HEADWORKS REPLACEMENT PROJECT

Draft Subsequent Environmental Impact Report

SCH# 2003051054

January 2004

Prepared for

Orange County Sanitation District

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201168

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EXECUTIVE SUMMARY

S.1 INTRODUCTION

This Subsequent Environmental Impact Report (SEIR) has been prepared for the Orange County Sanitation District's (OCSD or District) proposed installation of the Headworks Replacement Project. The headworks facility was identified in the 1999 Strategic Plan as needing upgrades. However, after a thorough evaluation of the facility in 2002, the District concluded that it would be more practical and less costly to construct a new headworks than to continue upgrading the existing facility after 40 years of operation with numerous expansions and modifications. Therefore, the proposed Headworks Replacement Project was not specifically included in the District's 1999 Strategic Plan Program Environmental Impact Report (PEIR) that was certified in October 1999. The changes from the improvements and upgrades proposed in the 1999 Strategic Plan (and addressed in the PEIR), to the complete replacement of the headworks, can be considered as substantial changes to the project that would require revisions of sections of the PEIR (primarily to update the analysis of construction impacts) and therefore meet the conditions for the preparation of a Subsequent EIR pursuant to California Environmental Quality Act (CEQA) Section 15162.

The project falls within the overall objectives and policies of the 1999 Strategic Plan and does not substantially alter the conclusions of the PEIR with respect to the District's adopted policies regarding level of treatment and peak discharge strategies as analyzed in the PEIR. Accordingly, this SEIR has been prepared to augment the analysis contained in the PEIR and is focused to evaluate the construction and operational activities associated with the new project only and does not address issues unrelated to the construction of the Headworks Replacement Project. . The SEIR identifies measures for the District to implement to lessen potential impacts. These measures will then be added to those already identified in the PEIR for the implementation of the proposed project.

This SEIR has been prepared to provide objective planning and environmental information to guide and assist decision-makers and the public in their evaluation of the potential environmental effects that may result from the implementation of the project as proposed. This document has been prepared in accordance with the CEQA statutes and guidelines. The District is the lead agency for this CEQA process. Inquiries about the project should be directed to:

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c/o Angie Anderson
Orange County Sanitation District
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Fountain Valley, CA 92708

S.2 PROJECT BACKGROUND

The District provides wastewater services for more than 2.3 million residents of 23 cities within a 450-square mile portion of northern Orange and central County. The District operates and maintains over 650 miles of trunk and subtrunk sewer lines within its service area, which encompasses slightly more than half of the land area of Orange County, serving more than 87 percent of the county's population. Two treatment plants are situated along the Santa Ana River (SAR). Reclamation Plant No. 1 is located in Fountain Valley, and Treatment Plant No. 2 is located in Huntington Beach near the coast. Treated effluent is discharged through a 120-inch diameter ocean outfall that extends approximately four miles into the ocean.

In 1999, the District prepared a Strategic Plan to identify projects and programs needed to accommodate projected population growth in its service area through 2020. The PEIR assessed the potential effects of the Strategic Plan on the local and regional environment, providing program-level analysis of long-term planning strategies as well as project-level analysis for projects planned to occur in the near-term (up to the year 2005).

The 1999 Strategic Plan identified the need to upgrade the headworks, which provides the point of entry for the trunk sewers, combining their flow and providing preliminary treatment. After further engineering analysis of the headworks conducted after the certification of the PEIR, the District determined that a replacement was necessary rather than an upgrade of the existing facility.

S.3 PROJECT DESCRIPTION

The proposed new headworks would have a 340 million gallon per day (mgd) peak wet weather flow capacity and would not increase the treatment capacity of the plant. The odor control system would consist of new bio-tower scrubbing technology followed by conventional chemical scrubbers. Both the bio-towers and the conventional scrubbers would be approximately 48 feet tall located adjacent to the main facility.

The proposed Headworks Replacement Project would consist of fifteen different structures and associated piping. The existing headworks, sludge drying beds, two underground storage tanks, and a truck washing facility would be demolished to make room for the new buildings. Approximately 175,000 cubic yards (cy) of soil would be excavated during construction, some of which would be kept on-site to be used as fill. Approximately 75,000 cy of soil would be removed from the site, requiring approximately 3,750 round-trip truck trips.

Construction activity will take five years from June 2005 to June 2010, with approximately 1,050 days (almost three years) of actual construction work. Peak construction traffic would occur during the excavation phase. The new headworks and ancillary facilities would be fully constructed prior to the demolition of the existing facility.

The new headworks would be connected to the incoming sewers and treatment plant in three phases during the final 14 months of construction. In each phase, one or two of the trunk lines would be connected to the new headworks and a temporary bypass line would be constructed to redirect the flow out of the new headworks back to the existing headworks. The primary clarifiers would be temporarily taken out of service in phases and connected to the new headworks. While the primary clarifiers are out of service, some of the influent would be redirected to Plant No.1 to reduce the total flow through Plant No. 2.

S.4 ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

CEQA Guidelines require that an Environmental Impact Report (EIR) contain a brief summary of project impacts and mitigation measures that would reduce those impacts. Table S-1 contains a summary of the environmental impacts and level of significance before mitigation measures have been implemented, mitigation measures identified to reduce or avoid those impacts, and a determination of the level of significance after mitigation measures have been implemented. Only air quality impacts during construction of the proposed project would remain significant after implementation of identified mitigation measures.

TABLE S-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

RESOURCE / IMPACT	MITIGATION MEASURE	LEVEL OF SIGNIFICANCE AFTER MITIGATION
AESTHETICS		
Impact 3.1-1: Several of the new structures would be visible from adjacent residential neighborhoods and PCH.	**M-3.1-1:** The contractor shall replace damaged landscaping and restore the construction area near the property boundary to a condition similar to existing conditions.	Less than significant.
AIR QUALITY		
Impact 3.2-1: Construction of the proposed project would emit criteria pollutants. Estimated daily average construction emissions would exceed significance thresholds set by the SCAQMD.	**M-3.2-1:** Soil removal contractors shall cover all trucks hauling soil, sand, and other loose materials, or maintain at least two feet of freeboard.	Significant and unavoidable.
Impact 3.2-2: Operation of the proposed project would emit criteria pollutants. Estimated daily average emissions would not exceed significance thresholds set by the SCAQMD. Implementation of the proposed project would not violate air quality standards.	No mitigation measures are required.	Less than significant.
Impact 3.2-3: The proposed project is not anticipated to result in objectionable odors affecting a substantial number of people.	**M-3.2-2:** The District shall ensure that contractors immediately remove salvaged/demolished equipment from Plant No. 2 to minimize potential odors during the removal of existing facilities. Staging areas shall not be used to store salvaged/demolished equipment.	Less than significant.
GEOLOGY AND SOILS		
Impact 3.3-1: The proposed project could expose people or structures to potential adverse effects due to rupture of a known earthquake fault, strong ground shaking, ground failure, including liquefaction and landslides due to seismic activity.	See Mitigation Measures **6.6-1b, 6.6-2a,** and **6.6-2b** in the 1999 PEIR found in Appendix A. **M-3.3-1:** The District shall implement the recommendations made in the geotechnical report prepared by Converse Consultants, which includes, but is not limited to, the following:	Less than significant.

TABLE S-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

RESOURCE / IMPACT	MITIGATION MEASURE	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	• For construction near fault splays, additional excavation and backfill with non-cohesive material on the base and sides of structures may be required. • To accommodate potential ground movement caused by a seismic event, pipes with flexible coupling should be considered. • Removal and recompaction of the upper fill soils to minimize the potential for differential settlement to affect structures on grade. • For critical structures, the use of mat foundation or reinforced perimeter footings with interior footings interconnected with grade beams for more rigidity to reduce the potential of seismically induced settlement or liquefaction. • Structures with basements should be supported on mat foundations founded on native soils or compacted fill. • Groundwater should be lowered by dewatering to at least five feet below the lowest excavation level. Existing structures should be protected during dewatering. • Temporary construction slopes should be 1.5:1 or flatter for soils below groundwater level and 1:1 or flatter for soils above groundwater level. Surcharge loads should not be permitted within five feet or a distance equal to the depth of excavation, whichever is greater, unless the excavation is properly shored. • Temporary shoring will be required where open cut excavations will not be feasible and space limitations would not allow for minimum excavation slopes or because of nearby structures.	
Impact 3.3-2: Dewatering could create unstable soil conditions, creating risks to proposed and nearby existing structures.	No mitigation measures are required.	Less than significant.

