowing owls will be conducted by a qualified biologist prior to all construction activities that occur within 250 feet of potential burrowing owl habitat on the closed landfill or along the Sunnyvale West Channel, in conformance with CDFW protocols. This measure applies to construction activities inside of the main plant fenceline only where ground squirrel burrows are present or for those activities located within 250 feet of suitable burrowing owl habitat on the closed landfill or Sunnyvale West Channel. The final survey will occur no more than 2 days prior to the start of any ground-disturbing activity such as clearing and grubbing, excavation, or grading, or any similar activity within 250 feet of suitable habitat that could disturb nesting owls. If no burrowing owls are located during these surveys, no additional action would be warranted. However, if burrowing owls are located on or immediately adjacent to impact areas, the following measures would be implemented.</li> <li>If burrowing owls are present during the nonbreeding season (generally 1 September to 31 January), the City/contractor would maintain a 150-foot buffer zone, within which no new Master Plan-related activity would occur, around the occupied burrow(s) if feasible. However, this buffer distance would not apply to existing operations and maintenance activities in the main plant. A reduced buffer distance is acceptable during the nonbreeding season as long as construction avoids direct impacts on the burrow(s) used by the owls. During the breeding season (generally 1 February to 31 August), a 250-foot buffer, within which no new Master Plan-related activity would be permissible, would be maintained between Master Plan activities and occupied burrows. Owls present at burrows on the site after 1 February would be assumed to be nesting on or adjacent to the site unless evidence indicates otherwise. This protected area would remain in effect until 31 August, or based upon monitoring evidence, until young owls are foraging independently or until the nest is no longer active.</li> <li>In the unlikely event that an occupied burrowing owl burrow is within the construction footprint (e.g., on the bank of a levee), and the burrow cannot be avoided, the owl will be evicted from the burrow by a qualified biologist using one-way doors. The biologist will leave the one-way doors in place for at least 48 hours, checking them daily to ensure that they are functioning properly. If the biologist cannot be certain that the owl is outside the burrow (e.g., if the one-way doors were installed when the owl was inside the burrow and the owl cannot be detected outside later), then the burrow will be excavated by hand prior to being filled to ensure that no owl is trapped inside. Otherwise, the burrow will be backfilled after the owl has been evicted. No burrowing owls will be evicted from burrows during the nesting season unless evidence indicates that nesting is not actively occurring (e.g., because the owls have not yet begun nesting early in the season, or because young have already fledged late in the season).</li> </ul>	<p>Contractor to prepare plans that incorporate preconstruction surveys, buffer zones, and relocation plan</p> <p>Contractor to identify qualified biologist to conduct preconstruction surveys</p> <p>Qualified biologist to establish buffer zones or conduct owl relocation, as needed</p>	<p>City of Sunnyvale Public Works Department</p>	<p>Review qualifications of Contractor-nominated biologist and either approve or recommend identification of additional candidates.</p> <p>Verify inclusion of these measures in contract specifications and construction plans</p> <p>Review survey report</p> <p>If burrowing owls present, inspect construction site to confirm buffer zones</p>	<p>Prior to construction</p> <p>During construction</p>	<p><i>Verified by:</i></p> <p><i>Date:</i></p>
<p><b>Mitigation Measure BIO-2h: Nesting Bird Measures.</b></p> <p>The following measures will be implemented throughout the Master Plan area to minimize impacts on nesting San Francisco common yellowthroat, Alameda song sparrow, and other native bird species:</p> <ul style="list-style-type: none"> <li>Nesting deterrence can be implemented to minimize the potential for nesting birds to constrain project activities or to be adversely affected by those activities. The most effective nesting deterrence in non-developed portions of the main plant is vegetation removal to remove nesting substrate. Vegetation that is to be affected by the project should be removed during the nonbreeding season (i.e., September 1 through January 31) if feasible. If necessary, removal of nest-starts (incomplete nests that do not yet contain eggs or young) by qualified biologists may occur during the breeding season. Such nest-start removal may begin early in the breeding season (e.g., February) and continue regularly until vegetation can be removed and construction commences. Some species, such as barn swallows or black phoebes, may establish nests on buildings or other structures. To deter birds from nesting on structures, netting or other deterrence devices may be installed to preclude birds from constructing nests. Such nesting deterrence should be implemented under the supervision of qualified biologists in order to prevent death or injury of birds as a result of improperly installed deterrence devices, and such devices will require regular maintenance to ensure that they are functioning properly.</li> <li>Prior to commencement of new activities (i.e., activities that are not currently ongoing in any given area) during the breeding season (February 1 through August 31), preconstruction surveys will be conducted by a qualified biologist no more than 7 days prior to the initiation of new disturbance in any given area to ensure that no active nests of species protected by the Migratory Bird Treaty Act or California Fish and Game Code will be disturbed during Master Plan implementation. During this survey, the biologist will inspect all potential nesting habitats (e.g., trees, shrubs, buildings, and various substrates on the ground) in the project area for nests. This survey will include suitable nesting substrates both within and outside the main plant fenceline. Surveys will be conducted within search radii corresponding to disturbance-free buffer zones described below for raptors (300 feet) and non-raptors (100 feet), including offsite areas adjacent to the Master Plan area (where such areas are accessible and are contained in the buffer zones).</li> <li>If an active nest is found, a qualified biologist will determine the extent of a disturbance-free buffer zone to be established around the nest until nesting has been completed. Disturbance-free buffer zones are typically 300 feet for raptors and 100 feet for non-raptors, although factors such as existing disturbance and vegetation or structures that screen construction activities from a nest will be considered in determining the appropriate buffer. Nests will be considered active until surveys conducted by a qualified ornithologist confirm nesting is complete. However, construction within these radii may proceed if, based on monitoring of the birds behavior, a qualified biologist determines that such activities are not likely to result in the abandonment of the nest. Per CDFW recommendations, monitoring will be conducted as follows: <ul style="list-style-type: none"> <li>A qualified biologist will monitor activity at each nest for three days prior to the onset of construction activities to develop a baseline of the normal behavior of the birds attending the nest. If the behavior observed at the nest is consistent on Days 1 and 2 of monitoring, Day 3 of monitoring may be skipped.</li> </ul> </li> </ul>	<p>Contractor(s) to prepare construction plans that include schedule of vegetation removal, nest deterrence, preconstruction surveys, and buffer zones</p> <p>Contractor to identify qualified biologist to conduct nesting deterrence measures</p> <p>Contractor to remove vegetation within non-breeding season</p> <p>Biologist to implement nesting deterrence measures</p>	<p>City of Sunnyvale Public Works Department</p>	<p>Review qualifications of Contractor-nominated biologist and either approve or recommend identification of additional candidates.</p> <p>Verify inclusion of measures in contract specifications and construction plans</p>	<p>Prior to construction</p>	<p><i>Verified by:</i></p> <p><i>Date:</i></p>

