INITIAL STUDY
FOR THE
NEENACH PUMPING STATION
TURNOUT FACILITY

Prepared by:

Los Angeles Department of Water and Power
Environmental Services
111 N. Hope Street, Room 1460
Los Angeles, CA 90012

Technical Assistance Provided by:

Earth Tech, Inc.
1461 E. Cooley Drive, Suite 100
Colton, California 92324

April 28, 2005

TABLE OF CONTENTS

THIS PAGE INTENTIONALLY LEFT BLANK

ENVIRONMENTAL CHECKLIST FORM

1. **Project title:** Construction and Operation of the Neenach Pumping Station Turnout Facility

2. **Lead agency name and address:**

   Los Angeles Department of Water and Power
   Environmental Affairs
   111 N. Hope Street, Room 1044
   Los Angeles, CA 90012

3. **Contact person and phone number:**

   Nadia Dale
   Environmental Assessment
   Los Angeles Department of water and Power
   (213) 367-1745

4. **Project location:** The project location is near the intersection of Three Points Road and State Route (SR) 138 in the western Antelope Valley in northern Los Angeles County (Figure 1). The nearest incorporated city is Lancaster. The location is at approximately milepost 311.84 (Station 341+05.099) of the California Aqueduct where the First Los Angeles Aqueduct (FLAA) crosses over Pool 44 of the East Branch of the California Aqueduct. The project site is within the State of California Department of Water Resources (DWR) California Aqueduct right-of-way (ROW).

5. **Project sponsor's name and address:**

   Los Angeles Department of Water and Power
   Water Resources
   111 N. Hope Street, Room 1460
   Los Angeles, CA 90012

6. **General plan designation:** Open Space Right of Way

7. **Zoning:** A-2-5

8. **Description of project:** The project is the construction and operation of the Neenach Pumping Station turnout facility and surge tank to allow direct transfers of raw water from the California Aqueduct to Los Angeles via the FLAA to make up for reduced withdrawals from the eastern Sierras as well as to enhance existing system reliability by permitting an alternative means of making deliveries into the Los Angeles Department of Water and Power (LADWP) system than otherwise would have taken place.

   The Los Angeles Aqueducts provide water to Los Angeles from the Mono Lake Basin and Owens Valley in the eastern Sierras. The aqueducts have provided approximately half of the Los Angeles water supply over the past 10 years. Deliveries from the Los Angeles Aqueducts have been reduced by approximately one-third from their historic average. This water has been diverted to meet the LADWP's environmental obligations in the eastern Sierras. One of these obligations is a settlement agreement for Owens Lake that requires LADWP to commit to a responsibility to reduce particulate emissions from the Owens Lake Bed so that the Owens Valley Planning Area may attain and maintain the federal Clean Air Act ambient air quality standards for particulate matter. As outlined in the Memorandum of Agreement between the City of Los Angeles and the Great Basin Unified Air Pollution Control District (see appendices), the City must carry out a phased plan of control measures, including shallow flooding, managed vegetation, and gravel placement. The implementation of the shallow flooding will continue to reduce future deliveries of water to the Los

Angeles basin. Water that this project would allow to be transferred to LADWP for use in the Los Angeles area would be replacing former supplies now utilized to meet environmental obligations in the eastern Sierra and therefore will not be increasing Los Angeles's overall water supply.

The LADWP's adopted Year 2000 Urban Water Management Plan (UWMP) contains a chapter on the city's existing and planned future water supplies. The existing supplies section includes detailed descriptions of supply from the Los Angeles Aqueducts, local wells, water recycling, and purchases from Metropolitan Water District of Southern California (MWDSC). The section of the report detailing future water supplies lists both seawater desalination and water transfers from the water market as viable sources. LADWP's UWMP was also used by MWDSC as a resource to develop its regional UWMP that covers MWDSC's entire service area, which includes the LADWP service territory. MWDSC's Regional year 2000 UWMP discusses the region's reliance on water transfer option contracts and purchases of water on the open market as an integral part of the region's drought management planning. In 2005, both the LADWP and the MWDSC will be adopting a new UWMP, both of which will contain much more detailed discussions of water transfers as an integral part of their future water supply reliability for both Los Angeles and Southern California as a region.

A written agreement is being developed among the DWR, the Antelope Valley-East Kern Water Agency (AVEK), the MWDSC, and the City of Los Angeles by and through its Department of Water and Power for the construction, operation, and maintenance of the Neenach Pumping Station turnout facility. Once approved, the agreement would be in effect for 5 years, during which time the accessibility of the water market would be determined and the parties involved would evaluate the success and overall feasibility of utilizing the water market to transfer water to supplement LADWP's water needs.

Over the 5-year life of the project agreement, the LADWP plans to enter into agreements with other agencies whereby it receives non-State Water Project (SWP) water supplies delivered through the California Aqueduct and into the FLAA. These agreements to acquire non-SWP water will be used to offset LADWP's above-mentioned eastern Sierra environmental obligations, including water utilized for dust control in the Owens Valley. LADWP wishes to convey this non-SWP water to the AVEK for transportation in SWP facilities and delivery to LADWP. The water would be transported through the California Aqueduct and into AVEK's service territory for transfer into the FLAA and transport into LADWP's service area, which is a portion of the service area of the MWDSC. AVEK would not use the turnout for delivery of water for use in its service area. When and if they decide to do so, the appropriate California Environmental Quality Act (CEQA) analysis will be conducted at that time.

Although no such water transfer agreements are currently in place, LADWP must have the necessary infrastructure in place before negotiations for such agreements can be developed. Once the necessary infrastructure is completed (i.e., the project), LADWP would move forward with developing a Request for Proposal (RFP) to initiate discussions for future water transfers. Future water transfers and agreements would be evaluated to comply with CEQA as they are defined, and will include a complete initial study. Only when CEQA is completed, and DWR's approval for conveyance is granted, would any water be transferred through the Neenach Pumping Station turnout facility.

Once the LADWP releases this RFP we anticipate that respondents could come forward with marketable water from several sources of supply such as surface water, banked water, contract water, groundwater, or a combination of these. Some of the likely respondents could be agencies such as the Kern Water Bank, or farming interests both in the Central Valley and north of the Delta.

Any and all agreements will be consistent with LADWP's UWMP and LADWP's Ten-Year Capital Improvement Program for the fiscal years 2003-2012. Consistent with the Urban Water Management Planning Act, the City's UWMP describes LADWP's efforts to promote efficient use and management of its water resources and outlines strategies that will be used to meet Los Angeles's current and future water needs. Its focus is on water supply reliability and water use

efficiency measures. LADWP's Ten-Year Capital Improvement Program (see appendices) describes the LADWP's near-future plans for water quality improvements, water resources, infrastructure, and support functions.

Because water transfer to the LADWP would be dependent on the need for supplemental water and the availability of water for transfer, and would require a specific agreement between LADWP and another water agency, the specific time frames for and the amounts of water transfers that would occur using the turnout facility cannot be identified. However, the turnout facility would be capable of producing a total flow of 130 cubic feet per second (cfs) (approximately 11 acre feet per hour) from the California Aqueduct into the FLAA. It is expected that the turnout facility would operate constantly for up to 10 consecutive months per year to complete each water transfer.

During time periods when no transfer is occurring, LADWP system reliability would be enhanced since the facility could be used by the MWDSC as an alternative to existing points of delivery of water to the LADWP as one of MWDSC's member agencies. This agreement would entitle the MWDSC to utilize the Neenach Pumping Station as a delivery structure pursuant to MWDSC's long-term supply contract with the DWR. Such usage right shall be secondary only to LADWP's usage.

At the end of the 5-year term of the project agreement if it is determined by any of the four signatories (DWR, MWDSC, AVEK, or LADWP) that the project's agreement should not be extended, the LADWP at its sole expense would remove all project facilities and return the DWR's ROW to its original condition.

The construction project and operation of the Neenach Pumping Station turnout facility and surge tank would be constructed within the ROW of the California Aqueduct at the northeast corner of the intersection of the FLAA and the California Aqueduct (Figure 2). The turnout would consist of a pumping station and pipelines to withdraw water from the California Aqueduct and transfer it to the FLAA (Figure 3). The pumping station would consist of a covered, reinforced concrete vault approximately 60 feet by 30 feet and 21-foot-deep housing four 500 horsepower (HP) 2300 VAC pumps each capable of producing a maximum flow of 35 cfs. The vault would be constructed below grade with its roof at the ground surface. Four 36-inch-diameter pipes, approximately 120 feet long, would be installed below ground between the vault and the California Aqueduct. These pipes would travel through the existing berm along the north side of the aqueduct. The four pumps would discharge into a single underground 42-inch-diameter pipeline that would connect to the FLAA approximately 300 feet to the west of the pumping station. The pipeline would be installed in a trench 5 feet deep and 5 feet wide.

The 42-inch-diameter pipeline would also be connected to a surge tank in order to reduce the potential for damage to the FLAA. The surge tank would be a cylindrical steel tank 45 feet long and 12-feet in diameter. It would be installed on an 18-inch-thick concrete slab and would be situated approximately 50 feet to the east of the pump vault. A concrete block wall 12 feet high may be constructed around the tank to protect it from vandalism.

In addition, a 42-inch magnetic flow meter would be installed in the 42-inch pipeline connecting the pumping station to the FLAA in order to measure the total quantity of water being transferred between the California Aqueduct and the FLAA. A vacuum pump system would be installed in the pipes connecting the California Aqueduct to the pumping station to remove any entrained air within the pipes. Removal of entrained air is essential for the maintenance of proper vacuum suction in these pipes.

The pumps would use variable frequency drives for electrical starters. An electrical service would be installed to provide power to the facility. The electrical service would be installed underground within the California Aqueduct ROW between the facility and an existing Southern California Edison utility pole on 250th Street West situated to the southeast of the turnout facility site (see Figure 1). Approximately 5,000 linear feet of electrical cable would be installed within the existing dirt road that

is situated along the northern edge of the ROW. Several transformers would be installed at the facility.

Construction of the turnout facility would require excavation of the vault and trenching for installation of underground pipelines and electrical power lines. Construction would require use of a crane, backhoe, 5 concrete trucks, 5 utility vehicles, and a crew of approximately 20. Construction activities are expected to begin in the spring of 2005 and be completed within a year. All turnout facility (pump station, surge tank) construction activities would occur within an area of approximately 1.5 acres within the FLAA and the California Aqueduct ROWs. After completion of construction, the facility would be remotely operated and would require a daily security visit by one person.

9. **Surrounding land uses and setting:** The proposed project site is currently an undeveloped area within the ROW of and adjacent to the open water channel of the California Aqueduct. The aqueduct channel is situated to the south. An elevated earthen berm with a paved access road on top is situated between the proposed pumping station site and the aqueduct channel. The FLAA forms the western boundary of the project site. An unpaved road that parallels the ROW boundary is situated to the north. The ROW boundary is marked by a chain link fence and is situated approximately 200 feet to the north of the aqueduct channel. Land use in areas adjacent to the project site beyond the ROW is low-density residential and consists of a grid of unpaved roads with widely scattered single-family residences. Open space areas between the unpaved roads and residences are generally covered with low vegetation consisting of grasses and low shrubs. The immediate area has low relief (i.e., no hills) and gently slopes up to both the north and the south of the California Aqueduct, which was generally constructed to traverse the areas of lowest elevation in the valley.

10. **Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement).**

Lahontan Regional Water Quality Control Board for National Pollutant Discharge Elimination System permit for storm water

Department of Water Resources

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a ”Potentially Significant Impact” as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Geology/Soils
☐ Hazards & Hazardous Materials	☐ Hydrology/Water Quality	☐ Land Use/Planning
☐ Mineral Resources	☐ Noise	☐ Population/Housing
☐ Public Services	☐ Recreation	☐ Transportation/Traffic
☐ Utilities/Service Systems	☐ Mandatory Findings of Significance	

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation:

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

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

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

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

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

Charles C. Holloway — Signature
April 28, 2005 — Date
Charles C. Holloway — Printed name
For

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.

4) “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact”. The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, “Earlier Analyses,” may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

a) Earlier Analysis Used. Identify and state where they are available for review.

b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

c) Mitigation Measures. For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

a) the significance criteria or threshold, if any, used to evaluate each question; and

b) the mitigation measure identified, if any, to reduce the impact to less than significance.

Issues:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☐	☒
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒

Discussion

a.) **No Impact.** No scenic vistas have been specifically identified in the proposed project area; however, the general area is a largely open, gently sloping valley with unobstructed views of mountains and hills to both the north and south. The proposed project area is approximately 0.8 mile north of SR 138 and is not readily visible from this road. The pumping station will be a below-grade concrete vault and not visible from a distance. The surge tank would be 14 feet tall and transformer trailers would be 10 feet tall. These features would be partially shielded from views from the south by the berm of the California Aqueduct and would be less noticeable than other larger structures currently present in the project site vicinity. Therefore, the proposed project would not have a substantial adverse effect on scenic vistas.

b.) **No Impact.** There are no designated state scenic highways near the project area, nor are there any scenic resources on or adjacent to the project site.

c.) **No Impact.** The project area is within the ROW of the California Aqueduct. The existing visual character of the area includes the concrete lined aqueduct and its earthen berms. The FLAA is visible as a metal pipeline crossing over the California Aqueduct. Chain link fences are present at the FLAA crossing and along the California Aqueduct ROW boundary. The project site is a generally flat area that is partially vegetated with grasses and shrubby plants. A paved road is present on top of the berm and unpaved roads are present parallel to the FLAA to the west and along the ROW fenceline to the north. Surrounding areas are generally open and vegetated with grasses and shrubby vegetation and include unpaved roads and a few scattered residential structures with trees near the structures. The addition of a concrete-covered below-grade vault, surge tank, and few transformer trailers adjacent to the aqueducts, road, and fences will not substantially degrade the existing visual character of the site.

d.) **No Impact.** The proposed project does not include any lighting or surfaces that would reflect light; therefore, the project would not create a new source of light or glare.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
II. AGRICULTURE RESOURCES -- In determining whether impacts to agricultural resources are Significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☒

Discussion

a.) **No Impact.** The project site is not currently farmed; therefore, the project would not convert farmland to non-agricultural use.

b.) **No Impact.** Because the project site is within the DWR's ROW for the California Aqueduct, it is not available for farming and therefore the project would not conflict with existing zoning for agricultural use or a Williamson Act contract.

c.) **No Impact.** The construction and operation of the pumping station would not entail other changes in the existing environment that could result in conversion of farmland to non-agricultural use.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
III. AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☒	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
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)?	☐	☒	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒

Discussion

The project site is situated within the Antelope Valley Air Quality Management District (AVAQMD). The area is designated by the U.S. Environmental Protection Agency as severe nonattainment of the National Ambient Air Quality Standard for ozone and by the California Air Resources Board as extreme nonattainment of the California Ambient Air Quality Standard for ozone and as nonattainment of the California Ambient Air Quality Standard for particulate matter equal to or less than 10 microns in diameter (PM_{10}). Guidance published by the AVAQMD and Mojave Desert Air Quality Management District (MDAQMD) in the MDAQMD and AVAQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines (March 2002) indicates that a project is considered significant if it generate total emissions that exceed the following thresholds:

Criteria Pollutant	**Annual Threshold (tons)**	**Daily Threshold (pounds)**
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NO_x)	25	137
Volatile Organic Compounds (VOCs)	25	137
Oxides of Sulfur (SO_x)	25	137
Particulate Matter (PM_{10})	15	82

a) Less Than Significant With Mitigation Incorporation. The proposed project is subject to AVAQMD plans addressing ozone and PM_{10}. Construction of the pumping station would result in PM_{10} emissions primarily from ground-disturbing activities, and volatile organic compound (VOC) and nitrogen oxide (NO_x) emissions from construction vehicle exhaust. VOCs and NO_x react to produce ozone. Emissions of PM_{10}, NO_x, and VOCs from the project would be subject to the applicable AVAQMD plans for ozone and PM_{10}.

Ozone: The thresholds of significance for emissions of the ozone precursors NO_x and VOCs is 25 tons per year (tpy). Construction activities would result in temporary emissions of NO_x and VOCs; however, based upon the size of the construction project and its duration (less than 180 construction days), NO_x and VOC emissions are estimated to be less than 0.7 tpy and 0.1 tpy respectively.

Operation of the pumping station would not produce any emissions of ozone precursors.

PM_{10}: The thresholds of significance for emissions of PM_{10} is 15 tpy. Construction activities would result in temporary emissions of PM_{10}. Emission of PM_{10} are estimated to be close to the 15 tpy significance threshold; however, implementation of standard fugitive dust control measures would reduce emissions of PM_{10} to approximately 3.7 tpy. Therefore, the mitigation measures listed at the end of this discussion shall be implemented in order to ensure that impacts from PM_{10} emissions would be reduced to a less than significant level.

Vehicle travel on unpaved roads is a significant source of windblown fugitive dust. Unpaved roads would be used to access the pumping station site after its completion. However, only one vehicle trip per day would be required, so there would be no significant change in usage of unpaved roads as a result of the proposed project.

Mitigation Measure III-a. The following tables are taken from Rule 403 of the AVAQMD and contain mitigation measures that would be applied, as applicable, to reduce fugitive dust emissions from construction activities to a less-than-significant level.

Reasonably Available Control Measures for High Wind Conditions*

Fugitive Dust Source Category	Control Actions
Earth moving	(1A) Cease all active operations, OR (2A) Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	(0B) On the last day of active operations prior to a weekend, holiday, or any other period when active operations would not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR (1B) Apply chemical stabilizers prior to a wind event; OR (2B) Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR (3B) Take the actions specified in Table 2 Item (3c); OR (4B) Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, they apply to all disturbed surfaced areas.

Unpaved roads	(1C) Apply chemical stabilizers prior to a wind event; OR (2C) Apply water once per hour during active operation; OR (3C) Stop all vehicular traffic.
Open storage piles	(1D) Apply water twice per hour; OR (2D) Install temporary coverings.
Paved road track-out	(1E) Cover all haul vehicles; OR (2E) Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All categories	(1F) Any other control measures approved by the Executive Officer and the U.S. Environmental Protection Agency as equivalent to the methods specified in Table 1 may be used.

* High wind conditions means when gusts exceed 25 mph.

Source: AVAQMD Rule 403, Table 1.

Dust Control Actions

Fugitive Dust Source Category	**Control Actions**
Earth-moving (except construction cutting and filling areas, and mining operations)	(1a) Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer and the California Air Resources Board. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR (1a-1) For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: Construction fill areas	(1b) Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer and the California Air Resources Board. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.
Earth-moving: Construction cut area and mining operations	(1c) Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining areas unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.

Disturbed surface areas (except completed grading area)	(2a/b) Apply dust suppression in a sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven dust, must have an application of water at least twice per day to at least 70 percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	(2c) Apply chemical stabilizers within 5 working days or grading completion; OR (2d) Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	(3a) Apply water to at least 70 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible due to excessive slope or other safety conditions; OR (3b) Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR (3c) Establish a vegetative ground cover within 30 days after active operations have ceased; ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR (3d) Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, they apply to all inactive disturbed surface areas.
Unpaved roads	(4a) Water all roads used for any vehicular traffic at least 3 times per normal 8 hour workday; OR (4b) Water all roads used for any vehicular traffic once daily and restrict vehicle speed to 15 mph; OR (4c) Apply chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	(5a) Apply chemical stabilizers; OR (5b) Apply water to at least 70 percent of the surface areas of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR (5c) Install temporary coverings; OR (5d) Install a three-sided enclosure with walls with no more than 50 percent porosity that extend, at a minimum, to the top of the pile.
All categories	(6a) Any other control measures approved by the Executive Officer and the U.S. Environmental Protection Agency as equivalent to the methods specified in Table 1 may be used.

Source: AVAQMD Rule 403, Table 2.

b) **Less Than Significant With Mitigation Incorporation.** Construction activities would produce carbon monoxide (CO), VOC, NO_x, and PM_{10} emissions. Based on the small size of the project and its short duration, combustive emissions (CO, NO_x, and VOCs) from construction equipment would not be expected to be significant. As discussed in Section III-a), emissions of NO_x and VOCs would not exceed AVAQMD significance thresholds. The AVAQMD significance threshold for CO is 100 tpy. Emissions of CO are estimated to be less than 0.1 tpy. PM_{10} emission from construction activities would be reduced to a less than significant level because **Mitigation Measure III-a** would be implemented.

c) **Less Than Significant With Mitigation Incorporation.** The proposed project would result in emissions of the criteria pollutants, NO_x, VOC, and PM_{10}, for which the project region is not in attainment of ambient air quality standards. However, these emissions would be produced during construction activities and therefore would be temporary and short-term. Emissions from construction activities would not exceed the AVAQMD significant threshold for NOx and VOC, and would also not exceed the significance threshold for PM_{10} when fugitive dust mitigation measures, **Mitigation Measure III-a**, are implemented.

d) **Less Than Significant With Mitigation Incorporation.** Operation of the pumping station would not produce any air emissions. Temporary air emissions would occur during construction activities. The nearest sensitive receptor for construction-related air emissions is a residential structure more than 500 feet from the project site. Uncontrolled fugitive dust emissions from construction activities could affect nearby residents. Implementation of fugitive dust control measures, **Mitigation Measure III-a**, during construction activities would reduce fugitive dust emissions so that no sensitive receptors are exposed to substantial pollutant concentrations.

e) **No Impact.** The pumping station would be used to transfer water. No hazardous materials would be used on the project site. Operation of the pumping station would not create any objectionable odors.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES -- Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Discussion

A biological resources survey was conducted at the proposed project site in January 2002 and a follow-up site visit was conducted in November 2004. The following analysis is based on the results of these surveys (URS, 2004).

a) **Less Than Significant With Mitigation Incorporation.** No protected plant and animal species with the potential to occur in the proposed project site area are known to occur on or adjacent to the project site. No critical habitat for any species is present at or adjacent to the site. The burrowing owl (Athene cunicularia), a sensitive species and species of concern, may occur in the area, although no active or potential owl burrows were observed at the site. However, because burrowing owls may occur in the area, owls could move onto the project site. Therefore, implementation of the mitigation measure listed below is recommended to ensure that no substantial adverse effects to this species occur.