TABLE S-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

RESOURCE / IMPACT	MITIGATION MEASURE	LEVEL OF SIGNIFICANCE AFTER MITIGATION
HAZARDS AND HAZARDOUS MATERIALS		
Impact 3.4-1: The proposed project would include the routine transport and storage of hazardous chemicals.	No mitigation measures are required.	Less than significant.
Impact 3.4-2: Contaminated soils could be encountered during underground storage tank removal or excavation for construction of the new structures.	**M-3.4-1:** Any contaminated soils encountered on the project site during tank removal, site clearance, or excavation shall be removed from the project site and disposed of off-site in accordance with applicable hazardous waste regulations. The District will notify the Orange County Health Care Agency of remedial actions.	Less than significant.
Impact 3.4-3: Structures to be demolished may contain lead paint and/or asbestos containing materials.	**M-3.4-2:** Structures to be demolished will be investigated for the presence of lead paint or asbestos containing material and proper precautions will be taken for safe removal and disposal of these materials prior to demolition activities.	Less than significant.
Impact 3.4-4: Construction activities could disturb abandoned oil and gas wells and pose a potential fire or explosion hazard.	**M-3.4-3:** The District shall comply with requirements of the Division of Oil, Gas, and Geothermal Resources Construction Site Plan Review process. The Division will be notified if any previously unknown wells are discovered during the construction process.	Less than significant.
HYDROLOGY		
Impact 3.5-1: The proposed project will temporarily modify the quality of effluent discharged to the ocean.	**M-3.5-1:** Prior to implementation of the connection phase of the new headworks, OCSD shall have in place the means of balancing influent between the two treatment plants to avoid exceeding effluent quality discharge limits.	Less than significant.
	M-3.5-2: OCSD shall include in its operating agreement with the Orange County Water District (OCWD) language stating that the SARI line may be diverted to Plant No. 1 during the 14-month headworks connection phase under a 2.0 or higher peaking factor during peak wet weather events. The agreement shall include procedures to be followed by OCSD and OCWD during peak wet weather events such that the GWRS will discontinue production of recycled water until the SARI line is removed from the source water of Reclamation Plant No. 1.	Less than significant.

TABLE S-1: SUMMARY OF IMPACTS AND MITIGATION MEASURES

RESOURCE / IMPACT	MITIGATION MEASURE	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Impact 3.5-2: The construction of the proposed project could result in erosion and receiving water quality impacts.	See Mitigation Measures **6.7-1a, 6.7-1b, 6.7-1c, 6.7-1d, 6.7-1e, 6.7-2a** and **6.7-2b** of the 1999 PEIR found in Appendix A.	Less than significant.
Impact 3.5-3: The proposed project would be susceptible to potential flooding impacts.	No mitigation measures are required.	Less than significant.
NOISE		
Impact 3.6-1: Operations of the proposed headworks facility would generate noise.	**M-3.6-1:** All buildings will be designed to insulate noise of the machinery such that fence-line noise standards would not be exceeded.	Less than significant.
Impact 3.6-2: The proposed project would generate noise during construction.	**M-3.6-2:** During construction phases, the contractor shall ensure that all construction is performed in accordance with the City of Huntington Beach and Orange County noise standards.	Less than significant.
Impact 3.6-3: The proposed project could generate groundborne vibration.	No mitigation measures are required.	Less than significant.
TRAFFIC		
Impact 3.7-1: Periods of peak construction of the proposed project would add to traffic along local access streets.	No mitigation measures are required.	Less than significant.
Impact 3.7-2: Operation of the project would slightly increase routine delivery and solids haul truck trips.	No mitigation measures are required.	Less than significant.

CHAPTER 1

INTRODUCTION

The District is the lead agency for the preparation of this SEIR for the replacement of the headworks at Treatment Plant No. 2, located in the City of Huntington Beach. This SEIR has been prepared pursuant to the CEQA Guidelines, Section 15162, to evaluate the environmental effects that may result from the proposed project. The SEIR augments the analysis contained in the District's 1999 PEIR, certified by the District's Board of Directors in October of 1999.

1.1 NEED FOR THE PROJECT

The headworks serves as the initial point of entry for all influent flow into Treatment Plant No. 2. The existing headworks consists of flow metering and diversion structures, pumps, bar screens, grit chambers and chemical addition facilities prior to primary sedimentation. Over many years of plant improvements, the necessary capacity increases of the pumps and bar screens have outpaced the capacity increases of the grit chambers. At the time the PEIR was prepared, it was well documented that the grit chambers were not effectively removing grit largely due to insufficient detention times and poorly operating grit removal equipment. The Strategic Plan recommended the construction of three new grit chambers adjacent to Headworks C to improve the efficiency of this process by adding more detention time as well as improvements to the existing influent sampling system. The Strategic Plan also included a project to refurbish the existing headworks pumping and screening facility. The upgrades to the headworks was designed to meet future flow volumes and to comply with building and safety code requirements.

As part of the preliminary design effort for the upgrades to the existing headworks, the District conducted an engineering analysis of the condition and design criteria of all components of the existing headworks based on the projected flows documented in the 1999 Strategic Plan. This analysis concluded that the entire headworks facilities were in poor condition both structurally and mechanically. An economic evaluation of the required facility upgrades showed that it was less costly and more practical to construct a new headworks than to continue to upgrade the existing headworks after 40 years of expansions and modifications. It was decided that the new headworks would be sized to handle the projected average flows identified in the 1999 Strategic Plan and the peak flow capacity of the existing primary sedimentation process (340 mgd), and would not increase the existing treatment capacity of Plant No. 2.

Since the existing headworks technology has been in place for 40 years, the District decided to visit numerous plants in the western part of the United States to help them determine the best technology for use in the new headworks. This evaluation concluded it would be more cost effective to use vortex grit basins instead of aerated grit basins and to add both screenings and grit handling equipment to increase the solids content of these materials prior to disposal in a landfill. The District plans to use the same type of bar screens that are currently situated at Treatment Plant No. 2.

Last year, the District published an Odor Control Master Plan that recommended the use of a new biotower technology which has been pilot tested for the past two years by the District. The Plan recommended the replacement of the existing trunk line scrubbers with this new technology. Furthermore, it was recommended that the existing odor control facilities currently used to treat the foul air from the existing headworks be used to treat only the foul air from the primary clarifiers. These decisions have resulted in the addition of a new trunk line and headworks odor control facilities into the Headworks Replacement Project at Treatment Plant No. 2.

1.2 PURPOSE OF THE SUBSEQUENT EIR

The 1999 Strategic Plan PEIR assessed the potential effects of the District's 20-year Strategic Plan on the local and regional environment, providing program-level analysis of long-term planning strategies as well as project-level analysis for projects planned to occur in the near-term (up to the year 2005). The PEIR assessed impacts of implementing proposed capital improvement projects to the collections system, treatment plants, discharge facilities, and biosolids management options. The program-level analysis evaluated level of treatment and peak wet weather discharge alternatives to accommodate wastewater treatment demand projections within the service area to the year 2020 while optimizing wastewater reuse programs and protecting the marine environment.

The headworks improvement project was identified in the 1999 Strategic Plan as a near-term project to be implemented by the District between approximately 2000-2005. The changes to the project – from the improvements and upgrades proposed in the 1999 Strategic Plan and addressed in the PEIR, to the complete replacement of the headworks – can be considered as substantial changes to the project that would require revisions of sections of the previous PEIR (primarily to update the analysis of construction impacts) and therefore meet the conditions for the preparation of a Subsequent EIR. CEQA provides in Section 15162 that a Subsequent EIR to a previously certified EIR may be prepared if the lead agency to the previously certified EIR determines that (1) substantial changes are proposed in the project which will require major revisions of the previous EIR due to new significant environmental effects or an increase in the severity of identified significant effects; (2) substantial changes occur with respect to the circumstances that would require major revisions to the previous EIR due to new significant environmental effects or an increase in the severity of identified significant effects; or (3) new information of substantial importance is discovered which was not known when the previous EIR was certified. A Subsequent EIR is appropriate in this case for the following reasons:

- The PEIR assessed the impact of upgrades to the existing headworks, but did not assess the Headworks Replacement Project that is now required. Therefore, it was considered appropriate to provide interested parties information concerning the now-proposed project, associated impacts, and mitigation measures.

- Substantial information in the PEIR continues to be relevant and only changes associated with the Plant No. 2 Headworks Replacement Project require further evaluation.

Changes to the headworks facilities at Treatment Plant No. 2 are a clear part of the program disclosed in the original 1999 PEIR. The District has since changed its proposal for this headworks project and it is appropriate to conduct environmental review of the revised project in a SEIR that tiers from the PEIR. The project falls within the overall objectives and policies of the 1999 Strategic Plan and does not substantially alter the conclusions of the PEIR with respect to the District's adopted policies regarding level of treatment and peak discharge strategies as analyzed in the PEIR. Accordingly, the SEIR is focused to evaluate the construction and operational activities associated with the new project only and does not address issues unrelated to the construction of the Headworks Replacement Project.

1.3 CEQA SUBSEQUENT EIR PROCESS

Pursuant to Section 15082 of the CEQA Guidelines, A Notice of Preparation (NOP) was prepared for the project and circulated to the public on May 12, 2003. The NOP requested that interested parties respond within 30 days with comments and concerns related to the proposed projects. The NOP comment period ended on June 12, 2003. A total of ten NOP comment letters were received. Copies of the NOP and comments received are included in Appendices B and C. This SEIR addresses each of the issues raised in the comments.

The SEIR will be circulated for a period of 45 days in compliance with CEQA requirements. Following the comment period, the District will compile comments received and will prepare a Response to Comments document that, together with the Draft SEIR, will constitute the Final SEIR. The Final SEIR will be presented to the District Board of Directors for certification prior to approval of the projects.