**TABLE 5-1 (CONTINUED)**  
**MITIGATION MONITORING PROGRAM – SECONDARY TREATMENT AND DEWATERING FACILITIES PROJECT**

Mitigation Measures Adopted as Conditions of Approval	Implementation Procedures	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
<ul style="list-style-type: none"> <li>- A qualified biologist will monitor activity at each nest for 8 hours on the first day that construction occurs within the standard buffer (e.g., within 100 feet of a non-raptor nest). If the biologist determines that the birds' behavior is not adversely affected, Master Plan activities may continue. The biologist should continue to monitor the nests for 1 hour/day on any day when construction activities occur within the standard buffer around an active nest.</li> <li>- If at any time the biologist determines that Master Plan activities within the standard buffer is adversely affecting the behavior of the birds such that the nest is in jeopardy of failing, construction activities should retreat to honor the standard buffer until the nest is no longer active (i.e., the young have fledged).</li> </ul>					
<p><b>Mitigation Measure BIO-4a: Avoidance and Preservation of Trees.</b></p> <p>During detailed design of Master Plan activities, either within or outside the main plant fenceline, ordinance-sized trees will be avoided to the extent feasible. If it is determined during detailed design that impacts on some trees can be avoided, a construction-phase Tree Preservation Plan shall be prepared by a certified arborist prior to initiation of construction to describe how trees that will not be removed will be protected. The construction-phase Tree Preservation Plan shall include the following tree protection measures, which are based on guidelines established by the International Society for Arboriculture:</p> <ul style="list-style-type: none"> <li>• Establish an area surrounding individual trees or groups of trees to be protected during construction as defined by a circle concentric with each tree with a radius 1-1/2 times the diameter of the tree canopy drip line. This Tree Protection Zone is established to protect the tree trunk, canopy and root system from damage during construction activities and to ensure the long-term survival of the protected trees. The Tree Protection Zone shall: (1) ensure that no structures or buildings, that might restrict sunlight relative to the existing condition, will be constructed in proximity to the trees; and (2) that no improvements are constructed on the ground around the tree within the Tree Protection Zone, thus ensuring that there is sufficient undisturbed native soil surrounding the tree to provide adequate moisture, soil nutrients and oxygen for healthy root growth.</li> <li>• Protect tree root systems from damage caused by (a) runoff or spillage of noxious materials while mixing, placing, or storing construction materials and (b) ponding, eroding, or excessive wetting caused by dewatering operations through use of the following measures during excavation and grading:             <ul style="list-style-type: none"> <li>- Excavation: Do not trench inside tree protection zones. Hand excavate under or around tree roots to a depth of 3 feet. Do not cut main lateral tree roots or taproots. Protect exposed roots from drying out before placing permanent backfill.</li> <li>- Grading: Maintain existing grades within tree protection zones. Where existing grade is 2 inches or less below elevation of finish grade, backfill with topsoil or native site soil. Place fill soil in a single uncompacted layer and hand grade to required finish elevation.</li> <li>- Apply 6-inch average thickness of wood bark mulch inside tree protection zones. Keep mulch 6 inches from tree trunks.</li> </ul> </li> <li>• Provide 48-inch tall orange plastic construction fencing fastened to steel T-posts, minimum six (6) feet in length, using heavyweight plastic ratchet ties. Install fence along edges of tree protection zones before materials or equipment are brought on site and construction operations begin. Maintain fence in place until construction operations are complete and equipment has been removed from site.</li> <li>• Provide temporary irrigation to all trees in protection zones that may have important root systems impacted by construction.</li> </ul>	<p>Department of Community Development to determine whether ordinance applies to trees in the Master Plan area</p> <p>Contractor(s) to prepare construction plans maximizing avoidance of trees</p> <p>City or contractor to retain a qualified arborist to prepare Tree Preservation Plan</p> <p>Contractor(s) to implement Tree Preservation Plan measures</p>	<p>City of Sunnyvale Public Works Department</p>	<p>Review qualifications of Contractor-nominated arborist and either approve or recommend identification of additional candidates.</p> <p>Verify inclusion of the Plan measures in construction plans</p>	<p>Prior to construction within Master Plan area</p>	<p><i>Verified by:</i></p> <p><i>Date:</i></p>
<p><b>Mitigation Measure BIO-4b: Master Plan Compensation for Impacts on Protected Trees.</b></p> <p>At the discretion of the Director of Community Development, the City will either replace any removed protected trees at a 1:1 ratio or pay an in-lieu fee into a fund.</p>	<p>Contractor or City to identify trees to be removed</p> <p>Qualified arborist to identify "protected" trees to be removed</p> <p>City to replace protected trees or pay in-lieu fee</p>	<p>City of Sunnyvale Public Works Department</p>	<p>Review qualifications of Contractor-nominated arborist and either approve or recommend identification of additional candidates</p> <p>Confirm planting of replacement trees or payment of in-lieu fee</p>	<p>Prior to construction that would remove trees</p>	
<b>Hazards and Hazardous Materials</b>					
<p><b>Mitigation Measure HAZ-2a: Hazardous Building Materials Abatement.</b></p> <p>The City shall ensure that, prior to demolition, the building is surveyed for hazardous building materials including, electrical equipment containing polychlorinated biphenyl (PCBs), fluorescent light ballasts containing PCBs or bis(2-ethylhexyl) phthalate (DEHP), and fluorescent light tubes containing mercury vapors. These materials shall be removed and properly disposed of prior to the start of demolition or renovation. Light ballasts that are proposed to be removed during renovation shall be evaluated for the presence of PCBs and in the case where the presence of PCBs in the light ballast cannot be verified, they shall be assumed to contain PCBs, and handled and disposed of as such, according to applicable laws and regulations. Any other hazardous building materials identified either before or during demolition or renovation shall be abated according to federal, state, and local laws and regulations.</p>	<p>City or contractor(s) to conduct survey for hazardous building materials</p> <p>Contractor to remove and properly dispose of materials as described</p>	<p>City of Sunnyvale Public Works Department</p>	<p>Verify inclusion of requirements in contract specifications</p> <p>Review survey results</p> <p>Confirm handling and disposal performed in compliance with laws and regulations</p>	<p>Prior to demolition</p> <p>During demolition</p>	