Mitigation Measure IV-a. A pre-construction site survey would be conducted by a biologist within 24 hours prior to commencement of construction activities to determine if any burrowing owls or any other sensitive species are present.

a) **No Impact.** The project site has been disturbed by construction and maintenance of the FLAA and California Aqueduct. Adjacent areas have been disturbed by housing construction and staging of equipment for FLAA maintenance activities. The project site is bounded by the two aqueducts and by paved and unpaved roads and contains Big Sagebrush habitat dominated by Great Basin sagebrush (Artemesia tridentata) and rabbitbrush (Chrysothamnus sp.). The habitat on the project site has been disturbed by human activity. No riparian habitat or other sensitive natural community has been identified within the project site; therefore, the project would have no substantial adverse effect on such a habitat.

b) **No Impact.** No federally protected wetlands have been identified within the project site; therefore, the project would have no substantial adverse effect on federally protected wetlands.

c) **No Impact.** Wildlife use of the proposed project site is limited. The site is not used as a wildlife corridor or nursery site.

d) **No Impact.** The proposed project site contains Big Sagebrush habitat that has been disturbed by human activity. There are no local policies or ordnances protecting biological resources that would apply to the proposed project site.

e) **No Impact.** The proposed project site contains Big Sagebrush habitat that has been disturbed by human activity and that supports minimal use by wildlife. The site is not located within a Significant Ecological Area designated by the County of Los Angeles. There are no Habitat Conservation Plans, Natural Community Conservation Plans, or other habitat conservation plans that would apply to the proposed project site.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
V. CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☐	☒
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☐	☒

Discussion

An archaeological survey of the FLAA corridor that included the proposed project site was conducted in 2002. The following analysis is based on the results of the survey (URS Corporation, 2003).

a) **Less than Significant Impact.** The FLAA is of national importance and likely classifies as a National Historic Landmark and therefore may be considered a historic resource. The proposed project would include a pipeline connection from the pumping station to the FLAA. This connection would result in an alteration to the FLAA. An alteration that impairs the significance of a historical resource is considered a substantial adverse change (PRC Section 5020.1(q)). However, connecting this pipeline to the existing FLAA pipeline structure would not alter the physical characteristics of the FLAA that convey its historical significance. Therefore the proposed project would not cause a substantial adverse change to the significance of this historic resource. In addition, the FLAA is underutilized with the current set-up of water allocations from the Owens Valley and Mono Basin, and this project would rescue the FLAA from being a partially stranded asset, thereby improving funding for its maintenance. The proposed project site does not contain any other historical resources.

b) **No Impact.** No archaeological resources have been identified at or in the vicinity of the proposed project site. Therefore the proposed project would not cause substantial adverse changes to the significance of any archaeological resources.

c) **No Impact.** No known paleontological resources or unique geological features are present on or adjacent to the project site. Therefore, the project would not directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature.

d) **No Impact.** Based upon the results of the archaeological survey and the generally disturbed nature of the project site, it is considered unlikely that the project would disturb any human remains. Should any such remains be discovered during construction, construction management is expected to inform local authorities, and, if appropriate, archeological staff for an evaluation of the significance of such a find.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
VI. GEOLOGY AND SOILS – Would the project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	☐	☐	☐	☒
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

Discussion

a.i) **No Impact.** The project site is not within an area delineated on the Alquist-Priolo Earthquake Faulting Zone Map (California Geological Survey, 1997). The nearest mapped fault is situated approximately 2 miles south of the project site (Diblee, 1967). Damage from surface rupture along an earthquake fault is not expected to occur at this site.

a).ii) **Less Than Significant.** The project site is situated within the western Antelope Valley, which is bounded by faults on its northwestern and southwestern sides. The San Andreas Fault Zone is approximately 4 miles to the south of the project site and the Garlock Fault Zone is more than 10 miles to the north (Diblee, 1967). Because of its proximity to these faults, the project site would be susceptible to intense ground shaking. The project site is not, however, more susceptible than any other property in the general area and the project itself would be constructed in accordance with Uniform Building Code requirements; therefore seismic impacts are considered less than significant.

a.iii) **No Impact.** The soil survey for the Antelope Valley Area indicates that the soils on the site are Hanford sandy loam with 2 to 9 percent slope (U.S. Department of Agriculture, 1970). Depth to groundwater and soil grain size distribution are the primary factors influencing the potential for liquefaction. Locations with groundwater at a depth of 50 feet or less below ground surface may be susceptible to liquefaction. Available information indicates that the depth to groundwater in the project area was 226 feet in 1965 (U.S. Department of the Interior Geological Survey, 1965). Although these data are not recent, it is unlikely that the depth to groundwater has changed from 226 feet below ground surface to within 50 feet of the ground surface since that time. Soils composed of particles that are all about the same size are more susceptible to liquefaction than soils with a wide range of particle sizes. Soils on the site are sandy loam which means they are a mixture of different size particles (clays, silts, and sands) and, therefore, have a lower potential for liquefaction. The potential for seismic-related ground failure, including liquefaction is considered to be low.

a.iv) **No Impact.** The soil on the site, Hanford sandy loam iv with a 2 to 9 percent slope, is not subject to landslides because of its shallow slope (U.S. Department of Agriculture, 1970).

b) **No Impact.** Hanford sandy loam soils with a 2 to 9 percent slope have a slight to moderate erosion hazard (U.S. Department of Agriculture, 1970). Based on the size and relatively level terrain of the proposed project area, construction at the site is not likely to result in substantial soil erosion or the loss of topsoil. In addition, because the project would be considered a small construction activity subject to National Pollutant Discharge Elimination System (NPDES) permit requirements for storm water discharge (see Section VIII-a), development and implementation of a storm water pollution prevention plan would be required. This plan would include measures to control erosion and sedimentation.

c) **No Impact.** The proposed project area is situated in an area that contains soil designated as Hanford sandy loam with a 2 to 9 percent slope. This gently sloping soil typically occupies alluvial fans. Runoff is slow to medium, and the hazard of erosion is slight to moderate. This soil type is compatible with homesites. Based on the size of the proposed project and the soil profile, the project is not anticipated to result in on- or off-site landslide, lateral spreading, subsidence liquefaction, or collapse.

d) **No Impact.** The Hanford sandy loam soil at the project site has a low shrink-swell potential (U.S. Department of Agriculture, 1970). Therefore, substantial risks to life or property due to expansive soils are not anticipated.

e) **No Impact.** The project would not require any septic tank or alternative wastewater disposal systems; therefore, soil capability to support the use of any such systems is not relevant to this project.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
VII. HAZARDS AND HAZARDOUS MATERIALS – Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☒	☐

Discussion

a) **No Impact.** Operation of the Neenach Pumping Station would not require the storage or use of hazardous materials. The facility would be electrically operated. No back-up generator requiring use or storage of fuel on site would be included. The pumps would use a vegetable oil-based lubricant. No use of petroleum-based products would be required. No routine transportation, use, or disposal of hazardous substances would occur. Small quantities of hazardous materials associated with routine operation of construction equipment, such a fuels, lubricants, and engine coolants, would be required during construction activities; however, this would be a temporary activity involving minimal quantities of hazardous materials similar to those associated with any other routine construction project. No unusual types or quantities of hazardous materials would be required during the construction phase.

b) **No Impact.** Because no storage or use of hazardous materials would be required for operation of the pumping station, there is no potential for a release of hazardous materials into the environment.

c) **No Impact.** There are no existing or proposed school sites within a quarter mile of the proposed project area, nor would the proposed project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste.

d) **No Impact.** The proposed project area is not located on a site that is included on a list of hazardous materials sites.

e) **No Impact.** The proposed project area is not situated within an airport land use plan or within 2 miles of a public or public use airport.

f) **No Impact.** The proposed project area is not within the vicinity of a private airstrip.

g) **No Impact.** The proposed project would not result in an increased number of people at the project site nor result in any changes in physical access in the project vicinity; therefore, it would not impair the implementation of or physically interfere with any adopted emergency response plans or emergency evacuation plans.

h) **Less Than Significant.** The proposed project area is within a rural area with scattered residences. The natural vegetation in the area consists primarily of grasses and low shrubs. Woody vegetation is generally limited to landscaping plants near the residential structures. There are no woodlands or areas of dense shrubs (e.g., chaparral) that would present a serious fire danger. The area is characterized by areas of grasses and shrubs separated by dirt roads. In the event of a vegetation fire, the dirt roads and aqueduct would serve to act as firebreaks. The pumping station facilities would be mostly underground and not subject to damage by a wildland fire. The surge tank and transformer sheds would be the only facilities that could be damaged by a wildland fire. Maintenance of the pumping station site would include control of vegetation near these facilities to reduce the risk of a wildland fire burning close enough to these facilities to cause damage. The risk of loss of these facilities due to a wildland fire is considered less than significant.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
VIII. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☐	☒
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)?	☐	☐	☐	☒
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?	☐	☐	☐	☒
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 which would result in flooding on- or off-site?	☐	☐	☐	☒
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☐	☒
f) Otherwise substantially degrade water quality?	☐	☐	☐	☒
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?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

Discussion

a) **No Impact.** The proposed project would transfer water from the California Aqueduct to the FLAA without any treatment. The proposed project would not entail any activities that would affect water quality. No wastewater would be generated. Because construction activities would affect an area slightly larger than 1 acre, the project would be considered a small construction activity subject to NPDES permit requirements for storm water discharge. The NPDES permit would require development and implementation of a storm water pollution prevention plan, including measures to control erosion and sedimentation. Because construction activities would be conducted in accordance with this plan, no violation of water quality standards or waste discharge requirements would be expected to occur.

b) **No Impact.** The proposed project would not utilize any groundwater and the size of the proposed facilities would be too small to have an impact on groundwater recharge. The proposed concrete vault would have a surface area of 1,800 square feet. Surface runoff from the vault surface would drain to adjacent unpaved areas where it could permeate into the ground.

c) **No Impact.** The proposed project site is a relatively level area without any clearly defined drainage features. The project would not result in the substantial alteration of existing drainage patterns that would result in substantial erosion or siltation. As discussed in Section VIII-a, project construction activity would be subject to NPDES permit requirements for storm water discharge. The NPDES permit would require development and implementation of a storm water pollution prevention plan, including measures to control erosion and sedimentation.

d) **No Impact.** The proposed project site is a relatively level area without any clearly defined drainage features. The proposed facilities would be too small to have a significant effect on surface runoff. The project would not result in the substantial alteration of existing drainage patterns or a substantial increase in the amount of surface runoff that would result in flooding.

e) **No Impact.** Because of the small size of the proposed project area, the site would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.

f) **No Impact.** The proposed project does not involve any activities or facilities that have the potential to affect surface water or groundwater quality. There are no permanent surface water features near the project site that could be affected by construction of the pumping station. The site is downgradient of the California Aqueduct and so storm water runoff from the site would not affect the water in the aqueduct. Because of the lack of surface water features near the site and because of compliance with the NPDES permit storm water pollution prevention plan that would be required for construction activities (see Section VIII-a), no substantial degradation of water quality would be expected.

g) **No Impact.** The proposed project does not involve the construction of housing.

h) **No Impact.** The County of Los Angeles Regional Planning Department does not identify the project site as being within or near a flood hazard area. Because the proposed project site is not within a flood hazard area, it would not impede or redirect flow from such an event.

i) **No Impact.** The proposed pumping facility would be adjacent to the California Aqueduct. An earthen berm is situated between the proposed facilities and the aqueduct and the water level in the aqueduct is at a lower elevation than the proposed facilities would be. The aqueduct is not a natural waterway that is subject to uncontrolled water flows that could result in damage to the aqueduct structure and possible flooding. The amount of water in the aqueduct is constantly controlled and in the proposed project vicinity the water level is maintained below the level of adjacent areas. Even in the remote event of some type of catastrophic failure of the aqueduct, there is little potential for flooding to damage the pumping station facilities.

j) **No Impact.** This location is not subject to inundation by seiche, tsunami, or mudflow.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
IX. LAND USE AND PLANNING – Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

Discussion

a) **No Impact.** The proposed project would occur within an existing ROW along the California Aqueduct. The adjacent areas contain scattered residences. The addition of a pumping station within this ROW would not physically divide this community.

b) **No Impact.** The proposed project would not conflict with applicable land use planning. The proposed project site is situated on property within the California Aqueduct ROW. This area is designated by the Los Angeles County General Plan as Open Space right of way. The zoning of the parcel is heavy agricultural, A-2-5. A pumping station is an allowed use in this zoning with a conditional use permit.

c) **No Impact.** No habitat or natural community conservation plan has been identified in the vicinity of the proposed project site. Construction and operation of the pumping station would not conflict with any such plan.

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

Discussion

a) **No Impact.** The project site is within the ROW of the California Aqueduct. Because the site is adjacent to the aqueduct, it is not available for mineral resource extraction. In addition, the soil type at the project site, Hanford sandy loam, is rated as a poor source of sand and as unsuitable as a gravel source (U.S Department of Agriculture, 1970).

b) **No Impact.** The site is not situated within an area delineated as a mineral resource recovery site.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XI. NOISE – Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?	☐	☐	☐	☒
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

Discussion

a) **Less Than Significant Impact with Mitigation Incorporation.** Construction activities would generate temporary noise levels. Maximum noise levels from construction equipment would be expected to occur during earth moving operations when several pieces of construction equipment would be operating simultaneously. The composite noise level, averaged over an 8-hour workday, at 50 feet from the construction site is estimated to be 88 dBA. Because of noise attenuation over distance, at the nearest residence, approximately 500 feet from the construction site, the predicted noise level would be approximately 63 dBA (OJI Environmental Services, 2005). The Los Angeles County Code (Section 12.08.440) establishes a level of 75 dBA as the maximum noise level from mobile construction equipment allowed in single-family residential areas between the hours of 7:00 a.m. and 8:00 p.m., Monday through Saturday, excluding holidays. Because noise levels at the nearest residential structure would be less than the 75 dBA maximum noise level, construction activities would not result in generation of noise levels in excess of the county code.

The pumps in the pumping station would generate noise when being operated. During operational periods, the pumps would operate continuously, 24-hours a day, for a period of several months. Three of the four pumps would operate simultaneously. The pumps produce a noise level of 80 dBA at a distance of 3 feet (comparable to a food blender). Noise levels inside the vault when the three pumps are operating

simultaneously are predicted to be at a maximum of 94 dB (OJI Environmental Services, 2005). Because the pumps would be below grade within a concrete vault with a 12-inch thick concrete lid, noise levels outside the vault would be reduced. Based on noise measurements taken at a similar pumping facility, when the door is closed, the underground vault would provide a noise attenuation of 25-30 dBA meaning noise levels outside the vault could be in the range of 64-69 dBA (OJI Environmental Services, 2005). The Los Angeles County Code (Section 12.08.390) establishes an exterior noise level of 70 dB for industrial properties. The predicted exterior noise levels at the pumping station are not to exceed this standard. Because the exterior noise levels were derived through modeling and are not actual noise measurements, **Mitigation Measure XI-a** would be implemented to ensure that noise levels would not exceed the County Code requirements.

Ambient noise levels in areas adjacent to the pumping station would attenuate due to distance. Noise levels from the pumping station would be approximately 27-30 dBA at the nearest residence approximately 500 feet away (OJI Environmental Services, 2005). The Los Angeles County Code (Section 12.08.390) establishes an exterior noise level for residential areas of 50 dB between 7:00 am to 10:00 pm and 45 dB between 10:00 pm and 7:00 am. Therefore, no exceedence of this standard would be expected.

The pumps would require periodic maintenance. Workers in the vault could be exposed to noise levels up to 94 dB when the pumps are operating. U.S. Occupational Safety and Health Administration (OSHA) standards and California OSHA standards establish a permissible exposure level (PEL) for workers of 90 dBA for an 8-hour workday. The PEL increases with a decrease in exposure duration. For example, the PEL for a 4-hour exposure duration is 95 dBA. This means that employees could work in the pump vault when noise levels are 95 dBA for up to 4 hours without exceeding the PEL. When workers would be exposed to noise levels that exceed the applicable PEL, employee noise exposure must be reduced through engineering or administrative controls. If employee noise exposure cannot be reduced to the PEL through engineering or administrative controls, personal protective equipment (e.g., hearing protection) must be provided. Hearing protection would be provided to employees in accordance with OSHA and California OSHA requirements as appropriate, to ensure that PELs are not exceeded

Mitigation Measure XI-a. Upon completion of the pumping station, exterior noise measurements will be taken when the plant is operating at normal capacity to determine what the actual exterior noise levels are. If the measured noise levels do exceed the projected maximum levels, and therefore the county code standard, acoustic treatment, such as placing sound absorbing panels on the inside walls of the pumping station vault, will be implemented to reduce exterior sound levels from the pumping station to below 70dB.

b) **No Impact.** Pumping station construction activities, including excavation and trenching operations, could produce ground borne vibrations. The potential for persons, other than construction workers, to be exposed to ground borne vibrations from construction activity would be limited. The nearest potential residential receptor would be approximately 500 feet from the construction activities. After completion of construction activities, operation of the pumping station would not result in excessive ground borne vibration or ground borne noise levels.

c) **Less Than Significant with Mitigation Incorporation.** No noise is currently generated from the proposed project site except for occasional and intermittent noise generated by vehicles authorized to access the FLAA and California Aqueduct via the paved an unpaved roads in the ROWs. Operation of the pumping station would increase noise levels on the project site from existing conditions. When it is operating, noise levels outside the pumping station vault are expected to be in the range of 64-69 dB. Although this would be an increase in ambient noise levels, implementation of **Mitigation Measure XI-a** would be implemented to ensure exterior noise levels do not exceed the Los Angeles County Code standard of 70 dB for industrial properties. No noise receptors are situated adjacent to the property. Noise in the adjacent residential areas would be expected to be generated by such common sources as occasional vehicle traffic, dogs, children, and use of power gardening equipment. Quiet suburban and rural areas generally experience sound levels of approximately 25 to 35 dB during the quieter nighttime hours. Because noise levels from the pumping station would be approximately 27-30 dB at the nearest residence approximately 500 feet from the pumping station, no substantial increase in ambient noise levels would be expected to occur in the project vicinity.

d) **Less Than Significant.** The proposed project would result in a temporary increase in noise levels during construction activities. As discussed in Section XI-a, noise levels at 50 feet from the construction site are estimated to be 88 dBA. At the nearest residence, approximately 500 feet from the construction site, the predicted noise level would be approximately 63 dBA. Although this may be a temporary increase above existing ambient noise levels, because noise levels at the nearest residential structure would remain less than the 75 dBA maximum noise level established by the County Code for construction noise, this temporary increase would not be considered substantial.

e) **No Impact.** The proposed project area is not situated within an airport land use plan, nor it is within two miles of an airport. The proposed project would not expose workers in the vicinity to excessive noise.

f) **No Impact.** The proposed project area is not within the vicinity of a private airstrip.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XII. POPULATION AND HOUSING – Would the project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Discussion

a) **No Impact.** The project does not entail any activities, such as construction of houses or development of businesses, which would directly induce growth. The proposed project would also not provide any additional infrastructure that could indirectly induce population growth. The project site would be accessed via existing roads and the extension of electrical power to the site would not result in new electrical supply infrastructure that would be available to any other users. The purpose of the proposed project is to provide additional water to the LADWP to make up for reduced withdrawals of water from the Mono Basin and Owens Valley areas. Although population growth in the City of Los Angeles would be constrained without adequate water supplies, the purpose of this project is to maintain existing levels of water distribution to the LADWP via the FLAA, not to provide significant new water supplies. Therefore, this project is not considered growth-inducing.

b) **No Impact.** Construction of the proposed pumping station would not displace any existing housing.

c) **No Impact.** Construction of the proposed pumping station would not result in the displacement of any people.

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

Discussion

Fire Protection: **No Impact.** No additional fire protection facilities would be required as a result of the project.

Police Protection: **No Impact.** No additional police facilities would be required as a result of the project.

Schools: **No Impact.** The project would not increase school populations. No additional school facilities would be required.

Parks: **No Impact.** The project would not result in the development of or use of existing park properties.

Other Public Facilities: **No Impact.** The project is not expected to result in any impacts to other public facilities.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XIV. RECREATION –				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

Discussion

a) **No Impact.** No new personnel would be employed to operate and monitor the proposed treatment system; therefore, no affect to neighborhood or regional parks would occur.

b) **No Impact.** The proposed project does not include the construction or expansion of recreational facilities. The Pacific Crest Trail currently passes through the proposed project site. Temporary detours or reroutes may be required to allow hikers to avoid the construction zone; however, no new or expanded facilities would be required to accommodate trail users during construction. The completed pumping station would have no effect on the use of the Pacific Crest Trail.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XV. TRANSPORTATION/TRAFFIC – Would the project:				
a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☐	☐	☐	☒
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☐	☐	☐	☒
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?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
e) Result in inadequate emergency access?	☐	☐	☐	☒
f) Result in inadequate parking capacity?	☐	☐	☐	☒
g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☐	☐	☐	☒

Discussion

a) **No Impact.** Construction activities would require approximately 20 workers per day and would generate additional vehicle trips by construction equipment being brought on and off site. Construction equipment requirements are estimated to be a crane, backhoe, 5 concrete trucks, and 5 utility vehicles. The crane and backhoe would likely be brought on site once and would not leave the site until they were no longer needed. Daily construction equipment vehicle trips would be largely limited to the concrete trucks and utility vehicles. Construction activities would occur during a 6-month time period. The small construction crew (approximately 20 people) and daily equipment requirements are not expected to cause a substantial increase in traffic. After completion of the pumping station, no traffic, except for a daily security visit, would be generated by the proposed project.

b) **No Impact.** During construction activities, most workers and equipment would access the site using SR 138. The small construction crew and daily equipment requirements are not expected to generate enough vehicle trips to result in a change that would exceed the established level of service standard for SR 138.