The SEIR identifies measures that the District will implement to lessen potential impacts. These measures will then be added to those already identified in the PEIR. The mitigation measures identified in the PEIR remain applicable to the newly proposed project. Appendix A provides the Mitigation Monitoring and Reporting Plan (MMRP) for the PEIR that remains applicable to the proposed project. The MMRP includes measures to minimize impacts to archaeological resources, Native American resources, paleontological resources, and hazardous waste that could be encountered during excavation on the plant site. None of the mitigation measures in the MMRP have been duplicated in the SEIR. Mitigation measures identified in this SEIR will be included in a separate MMRP, which applies exclusively to the Headworks Replacement Project, when the Final SEIR is adopted. Other CEQA requirements regarding growth inducing effects, cross-media environmental trade-offs, and program level alternatives analysis for the 1999 Strategic Plan are addressed in the PEIR and are considered adequately assessed, requiring no further evaluation in this SEIR.

1.4 ORGANIZATION OF THE SUBSEQUENT EIR

As noted in the NOP, the EIR is focused to assess only those environmental resources that could potentially be significantly impacted by the proposed project in ways not already identified in the PEIR. The EIR includes a setting and impacts analysis for the following resource areas:

- Aesthetics
- Air Quality
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Traffic

CHAPTER 2

PROJECT DESCRIPTION

The District provides wastewater services for more than 2.3 million residents in 23 cities within a 450-square mile portion of northern and central Orange County. The District operates and maintains the third largest wastewater system on the West Coast, consisting of over 650 miles of trunk and subtrunk sewer lines within its service area. Two treatment plants are situated along the SAR; Reclamation Plant No. 1 is located in Fountain Valley, and Treatment Plant No. 2 is located in Huntington Beach near the Pacific coast. Figure 2-1 shows the service area and location of the treatment plants.

2.1 PROPOSED HEADWORKS PROJECT

Project Components

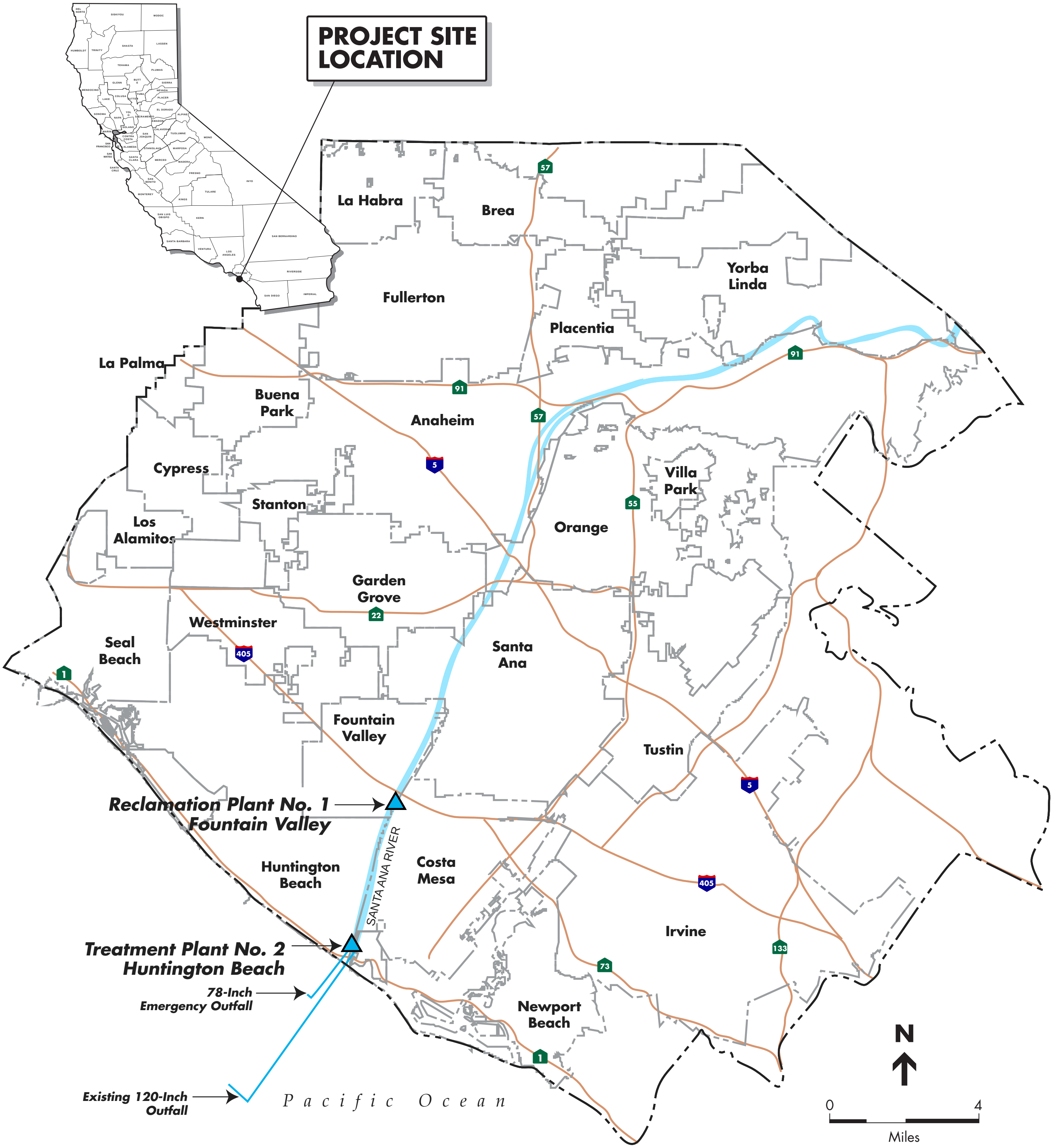
The existing headworks facility located at Treatment Plant No. 2 receives wastewater from five major trunk sewers: Bushard, Miller-Holder, Coast, Newport, and the Interplant pipeline that conveys influent flows from Plant No. 1 to Plant No. 2. The new headworks facility would provide the point of entry for the trunk sewers, combining their flow, measuring their flow, and providing grit and debris removal (preliminary treatment). The major treatment processes and equipment to be installed as part of the proposed project are listed below. Table 2-1 summarizes the size, height, and depth of each component.

- **Diversion Structure.** An underground concrete structure through which the influent trunk sewers are connected to the treatment plant.

- **Influent Metering Structure.** An underground concrete structure housing four magnetic flow meters and associated piping. The structure is equipped with a 15-ton bridge crane to facilitate equipment maintenance and replacement.

- **Bar Screens Facility.** A concrete structure housing six sewage screening mechanisms (bar screens). The bar screens are rated for a 340 mgd peak wet weather capacity. The facility also includes Influent Screening Channels located below grade.

- **Screenings Handling System.** The screenings are removed, washed, dewatered, and placed into disposal trucks in the Screenings Handling System. Conveyors transport the material from the Screening Washing Building to the Screenings Loading Building.



SOURCE: Environmental Science Associates

OCSD Headworks Replacement SEIR / 201168

Figure 2-1
Service Area with Existing Treatment Facilities

TABLE 2-1: SUMMARY OF PROJECT COMPONENT AREA, HEIGHT, AND DEPTH

	Area (square feet)	Height above grade (feet)	Depth below grade (feet)
Diversion Structure	3,900	1.5	39
Influent Metering Structure	5,220	2	42
Bar Screens Facility / Influent Screening Channels	9,100	49.4	35
Screening Washing Building	1,976	18	9.5
Screening Loading Building	1,800	47.5	1.5
Influent Pump Station	8,700	55	41
Influent Pump Station Discharge Channel	6,600	24.5	5.3
Grit Basins/Grit Pump Station	9,300	25	15.5
Grit Handling Building	3,600	56	2.7
Primary Splitter Structure	2,280	25	20.5
Primary Influent Metering Structure	2,775	1.5	20.5
Primary Treatment Ferric Chloride Facility	2,000	33	3.5
Headworks Odor Control Facility	69,000	48	0
Trunkline Odor Control Facility	5,250	48	0
Power Building E	12,000	30	3.8

Source: Carollo Engineers, 2003

- **Influent Pump Station.** The Influent Pump Station consists of a wet well, a pump station and a discharge channel designed to convey a peak flow of 340 mgd. The lower level is the pump room and contains seven sewage pumps and piping. The upper level is the motor room. The sewage pumps discharge into the Influent Pump Station Discharge Channel.

- **Grit Basins.** The six vortex sewage grit removal units (grit basins) and six grit pumps are rated to accommodate a peak flow of 340 mgd.

- **Grit Handling Building.** Four grit dewatering units load grit into a trailer housed inside the building.

- **Primary Splitter Structure.** An underground structure housing 26 sluice gates for flow control from the headworks to downstream primary treatment.

- **Primary Influent Metering Structure.** Three magnetic flow meters measure flow from the Primary Splitter Structure to downstream treatment facilities.

- **Primary Treatment Ferric Chloride Facility.** Houses two 21,000 gallon above-ground ferric chloride storage tanks (ferric chloride is used in the wastewater process as a settling aid for advanced primary treatment and odor control) and six chemical feed pumps for dosing.