**TABLE 5-1 (CONTINUED)**  
**MITIGATION MONITORING PROGRAM – SECONDARY TREATMENT AND DEWATERING FACILITIES PROJECT**

Mitigation Measures Adopted as Conditions of Approval	Implementation Procedures	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
<p><b>Mitigation Measure HAZ-2b: Health and Safety Plan.</b></p> <p>For each Master Plan improvement involving ground disturbing activities, the City or its contractor will prepare a Health and Safety Plan in accordance with federal OSHA regulations (29 CFR 1910.120) and Cal/OSHA regulations (8 CCR Title 8, Section 5192). Each Plan will be based on all activities proposed as part of the specific project and include designated personnel responsible for implementation of the Plan. The City will require each contractor for each individual construction contract to implement a Plan. Each Plan will include all required measures to protect construction workers and the general public potentially exposed to hazardous materials or wastes by including engineering controls, monitoring, and security measures to prevent dangerous levels of exposure and unauthorized entry to the construction area, and to reduce hazards outside of any construction area. If prescribed contaminant exposure levels are exceeded, personal protective equipment shall be required for workers in accordance with state and federal regulations. Compliance with the Health and Safety Plan will not be construed as approval of the adequacy of the contractor's health and safety professional's qualifications or any safety measure taken in or near the construction site. The contractor will be solely and fully responsible for compliance with all laws, rules, and regulations applicable to health and safety during the performance of the construction work.</p>	<p>Contractor(s) to prepare Health and Safety Plan and incorporate Plan in construction plans</p> <p>Contractor(s) to implement Plan</p>	<p>City of Sunnyvale Public Works Department</p>	<p>Review each Health and Safety Plan</p> <p>Verify inclusion of Plan in contract specifications for each individual construction contract</p>	<p>Prior to ground disturbance</p>	
<p><b>Mitigation Measure HAZ-2c: Soil and Groundwater Management Plan.</b></p> <p>For any elements involving ground disturbing activities, the City will require the construction contractor to implement a Soil and Groundwater Management Plan, subject to review by the City that specifies the method for handling and disposal of contaminated soil and groundwater prior to demolition, excavation, and construction activities. The plan will include all necessary procedures to ensure that any excavated materials and fluids from throughout the Master Plan area generated during construction are stored, managed, and disposed of in a manner that is protective of human health and in accordance with applicable laws and regulations. The plan will include the following information.</p> <ul style="list-style-type: none"> <li>• Step-by-step procedures for evaluation, handling, stockpiling, storage, testing, and disposal of excavated material, including criteria for reuse and offsite disposal. All excavated materials shall be inspected prior to initial stockpiling, and spoils that are visibly stained and/or have a noticeable odor shall be stockpiled separately to minimize the amount of material that may require special handling.</li> <li>• Procedures to be implemented if unknown subsurface conditions or contamination are encountered, such as previously unreported tanks, wells, or contaminated soils.</li> <li>• Detailed control measures for use and storage of hazardous materials to prevent the release of pollutants to the environment, and emergency procedures for the containment and cleanup of accidental releases of hazardous materials to minimize the impacts of any such release. These procedures shall also include reporting requirements in the event of a reportable spill or other emergency incident. At a minimum, the City or its contractor shall notify applicable agencies in accordance with guidance from the California Office of Emergency Services as well as the Santa Clara County Environmental Health Department.</li> <li>• Procedures for containment, handling and disposal of groundwater generated from construction dewatering, the method used to analyze groundwater for hazardous materials likely to be encountered at specific locations and the appropriate treatment and/or disposal methods.</li> </ul>	<p>Contractor to prepare Soil and Groundwater Management Plan</p> <p>Contractor to implement Plan</p>	<p>City of Sunnyvale Public Works Department</p>	<p>Review Soil and Groundwater Management Plan</p> <p>Verify inclusion of Plan in contract specifications</p>	<p>Prior to ground disturbance</p>	
<b>Cultural Resources</b>					
<p><b>Mitigation Measure CUL-2: Unanticipated Discovery of Archaeological Resources.</b></p> <p>If prehistoric or historic-period archaeological resources are encountered, all construction activities within 100 feet will halt and the City of Sunnyvale will be notified. Prehistoric 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 remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones and pitted stones. Historic-era materials might include deposits of metal, glass, and/or ceramic refuse. A Secretary of the Interior-qualified archaeologist will inspect the findings within 24 hours of discovery. If it is determined that the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation will be implemented in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. Consistent with Section 15126.4(b)(3), this may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified archaeologist will prepare and implement a detailed treatment plan in consultation with City of Sunnyvale and, for prehistoric resources, the appropriate Native American representative. Treatment of unique archaeological resources will follow the applicable requirements of PRC Section 21083.2. Treatment for most resources would consist of (but would not be limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The treatment plan will include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.</p>	<p>City or Contractor to retain cultural resources expert to conduct preconstruction worker environmental awareness training on recognition of archaeological resources</p> <p>Contractor to notify City of Sunnyvale if resources encountered</p> <p>Secretary of the Interior-qualified archaeologist will inspect the findings within 24 hours of discovery</p> <p>Archaeologist, City, and contractor to implement mitigation as determined by archaeologist</p>	<p>City of Sunnyvale Public Works Department</p>	<p>Verify inclusion of requirements in contract specifications</p>	<p>Prior to ground disturbance</p>	<p><i>Verified by:</i></p> <p><i>Date:</i></p>

**TABLE 5-1 (CONTINUED)**  
**MITIGATION MONITORING PROGRAM – SECONDARY TREATMENT AND DEWATERING FACILITIES PROJECT**

Mitigation Measures Adopted as Conditions of Approval	Implementation Procedures	Monitoring Responsibility	Monitoring and Reporting Action	Monitoring Schedule	Verification of Compliance
<p><b>Mitigation Measure CUL-3: Unanticipated Discovery of Paleontological Resources.</b></p> <p>If paleontological resources, such as fossilized bone, teeth, shell, tracks, trails, casts, molds, or impressions are discovered during ground-disturbing activities, work will stop in that area and within 100 feet of the find until a qualified paleontologist can assess the nature and importance of the find and, if necessary, develop appropriate treatment measures in conformance with Society of Vertebrate Paleontology standards, and in consultation with the City of Sunnyvale.</p>	<p>City or Contractor to retain cultural resources expert to conduct preconstruction worker environmental awareness training on recognition of archaeological resources</p> <p>Contractor to notify City of Sunnyvale if resources encountered</p>	<p>City of Sunnyvale Public Works Department</p>	<p>Verify inclusion of requirements in contract specifications</p>	<p>Prior to ground disturbance</p>	<p><i>Verified by:</i></p> <p><i>Date:</i></p>
<p><b>Mitigation Measure CUL-4: Unanticipated Discovery of Human Remains.</b></p> <p>In the event of discovery or recognition of any human remains during construction activities, such activities within 100 feet of the find will cease until the Santa Clara County Coroner has been contacted to determine that no investigation of the cause of death is required. The NAHC will be contacted within 24 hours if it is determined that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the City of Sunnyvale for the appropriate means of treating the human remains and any grave goods.</p>	<p>Contractor(s) shall monitor worker activities</p> <p>Contractor(s) shall halt work and notify the County Coroner, if necessary. If appropriate, Coroner shall notify NAHC. NAHC shall notify Most Likely Descendant (MLD).</p>	<p>City of Sunnyvale Public Works Department</p>	<p>Verify inclusion of requirements in contract specifications</p>	<p>Prior to ground disturbance</p>	<p><i>Verified by:</i></p> <p><i>Date:</i></p>