Because the completed pumping station would require only one daily security visit, the proposed project would not add traffic that would exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways.

c) **No Impact.** Because the proposed project area is not near an airport and does not entail any aircraft operations, no change in air traffic patterns would occur.

d) **No Impact.** The proposed project area is situated along existing access roads adjacent to both the FLAA and California Aqueduct. Operation of the pumping station would require only a daily security visit by one person. No changes in road design or usage would occur; therefore no increase in hazards or incompatible uses would occur.

e) **No Impact.** The proposed project area is situated along existing access roads. The pumping station would not affect any existing access. Therefore, no impact to emergency access is anticipated.

f) **No Impact.** Because the proposed pumping station would require only a daily security visit by one person, parking capacity is not relevant to the proposed project and there would not be a substantial decrease in parking capacity.

g) **No Impact.** With the exception of a daily security visit by one person, there would be no employees commuting to the project site. There would be no conflict with adopted policies, plans, or programs supporting alternative transportation.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XVI. UTILITIES AND SERVICE SYSTEMS –				
Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☐	☒
e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☐	☒
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

Discussion

a) **No Impact.** The proposed project would not result in the production of any wastewater that would require treatment.

b) **No Impact.** The proposed project would entail transfers of untreated water from the California Aqueduct to the FLAA. The transferred water would not be treated on site, but would be treated along with other water from the FLAA at existing LADWP facilities. The project would not require nor result in the need for any additional water or wastewater treatment.

c) **No Impact.** No construction of new storm water drainage facilities or expansion of existing facilities would be required for the proposed project.

d) **No Impact.** The proposed project would require transfer of water to the LADWP. The water would be transferred from agencies with existing entitlements. The water transfers would not change the existing entitlements. No new or expanded entitlements would be required.

e) **No Impact.** The proposed project would not generate any wastewater and therefore would have no impact on any wastewater treatment capacity.

f) **No Impact.** Little or no solid waste would be generated from the proposed project; therefore, the capacity of landfills serving the Antelope Valley area would not experience a significant decrease in their capacity.

g) **No Impact.** No solid waste is expected to be generated by operation of the proposed pumping station. Any solid waste generated during construction activities would be hauled away from the site and disposed of in accordance with applicable federal, state, and local statutes and regulations.

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less Than Significant Impact	No Impact
XVII. MANDATORY FINDINGS OF SIGNIFICANCE –				
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☐	☒
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☐	☒

Discussion

a) **No Impact.** No potential for significant degradation of the quality of the environment, nor for significant impacts to biological resources, including substantially reducing the habitat of a fish or wildlife species, causing a fish or wildlife population to drop below self-sustaining levels, threatening to eliminate a plant or animal community, reducing the number or restricting the range of a rare or endangered plant or animal, or eliminating important examples of the major periods of California history or prehistory has been identified.

b) **Less Than Significant.** The project would have no impact on aesthetics, agricultural resources, hydrology/water quality, land use and planning, mineral resources, population and housing, public services, recreation, transportation/traffic, and utilities and service systems; therefore, it would not result in cumulative impacts to these environmental factors. The project would have less than significant impacts to cultural resources, geology and soils, hazards and hazardous materials, and noise. The potential impacts of the project on these environmental factors would be expected to be minimal and are not considered to be cumulatively considerable. The project would have a less than significant impact with mitigation incorporated on air quality and biological resources. Because the project would implement mitigation measures for impacts to these environmental factors, these impacts would not be considered cumulatively considerable.

c) **No Impact.** The proposed project would allow the transfer of water from one aqueduct system to another. The project would help the LADWP to maintain current amounts of water deliveries to the City of Los Angeles, thereby improving conditions for humans. No potential for substantial adverse effects on human beings have been identified.

REFERENCES

Antelope Valley Air Quality Management District, 1997. AVAQMD Rule 403 Fugitive Dust.

California Geological Survey, 1997. Index to Earthquake Fault Zone Maps.

Diblee, Thomas W Jr., 1967. Areal Geography of the Western Mojave Desert California, U.S. Geological Survey.

Los Angeles Department of Water and Power, Year 2000 Urban Water Management Plan.

Los Angeles Department of Water and Power, Water Services Organization. Ten-Year Capital Improvement Program for the Fiscal Years 2003 –2012.

Memorandum of Agreement Between the City of Los Angeles and the Great Basin Unified Air Pollution Control District, July 15, 1998.

Mojave Desert Air Quality Management District and Antelope Valley Air Quality Management District 2002. MDAQMD and AVAQMD California Environmental Quality Act (CEQA) and Federal Conformity Guidelines, March.

OJI Environmental Services, 2005. Acoustical Analysis for the LADWP Proposed Neenach Pumping Station, prepared for Los Angeles Department of Water and Power.

URS Corporation, 2003. Archaeological Investigation of the First and Second Los Angeles Aqueducts and Selected Access Roads, Kern, Inyo, and Los Angeles Counties, California, Draft Report, prepared for Los Angeles Department of Water and Power, December.

URS, 2004. Sensitive Biological Resources Assessment First Los Angeles Aqueduct Temporary Pump Station at the California Aqueduct Crossing, Los Angeles, California, letter report by Thomas Herzog, URS, to LADWP, November 8.

U.S. Department of the Interior Geological Survey, 1965. Water Wells in the Western Part of the Antelope Valley Area, Los Angeles and Kern Counties, California, State of California The Resources Agency Department of Water Resources Bulletin No. 91-11, May.

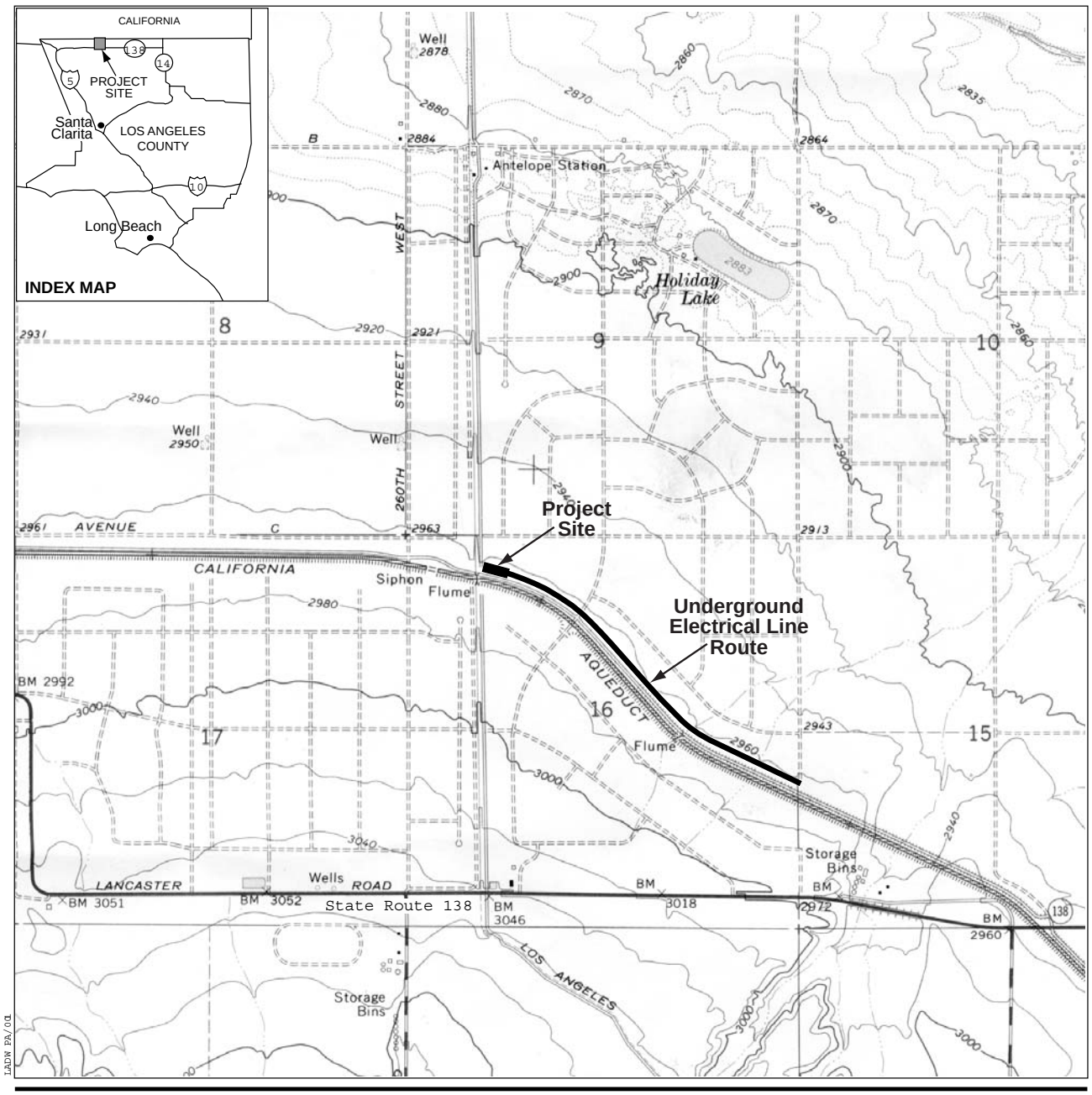
U.S. Department of Agriculture, 1970. Soil Survey Antelope Valley Area California, January.

ABBREVIATIONS AND ACRONYMS

AVAQMD	Antelope Valley Air Quality Management District
AVEK	Antelope Valley - East Kern Water Agency
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CO	carbon monoxide
dB	decibel
DWR	Department of Water Resources
FLAA	First Los Angeles Aqueduct
HP	horsepower
LADWP	Los Angeles Department of Water and Power
MDAQMD	Mojave Desert Air Quality Management District
MWDSC	Metropolitan Water District of Southern California
NO_x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
OSHA	Occupational Safety and Health Administration
PEL	permissible exposure level
PM_{10}	particulate matter less than 10 microns in diameter
RFP	request for proposal
ROW	right of way
SO_x	sulfur oxides
SR	state route
SWP	State Water Project
tpy	tons per year
UWMP	Urban Water Management Plan
VOC	volatile organic compound

ATTACHMENT 1

FIGURES



Project Location Map

0 500 1000 2000 Feet

Figure 1

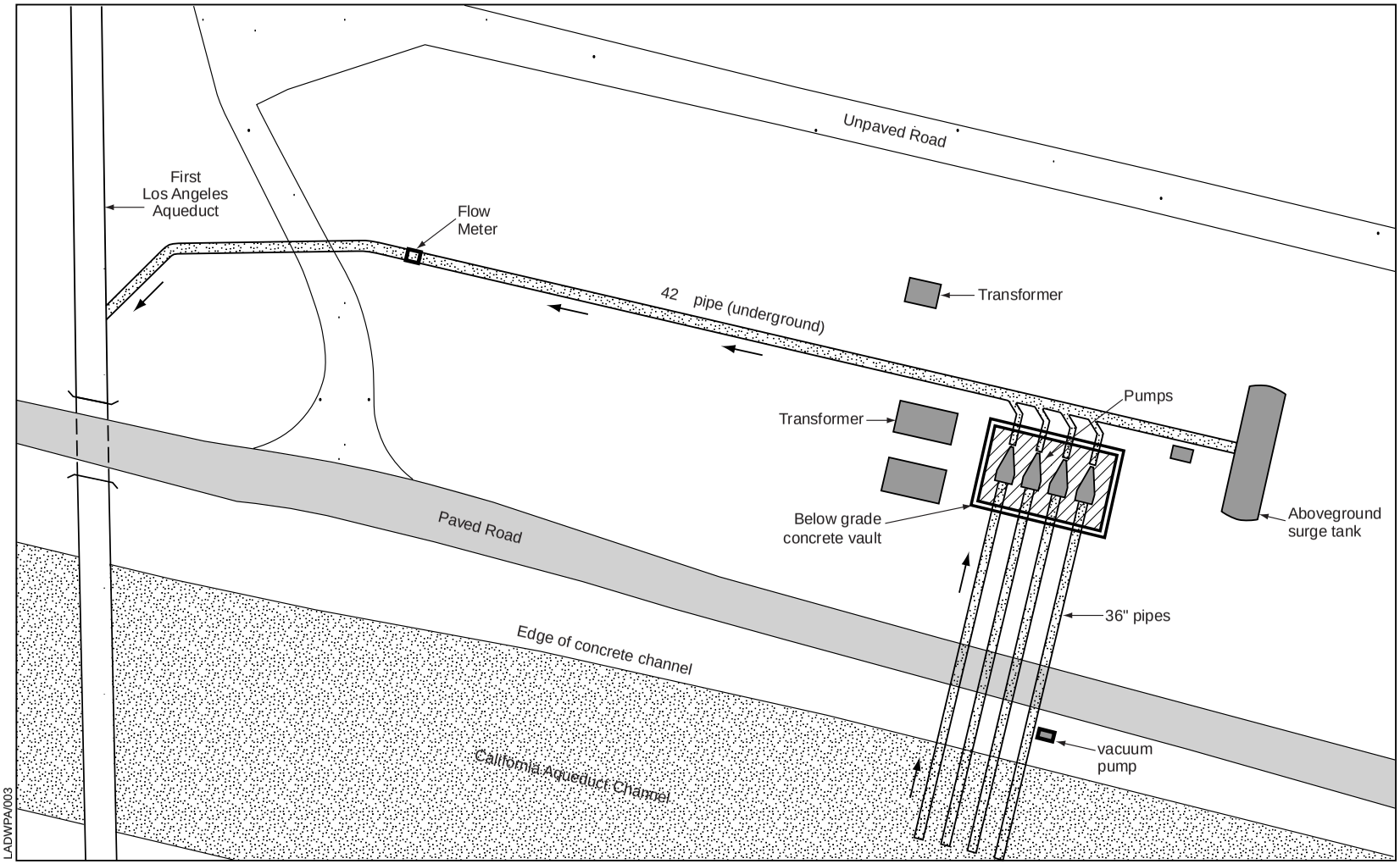
EXPLANATION

Approximate boundary of project site

Aerial View of Proposed Neenach Pumping Station Site

Figure 2

Attachment 1-3



EXPLANATION

0 10 20 40 Feet

Proposed Neenach Pumping Station Plot Plan

Figure 3

THIS PAGE INTENTIONALLY LEFT BLANK

ATTACHMENT 2

SUPPORTING DOCUMENTS

July 15, 1998

MEMORANDUM OF AGREEMENT BETWEEN THE CITY OF LOS ANGELES AND THE GREAT BASIN UNIFIED AIR POLLUTION CONTROL DISTRICT

1. The City of Los Angeles ("City") commits to its responsibility to reduce particulate emissions from the Owens Lake bed so that the Owens Valley Planning Area ("OVPA") will attain and maintain the federal Clean Air Act ambient air quality standards for particulate matter (PM 10, hereafter referred to as "the Standards") by the statutory deadline. In 2006, the District will make a determination whether the OVPA attains the Standards. In making that determination, the District will apply EPA's Natural Events Policy.

2. The City and Great Basin Unified Air Pollution Control District ("Great Basin APCD") commit to take the described actions with respect to the pending proceedings identified in Exhibit A. These actions will be taken in the context of settlement of existing disputes between the parties and in no way prejudices future actions on similar issues.

3. Great Basin APCD agrees upon execution of this Agreement to revise its proposed 1997 State Implementation Plan (1997 SIP) and associated control measure Order (District Order 070297-04) to substantially conform to the provisions set forth below and consider for adoption such revised 1997 SIP and associated control measure Order by November 30, 1998. The City agrees not to legally challenge or appeal a revised 1997 SIP and associated control measure Order, provided they substantially conform to the provisions set forth below.

   (a) City will implement control measures on 10 square miles of the Owens Lake bed by December 31, 2001.

   (b) City will implement control measures on an additional 3.5 square miles of the Owens Lake bed by December 31, 2002, unless the District determines on or before December 31, 2001, that the OVPA will attain the Standards by the statutory deadline without implementation of further control measures.

   (c) City will implement control measures on an additional 3 square miles of the Owens Lake bed by December 31, 2003, unless the District determines on or before December 31, 2002, that the OVPA will attain the Standards by the statutory deadline without implementation of further control measures.

   (d) City will implement control measures on an additional 2 square miles of the Owens Lake bed in each calendar year after 2003, unless the

District determines on or before December 31 of the previous year, that the OVPA will attain the Standards by the statutory deadline without implementation of further control measures.

(e) Control measures implemented pursuant to items a), b), c) and d), above, shall be located within the area identified in Exhibit C. The Great Basin APCD and the City may jointly agree to modify the locations identified in Exhibit C.

(f) Control measures implemented pursuant to items a), b), c) and d), above shall conform to the following. The City shall implement the control measures identified by Great Basin APCD as described in Exhibit B. The Great Basin APCD and the City may jointly agree to modify, or add one or more control measures to those identified in Exhibit B. On the 3.5 square miles of the "Dirty Socks" area identified as Areas F and G in Exhibit C, the City has the authority to try one or more control measures of its choosing not identified in Exhibit B.

(g) Great Basin APCD will revise the SIP in 2003 to incorporate the knowledge gained by early implementation of control measures (the "2003 SIP"). The 2003 SIP will provide for attainment in the OVPA of the Standards by the statutory deadline.

4. In the event of a 2003 SIP legal challenge by the City, the City agrees to implement control measures on an additional 2 square miles of the Owens Lake bed annually, as provided in Section 3(d) above. Upon State approval of the 2003 SIP pursuant to Health & Safety Code Section 41650, the City shall be required to make-up any control shortfall caused by the City SIP challenge, if any, or shall be provided credit for control measure installation beyond the State approved SIP, if any. Any required control measure shortfall will be made up within one year of the approval of the SIP by the State.

5. The City agrees to fully participate in the SIP revision public review process.

6. The determination of when the OVPA has attained the Standards is the authority and responsibility of the Great Basin APCD. The City does not waive any legal right or remedy available to it with respect to any such determination.

7. The City and Great Basin APCD staff shall meet at least annually for the purpose of evaluating the progress of control measures and will consider the advice of scientific experts that each party may invite to the meeting.

8. This Memorandum of Agreement is effective upon adoption by the governing bodies of the parties.

9. Either if CARB does not approve the revised 1997 SIP before February 28, 1999, or if EPA does not approve the revised 1997 SIP before August 20, 1999, this Memorandum of Agreement shall terminate.

10. The City may establish a Joint Powers Authority or other appropriate entity as a mechanism to provide the water necessary to implement this Memorandum of Agreement.

11. Wherever in this Memorandum of Agreement actions are authorized by joint agreement of the parties, neither party shall be obligated to agree.

12. In this Agreement, the terms "Great Basin APCD" and "District" shall mean the Governing Board of the Great Basin Unified Air Pollution Control District.

July 15, 1998

Exhibit A

Schedule of Pending Proceedings

1. The parties will stipulate to continue the ARB's hearing of the City's appeal of District Order 070297-04 (control measure order) to November 30, 1998 or, if no regular meeting of the Air Resources Board is scheduled for that date, to the first such regular meeting following November 30, 1998.

2. The City agrees not to appeal to Superior Court the ARB's decision denying the City's appeal of Great Basin APCD's Order No. 041697-05, concerning fees.

3. The parties will stipulate to continue the court hearing in City of LA v. Great Basin Unified Air Pollution Control District, Kern County Superior Court No. 235642 (RDR), concerning the EIR, until November 30, 1998.

4. The City agrees not to seek any further review of City of LA v. Superior Court, No. FO 29795, concerning the payment of fees.

5. Great Basin APCD agrees to dismiss all causes of action except the writ of mandate in People of the State of California and Great Basin v. City of LA, et al., Kern County Superior Court No. 235166 (NFT).

6. The City agrees to dismiss its ARB appeal of District Order 040198-02, concerning the second assessment of fees for 1997-98.

7. The City will waive its claims concerning Great Basin APCD's use of the 1997-98 program budget and fees.

Exhibit B

Description of Control Measures

Shallow Flooding

The shallow flooding control measure will apply water to the surface of the areas of the lake bed designated for control by shallow flooding, in amounts and by means sufficient to achieve the following performance standard commencing on September 15 of each year, and ending on June 15 of the next year: 75% percent of each square mile of the designated areas shall continuously consist of standing water or surface saturated soil. Coverage shall be confirmed by aerial photography or other methods satisfactory to the District.

Between June 16 and July 31 of each calendar year, the City will supply, within the boundaries of the designated areas,. water in amounts and locations adequate to maintain sources of food and water suitable for sustaining nesting and fledgling shorebirds, including western snowy plovers, nesting within the boundaries of those control areas or within ½ mile of their boundaries. If the control measure as implemented creates vegetation of the type and density used as wildlife habitat, the City shall supply water in amounts sufficient to maintain that vegetation in a state suitable for wildlife habitat during the period between June 15 and July 31 of each calendar year.

The City shall construct a berm keyed into the lake bed sediments along the lower boundary of each of the designated areas to minimize the transmission of excess water from the control areas toward the Owens Lake brine pool. The design and implementation of this berm will incorporate snowy plover crossings located at each 500 feet along the length of the berm, adequate in design to freely allow traverse of the berm by both snowy plover adults and chicks. Surface waters that reach the lower boundary of those control areas will be collected and recirculated for reapplication to the control areas. The control measure areas will have lateral boundary edge berms as necessary to contain waters in the control areas and to isolate the control measure areas from each other and from areas not controlled.

The City shall remove any exotic pest plants, including salt cedar (Tamarix ramosissima), that invade any of the designated areas. As necessary to protect human health, the City shall avoid or abate mosquito breeding and swarming in the control areas by effective means that minimize adverse effects upon adjacent wildlife.

Managed Vegetation

In areas designated for control by the Managed Vegetation control measure, the City shall achieve coverage of at least 50% on each acre in substantially evenly distributed live or dead vegetation, as measured by the point-frame method. The vegetation shall

consist only of locally-adapted native species or species approved by both the District and the State Lands Commission.

The following portions of the designated areas are exempted from the requirement of 50% vegetative coverage: (1) portions consistently inundated with water, such as reservoirs and canals, (2) roadways necessary to access, operate and maintain the control measure which are otherwise controlled to render them substantially non-emissive, (3) portions used as floodwater diversion channels or desiltation/retention basins, (4) portions set aside as Transmontane Alkaline Meadow (TAM) habitat restoration zone as may be required to mitigate environmental impacts associated with the loss of existing TAM.

The City shall remove any exotic pest plants, including salt cedar (Tamarix ramosissima), that invade the control area. To the extent necessary to protect human health, the City shall avoid or abate mosquito breeding and swarming in those control areas by means which minimize adverse effects upon adjacent wildlife.

To protect the control measure from natural flooding, the City shall incorporate drains and channels in the control measure area adequate to divert the flood waters away from the vegetated areas and to outlet the flood waters into the Owens Lake brine pool (or reservoir(s), if any). The drains and channels shall be designed to incorporate features (such as desiltation/ retention basins) adequate to capture the alluvial material carried by the flood waters and to avoid greater than normal deposition of this material into the Owens Lake brine pool.

The City shall construct a berm keyed into the lake bed sediments along the lower boundary of the designated areas to minimize the transmission of excess water from the control area toward the Owens Lake brine pool. The design and implementation of this berm will incorporate snowy plover crossings located at each 500 feet along the length of the berm, adequate in design to freely allow traverse of the berm by both snowy plover adults and chicks. Surface waters that reach the lower boundary of the control area will be collected and recirculated for reapplication to the control area or other discharge. The control measure areas will have lateral boundary edge berms as necessary to contain waters in the control areas and to isolate the control measure areas from each other and from areas not controlled.