- **Headworks Odor Control Facility.** These facilities include large-capacity fans, bio-trickling filter towers, chemical scrubber towers, chemical feed systems, and chemical storage tanks (sodium hypochlorite, sodium hydroxide, and hydrochloric acid).

- **Trunkline Odor Control Facility.** Provides odor treatment for incoming trunk sewers. These facilities include large-capacity fans and bio-trickling filter towers.

- **Power Building E.** Houses electrical equipment including switchgear, variable frequency drives, and motor control centers. Six electrical transformers are located outside along the southeast of the building.

- **Site Piping.** Additional buried piping and electric duct banks would be installed as described below.

    - Diversion sewers and diversion boxes would be installed for four large diameter (78-inch to 108-inch) influent sewer trunks from the existing headworks to the new headworks.
    - Three large diameter (84-inch to 96-inch) primary influent lines and junction boxes to connect the new headworks to the existing primary influent lines.
    - Foul air ducts from the new headworks and trunk lines to the odor control facilities.
    - Chemical pipelines for ferric chloride and sodium hypochlorite.
    - Associated drain pipelines, storm drains, and utility pipelines including high pressure air, reclaimed water, plant water, and potable water.
    - Electrical ductbanks feeding electric power to the process buildings.

- **Chemical Storage.** The ferric chloride system would include two 21,000-gallon above-ground storage tanks located adjacent to the main facility. The new system would use approximately 6,000 gallons of ferric chloride per day.

  Sodium hypochlorite would be stored in a 16,000 gallon above-ground storage tank. The new system would use up to 2,200 gallons per day of sodium hypochlorite. An additional 12,000 gallon above-ground storage tanks would be installed for sodium hydroxide (average of 900 gallons used per day) and an 8,000 gallon tank for hydrochloric acid (800 gallons used on two days of the month). All tanks would have secondary containment facilities that could hold each tank's capacity in the event of a spill.

The new headworks would have a 340 mgd peak wet weather flow capacity and would not increase the existing treatment capacity of Plant No. 2. The existing power buildings (A and B) will have the majority of electrical equipment removed. These buildings will not be demolished, but will remain onsite and possibly used for storage in the future. The proposed Power Building E will include some of the electrical equipment contained in power buildings A and B with additional upgrades. The odor control system would consist of new bio-tower scrubbing technology followed by conventional chemical scrubbers. Both the bio-towers and the conventional scrubbers would be approximately 48 feet tall located adjacent to the main facility. The existing scrubbers and odor control facilities, currently used to treat the foul air from both the existing headworks and primary clarifiers, will be modified. In the future, the north scrubbers will only be used to treat foul air from the primary clarifiers and the new bio-towers will be totally dedicated to the new headworks.

Figure 2-2 shows the proposed site plan of the new headworks facility. Wastewater from each trunk sewer passes through a separate section of the diversion structure and metering structure before converging upstream of the bar screens. After passing through the bar screens, the wastewater flows by gravity to the pump station where it is pumped into a channel that conveys flow through grit chambers and a primary influent metering structure to the primary clarifiers.

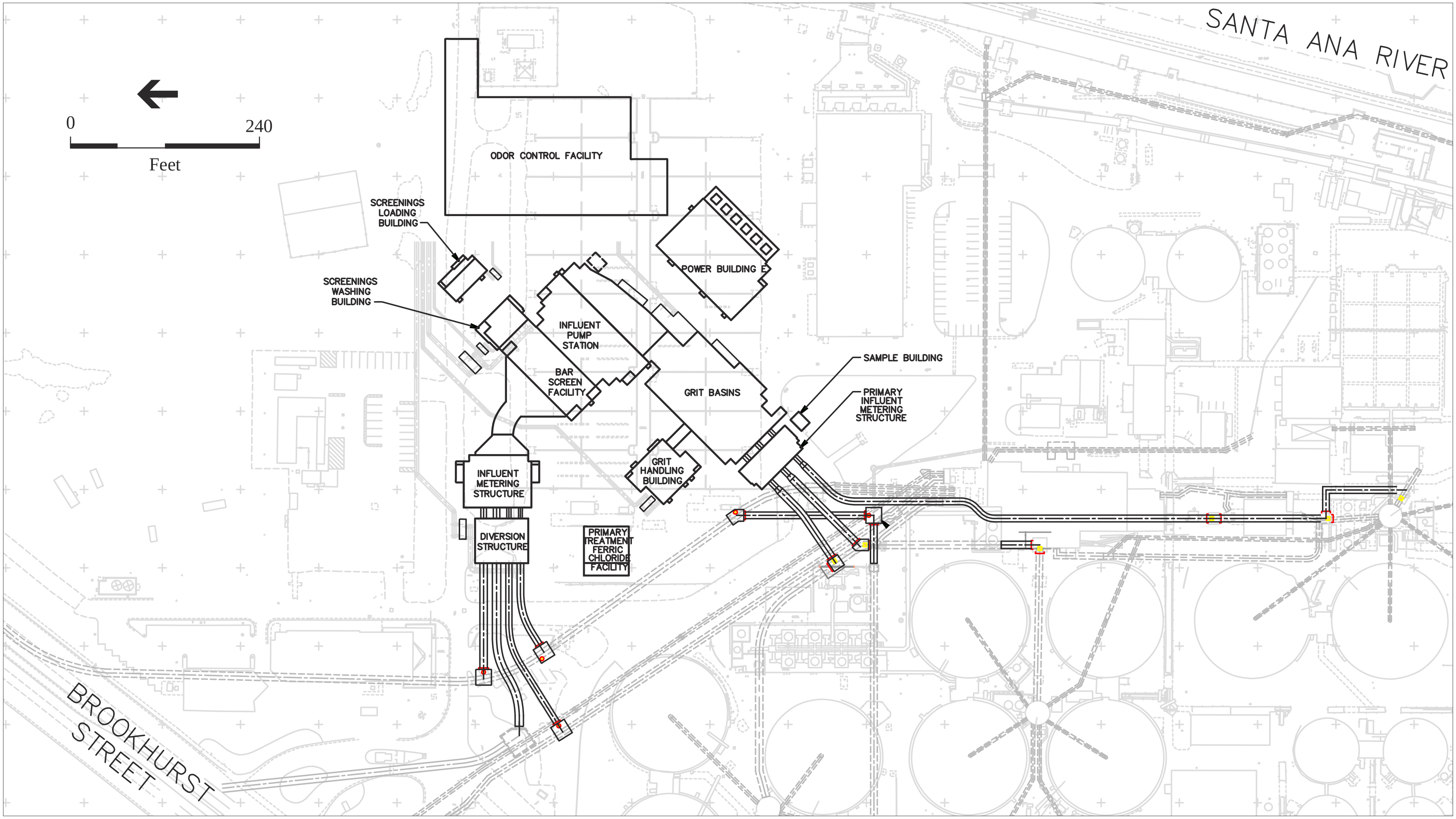
The new screenings and grit handling buildings would be equipped with washing, dewatering, and loading facilities adjacent to the main headworks structure. On an average day, the new headworks would remove 5-1/3 cy (7.2 tons) of grit and 19 cy (18 tons) of screenings. The new headworks is expected to remove more grit than the existing facilities. However, grit removal would require 125 haul truck trips per year, compared to the present 250 annual trips due to the use of larger grit storage/hauling containers (22-ton trailers instead of the 8-ton bins that are currently used). Screenings washing and compacting will reduce the average daily volume of screenings to 11 cy, which would require 185 haul truck trips per year compared to the present 240 annual trips.

The tallest of the new headworks facilities would be 56 feet tall as summarized in Table 2-1. The project would occur within a 30-acre portion of Plant No. 2, which contains the existing sludge drying beds, headworks B and C, two underground storage tanks, and a truck washing facility. These facilities, shown in Figure 2-3, would be decommissioned and demolished as part of the project. The road network and parking area on the affected portion of Plant No. 2 would be modified as part of the project.

The construction of the project would occur within the property boundaries of the District’s Treatment Plant No. 2. Construction would require excavation of approximately 175,000 cy of soil, 75,000 cy of which would be disposed of offsite, requiring approximately 3,750 haul truck trips.