**TABLE 5-2  
ADOPTED MITIGATION MEASURES THAT DO NOT APPLY TO THE PROJECT**

<b>Adopted Mitigation Measures</b>	<b>Reason Measure Does Not Apply to Secondary Treatment and Dewatering Facilities Project</b>
Mitigation Measure NOI-1: Develop and Implement Construction Noise Logistics Plan.	Does not apply due to construction hours
Mitigation Measure BIO-2b: Minimization of Impacts on Water Quality.	Does not apply because project does not directly drain to Sunnyvale West Channel.
Mitigation Measure BIO-2c: Special-Status Fish Measures.	Does not apply due to location.
Mitigation Measure BIO-2d: Western Pond Turtle Measures.	Does not apply because project is not in or near Sunnyvale West Channel.
Mitigation Measure BIO-2f: California Ridgway's Rail and California Black Rail Measures.	Does not apply due to location.
Mitigation Measure BIO-2g: Salt Marsh Harvest Mouse and Salt Marsh Wandering Shrew Measures.	Does not apply due to location.
Mitigation Measure BIO-3a: Avoidance of Open Water and Wetland Habitats.	Does not apply due to location.
Mitigation Measure BIO-3b: Compensatory Mitigation for Aquatic and Wetland Habitats.	Does not apply due to nature of project activities.
Mitigation Measure HYD-2: Hydraulic Analysis of Levee Widening.	Does not apply due to nature of project activities.
Mitigation Measure HYD-3a: Flood Hazard Assessment and Design For Diurnal Equalization Tanks, Pump Station, and Pipeline.	Does not apply due to nature of project activities.
Mitigation Measure HYD-3b: Restoration Plan for Ponds 1 and 2.	Does not apply due to nature of project activities.
Mitigation Measure HYD-3c: Flood Protection Prior to Levee Breaching.	Does not apply due to nature of project activities.
Mitigation Measure WQ-4: Water Quality Evaluation and Control Plan for Oxidation Pond Breaching and Restoration.	Does not apply due to nature of project activities.
Mitigation Measure CUL-1. Assessment of Effects to Cargill Channel.	Does not apply due to nature of project and location.
Mitigation Measure AES-1: Levee Plantings and Visual Screening.	Does not apply due to nature of project and location.
Mitigation Measure GI-1: Update Projections.	Does not apply due to nature of project activities.

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# **APPENDIX A**

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## Air Quality

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## CONSTRUCTION EMISSIONS

### CAP Emissions Summary

Construction Phase	Number of workdays	Average Daily Emissions (lb/day)			
		ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Phase 1: Site Demolition, Site Surcharging &amp; Site Preparation</b>					
Construction Equipment	336	0.86	8.53	0.42	0.38
Truck Trips		0.34	14.86	0.37	0.17
Worker Trips		1.09	0.89	0.34	0.14
<b>Total</b>		<b>2.29</b>	<b>24.29</b>	<b>1.13</b>	<b>0.70</b>
<b>Phase 2: Earthwork &amp; Site Work for Structures</b>					
Construction Equipment	252	1.00	10.00	0.48	0.44
Truck Trips		0.43	18.71	0.47	0.22
Worker Trips		1.09	0.89	0.34	0.14
<b>Total</b>		<b>2.51</b>	<b>29.61</b>	<b>1.29</b>	<b>0.81</b>
<b>Phase 3: Facility Construction</b>					
Construction Equipment	588	0.61	6.22	0.28	0.26
Truck Trips		0.15	6.66	0.17	0.08
Worker Trips		1.09	0.89	0.34	0.14
<b>Total</b>		<b>1.86</b>	<b>13.78</b>	<b>0.79</b>	<b>0.48</b>
<b>Total Project Average</b>					
Construction Equipment	1176	0.76	7.69	0.36	0.33
Truck Trips		0.27	11.59	0.29	0.13
Worker Trips		1.09	0.89	0.34	0.14
<b>Total</b>		<b>2.12</b>	<b>20.17</b>	<b>0.99</b>	<b>0.61</b>

### GHG Emissions Summary

Source	GHG Emissions over Project Construction (tons)			
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
Phase 1: Site Demolition, Site Surcharging & Site Preparation	201.63	0.01	0.00	203.16
Phase 2: Earthwork & Site Work for Structures	182.07	0.01	0.00	183.45
Phase 3: Facility Construction	212.45	0.01	0.00	214.06
Total from Construction Equipment	596.1	0.031	0.014	600.7
On-road Truck Trips	2299.5	0.007	0.006	2301.4
Worker Commute Trips	1220.4	0.288	0.357	1323.0
<b>TOTAL</b>	<b>4116</b>	<b>0.326</b>	<b>0.377</b>	<b>4225.0</b>

### Construction Schedule

Construction Phase	Start Date	End Date	Days/Week	Total Days
Phase 1: Site Demolition, Site Surcharging & Site Preparation	November 2020	October 2021	5	336
Phase 2: Earthwork & Site Work for Structures	January 2021	January 2022	5	252
Phase 3: Facility Construction	January 2022	April 2024	5	588
TOTAL				1176

Emissions from OFFROAD Construction Equipment

Phase 1: Site Demolition, Site Surcharging & Site Preparation																								
Project Construction Equipment	Equivalent Equipment in OFFROAD	Number of Equipment	Workdays used in Phase	Hours per Workday	Assumed Average horsepower (hp)	OFFROAD Emission Factors (lb/hp-hr)				Emissions by Phase (lbs/phase)				GHG Emission Factors					GHG Emissions by Phase (tons/phase)					
						ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub> (lb/hp-hr) <sup>1</sup>	CH <sub>4</sub> (g/gallon) <sup>2</sup>	N <sub>2</sub> O (g/gallon) <sup>2</sup>	N <sub>2</sub> O (g/hp-hr) <sup>3</sup>	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2e</sub>			
Excavator	ConstMin - Excavators	2	53	6	188	0.0002	0.0019	0.0001	0.0001	23.45	230.62	11.21	10.31	0.4447	0.58	0.0115	0.26	0.0051	26.59	0.0014	0.0006	26.79		
Dozer/Loader	ConstMin - Rubber Tired Loaders	2	35	6	105	0.0004	0.0037	0.0003	0.0003	19.59	165.31	12.95	11.91	0.4168	0.58	0.0107	0.26	0.0048	16.46	0.0008	0.0004	16.58		
Grader	ConstMin - Graders	2	20	6	173	0.0005	0.0049	0.0003	0.0003	20.81	203.11	11.34	10.43	0.4763	0.58	0.0123	0.26	0.0055	10.75	0.0006	0.0002	10.83		
Roller	ConstMin - Rollers	2	17	6	95	0.0003	0.0031	0.0002	0.0002	6.06	60.96	3.88	3.57	0.4368	0.58	0.0113	0.26	0.0050	8.38	0.0004	0.0002	8.44		
Concrete Truck	ConstMin - Off-Highway Trucks	0	0	6	300	0.0002	0.0021	0.0001	0.0001	0.00	0.00	0.00	0.00	0.4423	0.58	0.0114	0.26	0.0051	0.00	0.0000	0.0000	0.00		
Paving Equipment	ConstMin - Paving Equipment	0	0	6	174	0.0002	0.0022	0.0001	0.0001	0.00	0.00	0.00	0.00	0.4125	0.58	0.0106	0.26	0.0048	0.00	0.0000	0.0000	0.00		
Crawler Crane/RT Crane	ConstMin - Cranes	1	168	6	350	0.0002	0.0029	0.0001	0.0001	84.07	1008.98	41.25	37.95	0.3352	0.58	0.0086	0.26	0.0039	31.76	0.0016	0.0007	32.00		
Pile Drivers	ConstMin - Other Construction Equipment	1	40	6	250	0.0003	0.0036	0.0001	0.0001	17.08	213.72	8.13	7.48	0.4858	0.58	0.0125	0.26	0.0056	10.96	0.0006	0.0003	11.04		
Water Truck	ConstMin - Off-Highway Trucks	1	290	8	189	0.0003	0.0022	0.0001	0.0001	116.28	984.95	51.62	47.49	0.4436	0.58	0.0114	0.26	0.0051	96.75	0.0050	0.0022	97.48		
<b>Total Emissions during Phase 1</b>									287.35	2867.64	140.38	129.15							201.63	0.01	0.00	203.16		
<b>Average Daily Emissions during Phase 1</b>									0.86	8.53	0.42	0.38												