Gravel

Areas designated for control with gravel shall be covered with a layer of gravel at least four inches thick. All gravel material placed must be screened to a size greater than 3/8-inch in diameter. Where necessary to support the gravel blanket, it shall be placed over a permanent permeable geotextile fabric. The gravel shall have resistance to leaching and erosion. It shall be no more toxic than the gravel analyzed by the District from the Keeler fan site. It shall also be comparable in coloration to the lake bed soils.

To protect the control measure from natural flooding, the City shall incorporate drains and channels in the control measure areas adequate to divert the flood waters away

from the graveled areas and to outlet the flood waters into the Owens Lake brine pool. The drains and channels shall be designed to incorporate features (such as desiltation/retention basins) adequate to capture the alluvial material carried by the flood waters and to avoid greater than normal deposition of this material into the Owens Lake brine pool. The gravel placement design and implementation shall adequately protect the graveled areas from the deposition of wind- and water-borne soil. The City will apply best available control measures (BACM) and New Source Performance Standard (NSPS) emission limits to its gravel mining and transportation activities occurring in the District's geographic boundaries as required by the District in the City's District-issued Permit to Construct and Permit to Operate.

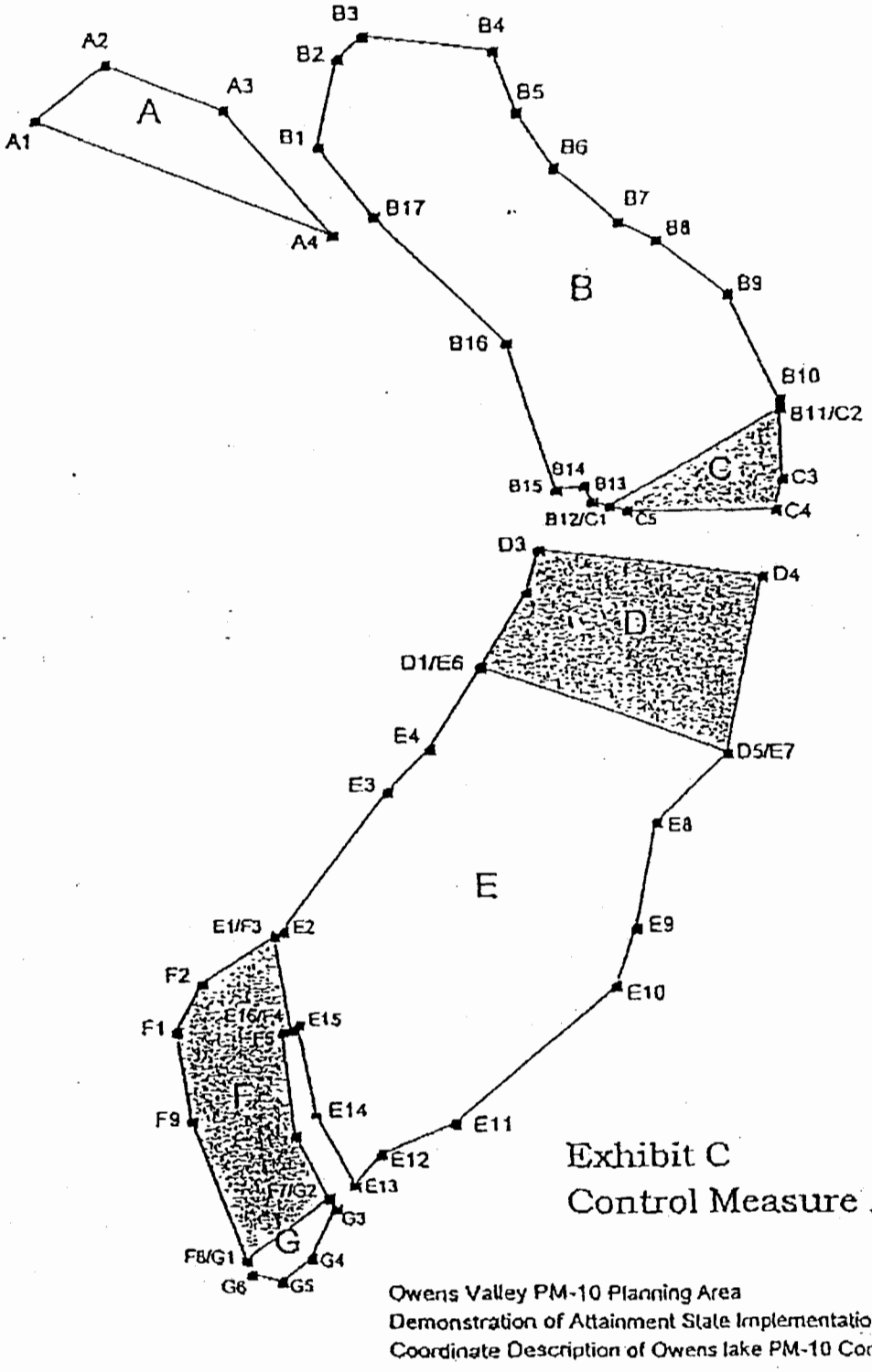


Exhibit C
Control Measure Areas

Owens Valley PM-10 Planning Area
Demonstration of Attainment State Implementation Plan
Coordinate Description of Owens lake PM-10 Control Areas

(Page 1 of 2)

Exhibit C

Owens Valley PM-10 Planning Area
Demonstration of Attainment State Implementation Plan
Coordinate Description of Owens Lake PM-10 Control Measure Areas

Point #	Longitude	Latitude
A1	-118.00380	36.51007
A2	-117.99035	36.51845
A3	-117.96797	36.51159
A4	-117.94773	36.49253
B1	-117.95038	36.50601
B2	-117.94675	36.51949
B3	-117.94223	36.52319
B4	-117.91819	36.52090
B5	-117.91402	36.51154
B6	-117.90746	36.50302
B7	-117.89590	36.49453
B8	-117.88818	36.49166
B9	-117.87443	36.48330
B10	-117.86451	36.46672
B11	-117.86447	36.46527
B12	-117.89795	36.45004
B13	-117.90140	36.45093
B14	-117.90319	36.45333
B15	-117.90764	36.45255
B16	-117.91618	36.47577
B17	-117.94021	36.49519
C1	-117.89795	36.45004
C2	-117.86447	36.46527
C3	-117.86420	36.45444
C4	-117.86560	36.44925
C5	-117.89465	36.44916
D1	-117.92178	36.42456
D2	-117.91321	36.43637
D3	-117.91088	36.44312
D4	-117.86848	36.43863
D5	-117.87594	36.41089

Point #	Longitude	Latitude
E1	-117.96090	36.38246
E2	-117.95921	36.38336
E3	-117.93932	36.40623
E4	-117.93111	36.41171
E6	-117.92178	36.42456
E7	-117.87594	36.41089
E8	-117.89002	36.40006
E9	-117.89406	36.38327
E10	-117.89845	36.37439
E11	-117.92836	36.35346
E12	-117.94175	36.34858
E13	-117.94667	36.34402
E14	-117.95377	36.35522
E15	-117.95654	36.36858
E16	-117.95811	36.36804
F1	-117.97958	36.36767
F2	-117.97437	36.37530
F3	-117.96090	36.38246
F4	-117.95811	36.36804
F5	-117.95955	36.36754
F6	-117.95763	36.35165
F7	-117.95156	36.34197
F8	-117.96768	36.33241
F9	-117.97701	36.35391
G1	-117.96768	36.33241
G2	-117.95156	36.34197
G3	-117.95056	36.34038
G4	-117.95509	36.33281
G5	-117.96116	36.32909
G6	-117.96671	36.33017

Note: All coordinates are in decimal degrees, WGS 84 spheroid coordinate system

(Page 2 of 2)

THIS PAGE INTENTIONALLY LEFT BLANK

8

Enabling Legislation to Implement Control Strategy

8.1 CONTROL STRATEGY IMPLEMENTATION

Under California Health & Safety Code §42316 (see following page and Section 2.2.2.2), the Great Basin Unified Air Pollution Control District (District) is adopting an order to the City of Los Angeles (City) to implement the Revised Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (RSIP) control measures on the schedule included in Chapter 7. The schedule will require that implementation of the additional control measures take place over a three-year period with completion by December 31, 2006. The Board order to implement the control strategy is incorporated into this RSIP and adopted concurrently with the approval of this RSIP.

The order requires the City to implement shallow flooding, managed vegetation, or gravel within the areas shown in and described by Exhibit 1, below. Implementation under the Board's order also ensures compliance with the California Environmental Quality Act. This includes specified environmental mitigation measures, environmental monitoring and reporting requirements. Additional environmental documents to the RSIP Final Environmental Impact Report (EIR) may be needed for complete implementation of the proposed control strategy.

The Attainment Demonstration in Chapter 7 shows that controlling 29.8 square miles of the Owens Lake bed will attain the National Ambient Air Quality Standards everywhere along the historic shore line (3600 foot elevation).

Text of California Health & Safety Code §42316

H&S 42316 Great Basin APCD Authority Mitigation Requirements

(a) The Great Basin Air Pollution Control District may require the City of Los Angeles to undertake reasonable measures, including studies, to mitigate the air quality impacts of its activities in the production, diversion, storage, or conveyance of water and may require the city to pay, on an annual basis, reasonable fees, based on an estimate of the actual costs to the district of its activities associated with the development of the mitigation measures and related air quality analysis with respect to those activities of the city. The mitigation measures shall not affect the right of the city to produce, divert, store, or convey water and, except for studies and monitoring activities, the mitigation measures may only be required or amended on the basis of substantial evidence establishing that water production, diversion, storage, or conveyance by the city causes or contributes to violations of state or federal ambient air quality standards.

(b) The city may appeal any measures or fees imposed by the district to the state board within 30 days of the adoption of the measures or fees. The state board, on at least 30 days' notice, shall conduct an independent hearing on the validity of the measures or reasonableness of the fees which are the subject of the appeal. The decision of the state board shall be in writing and shall be served on both the district and the city. Pending a decision by the state board, the city shall not be required to comply with any measures which have been appealed. Either the district or the city may bring a judicial action to challenge a decision by the state board under this section. The action shall be brought pursuant to Section 1094.5 of the Code of Civil Procedures and shall be filed within 30 days of service of the decision of the state board.

(c) A violation of any measure imposed by the district pursuant to this section is a violation of an order of the district within the meaning of Sections 41513 and 42402.

(d) The district shall have no authority with respect to the water production, diversion, storage, and conveyance activities of the city except as provided in this section. Nothing in this section exempts a geothermal electric generating plant from permit or other district requirements.

(Added by Stats. 1983, Ch. 608, Sec. 1. Effective September 1, 1983.)

Text of CH&SC §42316 that allows the District to assess fees for studies and order mitigation measures to implement the SIP control strategy.

8.2 THE BOARD ORDER

The following order of the Great Basin Unified Air Pollution Control District is incorporated into this State Implementation Plan and constitutes an integral part thereof.

BOARD ORDER # 031113-01
Implementation of PM_{10} Control Measures on the Owens Lake Bed

Deleted: _-

With regard to the control of PM_{10} emissions from the bed of Owens Lake, the Governing Board of the Great Basin Unified Air Pollution Control District (District) orders the City of Los Angeles (City) as follows:

PREAMBLE

WHEREAS, the Owens Valley PM_{10} Planning Area Demonstration of Attainment State Implementation Plan (1998 SIP), dated November 16, 1998, requires a series of actions to reduce particulate emissions from the Owens Lake bed so that the Owens Valley Planning Area (OVPA) will attain and maintain the National Ambient Air Quality Standards (NAAQS) for particulate matter (PM_{10}) by the statutory deadlines, including a revision to the 1998 SIP in 2003;

WHEREAS, the District is required by law to maintain its discretion to protect the environment, public health and safety, and this Order is intended to fulfill those duties without improperly constraining that lawful exercise of discretion;

WHEREAS, in consideration of the District's continuing duties under federal and state law, including but not limited to the Clean Air Act, to control particulate emissions from the Owens Lake bed without interruption, the District intends, if this Order is stayed or disapproved, that Board Order #981116-01 shall immediately be in effect so that at all times, there will be continuous control of these emissions;

WHEREAS, the District thereby intends that if this Order is stayed due to a legal challenge, including but not limited to a challenge to this Order under Health and Safety Code Section 42316, to the State Implementation Plan, or to the Environmental Impact Report for this Revised SIP, or if this Order is disapproved by the California Air Resources Board, the District will revert to enforce the terms of Board Order #981116-01 which shall immediately be in effect and shall remain in full force for the duration of any stay or, in the case of disapproval, until another Order is issued by this Board; and

WHEREAS, to prevent the deterioration of air quality due to dismantling or "backsliding" on control measures that have already been implemented before any such stay or disapproval, the District intends that the City shall continue to continuously operate and maintain all control measures already implemented at the time of any such stay or disapproval without interruption, unless and until a further Order of the District allows for such interruption, if the City has not appealed the control measures under Section 42316 within 30 days of the effective date of this Order, and if those control measures were not invalidated as a result of that appeal;

IT IS HEREBY ORDERED as follows:

ORDER

1. **Requirement for controls** – From the date of adoption of this order until December 31, 2003, the City shall continue to operate and maintain PM_{10} control measures, as described in Paragraph 2 hereof, on 13.5 square miles of the Owens Lake bed within the approximately 29.8 square mile envelope shown in Exhibit 1. The City shall complete implementation of PM_{10} control measures, as described in Paragraph 2 hereof, on 16.5 square miles of the Owens Lake bed within the approximately 29.8 square-mile envelope shown in Exhibit 1 by December 31, 2003, and complete implementation of PM_{10} control measures as described in Paragraph 2 hereof on the entire approximately 29.8 square miles of the Owens Lake bed shown in Exhibit 1 by December 31, 2006. Upon implementation, the City shall continuously operate and maintain the control measures without interruption to comply with the performance standards set forth in the Control Measures descriptions contained in this Order.

2. **Control measures** - The City shall implement Best Available Control Measures (BACM) for PM_{10} as set forth in this Order, described herein in the section entitled "Control Measures." To complete implementation of a specified control measure by a date as required by this Order means that the control measure shall be constructed, installed, operated and maintained so as to comply with the performance standards for the specified control measure not later than 5:00 p.m. on the required date.

3. **Contingencies – Supplemental Control Measures** - At least once in 2004, and in each subsequent calendar year, the District's Air Pollution Control Officer (APCO) will make a written determination as to whether any areas, in addition to those described in Exhibit 1, meet the criteria set out in Paragraph 4 of this Order and thereby automatically require air pollution control measures in order to attain or maintain compliance with the NAAQS for PM_{10}. In making that determination, the APCO shall employ the methods described in Paragraph 4 of this Order.

   A. If the APCO determines under this Paragraph that additional areas require air pollution control measures, the APCO shall issue a written directive to the City informing them that the automatic provisions of Paragraph 4 of the Order require the City to implement, operate and maintain air pollution control measures on additional areas of the Owens Lake bed. The directive will include information on how the control measures as applied to the additional areas were analyzed under the California Environmental Quality Act (CEQA) and suggest any further action necessary for the City to comply with CEQA for such control measures.

   B. Unless the procedure for issuance of the written directive by the APCO, as provided in Paragraph 4 of this Order, is appealed by the City under Health & Safety Code Section 42316 within 30 days of the issuance of this Order, and unless the procedure is invalidated as a result of that appeal, any such directive is not, and shall not be construed to be, a further requirement for mitigation measures that may be appealed to the California State Air Resources Board

under that Section. The District acknowledges that the issuance of such a directive is final agency action subject to challenge by the City in state court for review under the abuse of discretion standard.

C. Paragraph 4 fixes the period of time within which the implementation of the additional control measures must be completed. Upon implementation, the City shall continuously operate and maintain, without interruption, the control measures to comply with performance standards set forth for such measures in the control measure descriptions contained in this Order.

4. **Criteria for Determining Additional Controls** - The criteria and methods for making the determinations described in Paragraph 3 shall be those described in detail in Exhibit 2. Where Exhibit 2 and/or its attached protocols provide for actions to be authorized by joint agreement of the parties, neither party shall be obligated to agree.

5. **Adjustments to BACM and Transitions of Implemented Control Measures** - This Order further provides for the City to transition from one control measure to another provided that, at all times, the performance standards of one or the other control measure are continuously met during the transition to assure that the transition shall not prevent the OVPA from attaining or maintaining the NAAQS for PM_{10}. This Order also provides for adjustments to BACM. The absence of a stable BACM description due to the terms of this Paragraph precludes the application of the U.S. Environmental Protection Agency's Natural Events Policy for any purpose under this Order. The APCO shall have full discretion to consider any such application for a change in BACM, and to accept, reject or condition its approval of such application. Non-compliance with any such condition shall be enforceable as noncompliance with a District Order. Without limiting the District's discretion as provided herein, the procedures for transitions of implemented control measures or adjustments to BACM shall be those described in Exhibit 3.

Deleted: its control measures

6. **Alternative Methods for Supplemental Controls** - Notwithstanding any other provision of this Order, the District shall maintain its ability under Health and Safety Code Section 42316 to order the City to implement additional controls, and/or to control additional areas of the lake bed, to prevent the OVPA from failing to attain or maintain the NAAQS for PM_{10} if circumstances arise that are not specifically addressed in Paragraphs 3 or 5 of this Order.

7. **Relationship to Board Order 981116-01** - The District hereby stays the force and effect of Board Order 981116-01 for all times that this Order is in full force and effect. In the event this Order, or any provision of this Order, is stayed due to a legal challenge, including but not limited to a challenge to this Order under Health & Safety Code Section 42316 or any other law, to the State Implementation Plan, or to the Environmental Impact Report for this Revised SIP, or in the event the Order is disapproved by the California Air Resources Board, the following shall apply:

A. If the stay or disapproval causes Paragraph 1 of this Order to cease its operative force and effect, Board Order #981116-01 shall immediately be in effect and shall remain in full force for the duration of any stay or, in the case of disapproval, until another Order is issued by this Board. In addition, the City

shall continue to operate and maintain without interruption all control measures already implemented in any area if those control measures were not appealed under Health & Safety Code Section 42316 within 30 days of the date of this Order, and if those measures were not invalidated as a result of that appeal.

B. If the stay or disapproval causes Paragraph 3 and/or 4 of this Order to cease its operative force and effect, but does not affect Paragraph 1 of this Order, the City shall continue to operate and maintain all control measures already implemented without interruption. Board Order #981116-01 Paragraphs 7 and 9 (as supplanted by the Control Measures provided for in this Order) shall immediately be in effect and shall remain in full force for the duration of any stay, along with any other terms of this Order that are not stayed or disapproved.

C. If the stay or disapproval does not affect Paragraphs 1, 3, or 4 of this Order, those Paragraphs and any other terms of this Order that are not stayed or disapproved shall be in effect, and shall remain in full force for the duration of any stay. The City shall continue to operate and maintain, without interruption, all control measures already implemented.

D. If a stay of this Order is imposed, then lifted so that this Order is in effect, the City shall, within one year after the lifting of the stay, meet all requirements and deadlines set by this Order as if no stay had been imposed. The City shall not remove or decrease any control measures during this one-year period without the express written permission of the APCO, and the provisions of Board Order 981116-01 shall again be stayed. If the stay of this Order is only partially lifted such that any portion of this Order remains stayed, Board Order 981116-01 shall remain in effect as provided under Paragraphs 7.A., 7.B. and 7.C herein.

Control Measures

Shallow Flooding

The "shallow flooding" dust control measure will apply water to the surface of those areas of the lake bed where shallow flooding is used as a dust control measure. Water shall be applied in amounts and by means sufficient to achieve the following performance standard commencing on October 1 of each year, and ending on June 30 of the next year: at least 75 percent of each square mile of the designated areas shall continuously consist of standing water or surface-saturated soil, substantially evenly distributed. If a contiguous shallow flood dust control area is less than one square mile, 75 percent of the entire contiguous area shall consist of standing water or surface-saturated soil. Aerial photography, satellite imagery or other methods approved by the APCO shall be used to confirm coverage.

The following portions of the areas designated for control with shallow flooding are exempted from the requirement of 75 percent saturated surface:

1) raised berms, roadways and their shoulders necessary to access, operate and maintain the control measure which are otherwise controlled and maintained to

render them substantially non-emissive and

2) raised pads containing vaults, pumping equipment or control equipment necessary for the operation of shallow flooding infrastructure which are otherwise controlled and maintained to render them substantially non-emissive.

"Substantially non-emissive" shall be defined to mean that the surface is protected with gravel, durable pavement or other APCO-approved surface protections sufficient to meet the requirements of District Rules 400 and 401 (visible emissions and fugitive dust).

Excess surface waters and shallow groundwaters above the annual average water table before site construction that reach the lower boundary of the dust control areas will be collected and recirculated for reapplication to dust control areas or otherwise discharged. The dust control measure areas will have lateral boundary edge berms and/or drains as necessary to contain excess waters in the control areas and to isolate the dust control measure areas from each other and from areas not controlled. If drains are used, they shall be designed and constructed so that they may be regulated such that groundwater levels, surface water extent and wetlands in adjacent uncontrolled areas are not impacted.

The City shall remove any exotic pest plants, including salt cedar (*Tamarix ramosissima*), that invade any of the areas designated for control by shallow flooding. As necessary to protect human health, the City shall prevent, avoid and/or abate mosquito and other pest vector breeding and swarming in and around the control areas by effective means that minimize adverse effects upon adjacent wildlife.

Managed Vegetation

In areas where "managed vegetation" is used as a dust control measure, the following performance standard shall be achieved commencing on October 1 of each year, and ending on June 30 of the next year: substantially evenly distributed live or dead vegetation coverage of at least 50 percent on each acre designated for managed vegetation. Vegetation coverage shall be measured by the point-frame method, by ground-truthed remote sensing or by other methods approved by the APCO. The vegetation shall consist only of locally-adapted native species approved by the APCO or species approved by both the APCO and the California State Lands Commission. To date, the only locally-adapted native species approved by the APCO is saltgrass (*Distichlis spicata).*

The following portions of the areas designated for control with managed vegetation are exempted from the requirement of 50 percent vegetative coverage:

1) portions consistently inundated with water, such as reservoirs, ponds and canals,

2) roadways and equipment pads necessary to access, operate and maintain the control measure which are otherwise controlled and maintained to render them substantially non-emissive, and

3) portions used as floodwater diversion channels or desiltation/retention basins.