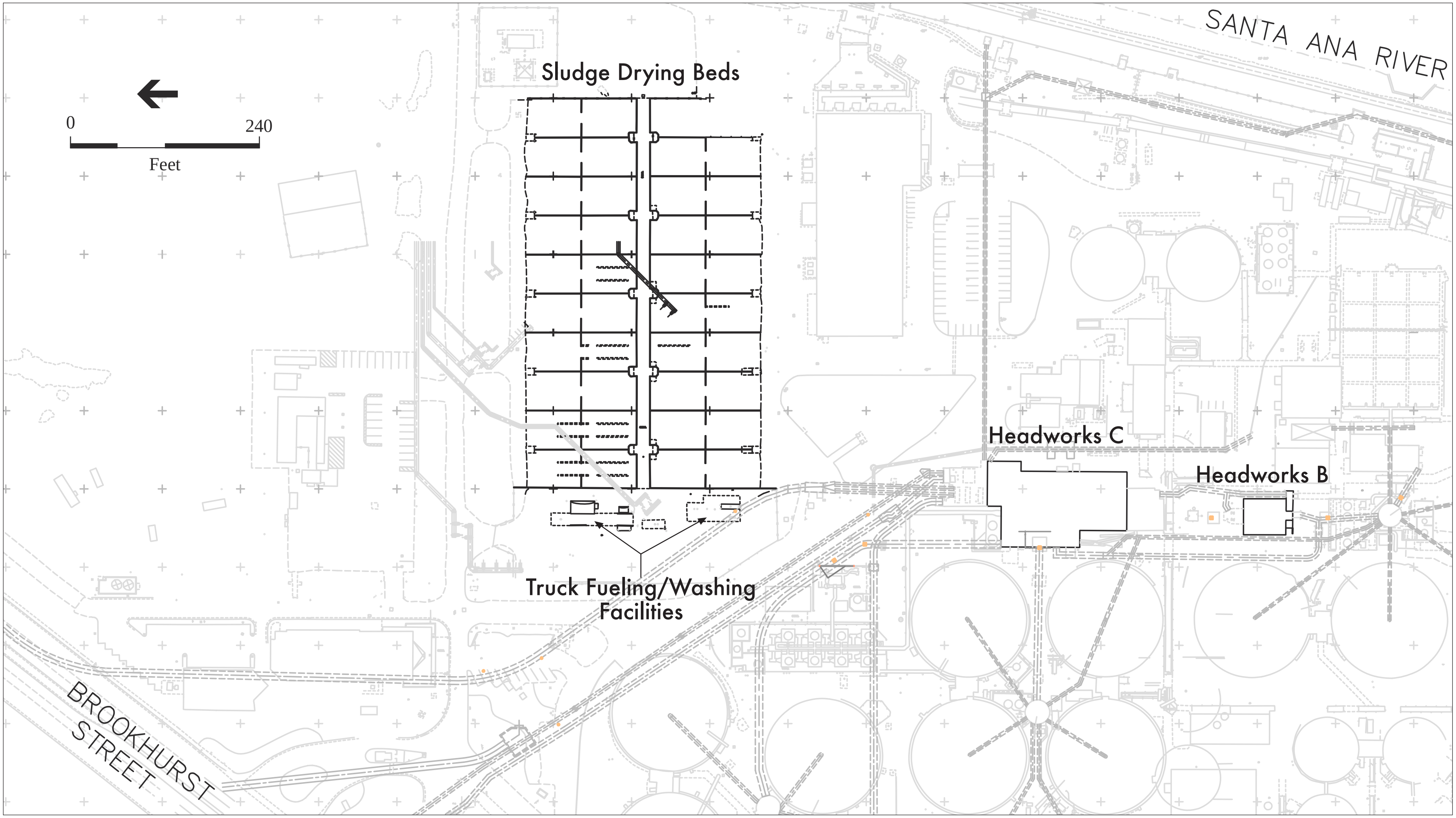
Schedule

Construction of the project would require approximately five years, beginning in June 2005 and ending in June 2010, with approximately 1,050 days (almost three years) of actual construction work. The new headworks and ancillary facilities would be fully constructed prior to the demolition of the existing facility. It is expected the Headworks Replacement Project will be constructed in the following phases as shown in Table 2-2.



SOURCE: Orange County Sanitation District, May 2003

Figure 2-2
Proposed Headworks Site Plan



SOURCE: Orange County Sanitation District, May 2003

Figure 2-3
Facilities to be Demolished

TABLE 2-2: CONSTRUCTION PHASING AND SCHEDULE

Construction Phase	Activities	Duration (days)*
Mobilization	Establish administration and construction infrastructure.	10
Demolition	Remove interfering surface features.	30
Dewatering	Install dewatering wells and pumping equipment.	40
Excavation	Excavation, soil stockpile and removal from site. Install sheet piling and shoring.	150
Construction & Installation	Build concrete structures and install and test equipment, piping, and electrical components.	1,050
Connection	Build lines to connect to existing trunk and primary influent lines. Bypass flow to Plant No. 1. Backfill structures. Final grading, paving and landscaping.	430
Commissioning	System testing, start-up and training.	100
Demolition of Headworks B &C	Remove existing buildings and salvage equipment.	230

* Note that the phases are sequential but there is overlap between phases. The total construction period is five years.

Source: Carollo Engineers, 2003

The new headworks would be connected to the incoming sewers and treatment plant in three phases during the final 14 months of construction. In each phase, one or two of the trunk lines would be connected to the new headworks and a temporary bypass line would be constructed to redirect the flow out of the new headworks back to the existing headworks. Then a third of the existing primary clarifiers would be taken out of service and connected to the new headworks. The clarifiers would then be placed back in service. While the primary clarifiers are out of service some of the influent would be redirected to the District's Reclamation Plant No. 1 via a newly proposed Ellis Avenue pump station (subject of a separate CEQA document) to reduce the total flow through Plant No. 2. The existing headworks would be demolished in two phases: a portion before the second tie-in to the existing primary clarifiers and the remaining portion before the third tie-in to the existing primary clarifiers.

Prior to completion of the new headworks, the District may reroute the Newport Trunk sewer and associated force mains via one of two alternatives being proposed under a separate project and CEQA document. In one alternative, the sewer would connect with the Coast Trunk sewer near PCH through a new force main pipeline. The other alternative being considered would construct a new force main system within the marshland area of the Army Corps of Engineers (ACOE) or the Banning Ranch, entering the treatment plant from under the SAR approximately 2,700 feet north of the PCH, and 700 feet of pipeline connecting Plant No. 2 to the Coast Trunk sewer. Currently, the Newport Trunk sewer and Force Main project is being evaluated under a separate CEQA document, but on a parallel track with this project.

Construction Resources

The amount and types of construction machinery and the numbers of construction workers expected during each phase of the construction is listed in Table 2-3. The project would require a maximum of 60 workers during peak construction periods. The amount and types of materials used and trips expected during each phase of the construction are identified in Table 2-4.

TABLE 2-3: CONSTRUCTION EQUIPMENT LIST AND WORKERS

Construction Phase	**At Peak of Construction Phase**		
	Equipment		**Workers**
Mobilization	None		None
Demolition	Large Loaders – 2 Grinding Machine – 1 Dump Trucks – 4	Water Trucks – 2 Hoe Ram – 1 Light Trucks – 3	15 – 20
Dewatering	Drill Rigs – 2 Gang Trucks – 2 Light Trucks – 3	Water Trucks – 2 Small Loaders – 2	10 – 15
Excavation	Large Scrapers – 5 Large Cranes – 2 Large Backhoe – 1 Small Cranes – 2 Small Loaders – 2 Motor Grader – 1 Medium Trucks – 2 Light Trucks – 4 Welding Machines – 2 Hydro-Vibro Drivers – 2	Large Dozers – 2 Large Forklifts – 2 Drill Rigs – 2 Small Backhoe – 1 Water Trucks – 2 Dump Trucks – 4 Gang Trucks – 2 Compactor – 1 Grout Pumps – 2	35 – 45
Construction & Installation	150 Ton Crane – 2 Rough Terrain Crane – 2 Forklift – 2	Air Compressor – 3 Concrete Pump – 1 Flat Rack Truck – 1	35 – 60
Connection	Large Loaders – 2 Large Backhoe – 1 Medium Crane – 1 Medium Forklift – 1 Small Backhoe – 1 Dump Trucks – 4 Gang Trucks – 2 Welding Machines – 2 Hydro-Vibro Drivers – 1	Large Cranes – 1 Medium Dozers – 2 Medium Loader – 1 Drill Rig – 1 Water Trucks – 2 Medium Trucks – 2 Light Trucks – 3 Compactors – 4	40 – 60
Commissioning	Medium Trucks – 2	Light Trucks – 3	10 – 15

Source: Carollo Engineers, 2003

TABLE 2-4: ESTIMATED PEAK DAILY CONSTRUCTION TRAFFIC AT PLANT NO. 2

Construction Phase	Activity	Duration (days)	Estimated Peak Daily Trips*
Mobilization	Construction trailers to site	10	5
Demolition	Large construction machinery to/from site	30	40
	Worker commute (20 workers)		40
Dewatering	Large construction machinery to/from site	40	40
	Dewatering equipment to/from site		20
	Worker commute (15 workers)		30
Excavation	Large construction machinery to/from site	150	10
	Sheet piling to/from site		20
	Tie-back systems to/from site		10
	75,000 cubic yards of earth from site		150
	Worker commute (45 workers)		90
Construction & Installation	Large construction machinery to/from site	1,050	40
	Structural and reinforcing steel to site		40
	Concrete – 40,000 cubic yards to site		100
	Piping, electrical and miscellaneous material and equipment to site		40
	Worker commute (60 workers)		120
Connection	Large construction machinery to/from site	430	20
	Piping material to site		40
	Paving and landscaping material to site		40
	Worker commute (60 workers)		120
Commissioning	Construction trailers from site	100	5
	Worker commute (15 workers)		30

* One way trips

Source: Carollo Engineers, 2003

2.2 PROJECT ALTERNATIVES

Alternatives to the project considered by the District include the No Project Alternative and the 1999 Strategic Plan PEIR Alternative which involved the renovation of the existing headworks. Both of these alternatives were adequately assessed in the 1999 PEIR. The No Project Alternative would result in no action being taken to refurbish the existing headworks. The 1999 PEIR Alternative would consist of implementing upgrades to the existing headworks as proposed in the 1999 PEIR. The No Project Alternative would eliminate the temporary impacts associated with construction of the recommended project. The 1999 PEIR would likely result in similar construction effects to air quality, noise, and traffic.