Phase 2: Earthwork & Site Work for Structures																							
Project Construction Equipment	Equivalent Equipment in OFFROAD	Number of Equipment	Workdays used in Phase	Hours per Workday	Assumed Average horsepower (hp)	OFFROAD Emission Factors (lb/hp-hr)				Emissions by Phase (lbs/phase)				GHG Emission Factors					GHG Emissions by Phase (tons/phase)				
						ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub> (lb/hp-hr) <sup>1</sup>	CH <sub>4</sub> (g/hp-hr) <sup>3</sup>	N <sub>2</sub> O (g/hp-hr) <sup>3</sup>	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2e</sub>			
Excavator	ConstMin - Excavators	4	29	6	188	0.0002	0.0019	0.0001	0.0001	25.67	252.37	12.27	11.28	0.44	0.01	0.01	0.00	0.00	29.09	0.0015	0.0007	29.31	
Dozer/Loader	ConstMin - Rubber Tired Loaders	4	22	6	105	0.0004	0.0037	0.0003	0.0003	24.63	207.82	16.27	14.97	0.42	0.01	0.00	0.00	0.00	20.69	0.0011	0.0005	20.84	
Grader	ConstMin - Graders	0	0	6	173	0.0005	0.0049	0.0003	0.0003	0.00	0.00	0.00	0.00	0.48	0.01	0.01	0.00	0.00	0.0000	0.0000	0.0000	0.00	
Roller	ConstMin - Rollers	2	3	6	95	0.0003	0.0031	0.0002	0.0002	1.07	10.76	0.68	0.63	0.44	0.01	0.01	0.00	0.00	1.48	0.0001	0.0000	1.49	
Concrete Truck	ConstMin - Off-Highway Trucks	0	0	6	300	0.0002	0.0021	0.0001	0.0001	0.00	0.00	0.00	0.00	0.44	0.01	0.01	0.00	0.00	0.0000	0.0000	0.0000	0.00	
Paving Equipment	ConstMin - Paving Equipment	0	0	6	174	0.0002	0.0022	0.0001	0.0001	0.00	0.00	0.00	0.00	0.41	0.01	0.00	0.00	0.00	0.0000	0.0000	0.0000	0.00	
Crawler Crane/RT Crane	ConstMin - Cranes	1	126	6	350	0.0002	0.0029	0.0001	0.0001	63.05	756.73	30.94	28.46	0.34	0.01	0.00	0.00	0.00	23.82	0.0012	0.0006	24.00	
Pile Drivers	ConstMin - Other Construction Equipment	1	80	6	250	0.0003	0.0036	0.0001	0.0001	34.16	427.44	16.27	14.97	0.49	0.01	0.01	0.00	0.00	21.92	0.0011	0.0005	22.09	
Water Truck	ConstMin - Off-Highway Trucks	1	255	8	189	0.0003	0.0022	0.0001	0.0001	102.24	866.07	45.39	41.76	0.44	0.01	0.01	0.00	0.00	85.07	0.0044	0.0020	85.72	
<b>Total Emissions during Phase 2</b>									250.82	2521.20	121.82	112.08							182.07	0.01	0.00	183.45	
<b>Average Daily Emissions during Phase 2</b>									1.00	10.00	0.48	0.44											

Phase 3: Facility Construction																							
Project Construction Equipment	Equivalent Equipment in OFFROAD	Number of Equipment	Workdays used in Phase	Hours per Workday	Assumed Average horsepower (hp)	OFFROAD Emission Factors (lb/hp-hr)				Emissions by Phase (lbs/phase)				GHG Emission Factors					GHG Emissions by Phase (tons/phase)				
						ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub> (lb/hp-hr) <sup>1</sup>	CH <sub>4</sub> (g/hp-hr) <sup>3</sup>	N <sub>2</sub> O (g/hp-hr) <sup>3</sup>	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2e</sub>			
Excavator	ConstMin - Excavators	0	0	6	188	0.0002	0.0019	0.0001	0.0001	0.00	0.00	0.00	0.00	0.44	0.01	0.01	0.00	0.00	0.0000	0.0000	0.0000	0.00	
Dozer/Loader	ConstMin - Rubber Tired Loaders	1	79	6	105	0.0004	0.0037	0.0003	0.0003	22.11	186.57	14.61	13.44	0.42	0.01	0.00	0.00	0.00	18.57	0.0010	0.0004	18.71	
Grader	ConstMin - Graders	1	6	6	173	0.0005	0.0049	0.0003	0.0003	3.12	30.47	1.70	1.56	0.48	0.01	0.01	0.00	0.00	1.61	0.0001	0.0000	1.62	
Roller	ConstMin - Rollers	1	28	6	95	0.0003	0.0031	0.0002	0.0002	4.99	50.20	3.19	2.94	0.44	0.01	0.01	0.00	0.00	6.90	0.0004	0.0002	6.95	
Concrete Truck	ConstMin - Off-Highway Trucks	2	121	6	300	0.0002	0.0021	0.0001	0.0001	100.66	918.51	35.79	32.92	0.44	0.01	0.01	0.00	0.00	60.37	0.0031	0.0014	60.82	
Paving Equipment	ConstMin - Paving Equipment	1	3	6	174	0.0002	0.0022	0.0001	0.0001	0.68	6.75	0.36	0.33	0.41	0.01	0.00	0.00	0.00	0.70	0.0000	0.0000	0.70	
Crawler Crane/RT Crane	ConstMin - Cranes	3	98	6	350	0.0002	0.0029	0.0001	0.0001	147.12	1765.71	72.19	66.42	0.34	0.01	0.00	0.00	0.00	55.58	0.0029	0.0013	56.00	
Pile Drivers	ConstMin - Other Construction Equipment	0	0	6	250	0.0003	0.0036	0.0001	0.0001	0.00	0.00	0.00	0.00	0.49	0.01	0.01	0.00	0.00	0.0000	0.0000	0.0000	0.00	
Water Truck	ConstMin - Off-Highway Trucks	1	206	8	189	0.0003	0.0022	0.0001	0.0001	82.60	699.65	36.67	33.74	0.44	0.01	0.01	0.00	0.00	68.73	0.0035	0.0016	69.25	
<b>Total Emissions during Phase 3</b>									361.28	3657.86	164.52	151.35							212.45	0.01	0.00	214.06	
<b>Average Daily Emissions during Phase 3</b>									0.61	6.22	0.28	0.26											

- NOTES:
- CO<sub>2</sub> emission factor as calculated from OFFROAD2017 - ORION web database available at <https://www.arb.ca.gov/orion/>
  - CH<sub>4</sub> and N<sub>2</sub>O emission factors as g/gallon from The Climate Registry. Table 13.7 US Default CH<sub>4</sub> and N<sub>2</sub>O Emission Factors for Construction & Mining Equipment, 2017. Available: <http://www.theclimaterestory.org/wp-content/uploads/2017/05/2017-Climat-Registry-Default-Emission-Factors.pdf>
  - CH<sub>4</sub> and N<sub>2</sub>O emission factors converted from g/gallon to g/hp-hr using hp-hr/gal data from OFFROAD2017 - ORION
  - N<sub>2</sub>O and CH<sub>4</sub> emissions were multiplied by their respective IPCC AR5 global warming potentials (28 and 265) and added to the CO<sub>2</sub> emissions to obtain carbon dioxide equivalent (CO<sub>2e</sub>) emissions.