"Substantially non-emissive" shall be defined to mean that the surface is protected with gravel, durable pavement or other APCO-approved surface protections sufficient to meet the requirements of District Rules 400 and 401 (visible emissions and fugitive dust).

Excess surface waters and shallow groundwaters above the root zone depths that reach the lower boundary of the dust control areas will be collected and recirculated for reapplication to dust control areas or otherwise discharged. The dust control measure areas will have lateral boundary edge berms and/or drains as necessary to contain excess waters in the control areas and to isolate the dust control measure areas from each other and from areas not controlled. Drains shall be designed and constructed so that they may be regulated such that groundwater levels, surface water extent and wetlands in adjacent uncontrolled areas are not impacted.

To protect the managed vegetation control measure from flooding, the City shall incorporate stormwater control facilities (e.g, weirs, channels, drains and spillways) into and around managed vegetation areas adequate to maintain the dust mitigation function of managed vegetation, and outlet flood waters into the Owens Lake brine pool, shallow flood areas, or reservoirs. The drains and channels shall be designed to incorporate features such as desiltation/retention basins that are adequate to capture the alluvial material carried by flood waters and to avoid greater than normal deposition of this material into the Owens Lake brine pool.

The City shall remove any exotic pest plants, including salt cedar (*Tamarix* spp.), that invade any of the areas designated for control by managed vegetation. As necessary to protect human health, the City shall prevent, avoid and/or abate mosquito and other pest vector breeding and swarming in and around the control areas by effective means that minimize adverse effects upon adjacent wildlife.

Gravel Cover

In areas where gravel is used as a control measure, the City shall meet the following performance standard: one hundred percent of the control area shall be covered with a layer of gravel at least four inches thick. All gravel material placed must be screened to a size greater than one-half inch (½ inch) in diameter. Where it is necessary to support the gravel blanket, it shall be placed over a permanent permeable geotextile fabric. The gravel shall have resistance to leaching and erosion. It shall be no more toxic than the gravel from the Keeler fan site analyzed by the District in the Final Environmental Report prepared for the 1997 SIP. To minimize visual impacts, all gravel used shall be comparable in coloration to the existing lake bed soils.

To protect the gravel control measure from flooding, the City shall incorporate drains and channels into and around the control measure areas adequate to maintain the dust mitigation function of the gravel, and outlet flood waters into the Owens Lake brine pool, shallow flood areas, or reservoirs. The drains and channels shall be designed to incorporate features such as desiltation or retention basins that are adequate to capture the alluvial material carried by the flood waters and to avoid greater than normal deposition of this material into the Owens Lake brine pool.

The gravel placement design and implementation shall adequately protect the graveled areas from the deposition of wind- and water-borne soil or infiltration of sediments from below. All graveled areas will be visually monitored to ensure that the gravel blanket is not filled with sand, dust or salt and that it has not been inundated or washed out from flooding. If any of these conditions are observed over areas larger than one acre, additional gravel will be

transported to the playa and applied to the playa surface such that the original blanket performance standard is maintained. The City will apply best available control measures (BACM) and New Source Performance Standard (NSPS) emission limits to its gravel mining and transportation activities occurring within the District's geographic boundaries as required by the District in the City's District-issued Authority to Construct and Permit to Operate.

Increment 2 Extreme Violators

On areas 25 and 26 in Exhibit 1, the City shall implement one of the Control Measures listed below, and described in this Section, above, to achieve 99.5 percent PM_{10} control effectiveness. On area 27 in Exhibit 1, the City shall implement one of the Control Measures listed below and described in this Section, above, to achieve 99.75 percent control effectiveness.

Deleted: the

Deleted: entitled "Control Measures"

Deleted: the

Deleted: entitled "Control Measures"

1) Gravel, or
2) 100 percent coverage with shallow flooding, or
3) Enhanced managed vegetation with greater than 50 percent cover with sand flux and/or PM_{10} monitoring to determine if the daily minimum control efficiency of 99.5 percent or 99.75 percent control effectiveness has been achieved, or
4) Enhanced shallow flood with greater than 75 percent water cover with sand flux and/or PM_{10} monitoring to determine if the daily minimum control efficiency of 99.5 percent or 99.75 percent control effectiveness has been achieved, or
5) Modified BACM that has been tested on that extreme cell in accordance with this Board Order #031113-01, Exhibit 3 and is demonstrated to achieve a daily minimum control efficiency or 99.5 percent or 99.75% control effectiveness in the extreme area where modified BACM is applied.

Stormwater Management

The bed of Owens Lake is subject to flooding, alluvial deposits and fluctuating brine pool levels caused by stormwater runoff flows. In order to protect the PM_{10} control measures installed on the lake bed, the City shall design, install, operate and maintain flood and siltation control facilities. Flood and siltation control facilities shall be designed to provide levels of protection appropriate for the PM_{10} control measures being protected. Flood and siltation control facilities shall be integrated into the design and operation of the PM_{10} control measures. All flood and siltation control facilities shall be continually operated and maintained to provide their designed level of protection. All flood and siltation control facilities and PM_{10} control measures damaged by stormwater runoff or flooding shall be promptly repaired and restored to their designed level of protection and effectiveness. Flood and siltation control facilities shall be designed and constructed so that groundwater levels, surface water extent, and wetlands in adjacent uncontrolled areas are not impacted by induced drainage. All flood and siltation control facilities shall be designed so as not to cause the existing trona mineral deposit lease area (State Lands Commission leases PRC 5464.1, PRC 3511 and PRC 2969.1) to be subjected to any greater threat of alluvial material contamination than would have occurred under natural conditions prior to the installation of PM_{10} control measures.

Schedule

The Control Measures shall be implemented on the areas set forth in Paragraph 1 by the dates set forth in that Paragraph. Supplemental Control Requirements will be met on the schedule shown in Exhibit 2.

Additional Requirements

Furthermore, the Board orders the City of Los Angeles to satisfy the following requirements related to the implementation of the shallow flooding, managed vegetation, and gravel control measures:

1. The City's construction, operation and maintenance activities will comply with all Mitigation Measures set forth in Final Environmental Impact Reports, EIR Addendum and Mitigated Negative Declarations associated with the areas on which dust controls are placed and all subsequent environmental documents adopted by the District for implementation of the requirements of this SIP.

2. The City shall comply with any and all applicable requirements of the Mitigation Monitoring and Reporting Programs adopted by the District concurrently with its certification of the Final Environmental Impact Reports and Final Environmental Impact Report Addendum for this project and all subsequent environmental documents adopted by the District for implementation of the requirements of this SIP.

3. The City shall apply best available control measures (BACM) to control air emissions from its construction/implementation activities occurring in the District's geographic boundaries.

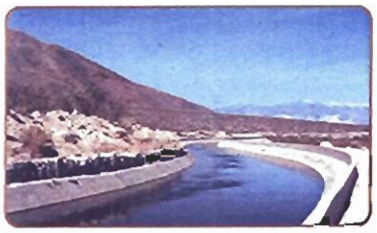
Exhibits

Exhibit 1 – Map and Coordinates of PM_{10} Control Area

Exhibit 2 – Owens Valley Planning Area Supplemental Control Requirements

Exhibit 3 – Modifying Owens Valley Planning Area BACM

WATER SERVICES ORGANIZATION



Ten-Year Capital Improvement Program

FOR THE FISCAL YEARS 2003–2012

LOS ANGELES DEPARTMENT OF WATER AND POWER

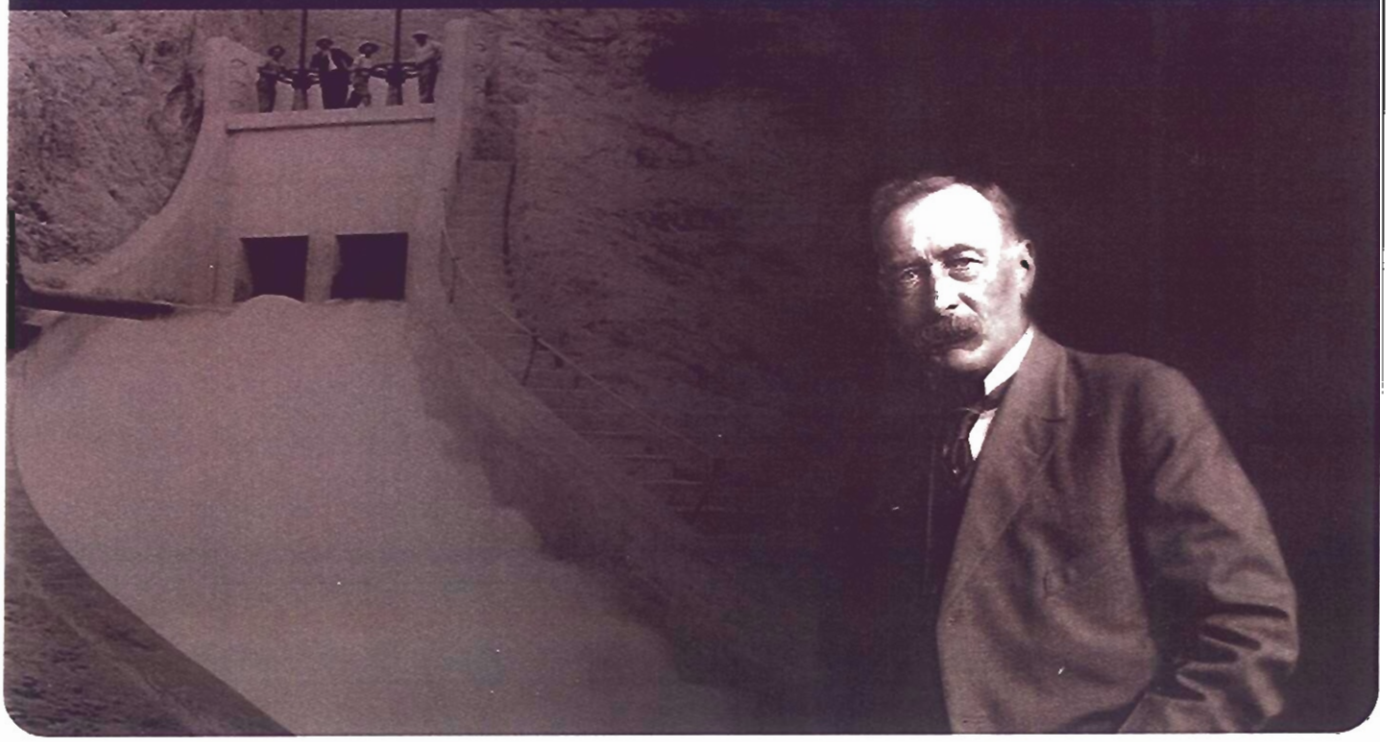


Table of Contents

LADWP Water Services Organization Background

William Mulholland

HISTORY

In 1902, the city of Los Angeles purchased a company named "The Los Angeles City Water Company" for $2 million, protecting the city's lifeline in the face of tremendous growth. That company evolved into the present-day Los Angeles Department of Water and Power (LADWP). Within LADWP, the Water Services Organization (WSO), the largest municipally owned and operated retail water utility in the country, runs the city's vast water system. Its mission, only changing slightly over the past 100 years, is "to provide our customers with reliable, high quality and competitively priced water services in a safe, and publicly and environmentally responsible manner." Today, the organization provides 3.8 million customers enough water to fill the Los Angeles Coliseum from top to bottom twice a day. WSO continues to successfully meet the daily challenges of fulfilling its mission to customers despite the large population growth and higher water quality standards.

WATER SYSTEM OVERVIEW

On average, half of the water supplied to the city of Los Angeles originally begins as snowmelt on the Eastern slopes of the Sierra Nevada Mountains. Variations in the weather affecting snow pack levels cause this average to fluctuate year to year. An additional 15% is supplied by water that has worked its way through the ground into underground wells located hundreds of feet below Los Angeles in the San Fernando Valley. The remaining quantities are purchased from the Metropolitan Water District (MWD) from the California Aqueduct and the Colorado River Aqueduct. During an extended period of drought, more water is purchased from MWD than in years of normal to heavy snow pack in the Sierra Nevada Mountains.

Runoff from the Eastern slopes of the Sierra Nevada Mountains travels down the state of California via the Los Angeles Aqueduct. It is purified through treatment facilities and stored in any of the many reservoirs and tanks throughout Los Angeles. Additionally, water from the local wells is also treated and stored in a similar manner after it is pumped to the surface. The water from all sources moves throughout the city via large pipes called trunk lines.

A trunk line is a pipe with a diameter greater than 20 inches. These pipes transport the water from the wells and aqueducts to the reservoirs, and enable water to be moved from one area of the city to another. Trunk lines are connected to smaller pipes known as distribution mains that supply water to the customer's service connection. Water meters then measure customer's water usage. WSO's piping system is so extensive, that if all of the pipes (trunk lines, mains, and services) were laid end to end in a straight line, they would stretch from Los Angeles to New York and back again and then to Denver, Colorado for a total length of 7,200 miles.

Many of the structures that are part of this extensive system were constructed during the early 1900s. Extensive rehabilitation and replacement of the distribution system piping began over 20 years ago. Focusing not only on pipes, but the entire distribution

WATER SYSTEM OVERVIEW
CONTINUED

system, Water Services continues to retrofit the various outdated and aging components of the existing system. Scheduled repairs or replacements of the system's components are based on analyses and studies that estimate their remaining life. WSO is developing an asset management plan encompassing the major components of their system to better maintain an efficient and reliable water system. This will minimize costly failures that can be inconvenient and damaging to customers and their property.

Customer confidence is not only affected by reliability, but also by quality. Customers are demanding the highest quality water that is feasible while regulatory agencies are setting water quality standards that LADWP and other water agencies must meet. Failure to comply with these regulations can lead to severe consequences (fines, loss of customer confidence, etc.). The water provided today is the highest quality ever served. It continues to improve as customer expectations and standards for drinking water become more stringent. These expectations and requirements create the need for system improvements that include modifying the current method used for storing, supplying, and processing the water used in the city of Los Angeles. A highlight is LADWP's unique project to protect at risk children from lead poisoning. Water Services is the first water system in the country with a program to replace all brass alloy meters containing small amounts of lead with meters manufactured with lead free alloys.

Los Angeles Aqueduct

The city's demand for water is expected to increase about 15% over the next 15 years. The Water Services Organization is moving aggressively to provide an adequate supply of high quality water to meet these needs. Water conservation, recycling, and water transfers will be the primary methods to meet increases in system demand as the city grows over the next decade and beyond.

Executive Summary

OVERVIEW

In the coming decade, the Water Services Organization plans to invest approximately $3.5 billion to improve the reliability and quality of the water supply for Los Angeles' 3.8 million residents. The Los Angeles water system will require significant capital improvements due to its aging water infrastructure, customer expectations of improved water quality, and anticipated changes in state and federal water quality regulations. Many facilities pre-date World War II and do not meet today's performance and quality standards. Long-range replacement programs driven by an asset management program will rehabilitate and upgrade these facilities and help reduce costs for maintenance and repairs. The Department is also increasing the safety and quality of the water delivered to customers by reducing daily dependence on large in-city open reservoirs. To meet new regulations, WSO is instituting more comprehensive monitoring programs to ensure that the water delivered to customers continues to comply with new and future water quality regulation changes.

For planning purposes, the budget is broken into four major categories: (1) Water Quality Improvements, (2) Water Resources, (3) Infrastructure, and (4) Support Functions. A brief description of what is included in each budget component is provided below with additional detail provided in subsequent sections of this document. Table 1 provides a year-by-year summary of the 10-year capital budget described in this document. A more detailed budget breakdown can be found in the appendix. As costs increase due to a variety of reasons such as regulatory and security issues, LADWP will aggressively seek grants, low interest loans, or other types of assistance from federal, state, city or other government agencies to reduce the costs to its customers.

• LADWP will aggressively seek to increase reimbursements to further reduce the costs to customers

TABLE 1 – SUMMARY OF CAPITAL BUDGET FOR FISCAL YEARS 2003 -2012(X $1000)

Category	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Water Quality Improvements											
Expenses	80,677	83,698	113,746	154,374	170,555	100,144	63,320	18,657	14,126	74,942	874,239
Reimbursements	(1,200)	(1,100)	-	-	-	-	-	-	-	-	(2,300)
Water Quality Improvements Total	**79,477**	**82,598**	**113,746**	**154,374**	**170,555**	**100,144**	**63,320**	**18,657**	**14,126**	**74,942**	**871,939**
Water Resources											
Expenses	79,734	101,260	136,695	91,068	51,249	44,803	85,056	80,651	31,069	42,991	744,575
Reimbursements	(30)	(4,250)	(1,000)	-	-	-	-	-	-	-	(5,280)
Water Resources Total	**79,704**	**97,010**	**135,695**	**91,068**	**51,249**	**44,803**	**85,056**	**80,651**	**31,069**	**42,991**	**739,295**
Infrastructure											
Expenses	114,967	126,401	163,934	194,391	166,284	154,197	135,438	128,728	140,127	131,101	1,455,567
Reimbursements	(22,812)	(15,977)	(17,889)	(12,495)	(12,375)	(12,375)	(12,375)	(12,375)	(12,375)	(12,375)	(143,422)
Infrastructure Total	**92,154**	**110,424**	**146,045**	**181,896**	**153,910**	**141,822**	**123,063**	**116,353**	**127,753**	**118,726**	**1,312,145**
Support Functions											
Expenses	103,143	119,871	87,836	90,122	88,234	64,807	54,756	56,402	53,107	53,554	771,832
Reimbursements	(28,781)	(36,053)	(28,459)	(20,809)	(21,428)	(22,061)	(18,859)	(19,339)	(19,814)	(235)	(215,837)
Support Functions Total	**74,362**	**83,818**	**59,377**	**69,313**	**66,806**	**42,745**	**35,897**	**37,063**	**33,293**	**53,319**	**555,995**
Water Ten Year Capital Plan											
Expenses	378,521	431,230	502,211	529,955	476,322	363,950	338,570	284,438	238,429	302,589	3,846,213
Reimbursements	(52,823)	(57,380)	(47,348)	(33,304)	(33,803)	(34,436)	(31,234)	(31,714)	(32,189)	(12,610)	(366,839)
Total funded by Customer	**325,698**	**373,851**	**454,863**	**496,651**	**442,519**	**329,514**	**307,336**	**252,724**	**206,240**	**289,979**	**3,479,374**

Executive Summary

WATER QUALITY IMPROVEMENTS

Twenty-five percent of the total capital budget is allocated to the many water quality improvements required to meet customer expectations and increasingly more stringent water quality standards that will be effective during the next 10 years. Major changes related to storing water in open reservoirs must be implemented during this period, accompanied by a citywide conversion to chloramines as LADWP's primary disinfectant. Arsenic and other contaminants will pose additional challenges that require innovative treatment solutions. The Cement Mortar Lining program is the most ambitious of its kind in the world. Having rehabilitated over 12 million feet of pipe, the program will be completed within the next three years, providing a cleaner delivery system, and extending the life of the pipes.

WATER RESOURCES

Water Resources projects ensure the reliability of Los Angeles' water supply. Projects involve maintaining historic groundwater supplies, increasing recycled water supplies, rehabilitating the Los Angeles Aqueduct, developing new source supplies, and environmental restoration activities in the Eastern Sierra. Water Resources projects represent approximately 20% of the 10-year capital budget, with nearly half allocated for environmental activities in the Owens Valley.

INFRASTRUCTURE

Through infrastructure projects, LADWP can provide its customers with a reliable source of water by replacing or upgrading major system components that are outdated, malfunctioning, or susceptible to seismic activity. The Infrastructure budget is 33% of the 10-year capital budget. Work on trunk lines, major system connections, distribution mains, and service replacements account for most of the Infrastructure budget. In addition to reliability, many projects will also have water quality benefits. The meter replacement program, for example, is the first of its kind in the country, providing Los Angeles residents with lead-free meters.

SUPPORT FUNCTIONS

Support functions play a critical role in providing the necessary tools and equipment for improved employee productivity and customer services. Projects include costs relating to facilities, furniture, lab equipment, computer software and hardware, and other items necessary for the day-to-day operations for WSO and LADWP. WSO's information technology budget includes equipment for the individual users, as well as the larger system that controls and monitors the water system. Transportation vehicles and heavy construction equipment, and related fueling and maintenance facilities are also included in this category.

WATER QUALITY IMPROVEMENTS

Funds identified for water quality improvement projects will ensure that WSO can meet its vision "to be the trusted supplier of reliable, high quality water." WSO considers its water "high quality" when it continuously surpasses public health standards and meets customer expectations for taste and appearance. For budgeting purposes, efforts to protect and improve water quality are divided into three categories: (1) Open Reservoirs, (2) Safe Drinking Water, and (3) Cement Lining.

Water Services regularly monitors for more than 110 regulated and 60 unregulated compounds. The budget for water quality improvements over the next 10 years is $872 million. These expenditures are necessary to ensure continued success in meeting and surpassing customer expectations and more stringent water quality standards slated to be in effect over the next several years, as well as position LADWP to meet future standards now under consideration. Table 2 provides a year-by-year summary of the 10-year budget allocation for water quality improvements.

TABLE 2 - SUMMARY OF WATER QUALITY IMPROVEMENTS CAPITAL BUDGET FOR FISCAL YEARS 2003 -2012 LESS REIMBURSEMENTS (X $1000)

Sub-Category	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Open Reservoirs Total	52,818	58,781	85,288	128,884	141,885	84,477	53,364	9,535	4,750	26,505	646,286
Safe Drinking Water Total	10,649	10,744	15,889	17,081	28,670	15,667	9,956	9,122	9,376	48,438	175,591
Cement Lining Total	16,010	13,073	12,569	8,409	-	-	-	-	-	-	50,062
Water Quality Imprv Total	**79,477**	**82,598**	**113,746**	**154,374**	**170,555**	**100,144**	**63,320**	**18,657**	**14,126**	**74,942**	**871,939**

A major portion of the budget for water quality deals with changes to the large open reservoirs that have historically been relied on for water distribution within the city. Water quality legislation over the past three decades has effectively targeted the vulnerabilities of open distribution reservoirs, which are prone to degradation by algae, small aquatic organisms, microbes, airborne particles, and birds. Where there were 750 open reservoirs throughout the country in 1975, only 138 remain today; six of these are in Los Angeles. Due to a culmination of regulations dealing with runoff into open reservoirs, increased disinfection standards, and by-products created during disinfection, Water Services has determined that no open reservoirs can remain in service in its water distribution system.