As described in the PEIR, the No Project Alternative would not accommodate the projected increase in wastewater flows. In addition, as the existing equipment aged, the possibility of sewage spills and fugitive odor releases would increase. The facilities would not comply with building codes and electrical codes and could pose worker safety hazards. These effects would be considered potentially significant impacts of the No Project Alternative. The recommended project would eliminate these potential hazards.

The 1999 PEIR Alternative would reduce the risks associated with sewage spills and odor releases by renovating the existing equipment; however, renovation of the 40-year old facility would not eliminate the risk of mechanical failures associated with aging equipment. In addition, the construction methods required to renovate the existing equipment would be more difficult and ultimately more costly since the existing equipment would be in use during the renovation. The District determined that the 1999 PEIR Alternative would likely result in significant construction effects to air quality, noise, and traffic similar to the recommended project, but would not provide the long-term benefits of an entirely new system.

Once constructed, the recommended project would result in reduced operational impacts of odor emissions and spill potential compared with either alternative. In addition, the proposed project would provide improved preliminary treatment by providing better grit and debris removal and adding equipment to remove more water from grit and screenings, and thereby reducing haul truck trips of grit to the landfill. This would save landfill capacity and reduce haul truck emissions. In addition, constructing new structures would provide enhanced seismic safety and improved reliability. The new facility would also substantially improve odor control efficiency. As a result, the recommended project would be considered the environmentally superior alternative.

2.3 REQUIRED APPROVALS

The following agency approvals would be required to implement the proposed project:

- Regional Water Quality Control Board, construction storm water and dewatering permit
- City of Huntington Beach, conditional use permit and coastal development permit
- SCAQMD, air emissions permit
- Orange County Health Care Agency, underground tank removal permit

CHAPTER 3

ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION

The 1999 PEIR assessed potential impacts for each CEQA category for long-term planning strategies and short-term projects in the District's 20-year Strategic Plan. The following sections augment that analysis by evaluating impacts of the proposed project that were not evaluated at a project-level in the 1999 PEIR.

3.1 AESTHETICS

This section describes the aesthetic characteristics in the vicinity of Treatment Plant No. 2, evaluates the consistency of the proposed project with established visual resources policies relevant to the project, and assesses potential impacts associated with the proposed project.

3.1.1 SETTING

Treatment Plant No. 2 is located in southern Huntington Beach adjacent to the SAR, roughly 1,500 feet from the Pacific Ocean. The plant is located on approximately 110-acres bounded by Brookhurst Street on the northwest, PCH on the southwest, and the SAR on the east.

Orange County is characterized by a variety of landforms including coastal shorelines, flatlands, hills, mountains, and canyons. Broad sandy beaches, coastal bluffs, uplifted marine terraces, and marshes characterize the Pacific shoreline. Major ridgelines occur in the Santa Ana Mountains, Lomas de Santiago, and the San Joaquin Hills. More than half of Orange County is urbanized including most of the District's Service Area.

The City of Huntington Beach is located on the coast with roughly 10 miles of shoreline along the Pacific Ocean. A sequence of mesas and small bays exist along the coast. Inland the city is relatively flat. Views of the Pacific Ocean and coastlines are available from the bluffs of Costa Mesa to the northeast of Treatment Plant No. 2, Bolsa Chica mesa to the north, and from portions of PCH. Visual elements considered to contribute positively to the City include the Pacific Ocean, Bolsa Chica Wetlands, Huntington Harbor, and mature landscaping.

Existing Views

Treatment Plant No. 2 is not located within a scenic vista or view designated by the County or Caltrans. However, the site is visible to several single family residences and the PCH. The residential properties with views of the treatment plant are located in the cities of Huntington Beach to the northwest, Costa Mesa to the northeast, and Newport Beach to the southeast. Figures 3.1-1 and 3.1-2 provide views of the project site from various off-site locations.

SOURCE: Black & Veatch Corporation

OCSD Headworks Replacement SEIR / 201168 ■

Figure 3.1-1
View of Plant from Across Santa Ana River

SOURCE: Black & Veatch Corporation

OCSD Headworks Replacement SEIR / 201168 ■

Figure 3.1-2
View of Plant from PCH East of Santa Ana River

Several homes are situated on the bluffs of Costa Mesa overlooking the wetlands and the SAR. The houses located on the mesa have views of the ocean, the wetlands, oil drilling operations, crude oil storage tanks, and the existing facilities at Treatment Plant No.2. These houses are located approximately one mile east with long-range views of the treatment plant.

The plant can also be seen from several homes adjacent to the wetlands in the City of Newport Beach, the nearest of which is approximately 1,800 feet southeast. The views from the east are partially impaired by the SAR levee. Several privately owned oil extraction pumps are located between the Newport Beach residences and the SAR.

Single family residences located directly north and west of the site along Brookhurst Street in the City of Huntington Beach are separated from the treatment plant by a screening wall enhanced with landscaping. However, some of the homes have partial views of the plant and its facilities.

Treatment Plant No. 2 is also visible looking north from PCH. PCH is located south of the site across the Talbert Marsh, which lies along the southwest boundary of the treatment plant. The District recently completed landscaping improvements along the southwestern border of the treatment plant to obscure the views of the plant from PCH.[1]

3.1.2 IMPACTS AND MITIGATION

SIGNIFICANCE CRITERIA

A project would be considered to have a significant impact if it would have a substantial, demonstrable negative aesthetic effect. The significance of impacts related to the visual quality of the environment is analyzed from two perspectives: the temporary impacts of construction activities and the long-term impacts associated with operation. The recommended project would pose a significant impact, if it:

- Blocks scenic views (e.g., mountains, ocean, rivers, or significant man-made structures)
- Alters the appearance of designated scenic resources along or near a state-designated or county-designated scenic highway or vista point
- Creates significant contrasts with the scale, form, line, color, and/or overall visual character of the existing landscape setting
- Is inconsistent with applicable local guidelines or regulations

Impact 3.1-1: Several of the new structures would be visible from adjacent residential neighborhoods and PCH.

[1] Environmental Science Associates. *Addendum #2-Landscape and Irrigation at Plant No. 2, Job No. P2-84 OCSD 1999 Strategic Plan PEIR.* November 2001.

Views of Treatment Plant No. 2 are shielded from residential areas along Brookhurst Street by a ten foot tall screening wall and eucalyptus trees that are approximately 30 feet tall. Residential areas located across the SAR in Newport Beach and Costa Mesa already have long-range views of the structures within the plant site under existing conditions (Figures 3.1-1 and 3.1-2).

The District proposes to demolish and remove the two existing headworks (B and C), sludge drying beds, two underground storage tanks, and a truck washing facility and construct new facilities on the central portion of the treatment plant property. The proposed project would require the construction of fifteen structures, eleven of which would be greater than 20 feet tall as shown in Table 3.1-1, and would be visible from residential areas located across the SAR. Long distance views of the ocean from Newport Beach and Costa Mesa would not be affected. Most of the new structures are located far enough from the property line so that the screening wall and eucalyptus trees would shield them from view along Brookhurst Street.

TABLE 3.1-1: AREA AND HEIGHT OF PROPOSED STRUCTURES TALLER THAN 20 FEET

	Area (square feet)	**Height (feet)**
Power Building E	12,000	30
Influent Pump Station Discharge Channel	6,600	24.5
Grit Basins/Grit Pump Station	9,300	25
Primary Treatment Ferric Chloride Facility	2,000	33
Screening Loading Building	1,800	47.5
Headworks Odor Control Facility	69,000	48
Trunkline Odor Control Facility	5,250	48
Bar Screens Facility / Influent Screening Channels	9,100	49.4
Influent Pump Station	8,700	55
Grit Handling Building	3,600	56
Primary Splitter Structure	2,280	25

Source: Carollo Engineers, 2003

The design of the new buildings would be similar to the character and height of the surrounding facilities and would not change the industrial character of the site. There are several structures at the plant, such as the digesters and Effluent Pump Station Annex (currently under construction) which are 40 feet tall. The height of the existing headworks facility is 30.5 feet high. The headworks odor control building, the largest of the new buildings in terms of square footage, would be 48 feet tall. The two tallest buildings (55 to 56 feet) would be 3,600 to 8,700 square feet. The proposed facilities have been sized as efficiently as possible to accommodate the needed equipment and meet current codes and regulatory requirements. The tallest of the new buildings would be roughly half the height of the existing surge towers (100 feet), which are the tallest structures on the site. The new structures would be constructed where the sludge drying beds, which are low-profile structures, are currently located resulting in long-range views of a few taller buildings further north on the site than what currently exists. However, when considering views of the site as a whole, as shown in Figures 3-1 and 3-2, the visual character and long range views of the site would not be substantially altered. The general massing of development at Treatment Plant No. 2 would not increase since the new buildings would be constructed where existing structures would be demolished. The impact to long-range views would be considered a less than significant impact.