**CAP Emissions from On-road Truck Trips**

Construction Phase	Number of Workdays	Ave. Truck Trips/day (round trips)	One way trips/day	One Way Trip length (miles)	Truck Trip miles per day	Emission Factors (gms/mile)				Daily Emissions (lbs/day)			
						ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>
Phase 1: Site Demolition, Site Surcharging & Site Preparation	336	29	58	25	1450	0.1073	4.1443	0.1168	0.0537	0.34	14.86	0.37	0.17
Phase 2: Earthwork & Site Work for Structures	252	37	73	25	1825	0.1073	4.1443	0.1168	0.0537	0.43	18.71	0.47	0.22
Phase 3: Facility Construction	588	13	26	25	650	0.1073	4.1443	0.1168	0.0537	0.15	6.66	0.17	0.08
<b>Total Project Average Daily</b>	<b>1176</b>									<b>0.27</b>	<b>11.59</b>	<b>0.29</b>	<b>0.13</b>

**CAP Emissions from Worker Commute Trips**

Vehicle type	Average Number of workers/day	One Way Trips per Day	One Way Trip length (miles)	Worker Commute miles per day	Emission Factors (gms/mile)				Daily Emissions (lbs/day)			
					ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>
LDA	39	78	12.5	975	0.0127	0.0613	0.0465	0.0194	0.15	0.15	0.10	0.04
LDT	91	182	12.5	2275	0.0269	0.1327	0.0472	0.0200	0.94	0.74	0.24	0.10
<b>Average Daily</b>									<b>1.09</b>	<b>0.89</b>	<b>0.34</b>	<b>0.14</b>

**GHG Emissions from On-road Truck Trips**

Construction Phase	Number of Workdays	Ave. Truck Trips/day (round trips)	One way trips/day	One Way Trip length (miles)	Truck Trip miles per day	Emission Factors (g/mile)			Total Emissions (tons/day)			
						CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
Phase 1: Site Demolition, Site Surcharging & Site Preparation	336	29	58	25	1450	1636.7213	0.0051	0.0048	2.51	0.000007	0.000007	2.51
Phase 2: Earthwork & Site Work for Structures	252	37	73	25	1825	1636.7213	0.0051	0.0048	3.16	0.000009	0.000009	3.16
Phase 3: Facility Construction	588	13	26	25	650	1636.7213	0.0051	0.0048	1.12	0.000003	0.000003	1.13
<b>Total over Project construction (tons)</b>									<b>2299.48</b>	<b>0.00678</b>	<b>0.00638</b>	<b>2301.36</b>

CO<sub>2</sub> emission factor derived from EMFAC2014, CH<sub>4</sub> and N<sub>2</sub>O emission factor from Table 13.4, page 36 of the 2017 TCR Default Emission Factors available at <http://www.theclimateregistry.org/wp-content/uploads/2017/05/2017-Climate-Registry-Default-Emission-Factors.pdf>

**GHG Emissions from Worker Commute Trips**

Vehicle type	Average Number of workers/day	One Way Trips per Day	One Way Trip length (miles)	Worker Commute miles per day	Emission Factors (gms/mile)			Daily Emissions (tons/day)			
					CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
LDA	39	78	12.5	975	279.2809	0.0704	0.0647	0.28	0.0001	0.0001	0.30
LDT	91	182	12.5	2275	328.3396	0.0776	0.1056	0.76	0.0002	0.0002	0.83
<b>Total Daily Emissions (tons/day)</b>								<b>1.04</b>	<b>0.0002</b>	<b>0.0003</b>	<b>1.12</b>
<b>Total over Project construction (tons)</b>								<b>1220.38</b>	<b>0.29</b>	<b>0.36</b>	<b>1322.98</b>

CO<sub>2</sub> emission factor derived from EMFAC2014, CH<sub>4</sub> and N<sub>2</sub>O emission factor from Table 13.4, page 35 of the 2017 TCR Default Emission Factors available at <http://www.theclimateregistry.org/wp-content/uploads/2017/05/2017-Climate-Registry-Default-Emission-Factors.pdf>

## OPERATIONAL EMISSIONS

### CAP Emissions Summary

Source	Average Daily Emissions (lb/day)			
	ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>
Truck Trips	0.05	2.02	0.05	0.03
Backup Generator	0.17	3.21	0.04	0.04
<b>Total</b>	<b>0.22</b>	<b>5.23</b>	<b>0.09</b>	<b>0.07</b>

### CAP Emissions from On-road Truck Trips during Operation

Source	Truck Trips/month (round trips)	Ave. Truck Trips/day (round trips)	One way trips/day	One Way Trip length (miles)	Truck Trip miles per day	Emission Factors (gms/mile)				Daily Emissions (lbs/day)			
						ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>
Chemical Delivery trips	42	1.4	3	25	70	0.1073	4.1443	0.1168	0.0537	0.02	0.72	0.02	0.01
Residuals Hauling trips	76	2.5	5	25	127	0.1073	4.1443	0.1168	0.0537	0.03	1.30	0.03	0.02
<b>Total Project Average Daily (lbs/day)</b>										<b>0.05</b>	<b>2.02</b>	<b>0.05</b>	<b>0.03</b>

### CAP Emissions from Testing & Maintenance of Backup Generator

Source	kW	hp	Max. Daily use (hours/day) <sup>1</sup>	Max. Annual use (hours/year) <sup>1</sup>	Emission Factors <sup>2</sup> (g/hp-hr)				Avg. Daily Emissions (lb/day)			
					ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>
Backup Generator	2000	2682	1	50	0.209	3.969	0.052	0.052	0.17	3.21	0.04	0.04

### GHG Emissions Summary

Source	GHG Emissions as CO <sub>2</sub> e (tons/year)
Backup Generator	32.6
Truck trips	122.6
Electricity	2320.9
<b>TOTAL</b>	<b>2476.1</b>

### Indirect GHG Emissions from Electricity Generation

Source	Consumption MW-hr/year	GHG Emission Factors (lb/MW-hr) <sup>3</sup>			GHG Emissions (tons/year)			
		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
Electricity Consumption	8760	527.9	0.033	0.004	2312.2	0.14	0.02	2320.9

### GHG Emissions from Testing & Maintenance of Backup Generator

Source	hp	Max. Annual use (hours/year) <sup>1</sup>	GHG Emission Factors <sup>4</sup>				GHG Emissions (tons/year)				
			CO <sub>2</sub> (lb/hp-hr)	CH <sub>4</sub> (g/gal)	CH <sub>4</sub> (g/hp-hr)	N <sub>2</sub> O (g/gal)	N <sub>2</sub> O (g/hp-hr)	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
Backup Generator	2682	50	0.48	0.58	0.01	0.26	0.01	32.39	0.0017	0.0007	32.6

### GHG Emissions from On-road Truck Trips during Operation

Trips	Ave. Truck Trips/month (round trips)	Ave. Truck Trips/year (round trips)	One way trips/year	One Way Trip length (miles)	Truck Trip miles per year	Emission Factors <sup>5</sup> (g/mile)			Total Emissions (tons/year)			
						CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> e
Chemical Delivery trips	42	504	1008	25	25200	1636.7213	0.0051	0.0048	43.59	0.000129	0.000121	43.63
Residuals Hauling trips	76	912	1824	25	45600	1636.7213	0.0051	0.0048	78.88	0.000233	0.000219	78.95
<b>Total GHG emissions from operational truck trips (tons/year)</b>									<b>122.47</b>	<b>0.00036</b>	<b>0.00034</b>	<b>122.57</b>

#### NOTES:

1. Consistent with BAAQMD Regulation 9, Rule 8, assumes a maximum operation of 50 hours per year and 1 hour per day for testing and maintenance.