Four of LADWP's open distribution reservoirs are subject to the federal Surface Water Treatment Rule (SWTR). In 1993, the Department entered into an agreement with the State Department of Health Services (DHS) to bring these reservoirs into compliance or face fines. Upper and Lower Hollywood, and Encino Reservoirs have already been removed from service in compliance with the DHS agreement. Lower Stone Canyon Reservoir is due to be out of service by December 31, 2004.

OPEN RESERVOIRS

Projects to meet the SWTR were developed with unprecedented community involvement. To minimize the potential impacts of covering, filtering, or removing these beautiful lake-type waters from service, the City Council prescribed a formal negotiation process that pushed the national standard for a cooperative effort between public agency and affected community.

Work on the Hollywood Reservoirs is complete, with work continuing at Encino and Stone Canyon Reservoirs. Major trunk line and other system improvements (categorized under the Infrastructure section of this document) will allow the reservoirs to be taken off line without significantly affecting supply. For example, the newly installed 96-inch Sepulveda Trunk Line, which is two feet larger in diameter than the largest pipes in the distribution system will help transport water throughout the city. Work at the Encino Reservoir will reconstruct pumping and water treatment facilities and add a small filtration plant.

Encino Reservoir

New facilities at the Stone Canyon Reservoir Complex will include reconstructed pumping and water treatment facilities, a small filtration plant, a one-million-gallon diversion structure, and additional pipes and tunnels. These facilities will allow Lower Stone Canyon Reservoir to be bypassed with no impact on the downstream service area.

By direction of the Board of Water and Power Commissioners, the projects at Encino and Lower Stone Canyon Reservoirs include maintaining the reservoir water for use in a catastrophic emergency, such as an earthquake. This not only provides the emergency reliability the system currently enjoys, but it also maintains the aesthetic beauty of these rare in-city oases.

Requirements of the Stage 2 Disinfection By-Products Rule (DBP) and increasing reliance on the State Water Project for imported supply will force LAWDP to convert from its historical disinfection with chlorine and move to chloramine disinfection. In addition, the disinfection options set forth under the Long-Term 2 Enhanced Surface Water Treatment Rule will necessitate that, with a chloraminated system, the remaining in-city open reservoirs will have to be covered or removed from service. Potential costs for projects to cover or remove the remaining open reservoirs from service include: $184 million at Silverlake/Ivanhoe Reservoirs, $207 million at Los Angeles Reservoir, $12 million at Santa Ynez Reservoir, and $28 million at Elysian Reservoir. The scope and cost of the project to cover Upper Stone Canyon Reservoir has not yet been identified.

SAFE DRINKING WATER

The Safe Drinking Water category includes a number of diverse projects that will allow LADWP to meet a variety of upcoming regulations and operational concerns. These include projects to meet near-term water quality regulations, improve arsenic removal from the Los Angeles Aqueduct, and convert to chloramines as a disinfectant to reduce carcinogens in the water citywide.

Water Services is studying options for additional treatment facilities at the existing Los Angeles Aqueduct Filtration Plant. Enhanced coagulation, which will likely total more than the 1986 cost to construct the filtration plant itself, will reduce the precursor agents in the plant inflow that cause disinfection by-products. Of even greater future significance, the enhanced coagulation process will effectively reduce naturally occurring arsenic in the Los Angeles Aqueduct supply. Current efforts to treat and remove arsenic along the aqueduct enables WSO to provide water with less than half of the arsenic allowed by current standards. An advanced process will be necessary to further reduce the arsenic level to improve the safety of the water and to meet more stringent arsenic standards that are likely to be adopted in the future.

Silverlake Reservoir

Water Services is also studying the impacts of other pending drinking water standards such as the Radon Rule and the Groundwater Rule as well as implementing projects to maintain compliance with the Total Coliform Rule and the Lead and Copper Rule.

Switching to chloramines as a primary disinfectant requires more than just covering the city's open reservoirs. New facilities throughout the system are needed and are included in the chloramine conversion implementation project. These additions are estimated to cost $22 million.

CEMENT LINING

The Cement Lining Program addresses problems caused by unlined water distribution pipes. Unlined pipe is subject to internal corrosion, which can create red water, taste and odor problems, provide an environment for bacteria to grow, and lead to the premature deterioration of the distribution system. Placing a thin layer of cement mortar on the pipeline's interior surface after removing the tuberculation stops most internal corrosion, improves water quality and flows, and extends the life of the pipeline. Cement lining can be performed at approximately one-third the cost of pipeline replacement, with significantly less disruption to the immediate community.

Approximately $50 million will be spent to complete the cement lining of old unlined water pipes by July 2006. Currently, the water system has less than 135 miles of unlined pipe remaining, which represents 2 percent of all pipes in the distribution system. This program has already completed lining 2,380 miles of pipe at a cost of approximately $400 million.

Pipe before and after cement lining treatment.

WATER RESOURCES

Water Resources projects maintain the high quality water supply needed by the city of Los Angeles. Water resources projects are divided into the following four categories: (1) Eastern Sierra Environmental Restoration, (2) Los Angeles Aqueduct Improvements and Resource Development, (3) Groundwater Management, and (4) Water Recycling. Approximately 20% of the 10-year capital budget is for Water Resources efforts. Table 3 provides a year-by-year breakdown for the Water Resources budget.

TABLE 3 - SUMMARY OF WATER RESOURCES CAPITAL BUDGET FOR FISCAL YEARS 2003 -2012 LESS REIMBURSEMENTS (X $1000)

Sub-Category	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
East. Sierra Environmental Restoration	55,588	63,009	77,914	46,395	23,910	8,936	13,581	7,857	7,722	7,225	312,135
LA Aqueduct Improvements and Resource Development Total	8,656	14,330	10,158	9,711	9,701	19,532	54,372	56,657	8,288	6,512	197,916
Ground Water Management Total	8,001	4,489	25,146	16,961	2,930	6,308	8,099	6,097	5,453	25,921	109,405
Water Recycling Total	7,461	15,183	22,477	18,002	14,707	10,026	9,004	10,041	9,606	3,333	119,839
Water Resources Total	**79,704**	**97,010**	**135,695**	**91,068**	**51,249**	**44,803**	**85,056**	**80,651**	**31,069**	**42,991**	**739,295**

EASTERN SIERRA ENVIRONMENTAL RESTORATION

Over time, natural processes along with the diversion of water from Owens Valley to Los Angeles altered the ecosystem of Owens Valley. Two separate Memorandums of Agreement (MOA) between the city of Los Angeles and various government and private organizations were put in place to help revitalize the ecology of the Lower Owens River and Owens Lake.

The Lower Owens River Project (LORP) is described in the first MOA between the city of Los Angeles and Inyo County, the California Department of Fish and Game, State Lands Commission, Sierra Club and the Owens Valley Committee. The other MOA is between the city of Los Angeles and the Great Basin Unified Air Pollution Control District to provide dust mitigation in the Owens Valley due to the evaporation of Owens Lake.

LADWP General Manager David Wiggs, Asst. GM-WSO Gerald Gewe, and Los Angeles City Council Member Ruth Galanter examining the bubblers at the Shallow Flooding Phase of the Owens Lake Dust Mitigation Project.

The LORP, being implemented by LADWP and Inyo County, is among the most environmentally significant river habitat restorations ever undertaken in the United States. The LORP will return a steady flow of water from the Los Angeles Aqueduct to the Owens River below Tinemaha Reservoir, and then down to the delta of Owens Dry Lake. Additional water will be spread into basins at Blackrock and the Lower Owens River Delta to create more than 1,800 acres of wetlands habitat for waterfowl and shore birds, representing the largest restoration of wetlands in California.

The LORP involves four primary restoration efforts: (1) releasing water to the Lower Owens River to enhance native and game fisheries and riparian habitats along 62 miles of the river; (2) providing water to the Owens River Delta to maintain and enhance various wetland and aquatic habitats; (3) enhancing a 1,500-acre off-river area with seasonal flooding and land management to benefit wetlands and waterfowl; and (4) main-

EASTERN SIERRA ENVIRONMENTAL RESTORATION
CONTINUED

taining several off-river lakes and ponds. The project also includes construction of a pump station to capture and recover some of the water released to the river during seasonal high flows. LORP, costing approximately $22 million over the next decade, is expected to boost recreational opportunities and the economy of the southern Owens Valley. A portion of river water will continue south and be used for dust control measures on Owens Lake. The water used for Owens Lake is essentially not available for the city of Los Angeles and must be made up through other sources to maintain a stable supply for the city of Los Angeles.

Owens Lake, once a large prehistoric freshwater lake that was 60 miles long and over 300 feet deep, gradually began to dry up when the valley's climate changed from post-glacial to semi-arid. The minerals and salts which for many millennia had flowed into Owens Lake, concentrated through evaporation to the point where only a few primitive organisms, such as algae, brine shrimp, and brine flies could survive in the remaining waters of the lake. By 1905, water diverted by the farmers in the Owens Valley, coupled with a drought in the region, led to further evaporation of the lake. By 1913, the city had purchased much of the water rights in the Owens Valley and completed the Los Angeles Aqueduct. At that time, most of the remaining water in the Owens River was diverted to the city of Los Angeles. As a result, Owens Lake has been essentially dry since the late 1920s.

Planting salt grass as part of the Owens Lake Dust Mitigation Project

As the lake dried up, the dry lakebed was left with a cover of an alkali salt crust. This material gets blown into the air causing large amounts of dust. Dust blowing from the dry lakebed contributes to violations of the federal particulate (dust) standard in the air around the extreme southern Owens Valley. In 1983 the state legislature passed a bill that authorized the Great Basin Unified Air Pollution Control District (GBUAPCD) to require the city of Los Angeles to implement reasonable procedures to limit the air quality impacts caused by its water gathering activities. In July 1998 the city and the GBUAPCD entered into an historic MOA to mitigate the dust problem. Through this MOA, the city committed to (1) completing at least 10 square miles of dust controls by the end of 2001, (2) completing an additional 3.5 square miles by 2002, (3) completing an additional 3 square miles by 2003, and (4) an additional 2 miles each year until the GBUAPCD determine the standards are met. The MOA was incorporated into a formal air quality control plan by the GBUAPCD. In late 2003 this plan will be revised by the GBUAPCD. This revised plan will define the exact boundary on the lakebed that must be controlled. This will include areas beyond that which the city has already controlled. The estimates in the 10-year capital budget allow for the new plan's potential fiscal impact. As of June 2002, $173 million had been invested in this project, with approximately $271 million expected within the next decade. The total budget allocated for this effort is 8% of the 10-year capital budget.

LOS ANGELES AQUEDUCT IMPROVEMENTS AND RESOURCE DEVELOPMENT

An investment of $84 million is needed to improve equipment and operating facilities in both the northern and southern districts of the Los Angeles Aqueduct. A large portion of work is dedicated to the rehabilitation of the tunnel lining and conduit lining. Continued rehabilitation work on the aqueduct guarantees uninterrupted service to the Los Angeles Basin. Without this rehabilitation work, Los Angeles could find itself repeating the Hetch Hetchy situation in Northern California where the aqueduct was incapable of delivering adequate water to the city of San Francisco. Other projects related to the LA Aqueduct include construction of water control and measurement structures, replacement of hydrographic and pumping equipment, and completion of a new concrete cover over the First Los Angeles Aqueduct. The deteriorated condition of the existing cover, if not repaired, could interrupt flow to the city and endanger LADWP personnel and passersby. Other improvements include protective coatings, rehabilitation of corrosion protection systems, new valves, equipment access holes, platforms, piers and spillways, and road improvements.

Equipment removing deteriorating concrete from the interior walls of the LA Aqueduct. Concrete removed will then be replaced with new concrete.

Resource Development Projects of approximately $114 million over the next 10 years include new connections to MWD's aqueduct as well as pilot programs and projects investigating desalination as an alternative supply of water for Los Angeles. The total estimate for capital work in this category is $198 million.

GROUNDWATER MANAGEMENT

Local groundwater supplies from the San Fernando, Central, and Sylmar Basins provide approximately 15% of the total annual water supply for the city of Los Angeles. The San Fernando Basin (SFB) is the most significant of these resources, accounting for nearly 80% of all local groundwater. The SFB can also store additional water for use during long-term drought or emergencies, capable of supplying up to 30% of the city's normal water demands. The viability of the SFB resource is challenged by the presence of contaminant plumes resulting from the growth of industry and housing in the San Fernando Valley.

The ability to produce and distribute high quality groundwater from the SFB is a critical component in LADWP's water supply strategy. Proper management of this resource is necessary to maintain a high degree of emergency reliability for the city's overall water supply. Investments to ensure adequate production of a clean, economical groundwater supply also provide the flexibility to purchase water from MWD at seasonally discounted rates, with the savings passed directly to the customer.

The capital budget for the Groundwater Management Program is $109 million over the next 10 years, primarily focusing on projects that improve the recharge, well production, and groundwater quality in the SFB. Most of the existing wells in the historic North Hollywood Well Field are old and obsolete, or have been removed from service altogether due to contamination by trichloroethylene and other constituents. A key project is the construction of 12 new wells to restore the production capacity of this well field and avoid known areas of contamination.

The Groundwater Management Program also includes the development of centralized groundwater treatment to handle the migration of contaminant plumes and address increasingly more stringent water quality standards. The installation of new wells and additional booster pumping capacity is also planned for the Central and Sylmar Basins to improve well field production and the ability to fully utilize groundwater entitlements in those basins during the high demand times of the year.

WATER RECYCLING

The city's demand for water is expected to increase approximately 15% over the next 15 years. LADWP is moving aggressively to continue providing a dependable supply of high quality water to meet this demand by promoting water conservation and recycled water for non-potable uses. Los Angeles began using recycled water in 1979 as part of the irrigation system at Griffith Park. Today, Water Services oversees the distribution of recycled water from three reclamation plants. Reclaimed water uses include irrigation, industrial processing, habitat development and recreation (at Lake Balboa). Customers using recycled water benefit by receiving a stable supply regardless of weather conditions. Recycled water customers are less impacted during years of drought when the rest of the city must conserve the potable water supply, and they pay a lower rate for the reecycled water. Water Services will spend an additional $119 million in an aggressive water-recycling program in the next decade to further develop this source of non-potable water.

Griffith Park irrigated with recycled.

The Harbor Water Recycling Project is one of the projects under this aggressive water-recycling program. Instead of using potable water, extensively treated, high-quality recycled water from the Terminal Island Reclamation Plant is used for non-drinking purposes. This water, for example, will be used in a seawater intrusion barrier application in San Pedro. The recycled water forms a "wall of water" that prevents seawater from entering and contaminating the groundwater. This application protects the existing water supply without using any of the valuable drinking water.

In addition to the seawater intrusion prevention, other initial project applications will include industrial uses at LADWP's Harbor Generating Station (electrical power plant) in Wilmington. Eventually, Water Services also plans to work with other customers to provide recycled water for refinery processes and irrigation in the San Pedro and Wilmington areas. Capital expenditures include installing the new infrastructure for recycled water. This includes a new network of trunk lines, mainlines, services, and meters that will supply recycled water to the end users. Construction of the first phase of the Harbor Water Recycling Project is complete and soon to be in operation. The remaining phases of this project will be complete by 2009.

A similar project will soon commence in the San Fernando Valley area. Parts of the Valley already benefit from existing recycled water pipelines. As with the Harbor project, this project will install the necessary infrastructure to create a network capable of easily moving recycled water from one area of the Valley to another. Future plans also include similar work in the Central City-Elysian Park area. Within the next decade more businesses throughout Los Angeles will be able to help conserve water for the city by replacing their non-potable water usage with recycled water.

INFRASTRUCTURE

Infrastructure projects require the largest allocation of funds. Individual projects include: (1) Trunk Lines, (2) Main Replacements, (3) Services and Meters, (4) Other Distribution Facilities, and (5) Seismic and Reservoir Improvements. Many structural components and facilities are 50 to 90 years old and are not in the best operating condition, causing higher operation and maintenance costs and increasing the risk of outages. Outages can potentially lead to higher costs associated with repairing damaged streets and private property, and cause significant disruption to the customer. The Infrastructure funds are necessary to provide improvements and new installations to the water distribution system, allowing LADWP to continuously deliver water to customers in a reliable manner. Table 4 provides a year-by-year breakdown for the Infrastructure budget.

TABLE 4 - SUMMARY OF INFRASTRUCTURE CAPITAL BUDGET FOR FISCAL YEARS 2003-2012(X $1000)

Sub-Category	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Trunk Lines Total	46,917	47,667	63,048	100,578	71,417	54,639	48,697	38,200	47,068	34,346	552,577
Water Main Replacements Total	10,706	15,140	15,848	16,564	17,351	18,186	18,431	19,113	19,697	20,392	171,428
Services and Meters Total	18,256	28,464	33,157	35,167	34,782	36,524	36,598	38,821	39,772	41,235	342,775
Other Distribution Facilities Total	14,516	14,496	14,607	18,383	20,694	23,748	14,660	15,324	15,832	16,336	168,597
Seismic and Reservoir Improvements Total	1,759	4,656	19,385	11,204	9,667	8,724	4,677	4,895	5,385	6,417	76,769
Infrastructure Total	**92,154**	**110,424**	**146,045**	**181,896**	**153,910**	**141,822**	**123,063**	**116,353**	**127,753**	**118,726**	**1,312,145**

Crews installing main lines in Griffith Park

TRUNK LINES

WSO operates approximately 280 miles of trunk lines in the water distribution system. Trunk lines are supply pipelines 20 inches and greater in diameter that form the major arteries for water delivery. They deliver and redistribute large amounts of water throughout the city of Los Angeles to assure a reliable supply is available. Approximately 144 miles of these trunk lines are constructed out of steel, and were installed before 1940. The Trunk Line Condition Assessment Program (TCAP) was developed to assess the condition of and prioritize those trunk lines most at-risk of breaking and in need of replacement. On the top of the at-risk trunk line priority list are the riveted steel trunk lines. Riveted steel trunk lines are most at-risk due to their age, method of fabrication, and lack of protective coating on the exterior of the pipe, which protects them from the surrounding corrosive soil. There are approximately 65 miles of riveted steel trunk lines in the system.

Trunk line being installed on Sepulveda Boulevard

Some deteriorating trunk lines can be replaced in-place with less disruptive methods through the Pipeline Rehabilitation Program using high-density polyethylene (HDPE) pipe that is literally pulled within an existing trunk line without having to excavate the entire length of the trunk line.

WSO prides itself on using new technology that cuts costs and is less disruptive to the customer and surrounding community. In addition to repairing or replacing the at-risk trunk lines listed in the TCAP, Water Services is installing a series of new trunk lines. As a result of LADWP's Water Quality Improvement Program, many of the city's open reservoirs will be taken out of service and ultimately only be used for emergency storage. Additional trunk lines are now necessary to ensure that sufficient quantities of water can be moved from one area of the city to another when needed. Almost $553 million needs to be invested for trunk line testing, rehabilitation, replacements and additions.

WATER MAIN REPLACEMENTS

The main replacement program is similar to the trunk line program except this program focuses on pipes with diameters less than 20 inches within LADWP's water distribution system. The 7,200-mile water main system is a complex mixture of pipeline acquired from other agencies and those installed by LADWP. The focus of the water main replacement program is to replace mainlines that have deteriorated due to external or internal corrosion, restrict fire or domestic supplies, affect water quality, or are located in unstable soil. This program is designed to minimize potential Water Services' and customer property damage, reduce water main maintenance costs, improve water quality, reduce water lost through leakage, and improve water flow for fire emergencies.

LADWP also supports other Los Angeles City Departments, and government agencies (other cities, Los Angeles County, Metro Transit Authority [MTA] etc.) to help design, repair, install, and/or move main lines as needed within the city. Approximately $171 million will be invested in water main replacement work over the next decade.

Water system crews installing mainline.

SERVICES, METERS, AND HYDRANTS

Service and meter projects directly affect the customers not only in their water quality, but also by providing an accurate measure of their water usage. Approximately $333 million will be needed for new installations and to replace aging services and meters as necessary over the next 10 years.

Water Services continues to focus on its service connection renewal efforts by replacing substandard services. Substandard services include galvanized services (which have a higher rate of corrosion failure) and double-cast-iron services (two properties being supplied by one service connection). Expecting to continue renewing approximately 2,000 substandard water services per year, WSO will replace services to reduce maintenance cost and customer dissatisfaction in case of poor water quality and loss of water service.

LADWP also installs new services. Requests for new water service connections have exceeded 1,000 per year over the last five years. Recent increases in construction activity within the city of Los Angeles indicate a slow but steady growth for new service requests. The need for new services typically fluctuates with the economy.

Water Services has launched another initiative to improve overall water quality in Los Angeles and protect children. It was discovered that one of the alloys used in manufacturing water meters contained traces of lead. A 10-year goal to replace all 700,000 water meters with meters that are entirely lead free was put into effect. Since no such meters existed, WSO spearheaded the effort for meter manufacturers to begin producing lead-free meters. There are now two such manufacturers providing the desired meters. To date, over 85,000 meters have been replaced and WSO continues to ramp up its efforts to change out the required 70,000 per year until the entire distribution system has lead-free meters.

The Services and Meters Program is essential to the continued reliability and quality of water service. Customers' confidence grows when they know their water usage is accurately measured.

The remaining funds in this category are allocated to the installation, replacement, and upgrades of the city's 56,500 fire hydrants. Total estimates for this category in the coming decade are about $342 million.

OTHER DISTRIBUTION FACILITIES

Over $168 million is budgeted to replace, upgrade, or install other distribution facility components necessary to distribute water.

Construction of new water distribution facilities is minimal since a majority of the water distribution systems are already in place across the city of Los Angeles. This leaves the majority of the funds for this program to modify and replace existing facilities. Modifications will modernize obsolete facilities, providing increased service reliability and public and employee safety. Upgrades increase operational flexibility ensuring that service can be maintained during emergency outages or planned outages for maintenance. Currently, there are about 80 booster-pumping stations and 260 regulator stations in the city's water distribution system.

Crews installing a regulator station.

The largest facility budget is for regulator station improvement projects. Almost $58 million has been allocated for regulator station upgrades. Due to budget constraints, the regulator stations have received little maintenance since the 1980s; some have had little maintenance since the 1960s. This has caused the regulator stations to fall into serious disrepair. Regulator stations serve to reduce the water pressure to the appropriate level for a particular community. Failure of a regulator station risks damaging both Department and customer facilities. Of the 260 regulator stations, 125 stations need to be repaired. LADWP plans to repair these stations at a rate of 12 per year. Those that pose the largest risk to customers in terms of failure and outages will be the first to be repaired. In addition to repairing the facilities, remote and electronic systems will be installed at some stations to help monitor the system and provide a faster response if necessary.