The existing landscaping at the entrance to Treatment Plant No. 2 could be removed during construction activities. The following mitigation measure would ensure that the landscaping was adequately replaced to avoid visual impacts to the Huntington Beach neighborhood.

Mitigation Measures

M-3.1-1: The contractor shall replace damaged landscaping and restore the construction area near the property boundary to a condition similar to existing conditions.

Significance after Mitigation

Less than significant.

3.2 AIR QUALITY

The air quality impact analysis considers construction and operational impacts associated with the proposed project. Construction and operational emissions are estimated following standards provided in the SCAQMD CEQA Air Quality Handbook.

3.2.1 SETTING

The project site is located within the jurisdictional boundaries of the SCAQMD in the South Coast Air Basin (SCAB). The SCAB encompasses 6,745 square miles and includes some portions of San Bernardino, Riverside, Los Angeles, and Orange Counties. The SCAQMD stretches from the Pacific Ocean in the west, to the Angeles National Forest in the north, to Orange County in the south, and to Riverside and San Bernardino Counties in the east.

Regional Climate

The SCAB climate is influenced by a semi-permanent high-pressure system that lies off the coast. The resulting weather is mild, tempered by a daytime sea breeze and a nighttime land breeze. This mild climate is infrequently interrupted by periods of extremely hot weather, winter storms, and Santa Ana winds (strong, seasonal westward wind). Rainfall in the SCAB is primarily restricted to November through April, with rainfall totals being highly variable from year to year.

The Orange County coast experiences an average wind speed of 7.7 miles per hour (mph). Inland areas record slightly lower wind speeds. Because of the low average wind speed, air contaminants in the SCAB do not readily disperse. On spring and summer days most pollution is moved out of the SCAB through mountain passes or is lifted by the warm vertical currents produced by the heating of the mountain slopes. From late summer through the winter months, lower wind speeds and the earlier appearance of offshore breezes combine to trap pollution in the SCAB.

In the SCAB, a persistent temperature inversion layer limits vertical dispersion of air pollutants. In an inversion condition, temperature increases with altitude. As the pollution rises it reaches an area where the ambient temperature exceeds the temperature of the pollution. This causes the pollution to sink back to the surface. This phenomenon acts to trap air pollution near the surface.

In summer, the longer daylight hours and bright sunshine combine to cause a reaction between hydrocarbons and oxides of nitrogen to form ozone. In winter, the greatest pollution problems are carbon monoxide and nitrogen oxides, which are trapped and concentrated by the inversion layer.

APPLICABLE REGULATIONS

Federal Standards

The Federal Clean Air Act (CAA) of 1970 is the comprehensive law that regulates air emissions from area, stationary, and mobile sources. The law authorized the EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The goal of the Act was to set and achieve NAAQS in every state by 1975. The setting of maximum pollutant standards was coupled with directing the states to develop state implementation plans (SIPs) applicable to appropriate industrial sources in the state.

The Act was amended in 1977 primarily to set new goal dates for achieving attainment of NAAQS since many areas of the country had failed to meet the deadlines. The 1990 amendments to the CAA in large part were intended to meet unaddressed or insufficiently addressed problems such as acid rain, ground level ozone, stratospheric ozone depletion, and air toxics.

NAAQS have been established for carbon monoxide (CO), ozone (O_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), particulate matter (PM_{10}), and lead (Pb). These contaminants are referred to as criteria pollutants. Table 3.2-1 summarizes state and federal air quality standards. The following is a brief description of applicable criteria air pollutants.

Criteria Air Pollutants

Ozone (O_3). O_3 is a secondary pollutant produced through a series of photochemical reactions involving reactive organic compounds (ROCs) and nitrogen oxides (NO_x). O_3 creation requires ROCs and NO_x to be available for approximately three hours in a stable atmosphere with strong sunlight. O_3 is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources generating ROCs and NO_x emissions. O_3 effects include eye and respiratory irritation, reduction of resistance to lung infection, and possible aggravation of pulmonary conditions in persons with lung disease. O_3 is also damaging to vegetation and untreated rubber.

Carbon Monoxide (CO). CO is a non-reactive pollutant that is a product of incomplete combustion. Ambient CO concentrations usually follow the spatial and temporal distributions of vehicular traffic and are also influenced by meteorological factors such as wind speed and atmospheric mixing. Under inversion conditions, CO concentrations may be distributed more uniformly over an area out to some distance from vehicular sources.

Nitrogen Oxides (NO_x). There are two oxides of nitrogen which are important in air pollution: nitric oxide (NO) and NO_2. NO and NO_2 are both emitted from motor vehicle engines, power plants, refineries, industrial boilers, aircraft and railroads. NO_2 is primarily formed when NO reacts with atmospheric oxygen. NO_2 gives the air the "whiskey brown" color associated with smog.

Particulate Matter (PM_{10}). PM_{10}, particulate matter with a diameter less than 10 micrometers, can be inhaled deep into the lungs and cause adverse health effects. PM_{10} in the atmosphere results from many kinds of dust and fume-producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter such as demolition and construction activities are more local in nature, while others such as vehicular traffic have a more regional effect.

Sulfur dioxide (SO_2). SO_2 is formed through the oxidation of elemental sulfur; suspended sulfates are the product of further oxidation of SO_2. In some parts of the state, elevated levels can be due to natural causes, such as wind-blown dust and sea salt spray. Suspended sulfates contribute to overall particulate concentrations in ambient air which, if high enough, are suspected to be a cause of premature death in individuals with pre-existing respiratory disease.

TABLE 3.2-1: AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
O_3	1 hour	0.09 ppm	0.12 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Motor vehicles.
	8 hours	---	0.08 ppm		
CO	1 hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, CO interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen.	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9 ppm	9.0 ppm		
NO_2	Annual Average	---	0.05 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.25 ppm	---		
	24 hours	0.04 ppm	0.14 ppm		
PM_{10}, $PM_{2.5}$	Annual Geometric Mean	30 ug/m^3 (PM_{10})	65 ug/m^3 ($PM_{2.5}$)	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	Annual Arithmetic Mean	---	50 ug/m^3 (PM_{10})		
	24 hours	50 ug/m^3 (PM_{10})	150 ug/m^3 (PM_{10}) 15 ug/m^3 ($PM_{2.5}$)		
Pb	Monthly	1.5 ug/m^3	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurologic dysfunction (in severe cases).	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	---	1.5 ug/m^3		

Source: California Air Resources Board, *Ambient Air Quality Standards*, January 25, 1999.

Toxic Air Contaminants (TACs). TACs, also known as hazardous air pollutants, are pollutants known or suspected to cause cancer or other serious health effects such as birth defects. TACs may also have significant adverse environmental and ecological effects. Examples of TACs include benzene, diesel particulates, hydrogen sulfide, methyl chloride, 1,1,1-trichloroethane, toluene, and metals such as cadmium, mercury, chromium, and lead. Health effects from TACs vary depending on the toxicity of the specific pollutant but may include cancer, immune system damage, as well as neurological, reproductive, developmental, and respiratory problems.

According to EPA, approximately 50 percent of the TACs we are exposed to come from mobile source emissions. The California Air Resources Board (CARB) approved a comprehensive diesel risk reduction plan in September 2000. The EPA published its final rule to control emissions of hazardous air pollutants from mobile sources in the March 29, 2001 Federal Register.

State Standards

In 1967, California's legislature passed the Mulford-Carrel Act, which established the CARB. The CARB set state air quality standards for criteria pollutants. The state standards for these pollutants are more stringent than the corresponding federal standards (see Table 3.2-1). As in the Federal CAA, the California Clean Air Act classifies areas as either being in "attainment" or "non-attainment" for these criteria pollutants. Areas designated as non-attainment are then given a set time frame to achieve attainment.

Local Regulations

The project site is located within the jurisdiction of the SCAQMD. The SCAQMD adopted an Air Quality Management Plan (AQMP) in 1979, which intended to meet federal air quality standards by December 31, 1987. Using better data and modeling tools, the 1982 revision of the AQMP concluded that the basin could not demonstrate attainment by the 1987 deadline required by the federal CAA. Therefore, the 1982 Revision of the AQMP proposed a long-range strategy that could result in attainment in 20 years. In 1987, a federal court ordered the U.S. EPA to disapprove the 1982 AQMP revision because it did not demonstrate attainment of the federal standards by the 1987 deadline.[1]

Currently, the SCAQMD is operating under the 1997 AQMP and the 1999 amendment to the 1997 ozone portion of the AQMP. The 1997 AQMP relies on short-term and intermediate-term attainment measures which were to be adopted by 2000, and long term attainment measures utilizing advances in technology reasonably expected to be available by the year 2010. On January 12, 1999, the U.S. EPA proposed a partial disapproval of the ozone portion of the 1997 AQMP. The AQMD responded with the 1999 Ozone State Implementation Plan revision, which the EPA indicated would be approvable. Currently, the AQMD is in the process of preparing the Proposed 2003 Air Quality Management Plan for the South Coast Air Basin. The 2003 AQMP seeks to demonstrate attainment with state and federal air quality standards and will incorporate a revised emissions inventory, the latest modeling techniques, updated control measures remaining from the 1997/1999 SIP, and new control measures based on current technology assessments.