2. Emission factors derived from Engineering Evaluation of a 2220 BHP Cummins, Model QSK50-G4 NR2, Year 2015 for Uber Technologies

3. GHG emissions factors from USEPA eGRID Summary Table 1. Available at [https://www.epa.gov/sites/production/files/2018-02/documents/egrid2016\\_summarytables.pdf](https://www.epa.gov/sites/production/files/2018-02/documents/egrid2016_summarytables.pdf)

4. CO<sub>2</sub> emission factor as calculated from OFFROAD2017 - ORION web database available at <https://www.arb.ca.gov/orion/derived> from EMFAC2014, CH<sub>4</sub> and N<sub>2</sub>O emission factors from Other Large Utility Diesel equipment from Table 13.7, page 42 of the 2017 TCR

Default Emission Factors available at <http://www.theclimaterestory.org/wp-content/uploads/2017/05/2017-Climate-Registry-Default-Emission-Factors.pdf>

5. CO<sub>2</sub> emission factor derived from EMFAC2014, CH<sub>4</sub> and N<sub>2</sub>O emission factors from Table 13.4, page 36 of the 2017 TCR Default Emission Factors available at <http://www.theclimaterestory.org/wp-content/uploads/2017/05/2017-Climate-Registry-Default-Emission-Factors.pdf>





San Francisco Bay Area	2020	ConstMin - Trenchers	Aggregated	175	Diesel	0.000179153	0.000216775	0.000468624	0.00025798	0.001715551	0.002298143	0.004968114	0.269564	0.582741607	0.0001175	0.000254022	0.0001081	0.0002337	0.000118	2.49E-06	2.2E-06	8745.699	2359.873475	8.349458367	337682.3204	38.61124
San Francisco Bay Area	2020	ConstMin - Trenchers	Aggregated	300	Diesel	0.000357354	0.000432398	0.000387425	0.00051459	0.002038247	0.005299349	0.004748166	0.654464	0.586393427	0.00021352	0.000191308	0.00019643	0.000176003	0.000214	6.04E-06	5.34E-06	21233.36	3560.420084	11.59646995	814740.7177	38.37079
San Francisco Bay Area	2020	ConstMin - Trenchers	Aggregated	600	Diesel	0.000301747	0.000365114	0.000243947	0.000434516	0.003079868	0.00428087	0.002860219	0.878508	0.586965997	0.00016092	0.00010752	0.00014805	9.89179E-05	0.000161	8.11E-06	7.17E-06	28502.23	2812.428323	7.885599569	1092586.161	38.33336
San Francisco Bay Area	2020	ConstMin - Trenchers	Aggregated	750	Diesel	3.31884E-05	4.0158E-05	8.19552E-05	4.77913E-05	0.000517089	0.00033812	0.000690042	0.286764	0.585234803	4.9334E-06	1.00682E-05	4.5387E-06	9.26271E-06	4.93E-06	2.65E-06	2.34E-06	9303.757	553.10343	1.236956795	357699.2491	38.44675
San Francisco Bay Area	2020	ConstMin - Trenchers	Aggregated	9999	Diesel	4.31127E-05	5.21664E-05	0.001283742	6.20823E-05	0.0006192	0.000598555	0.014729614	0.02377	0.584956092	2.7638E-05	0.000680139	2.5427E-05	0.000625728	2.76E-05	2.18E-07	1.94E-07	771.204	34.49350982	0.154619599	29664.41845	38.46507
San Francisco Bay Area	2020	OFF - ConstMin - Bore/Drill Rigs	Aggregated	25	Diesel	0.000166298	0.000197908	0.000930873	0.000239469	0.000892926	0.001510908	0.007106646	0.199745	0.939513432	5.6873E-05	0.000267506	5.2323E-05	0.000246105	5.69E-05	2.64E-06	1.67E-06	6624.75	10011.95	12.34	155201.65	23.42755
San Francisco Bay Area	2020	OFF - ConstMin - Cement and Mortar Mixers	Aggregated	25	Diesel	0.000421258	0.000501332	0.000687821	0.000606612	0.002930536	0.003783187	0.005190482	0.511569	0.701865939	0.00015035	0.000206274	0.00013832	0.000189772	0.00015	7.67E-06	4.28E-06	17019.95	51559.9	171.7	532075.1	31.26185
San Francisco Bay Area	2020	OFF - ConstMin - Concrete/Industrial Saws	Aggregated	25	Diesel	1.38071E-05	1.64316E-05	0.000922086	1.98822E-05	6.78606E-05	0.00012564	0.007050485	0.016481	0.924851567	4.6946E-06	0.000263444	4.319E-06	0.000242368	4.69E-06	2.09E-07	1.34E-07	532.9	722.7	1.2	13008.6	24.41096
San Francisco Bay Area	2020	OFF - ConstMin - Concrete/Industrial Saws	Aggregated	50	Diesel	0.000252517	0.000300517	0.001064472	0.000363625	0.002074878	0.001912874	0.006775672	0.259021	0.917490448	9.6627E-05	0.000342265	8.8896E-05	0.000314884	9.66E-05	3.35E-06	2.18E-06	8661.45	6245.15	10.74	206089.95	23.79393
San Francisco Bay Area	2020	OFF - ConstMin - Dumpers/Tenders	Aggregated	25	Diesel	4.28841E-05	5.10357E-05	0.000474309	6.17532E-05	0.000210675	0.00039044	0.003628625	0.051165	0.475513895	1.4879E-05	0.000138279	1.3689E-05	0.000127217	1.49E-05	6.49E-07	4.23E-07	1682.65	4909.25	7.37	78548	46.68113
San Francisco Bay Area	2020	OFF - ConstMin - Excavators	Aggregated	25	Diesel	0.000300479	0.000357595	0.000712051	0.00043269	0.001476831	0.002734257	0.005444505	0.358668	0.714186141	0.00010217	0.000203436	9.3993E-05	0.000187161	0.000102	4.55E-06	3E-06	11924.55	15939.55	11.36	366609.65	30.74411
San Francisco Bay Area	2020	OFF - ConstMin - Other Construction Equipment	Aggregated	25	Diesel	0.000968898	0.001153068	0.000752211	0.001395213	0.006841638	0.008752139	0.005709512	1.190738	0.776785189	0.00033915	0.000221246	0.00031202	0.000203546	0.000339	1.79E-05	9.99E-06	39693.75	82406.05	119.33	1119020.65	28.19136
San Francisco Bay Area	2020	OFF - ConstMin - Pavers	Aggregated	25	Diesel	8.14285E-05	9.69066E-05	0.000776495	0.000117257	0.000399649	0.000742199	0.005947108	0.09706	0.777723851	2.8651E-05	0.000229572	2.6359E-05	0.000211206	2.87E-05	1.23E-06	8.08E-07	3212	3796	4.6	91104	28.36364
San Francisco Bay Area	2020	OFF - ConstMin - Paving Equipment	Aggregated	25	Diesel	9.63124E-05	0.00011462	0.000662561	0.00013869	0.000473367	0.000876409	0.005066095	0.114964	0.66454816	3.273E-05	0.000189198	3.0112E-05	0.000174062	3.27E-05	1.46E-06	9.6E-07	3817.9	6646.65	7.97	126286.35	33.07744
San Francisco Bay Area	2020	OFF - ConstMin - Plate Compactors	Aggregated	25	Diesel	0.000284563	0.000338654	0.000518326	0.000409771	0.002149414	0.00256614	0.003927605	0.352021	0.538785254	0.00010027	0.000153473	9.2251E-05	0.000141195	0.0001	5.48E-06	2.95E-06	11716.5	59619.1	99.33	476952.8	40.70779
San Francisco Bay Area	2020	OFF - ConstMin - Rollers	Aggregated	25	Diesel	0.001737548	0.002067825	0.000686407	0.002502069	0.010933962	0.015736831	0.005223784	2.113412	0.701539302	0.00060186	0.000199784	0.00055371	0.000183802	0.000602	3E-05	1.77E-05	70372	184043.95	264.59	2199150.55	31.25036
San Francisco Bay Area	2020	OFF - ConstMin - Rubber Tired Loaders	Aggregated	25	Diesel	8.02599E-05	9.55159E-05	0.000674429	0.000115574	0.000394471	0.000730337	0.005156837	0.095802	0.676451269	2.7289E-05	0.000192687	2.5106E-05	0.000177272	2.73E-05	1.22E-06	8.04E-07	3197.4	4135.45	4.25	103386.25	32.33447
San Francisco Bay Area	2020	OFF - ConstMin - Signal Boards	Aggregated	25	Diesel	0.004447517	0.005292913	0.00098835	0.006404425	0.033593811	0.04010694	0.007489205	5.501833	1.027362288	0.00156719	0.000292644	0.00144182	0.000269232	0.001567	8.56E-05	4.62E-05	183449	651561.5	867.99	3909369	21.31039
San Francisco Bay Area	2020	OFF - ConstMin - Signal Boards	Aggregated	50	Diesel	0.000110301	0.000131267	0.001131659	0.000158833	0.000896126	0.000832547	0.00717744	0.114493	0.987055371	4.1501E-05	0.00035778	3.8181E-05	0.000329158	4.15E-05	1.48E-06	9.56E-07	3799.65	2288.55	4.33	84676.35	22.2853
San Francisco Bay Area	2020	OFF - ConstMin - Skid Steer Loaders	Aggregated	25	Diesel	0.008039661	0.009567861	0.000706715	0.011577111	0.038868109	0.072352115	0.005344175	9.329592	0.689115604	0.00294277	0.000217363	0.00270735	0.000199974	0.002943	0.000118	7.8E-05	310235.4	494155.25	592.07	9883105	31.85679
San Francisco Bay Area	2020	OFF - ConstMin - Tractors/Loaders/Backhoes	Aggregated	25	Diesel	0.00149113	0.001774568	0.000686861	0.002147228	0.007328775	0.01356876	0.005251901	1.77989	0.688921318	0.00051076	0.000197692	0.0004699	0.000181877	0.000511	2.26E-05	1.49E-05	59184.75	82000.9	86.95	1886020.7	31.86667
San Francisco Bay Area	2020	OFF - ConstMin - Trenchers	Aggregated	25	Diesel	0.00070264	0.000836199	0.000930444	0.001011801	0.003806856	0.006382814	0.007102196	0.844522	0.939704417	0.00024056	0.000267674	0.00022132	0.00024626	0.000241	1.12E-05	7.06E-06	28079.45	29367.9	47.44	656058.3	23.36436