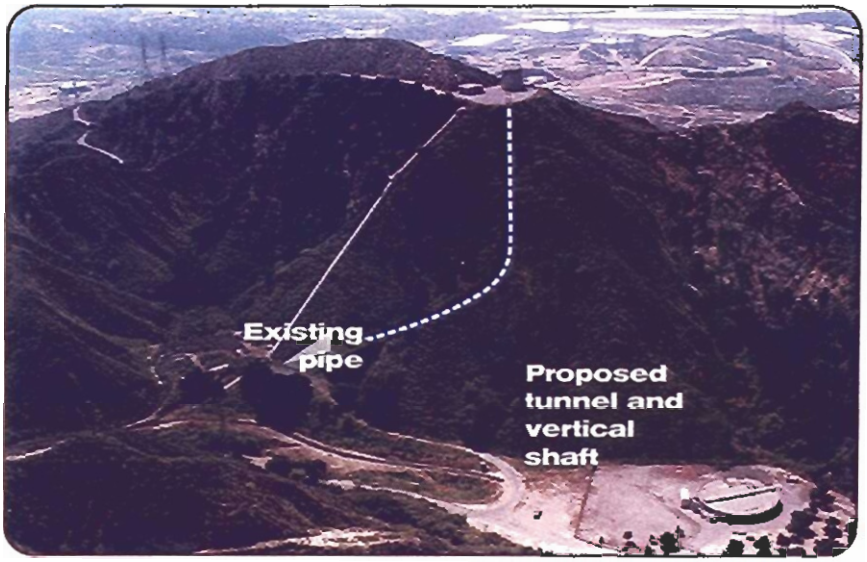
Water Services is in the process of developing a major facility infrastructure replacement program. This program will help manage the repair and replacement of major facilities in a more cost effective manner. All future repairs and replacements will follow the guidelines developed by this program.

A special project included within the distribution facilities budget is the Griffith Park water system. The Los Angeles City Council requested LADWP to replace and take over ownership of the failing Griffith Park water system, which was previously owned and operated by the Los Angeles Department of Recreation and Parks (DRP). The scope of the project includes installing a new distribution system which includes distribution mains, tanks, pump stations, and other facilities. The project is estimated to cost $35 million.

SEISMIC AND RESERVOIR IMPROVEMENTS

The 1971 San Fernando and 1994 Northridge Earthquakes illustrated the importance of seismic reliability for water system pipelines, dams, tanks and other facilities. The reliability and seismic safety of dams and facilities is being improved through seismic stability evaluations, completion of repairs of facilities damaged by the 1994 Northridge earthquake, and the mitigation of seismic hazards to critical facilities.

Seismic stability evaluations have been completed on all of the high hazard dams and are continuing on all remaining low hazard dams. Recent evaluations for the North Haiwee and Tinemaha Dams showed that seismic improvements costing approximately $27 million are necessary. In April 2000, an independent seismic stability screening evaluation was completed for 17 WSO dams located south of the San Andreas Fault. The evaluation identified potential problems, using the current state of knowledge in seismic hazard evaluation. The results showed that eight of these dams require further study to verify their seismic reliability. Water Services Organization is pursuing further evaluation of the eight dams, which in some cases may identify the need for additional capital seismic improvements. An evaluation of Bouquet Reservoir Dam No. 1 is in final preparation. The evaluation indicates that the dam will require strengthening to ensure adequate seismic resistance.



Existing Terminal Hill pipe and proposed tunnel.

To improve facilities' seismic resistance, two hazard mitigation projects are currently in progress: relocating the Second Los Angeles Aqueduct at Terminal Hill into a tunnel to bypass poor rock conditions; and improving soil conditions under the High Speed and Bypass Channels. Total project costs are expected to be approximately $57 million after federal and state reimbursements.

The majority of the remaining $19 million in this category is for minor additions and betterments to the various reservoirs, including Bouquet Reservoir, and 90 tanks throughout the city.

SUPPORT FUNCTIONS

The support functions consist of four areas, including (1) Facilities, (2) Information Technology, (3) Other Capital Expenditures, and (4) Joint System Capital Expenditures. The total budget for this section is $556 million and provides the necessary funding for equipment needed supporting WSO's and LADWP's daily activities.

TABLE 5 - SUMMARY OF SUPPORT FUNCTIONS CAPITAL BUDGET FOR FISCAL YEARS 2003 -2012 LESS REIMBURSEMENTS (X $1000)

Sub-Category	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Facilities Total	13,366	2,786	9,125	26,464	25,668	8,924	7,138	7,345	3,824	3,715	108,355
Information Technology	16,193	18,425	11,535	9,589	7,007	6,764	5,762	6,374	5,772	5,736	93,155
Other	19,875	25,035	19,578	20,017	20,446	12,840	12,480	12,566	12,655	12,718	168,208
Other - DWP	24,929	37,572	19,140	13,244	13,685	14,218	10,517	10,779	11,043	31,151	186,277
Support Functions Total	**74,362**	**83,818**	**59,377**	**69,313**	**66,806**	**42,745**	**35,897**	**37,063**	**33,293**	**53,319**	**555,995**

FACILITIES

Facilities include office buildings, district headquarters for operations and maintenance crews, warehouses, shops, laboratories, and parking structures that are used by LADWP's Water Service Organization. These expenses will help improve employee productivity by purchasing more efficient equipment, improving working facilities, and providing a safe and efficient working environment for employees. Approximately $108 million has been budgeted for this category. A majority of this budget includes expenditures for a new water quality lab, renovation of the Western District Headquarters, and for additions and improvements to bring structures into compliance with current California building codes, specifically the newer earthquake codes.

INFORMATION TECHNOLOGY

Major improvements are underway in most of WSO's computerized systems; all aimed to help increase operational efficiency, provide better water quality, and serve customers more quickly and efficiently. The major projects include the creation of digitized infrastructure maps, an extensive, customer friendly business management system, a customer concern tracking system, a water quality information system, an interactive voice response system, and a maintenance management system.

The digitized maps will detail key infrastructure components such as fire hydrants, water mains, customer meters, and the various distribution facilities and their interconnectivity. These maps will form the basis for a new Geographic Information System (GIS). Water quality levels and customer inquiries will be plotted on a map and provide greater insight on how to best handle a customer inquiry or to achieve better water quality.

The new business management system helps bring Water Services into the 21st century by providing customers better service by allowing them to apply for new water services, check the status of their requested services, or pay for their services on-line. They will be able to perform these tasks 24 hours a day, seven days a week. the customer concern tracking system builds on the new business management system. This system will enable WSO to quickly handle customer calls via a single system that tracks all water transactions from inception to completion. It will also allow customers to track the status of their calls via the Internet.

The water quality information system will be able to locate possible causes of and respond to water quality issues in a more timely manner. This system will also allow customers to track the status of their water quality issues via the Internet, and will provide customers with current information regarding water quality at their convenience.

The interactive voice response system and maintenance management system will enable the collection of operations and maintenance field data via telephone, making the system more cost effective and reliable.

An important upgrade to the water system is an update to Water Services' control and monitoring system. The scope of this project includes a major consolidation and upgrade to the Los Angeles Water System Data Acquisition and Control (LAWS-DAC) System, the Los Angeles Aqueduct Filtration Plant (LAAFP), Remote Water Quality Monitoring System (REMOS), Remote Electro Optical Sensor (REOS) System and the Aqueduct Supervisory Control and Data Acquisition (Aqueduct-SCADA) System. This consolidation and upgrade project will completely replace the 10-year-old LAWS-DAC System and allow better monitoring and controlling of treatment, pumping, and storage operations from a central control center. It will also allow LADWP to meet or exceed the upcoming water quality requirements. This project, estimated at $57 million, is over 60% of this category.

OTHER CAPITAL EXPENDITURES

Water Services solely owns and operates a significant amount of capital equipment not covered by the previous categories, including shop equipment, tools, and furniture. This equipment must be replaced or upgraded periodically to ensure that employees can do their jobs efficiently and safely. This category also includes costs associated with security issues stemming from the attacks on September 11, 2001. Total estimates within this category are $168 million.

OTHER-LADWP JOINT SYSTEM CAPITAL EXPENDITURES

The Water Services budget includes over $186 million for services such as building maintenance, information technology, telecommunication systems, office automation equipment, cafeteria equipment, fleet equipment, administrative and general needs, and other facilities benefiting both the water and power organizations. The largest costs in this category consist of material and supply purchases to maintain LADWP's fleet equipment.

A fleet of reliable transportation and construction equipment is critical for LADWP to ensure efficiency as well as safety for its employees and the general public. Fleet equipment includes sedans, pick-up trucks, electric vehicle capital leases, hybrid sedans, aerial boom trucks, cranes, dump trucks, backhoes, and service trucks and the associated fueling and maintenance/repairs necessary to run such a large and diverse fleet. LADWP has approximately 5,200 pieces of fleet equipment worth over $200 million. Vehicles have approximately a 10-year life cycle so LADWP needs approximately $27 million a year to replace the aging fleet equipment.

Water system dump truck and backhoe.

Fleet expenses also include new fueling stations for alternative fuel vehicles, upgrades to existing gas and diesel fueling stations, and related service areas.

Water Quality Improvements - Open Reservoirs (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Reservoir Improvements	54,018	59,881	85,288	128,884	141,885	84,477	53,364	9,535	4,750	26,505	648,586
Reimbursements	(1,200)	(1,100)	-	-	-	-	-	-	-	-	(2,300)
Total Funded by Customer	**52,818**	**58,781**	**85,288**	**128,884**	**141,885**	**84,477**	**53,364**	**9,535**	**4,750**	**26,505**	**646,286**

Water Quality Improvements - Safe Drinking Water (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Chlorination Station Installations	1,209	4,864	8,830	9,595	7,679	39	-	-	-	-	32,215
Water Treatment Improvements	9,440	5,880	7,059	7,486	20,991	15,629	9,956	9,122	9,376	48,438	143,376
Total Funded by Customer	**10,649**	**10,744**	**15,889**	**17,081**	**28,670**	**15,667**	**9,956**	**9,122**	**9,376**	**48,438**	**175,591**

Water Quality Improvements - Cement Lining (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Cement Lining	16,010	13,073	12,569	8,409	-	-	-	-	-	-	50,062
Total Funded by Customer	**16,010**	**13,073**	**12,569**	**8,409**	**-**	**-**	**-**	**-**	**-**	**-**	**50,062**

Water Quality Improvements - Total (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Total Expense	80,677	83,698	113,746	154,374	170,555	100,144	63,320	18,657	14,126	74,942	874,239
Total Reimbursement	(1,200)	(1,100)	-	-	-	-	-	-	-	-	(2,300)
Total Funded by Customer	**79,477**	**82,598**	**113,746**	**154,374**	**170,555**	**100,144**	**63,320**	**18,657**	**14,126**	**74,942**	**871,939**

Water Resources - Eastern Sierra Environmental (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Eastern Sierra Environmental	11,067	12,566	5,396	2,913	3,006	2,912	2,725	2,197	1,894	1,231	45,906
Owens Valley Dust Mitigation	44,521	54,443	73,518	43,482	20,904	6,024	10,857	5,660	5,828	5,994	271,229
Reimbursements	-	(4,000)	(1,000)	-	-	-	-	-	-	-	(5,000)
Total Funded by Customer	**55,588**	**63,009**	**77,914**	**46,395**	**23,910**	**8,936**	**13,581**	**7,857**	**7,722**	**7,225**	**312,135**

Water Resources - Los Angeles Aqueduct Improvements and Resource Development (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
LA Aqueduct System A&B South	4,892	6,537	5,991	6,132	6,854	7,927	5,224	5,389	5,539	5,687	60,172
LA Aqueduct System A&B North	3,641	3,602	3,374	2,752	2,182	2,568	1,557	1,918	1,540	825	23,959
Resource Development	123	4,440	793	826	666	9,037	47,591	49,349	1,209	-	114,034
Reimbursements	-	(250)	-	-	-	-	-	-	-	-	(250)
Total Funded by Customer	**8,656**	**14,330**	**10,158**	**9,711**	**9,701**	**19,532**	**54,372**	**56,657**	**8,288**	**6,512**	**197,916**

Water Resources - Groundwater Management (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Groundwater Management	8,001	4,489	25,146	16,961	2,930	6,308	8,099	6,097	5,453	25,921	109,405
Total Funded by Customer	**8,001**	**4,489**	**25,146**	**16,961**	**2,930**	**6,308**	**8,099**	**6,097**	**5,453**	**25,921**	**109,405**

Water Resources - Water Recycling (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Water Recycling Capital	7,491	15,183	22,477	18,002	14,707	10,026	9,004	10,041	9,606	3,333	119,869
Reimbursements	(30)	-	-	-	-	-	-	-	-	-	(30)
Total Funded by Customer	**7,461**	**15,183**	**22,477**	**18,002**	**14,707**	**10,026**	**9,004**	**10,041**	**9,606**	**3,333**	**119,839**

Water Resources - Total (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Total Expense	79,734	101,260	136,695	91,068	51,249	44,803	85,056	80,651	31,069	42,991	744,575
Total Reimbursement	(30)	(4,250)	(1,000)	-	-	-	-	-	-	-	(5,280)
Total Funded by Customer	**79,704**	**97,010**	**135,695**	**91,068**	**51,249**	**44,803**	**85,056**	**80,651**	**31,069**	**42,991**	**739,295**

Infrastructure - Trunk Lines (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Trunk Line and Major System Connections	46,917	47,667	63,048	100,578	71,417	54,639	48,697	38,200	47,068	34,346	552,577
Total Funded by Customer	**46,917**	**47,667**	**63,048**	**100,578**	**71,417**	**54,639**	**48,697**	**38,200**	**47,068**	**34,346**	**552,577**

Infrastructure - Water Main Replacements (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Distribution Mains	17,133	18,873	19,473	20,045	20,723	21,559	21,804	22,486	23,069	23,765	208,929
Reimbursements	(6,427)	(3,733)	(3,625)	(3,481)	(3,373)	(3,373)	(3,373)	(3,373)	(3,373)	(3,373)	(37,502)
Total Funded by Customer	**10,706**	**15,140**	**15,848**	**16,564**	**17,351**	**18,186**	**18,431**	**19,113**	**19,697**	**20,392**	**171,428**

Infrastructure - Services, Meters and Hydrants (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Services, Meters, and Hydrants	26,158	37,467	42,159	44,169	43,784	45,526	45,600	47,823	48,774	50,237	431,697
Reimbursements	(7,902)	(9,002)	(9,002)	(9,002)	(9,002)	(9,002)	(9,002)	(9,002)	(9,002)	(9,002)	(88,922)
Total Funded by Customer	**18,256**	**28,464**	**33,157**	**35,167**	**34,782**	**36,524**	**36,598**	**38,821**	**39,772**	**41,235**	**342,775**

Infrastructure - Distribution Facilities (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Pump Stations	1,961	1,883	2,404	5,673	10,670	17,728	8,522	8,882	9,163	9,443	76,329
Regulator Stations	3,958	5,363	4,749	5,509	5,746	6,020	6,139	6,443	6,669	6,894	57,489
Other Distribution Facilities	8,710	7,492	7,715	7,212	4,277	-	-	-	-	-	35,407
Reimbursements	(113)	(242)	(262)	(12)	-	-	-	-	-	-	(629)
Total Funded by Customer	**14,516**	**14,496**	**14,607**	**18,383**	**20,694**	**23,748**	**14,660**	**15,324**	**15,832**	**16,336**	**168,597**

Infrastructure - Reservoir Infrastructure (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Seismic Improvements	7,593	4,565	9,403	712	-	-	-	-	-	-	22,273
Infrastructure Reservoir Improvements	2,536	3,091	14,982	10,493	9,667	8,724	4,677	4,895	5,385	6,417	70,866
Reimbursements	(8,370)	(3,000)	(5,000)	-	-	-	-	-	-	-	(16,370)
Total Funded by Customer	**1,759**	**4,656**	**19,385**	**11,204**	**9,667**	**8,724**	**4,677**	**4,895**	**5,385**	**6,417**	**76,769**

Infrastructure - Total (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Total Expense	114,967	126,401	163,934	194,391	166,284	154,197	135,438	128,728	140,127	131,101	1,455,567
Total Reimbursement	(22,812)	(15,977)	(17,889)	(12,495)	(12,375)	(12,375)	(12,375)	(12,375)	(12,375)	(12,375)	(143,422)
Total Funded by Customer	**92,154**	**110,424**	**146,045**	**181,896**	**153,910**	**141,822**	**123,063**	**116,353**	**127,753**	**118,726**	**1,312,145**

Support Functions - Facilities (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Facilities	13,366	7,586	9,125	26,464	25,668	8,924	7,138	7,345	3,824	3,715	113,155
Reimbursements	-	(4,800)	-	-	-	-	-	-	-	-	(4,800)
Total Funded by Customer	**13,366**	**2,786**	**9,125**	**26,464**	**25,668**	**8,924**	**7,138**	**7,345**	**3,824**	**3,715**	**108,355**

Support Functions - Information Technology (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Info Technology	16,193	18,425	11,535	9,589	7,007	6,764	5,762	6,374	5,772	5,736	93,155
Total Funded by Customer	**16,193**	**18,425**	**11,535**	**9,589**	**7,007**	**6,764**	**5,762**	**6,374**	**5,772**	**5,736**	**93,155**

Support Functions - Other Capital Expenditures (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Tools & Equipment	2,443	2,398	2,235	2,326	2,407	2,482	2,480	2,566	2,655	2,718	24,709
Other Capital Projects	17,431	22,638	17,342	17,691	18,039	10,358	10,000	10,000	10,000	10,000	143,499
Total Funded by Customer	**19,875**	**25,035**	**19,578**	**20,017**	**20,446**	**12,840**	**12,480**	**12,566**	**12,655**	**12,718**	**168,208**

Support Functions - Other LADWP Joint System Capital Expenditures (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Additions and Betterments - ISS	833	3,666	808	886	969	1,131	837	856	877	898	11,761
Fleet Construction Projects	-	3,802	-	-	-	-	-	-	-	-	3,802
GOB Capital	8,095	5,389	5,689	39	41	43	-	-	-	-	19,295
Additions and Betterments	559	967	941	-	-	-	-	-	-	-	2,466
Fleet Equipment Replac and Addns	28,687	33,431	29,183	24,599	25,343	26,143	26,020	26,684	27,358	28,032	275,481
Furniture and Misc Equipment	-	111	115	119	123	126	-	-	-	-	594
Office Information Technology	-	-	-	-	-	18	18	19	-	-	55
Tool and Equip - ISS	647	1,398	578	597	612	625	643	658	674	533	6,964
Cafeteria Equipment	11	11	11	12	12	12	12	13	13	13	120
Ergonomic Furniture - Water	98	445	285	294	301	308	306	313	320	328	2,997
Ergonomic Furniture - Power	-	4,351	203	62	63	65	-	-	-	-	4,744
PC Equipment Water - Joint	271	262	274	284	292	262	157	161	165	136	2,265
Security Systems	2,820	1,691	5,503	5,669	5,824	5,983	-	-	-	-	27,489
PC Equipment Water Serv	1,737	1,115	1,148	1,178	1,206	1,232	1,254	1,284	1,315	1,346	12,815
Fleet Management System Equip	490	178	101	104	106	92	93	95	98	100	1,458
Industrial Graphics Equip	31	76	27	28	28	35	36	36	37	-	334
Fueling Station Infrastructure	9,430	11,932	2,733	183	193	203	-	-	-	-	24,673
Reimbursements	(28,781)	(31,253)	(28,459)	(20,809)	(21,428)	(22,061)	(18,859)	(19,339)	(19,814)	(235)	(211,037)
Total Funded by Customer	**24,929**	**37,572**	**19,140**	**13,244**	**13,685**	**14,218**	**10,517**	**10,779**	**11,043**	**31,151**	**186,277**

Support Functions - Total (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Total Expense	103,143	119,871	87,836	90,122	88,234	64,807	54,756	56,402	53,107	53,554	771,832
Total Reimbursement	(28,781)	(36,053)	(28,459)	(20,809)	(21,428)	(22,061)	(18,859)	(19,339)	(19,814)	(235)	(215,837)
Total Funded by Customer	**74,362**	**83,818**	**59,377**	**69,313**	**66,806**	**42,745**	**35,897**	**37,063**	**33,293**	**53,319**	**555,995**

Appendix Grand Total

Water Ten Year Capital Plan (x1000)

	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	Ten Year Total
Expenses	378,521	431,230	502,211	529,955	476,322	363,950	338,570	284,438	238,429	302,589	3,846,213
Reimbursements	(52,823)	(57,380)	(47,348)	(33,304)	(33,803)	(34,436)	(31,234)	(31,714)	(32,189)	(12,610)	(366,839)
Total funded by Customer	**325,698**	**373,851**	**454,863**	**496,651**	**442,519**	**329,514**	**307,336**	**252,724**	**206,240**	**289,979**	**3,479,374**

THIS PAGE INTENTIONALLY LEFT BLANK

ATTACHMENT 3

FINAL ACOUSTICAL ANALYSIS FOR THE LADWP PROPOSED NEENACH PUMPING STATION ANTELOPE VALLEY, CALIFORNIA

F I N A L
ACOUSTICAL ANALYSIS
FOR THE LADWP PROPOSED NEENACH PUMPING STATION

ANTELOPE VALLEY, CALIFORNIA

Prepared for

LOS ANGELES DEPARTMENT OF WATER AND POWER

Under Contract With

EARTH TECH
1461 E. Cooley Drive, Suite 100, Colton, CA 92324
(909) 554-5000

Submitted by

OJI ENVIRONMENTAL SERVICES
6441 Thunder Mountain Ave, Rancho Cucamonga, CA 91739
(909) 466-4422

In association with

ULTRASYSTEMS ENVIRONMENTAL
100 Pacifica, Suite 250, Irvine, CA 92618
(949) 788-4900

APRIL 2005

1. INTRODUCTION

At the request of OJI Environmental Services, Ultrasystems Environmental Incorporated (Ultrasystems) conducted a noise study to identify and assess potential noise impacts associated with construction, operation, and maintenance of the new Neenach Pumping Station turnout facility in northern Los Angeles County, proposed by the Los Angeles Department of Water and Power (LADWP).