Existing Air Quality

The SCAB is in non-attainment for both the federal and state ozone, carbon monoxide, and PM_{10} standards. The state one-hour ozone standard in the SCAQMD was exceeded 5 days in 1998 and at least

[1] South Coast Air Quality Management District and Southern California Association of Governments, Final 1989 Air Quality Management Plan, March 1989.

once per year from 1997 through 2001 (see Table 3.2-2). The PM_{10} standard was exceeded 15 times in 1999, and at least eight times a year from 1997 to 2001. The carbon monoxide standard has not been exceeded in the project area for the last five years. The SCAB is a maintenance area for the federal and state NO_x standards, which means it had once been in non-attainment.

TABLE 3.2-2: PROJECT AREA AIR POLLUTANT SUMMARY, 1997-2001[a]

Pollutant		Standard[b]	1997	1998	1999	2000	2001
O_3	Highest 1-hr average, ppm[c]	0.09	0.10	0.12	0.10	0.10	0.11
	Number of standard excesses[d]		1	5	NA	1	2
CO	Highest 1-hr average, ppm[c]	20.0	7.0	9.0	8.0	8.0	8.0
	Number of standard excesses[d]		0	0	0	0	0
	Highest 8-hr average, ppm[c]	9.1	5.8	7.0	6.4	6.3	4.71
	Number of standard excesses[d]		0	0	0	0	0
NO_2	Highest 1-hr average, ppm[c]	0.25	0.12	0.12	0.12	0.11	0.12
	Number of standard excesses[d]		0	0	0	0	0
PM_{10}*	Highest 24-hr average, $\mu g/m^3$ [c]	50	91	81	122	126	93
	Number of standard excesses[d,e]		11	12	15	8	9
	Annual Geometric Mean, $\mu g/m^3$ [c]	30	36.3	33.0	43.4	35.7	33.7
	Violation		Yes	Yes	Yes	Yes	Yes

NOTE: Underlined values indicate an excess of applicable standard.
* Central Orange County Air Monitoring Station Location.

a. Data are from the SCAQMD monitoring station located at the intersection of Mesa Verde Dr. and Adams Ave in the City of Costa Mesa. 1999 air quality data is incomplete.
b. State standard, not to be exceeded.
c. ppm - parts per million; $\mu g/m^3$ - micrograms per cubic meter.
d. Refers to the number of days in a year during which at least one excess was recorded.
e. Measured every six days.
NA = Not Available.

Source: South Coast Air Quality Management District, *Air Quality Data Summaries*, 1997-2001.

SCAQMD Rule 403

In December of 1998, the SCAQMD revised its existing Rule 403 regarding fugitive dust emissions. The purpose of this rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.[2] Under this rule, a person shall not cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source. Second, a person conducting active operations within the boundaries of the SCAB shall utilize one or more of the

2 South Coast Air Quality Management District. *Rule 403*. December 1998.

applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type which is part of the active operation. Third, a person shall not cause or allow PM_{10} levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other U.S. EPA-approved equivalent method for PM_{10} monitoring. Finally, any person in the SCAB shall prevent or remove within one hour the track-out of sand, gravel, soil, aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter onto public paved roadways as a result of their operations; or prevent the track-out of such material onto public paved roadways as a result of their operations and remove such material at anytime track-out extends for a cumulative distance of greater than 50 feet onto any paved public road during active operations and remove all visible roadway dust tracked-out upon public paved roadways as a result of active operations at the conclusion of each work day when active operations cease.[3]

Existing Air Pollution Sources

Air quality in the vicinity of the project site is affected by emissions from motor vehicle traffic on adjacent roadways. Generally wind blows polluted air east and as a result, the project area has some of the best air quality in the SCAB.

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. SCAQMD includes in its list of sensitive receptors residences, schools, playgrounds, childcare centers, convalescent homes, retirement homes, rehabilitation centers, and athletic facilities. Sensitive population groups include children, the elderly, and the acutely and chronically ill, especially those with cardio-respiratory diseases. Residential areas are considered to be sensitive to air pollution because residents tend to be home for extended periods of time, resulting in sustained exposure to any pollutant present. Sensitive receptors in the vicinity of the project site include single-family residences located within 1,000 feet northwest and 1,800 feet southeast of the project site.

3.2.2 IMPACTS AND MITIGATION

CRITERIA FOR DETERMINING SIGNIFICANCE

The CEQA Guidelines checklist provides the following thresholds for determining significance with respect to air quality. Air quality impacts would be considered significant if the project would:

- conflict with or obstruct implementation of the applicable air quality plan;
- violate any air quality standards or contribute substantially to an existing or projected air quality violation;

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[3] *Ibid.*

- 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);
- expose sensitive receptors to substantial pollutant concentration; or,
- create objectionable odors affecting a substantial number of people.

In addition, the SCAQMD has adopted air quality thresholds of significance for construction activities and project operations that are shown in Table 3.2-3.

TABLE 3.2-3: SCAQMD AIR POLLUTION SIGNIFICANCE CRITERIA

Air Pollutant	Project Construction	Project Operation
CO	550 lbs per day	550 lbs per day
ROC	75 lbs per day	55 lbs per day
NO_x	100 lbs per day	55 lbs per day
PM_{10}	150 lbs per day	150 lbs per day

Source: SCAQMD.

Impact 3.2-1: Construction of the project would emit criteria pollutants. Estimated daily average construction emissions would exceed significance thresholds set by the SCAQMD.

Construction of the proposed project would generate air emissions. Construction-related emissions would primarily be: 1) dust generated from excavation, grading and soil removal; 2) exhaust emissions from powered construction equipment; and 3) motor vehicle emissions associated with construction activities.

Fugitive dust emissions would vary depending on the level and type of activity, silt content of soil, and prevailing weather. Some fugitive dust would be larger-diameter particles that would settle out of the air close to the site of the actual activity. Smaller-diameter dust would remain suspended for longer periods and would include PM_{10}. Fugitive dust emissions were calculated utilizing emissions factors found in U.S. EPA's AP-42 compilation of emissions factors and SCAQMD CEQA Air Quality Handbook. Implementation of Mitigation Measure 3.2-1 would reduce potential impacts.

In addition to fugitive dust, project construction would also result in emissions of other criteria air pollutants, including CO, ROC, and NO_x, due to combustion of fuel for heavy equipment operation, truck trips, and construction worker trips. Construction-phase air quality impacts were analyzed quantitatively utilizing construction emissions estimation worksheets (Appendix E). The worksheets follow methodology outlined in the SCAQMD CEQA Air Quality Handbook and utilize emissions factors found in the EMFAC-2002 air emissions models and CARB Emission Inventory Publication number MO99-32.3.

The air emissions calculations assume that the total construction emissions would last approximately five years and would vary day to day depending on the activities being performed. Construction has been divided into seven construction phases, 1) Mobilization; 2) Demolition; 3) Dewatering; 4) Excavation; 5) Construction and Installation; 6) Connection and; 7) Commissioning. For the purposes of this analysis, three phases constituting the longest time period and largest emissions (excavation, construction and installation, and connection) have been analyzed. It is assumed that excavation would last 150 days, construction and installation would last 1,050 days, and connection would last 430 days. Additional assumptions made for each construction phase are described below.

Excavation

During excavation, approximately 175,000 cubic yards of soil would be excavated at various locations around the project site. Approximately 100,000 cubic yards of soil would be retained and used as backfill at the site. A net volume of 75,000 cubic yards of soil would be removed from the project site and hauled to the Frank R. Bowerman Landfill, located approximately 18 miles away. It is assumed that employees would travel 30 miles and haul trucks would travel 18 miles each way to and from the project site per day. It is further assumed that on-site water trucks would travel two miles per day and dump trucks would travel 20 miles per day at the project site.

Construction and Installation

The proposed project would result in the construction of 15 separate facilities, structures, stations, or pipelines. Major construction activities would require approximately three and a half years. It is assumed that employees would travel 30 miles and haul trucks, including concrete trucks, would travel 15 miles each way to and from the project site per day. It is further assumed that water trucks would travel two miles per day and dump trucks would travel 5 miles per day at the project site.

Connection

Connection would include the installation of onsite pipelines to connect the existing trunk and primary influent sewer lines to the new headwork's facility. The connection would require 430 days. It is assumed that employees would travel 30 miles and haul trucks would travel 15 miles each way to and from the project site per day. It is further assumed that water trucks would travel two miles per day and dump trucks would travel 10 miles per day at the project site.

The approximate amount and types of construction equipment and the numbers of construction workers expected during each phase of construction is shown in Table 3.2-4. The number of trips to and from the site per day during each construction phase is shown in Table 3.7-1 in Section 3.7 Traffic. Table 3.2-5 summarizes estimated emissions for each construction phase. As shown in the table, construction emissions for each construction phase could exceed SCAQMD significance thresholds. The air emissions calculations assume a worse case scenario where each piece of equipment identified would be operated for eight hours per day. This is a conservative estimate; actual daily emissions would depend on the mix and duration of equipment used each day.