EMFAC2014 (v1.0.7) Emission Rates

Region Type: Air Basin

Region: San Francisco Bay Area

Calendar Year: 2020

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HTSK and RUNLS, g/vehicle/day for IDLEX, RESTL and DIURN

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	ROG_RUNEX	ROG_IDLEX	ROG_STREX	ROG_HOTSOK	ROG_RUNLOSS	ROG_RESTLOSS	ROG_DIURN	NOx_RUNEX	NOx_IDLEX	NOx_STREX	CO2_RUNEX	CO2_IDLEX	CO2_STREX	PM10_RUNEX	PM10_IDLEX	PM10_STREX	PM10_PMTW	PM10_PMBW	PM2_5_RUNEX	PM2_5_IDLEX	PM2_5_STREX	PM2_5_PMTW	PM2_5_PMBW
							miles/day	trips/day	g/mile	g/veh/day	g/trip	g/trip	g/trip	g/veh/day	g/veh/day	g/mile	g/veh/day	g/trip	g/mile	g/veh/day	g/trip	g/mile	g/veh/day	g/mile	g/mile	g/mile	g/mile	g/veh/day	g/trip	g/mile	g/mile
San Francisco Bay Area	2020	LDA	Aggregated	Aggregated	GAS	2639789.892	93944227	16611552	0.01265893	0	0.10978236	0.125807841	0.256845365	0.211588961	0.236702903	0.06134217	0	0.10484743	279.280879	0	63.53770732	0.001762793	0	0.002417229	0.008000002	0.036750011	0.001620905	0	0.002222778	0.002000001	0.015750005
San Francisco Bay Area	2020	LDT1	Aggregated	Aggregated	GAS	210161.8522	6961770.8	1283578	0.02694219	0	0.23342785	0.265584217	0.971493405	0.473592055	0.580393064	0.13270846	0	0.19293273	328.339619	0	74.25385691	0.0024183	0	0.003383209	0.008000002	0.036750011	0.002223951	0	0.003111573	0.002000001	0.015750005
San Francisco Bay Area	2020	LDT2	Aggregated	Aggregated	GAS	893709.5296	33008227	5642099	0.01556707	0	0.12443148	0.123193696	0.421528853	0.249400841	0.259688411	0.08982633	0	0.1602032	373.416026	0	84.77643775	0.001692538	0	0.002259267	0.008000002	0.036750011	0.001556295	0	0.002077462	0.002000001	0.015750005
San Francisco Bay Area	2020	T7 single construction	Aggregated	Aggregated	DSL	894.3711074	85141.045	0	0.10731584	0.70528994	0	0	0	0	0	4.14426745	25.2902209	0	1636.72131	4656.18255	0	0.019068605	0.013495901	0	0.03600001	0.061740018	0.018243706	0.012912074	0	0.009000003	0.026460008