Project Description

The project site is located near the intersection of Three Points Road and State Route (SR) 138 in western Antelope Valley, in an unincorporated area within the northern reaches of Los Angeles County. The proposed site location is shown in **Figure 1** (Site Location Map). The nearest incorporated city is Lancaster, approximately 16 miles southeast of the proposed project site. The project site is adjacent to the California Aqueduct where the First Los Angeles Aqueduct (FLAA) crosses over Pool 44 of the East Branch of the California Aqueduct.

The proposed turnout facility would consist of a pumping station and the pipelines necessary to withdraw water from the California Aqueduct and transfer it to the FLAA. The pumping station would consist of an underground covered, reinforced concrete vault approximately 60 feet by 30 feet and 21-feet deep, housing four 500 horsepower (HP) pumps operating at 2300 volts AC (VAC). Each of these pumps is capable of producing a maximum flow of 35 cubic feet per second (cfs), and has a variable frequency drive for the electrical starter. The vault would be constructed below grade with its roof at ground level. Access would be provided through metal doors located off of a side stairway. Four 36-inch-diameter pipes, approximately 120 feet long, would be installed below ground between the vault and the California Aqueduct. These pipes would bore through the existing berm along the north side of the aqueduct. The four pumps would discharge into a single underground 42-inch diameter pipeline. The pipeline would connect to a steel cylindrical surge tank and also connect to the FLAA approximately 300 feet to the west of the pumping station. Typically, three pumps would be operating at a time, and the fourth pump would be used as a standby unit. The pipeline would be installed in a trench 5 feet deep and 5 feet wide.

The surge tank would be installed on an 18-inch thick concrete slab and would be situated approximately 50 feet east of the vault. A chain link fence or a concrete block wall may be constructed around the tank to protect it from vandalism. The pipeline would include a magnetic flow meter that would measure the total quantity of water being transferred between the California Aqueduct and the FLAA . Also included would be a vacuum pump system in the pipes connecting the California Aqueduct to the pumping station. This vacuum pump system would remove any entrained air within the pipes. Removal of entrained air is essential for the maintenance of proper vacuum suction in the pipes.

Construction of the pumping station turnout facility would require excavation for the vault and trenching for installation of underground pipelines and electrical power lines. Construction would require use of a crane, backhoe, 5 concrete trucks, and 5 utility vehicles and a crew of approximately 20. Construction activities are scheduled to begin in the spring of 2005 and be completed within the year. All turnout facility (pump station, surge tank) construction activities would occur within an area of approximately 1.5 acres within the FLAA and the California Aqueduct rights of way.

½ mile

Figure1: Site Location Map

2. CHARACTERISTICS OF SOUND

Sound is mechanical energy transmitted by pressure waves in a compressible medium such as air. Noise is generally defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level has become the most common descriptor used to characterize the loudness of an ambient sound level.

Sound pressure can be measured in a unit called micro-Pascal (µPa). However, expressing sound levels in terms of µPa would be very cumbersome since it would require a wide range of very large numbers. For this reason, sound pressure levels are described in logarithmic units of ratios of actual sound pressures to a reference pressure squared. These units are called bels. In order to provide a finer resolution, a bel is subdivided into 10 decibels, abbreviated dB. The decibel scale is used to quantify sound intensity. The pitch of the sound is related to the frequency of the pressure vibration. Since the human ear is not equally sensitive to all frequencies, a special frequency-dependent rating scale is used to relate noise to human sensitivity. The A-weighted decibel scale (dBA) provides this compensation by discriminating against upper and lower frequencies in a manner approximating the sensitivity of the human ear. The scale is based on a reference pressure level of 20 µPa (zero dBA). The scale ranges from zero for the least perceptible sound to about 130 for the average pain level. Examples of various sound levels in different environments are shown in **Table 1** (Sound Levels and Human Response).

Sound power level (PWL) is related to the total acoustic power radiated by a source. Sound pressure level (SPL) specifies the acoustic "disturbance" at a point; thus it depends on the distance from the source, losses in the intervening air, room effects, etc. The difference between SPL and PWL can better be understood by making an analogy with thermal energy or heat. By analogy, PWL is related to the total rate of the heat production of a furnace while SPL is related to the temperature produced at a given point in the room.

Noise may be generated from a point source (e.g., a piece of construction equipment, an industrial pump room) or from a line source (e.g., a stream of moving vehicles on a roadway). As the pressure waves move outward in all directions away from the source, their energy is spread over the distance. Due to spreading losses, noise attenuates (decreases) with distance.

Community Environmental Noise

Several rating scales have been developed to analyze the adverse effect of community noise on people. Since environmental noise fluctuates over time, these scales consider that the effect of noise is dependent upon the total acoustical energy content, as well as the time or duration of occurrence. The most frequently used noise descriptors are summarized below.

Equivalent Sound Level (L_{eq}). L_{eq} is a measurement of the acoustic energy content of noise averaged over a specified time period. Thus, the L_{eq} of a time-varying sound and that of a steady sound are the same if they deliver the same amount of energy to the receptor ear during exposure. L_{eq}s for periods of one-hour, during the daytime or nighttime hours, and 24 hours are commonly used in environmental assessments. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during day or night.

Instantaneous Maximum Noise (L_{max}). Maximum allowable noise level, for a specified period of time.

Percentile Exceeded Sound Level (Lxx). The sound level exceeded xx percent of the measurement time period. For example, L_{50} is the sound level exceeded 50 percent of the time during measurement period.

Table 1
SOUND LEVELS AND HUMAN RESPONSE

Noise Source	*Noise Level (dBA)*	*Response*
Carrier Jet Operation	140	Harmfully Loud
Military Jet Takeoff (50 ft) Civil Defense Siren (100 ft)	130	Pain Threshold
Commercial Jet Takeoff (200ft) Discotheque	120	
Unmuffled Motorcycle Auto Horn (3 ft) Rock Music Concert Riveting Machine	110	Physical Discomfort
Diesel Pile Driver (100 ft) Ambulance Siren (100 ft) Garbage Truck	100	Very Loud and Annoying Hearing Damage (Steady 8-Hour Exposure)
Heavy Truck (50 ft) Pneumatic Drill (50 ft)	90	
Alarm Clock Freight Train (50 ft) Vacuum Cleaner (10 ft)	80	Annoying
Freeway Traffic (50 ft)	70	Telephone Use Difficult
Dishwashers Air Conditioning Units (20 ft)	60	Intrusive
Light Auto Traffic (100 ft)	50	
Living Room Bedroom	40	Quiet
Library Soft Whisper (5 ft)	30	Very Quiet
Broadcasting Studio	20	Just Audible
	10	Threshold of Hearing

Source: Melville C. Branch, R. Dale Beland et al., 1970, *Outdoor Noise in the Metropolitan Environment*, p. 2.

Day-Night Sound Level (L_{dn}). L_{dn}, the day-night average noise, is a 24-hour L_{eq} with a 10-dB penalty added to noise events occurring at nighttime. Nighttime is defined as 10 p.m. to 7 a.m. The effect of this penalty is that, in the calculation of L_{dn}, an event during nighttime hours is equivalent to an event during the daytime hour that is 10 dBs louder. This will account for higher sensitivity of people to noise events during nighttime hours when background noise is lower and most people are sleeping.

Community Noise Equivalent Level (CNEL). CNEL is similar to L_{dn}. It is a 24-hour period average noise with 5 dBA added to the noise levels produced in the evening, from 7:00 p.m. to 10:00 p.m., and 10 dBA added to the noise levels produced at night from 10:00 p.m. to 7:00 a.m.

The values of L_{dn} and CNEL rarely differ by more than 1 dBA, with the CNEL the more restrictive scale. It is important to compare a new noise source to the existing environmental noise that the sensitive receptors have become accustomed to. In general, human sound perception is such that a change of sound

level of 3 dBA is just perceivable, a change of 5 dBA is clearly noticeable, and a change of 10 dBA is perceived as doubling or halving sound level.

3. NOISE STANDARDS

To limit population exposure to physically and/or psychologically damaging, as well as intrusive noise levels, the federal government, the State of California, various County governments, and most municipalities in the State have established standards and ordinances to control community noise levels.

Federal Government.

The U.S. Department of Housing and Urban Development (HUD) has set a goal of 45 dBA L_{dn} as a desirable maximum interior standard for residential units developed under HUD funding. While HUD does not specify acceptable exterior noise levels, standard construction of residential dwellings constructed under Title 24 typically provide 20 dBA of acoustical attenuation with the windows closed and 10 dBA with the windows open. Based on this assumption, the exterior L_{dn} or CNEL should not exceed 65 dBA under normal conditions.

State of California.

The California Department of Health Services (DHS) Office of Noise Control[1] studied the correlation of noise levels and their effects on various land uses. The most current guidelines prepared by the State noise officer were issued in 1987 and are contained in the "General Plan Guidelines" issued by the Governor's Office of Planning and Research in 1998. These guidelines establish four categories for judging the severity of noise intrusion on specified land uses:

- Normally Acceptable: is generally acceptable, with no mitigation necessary.
- Conditionally Acceptable: may require some mitigation, as established through a noise study.
- Normally Unacceptable: requires substantial mitigation.
- Clearly unacceptable: probably cannot be mitigated to a less-than-significant level.

The types of land uses addressed by the State standards and the acceptable noise categories for each are presented in **Table 2** (Land Use Compatibility for Community Noise Sources). In addition, the California Noise Insulation Standards identify an interior noise standard of 45 dBA CNEL for new multifamily residential housing units.

Local Standards.

Los Angeles County Code Sections 12.08.390 (Exterior Noise Standards) and 12.08.400 (Interior Noise Standards) establish (1) allowable noise levels for various noise receptors and (2) standards identifying the noise levels that may not be exceeded for specified periods of time. The exterior and interior noise levels for various land uses are presented in **Table 3-a** (County Noise Standards). These noise levels are utilized in determining the standard limits for noise, which are presented in **Table 3-b** (County Limits for Noise Levels). The first column of this table lists the time limits for the maximum noise levels (dBA at the receptor property or residential interior), which cannot be exceeded. The second column lists the equivalent noise metric in terms of "percent noise level" or L%. The percent noise level describes the noise level that is exceeded during a certain percentage of the measurement period. For example, the L_{50} noise level is the level exceeded 50% of the measurement period or thirty minutes in an hour. In the event that the ambient noise level exceeds any of the noise limit categories, the cumulative period applicable to that category shall be increased to reflect the ambient noise level.

[1] This department no longer exists.

Table 2
LAND USE COMPATIBILITY FOR COMMUNITY NOISE SOURCES

Land Use Category	*Noise Exposure (L_{dn} or CNEL, dBA)*						
	55	*60*	*65*	*70*	*75*	*80*	
Residential – Low-Density Single-Family, Duplex, Mobile Homes							
Residential – Multiple Family							
Transient Lodging – Motel, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Homes							
Auditorium, Concert Hall, Amphitheaters							
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Neighborhood Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial and Professional							
Industrial, Manufacturing, Utilities, Agriculture							

	NORMALLY ACCEPTABLE: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
	CONDITIONALLY ACCEPTABLE: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design.
	NORMALLY UNACCEPTABLE: New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
	CLEARLY UNACCEPTABLE: New construction or development should generally not be undertaken. Construction costs to make the indoor environmental acceptable would be prohibitive and the outdoor environment would not be usable.

Source: State of California, *General Plan Guidelines*, Governor's Office of Planning and Research, 1998.

Table 3-a
COUNTY NOISE STANDARDS

Land Use (Receptor Property)	*Time Interval*	*Exterior Noise Level (dBA)*	*Interior Noise Level (dBA)*
Noise-sensitive area	Anytime	45	--
Residential properties	10:00 pm to 7:00 am	45	40
	7:00 am to 10:00 pm	50	45
Commercial properties	10:00 pm to 7:00 am	55	--
	7:00 am to 10:00 pm	60	--
Industrial properties	Anytime	70	--

Source: Los Angeles County Code Sections 12.08.390(A) and 12.08.400(B).

Table 3-b
COUNTY LIMITS FOR NOISE EXPOSURE

Maximum Time of Exposure	*Noise Metric*	*Exterior Noise Level Not To Be Exceeded* [1]	*Interior Noise Level (Residential) Not To Be Exceeded* [2]
30 Minutes/Hour	L_{50}	Standard[3]	--
15 Minutes/Hour	L_{25}	Standard + 5 dBA	--
5 Minutes/Hour	$L_{8.3}$	Standard + 10 dBA	Standard[3]
1 Minute/Hour	$L_{1.7}$	Standard + 15 dBA	Standard + 5 dBA
Any period of time	L_{max}	Standard + 20 dBA	Standard + 10 dBA

1. Source: Los Angeles County Code Section 12.08.390(B).
2. Source: Los Angeles County Code Section 12.08.400(A).
3. The noise level specified in Table 3-a.

Construction Noise. Los Angeles County Code Section 12.08.440 (B)(1) sets limits of construction noise at residential receptors as presented in **Table 4** (Maximum Construction Noise Limits).

Table 4
Maximum Construction Noise Limits

Construction Time	*Maximum Allowed Noise Level (dBA)*		
	Single–family Residential	*Multi-family Residential*	*Semi-residential/ Commercial*
a. *Mobile Equipment*. Maximum noise levels for nonscheduled, intermittent, short-term operation of equipment.			
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75	80	85
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	60	64	70
b. *Stationary Equipment*. Maximum noise level for repetitively scheduled and relatively long-term operation (periods of 10 days or more) of stationary equipment.			
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	60	65	70
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	50	55	60

4. THRESHOLDS OF SIGNIFICANCE

The proposed project may be deemed to have significant impacts on the environment if it results in any of the following:

- The exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- A substantial permanent increase in ambient noise levels in the vicinity of the project above levels existing without the project; or
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

5. PROJECT IMPACTS

The sources of noise for the proposed project fall into two categories, which are:

- Construction related noise
- Operational noise

5.1 Construction Noise Impact

Construction of the turnout facility would include:

- Earthwork operations (including excavation of the vault and trenching for installation of underground pipelines and electrical power lines),
- Construction of vault and hydraulic structures (e.g. piping, inlet structures),
- Construction of utilities structures,
- Installation of the pump system and associated piping.

These operations require use of heavy equipment, which would generate intermittent high noise levels on and adjacent to the project site. Construction noise generally fluctuates depending on the process, equipment type and duration of use, distance between noise source and receptor, and presence or absence of barriers between the noise source and the receptor. Overall construction noise level assessments are governed primarily by the noisiest pieces of equipment used in a construction phase. For most construction equipment, the engine, which is usually diesel-fueled, is the dominant noise source. For special activities such as impact pile driving and pavement breaking, noise generated by the actual process dominates.

Table 5 (Typical Construction Equipment Noise Levels), summarizes some of the available data on noise emission levels of typical construction equipment. These noise levels, which correspond to a distance of 50 feet from the operating equipment, decrease by approximately 6 dBA with each doubling of distance from the construction site (e.g., if the noise level from excavation of a site is approximately 83 dBA at 100 feet, it would be about 77 dBA at 200 feet from the site).

Table 5
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

		Equipment Type	Range of Noise Level at 50 ft (dBA)	Average Noise Level at 50 ft (dBA)
Equipment Powered by Internal Combustion Engines	Earth Moving	Backhoe	71-93	85
		Front Loader	71-96	82
		Grader, Scraper	73-95	85
		Paver	80-92	89
		Roller	78-84	79
		Tractor	72-96	84
		Trencher	76-86	82
	Materials Hauling	Concrete Mixer	74-90	85
		Concrete Pump	81-83	82
		Crane (Mobile)	75-86	81
		Crane (Derrick)	86-89	88
	Stationary	Air Compressor	74-86	81
		Generator	70-82	80
		Pump: 200 hp, 350 hp	64-84	76,81
Impact Equipment		Compactor	84-90	86
		Pneumatic Tools	82-88	86
		Jack Hammer, Drill	75-104	88
		Pile Driver (Impact)	90-104	101

Sources: U.S. EPA PB 206717, Dec. 31, 1971. *Noise from Construction Equipment and Operations.*

The most extensive construction work for the project would occur during earthwork operations when several pieces of loud equipment would be operating simultaneously. It is estimated that this phase of construction would require use of a maximum of one crane, one backhoe, 5 concrete trucks, and 5 utility vehicles. **Table 6** (Composite Noise from Maximum Construction Activities) provides the estimated noise levels generated during most intense construction operations. As shown in Table 6, an 8-hour L_{eq} at a distance of 50 feet from the construction work site would be 88 dBA. This calculation assumes no noise mitigation measures and no limits on how much noise can be generated. The value at 50 feet can be scaled to other distances using the relationship:

$$L_{eq}(\text{Dist}) = L_{eq}(50\text{ ft}) - 20\ log_{10}(\text{Dist}/50)$$

The nearest residential dwelling unit to the project site is located 500 feet northwest of the location of the proposed pumping station. Predicted noise levels at the identified sensitive receptor due to construction activity would be about 63 dBA. This is below the County limit for daytime construction noise, (see Table 4). Conformance with the allowed construction hours as identified in the County Code (7:00 a.m. to 8:00 p.m. Monday - Saturday except legal holidays) would ensure that any noise impacts would be less than significant.

Impacts associated with installation of the pipeline and power line would be negligible because fewer number of heavy construction equipment that generate loud noise levels would be used. Therefore, it is concluded that construction activities would not create a significant impact.

Table 6
COMPOSITE NOISE FROM MAXIMUM CONSTRUCTION ACTIVITIES

Equipment	*Typical Maximum Sound Level at 50 feet (dBA)*	*Equipment Utilization Factor[1] (%)*	*L_{eq} at 50 feet (dBA)*
Concrete Trucks	85	100	85
Backhoe	80	60	78
Crane, Mobile	83	30	78
Generator	81	50	78
Trencher, Excavator	85	30	80
Other	85	15	77
Total workday L_{eq} at 50 feet (8-hour workday)			**88**
Total workday L_{eq} at 500 feet (Nearest Residence in project area)			**63**

[1] Equipment utilization factor is estimated as percentage of an 8-hour shift that the equipment would be operating at full power.

Source: UltraSystems, 2005.

5.2 Operational Noise Impact

5.2.1 Pumping Activities

The pumping station would consist of a covered, reinforced concrete vault approximately 60 feet by 30 feet and 21 feet deep, housing four 500 HP pumps operating at 2300 VAC. Each of these pumps is capable of producing a maximum flow of 35 cfs and has variable frequency drive for electrical starter. The vault would be constructed below grade with its roof at ground level. Access would be provided through metal doors located off of a side stairway. The pumps would discharge into a single underground 42-inch diameter pipeline that would connect to the FLAA approximately 300 feet to the west of the pumping station. Typically, three pumps would be operating at a time, and the fourth pump would be used as a standby unit.

Based on manufacturer's data, each pump generates an SPL of 85 dBA at a distance of 3 feet from the full loaded operating pump. However, this is for a pump operating above ground with no large reflector surfaces in the near vicinity. Within an enclosure such as the pump vault, the sound waves from the source will change directions upon striking obstacles such as a wall. As a result, some of the incident sound energy is reflected, some absorbed, and some transmitted through the walls of the enclosure.

For the proposed project, the total sound absorption inside the concrete vault would be equal to the sum of: (1) the absorption due to the various bounding surfaces, $A_{surface}$; (2) the absorption due to air, A_{air}; and (3) the absorption due to the furnishings (e.g. pumps and pipes) in the pump room, $A_{furnishings}$.

The level of the reflected sound depends on the acoustic characteristics of the room, and on the SPL of the source. In general, the SPL of the reflected sound in a typical pump room is diffuse, i.e., is fairly uniform throughout the room for a steady source of sound.

The SPL of the pumps at 3 feet, provided by the manufacturer, was used to estimate the PWL of the pumps and motors. The results were adjusted for the number of pumps in operation. To obtain the

reverberant SPL inside the vault, the room constant was calculated using the design dimensions of the vault and a concrete structure characteristics. The room correction, determined from the room constant, was applied to the calculated power levels to yield the reverberant component of the noise in the room. Usually this reverberant number is used for the noise level. The analysis is provided in the Appendix and summarized in **Table 7** (Projected Noise Level Inside the Pump Room). As shown in Table 7, a maximum noise level of 94 dBA could be experienced inside the vault at 3 feet from the operating pumps.

Table 7
PROJECTED NOISE LEVELS INSIDE THE PUMP ROOM

Frequency (HZ)	*Pump Data (dBA)*		*Typical Motor PWL (dBA)*	*Total PWL of 3 Systems (dBA)*	*Total Room Absorption (Sabin)*	*Room Correction (dBA)*	*SPL inside the Pump Room (dBA)*
	SPL(from manufacturer)	*PWL*					
125	80	95	95	**103**	652	-12	**91**
250	81	96	95	**103**	373	-10	**94**
500	80	95	95	**103**	437	-10	**93**
1000	78	93	95	**102**	502	-11	**91**
2000	75	90	95	**101**	614	-12	**89**
4000	71	86	92	**98**	785	-13	**85**

For detailed assumptions and estimation method refer to the Appendix

For estimating the noise level outside the pump room, it is necessary to project the noise reduction provided by the proposed vault. To estimate the vault structure attenuation rate for the proposed Neenach Pumping Station, UltraSystems conducted noise measurements at the existing Pollock Wells Pumping Station, located at 2660 Fletcher Drive, Los Angeles. The Pollock Station includes two 125 HP pumps that are installed in a vault structure, similar to the structure proposed for the Neenach Pumping Station vault. The measurements were performed at this station to obtain the degree of attenuation that the underground vault structure could provide. Three sets of measurement were taken: 1) at 3 feet from the operating pump; 2) just outside the vault, at the ground level, with the access doors of the vault open; and 3) just outside the vault, at the ground level, with the access doors of the vault closed. The results are summarized below:

	Leq (10 minutes) (dBA)	Attenuation (dBA)
Inside the vault, 3 ft from the operating pump	80.3	
Outside the vault - vault doors open	64.6	15.7
Outside the vault - vault doors closed	61.0	19.3

Based on the field measurements, the vault structure with the doors open or closed would provide 15.7 dBA or 19.3 dBA noise attenuation, respectively. It should be mentioned that the Pollock Wells facility is located by Carillon Street, which has a relatively high level of traffic. As a result, the measurement outside the vault was influenced by a significant contribution of the traffic noise, which could add as much as 5-10 dBA to the background noise level. Therefore, it is estimated that the vault structure, with closed doors, could result in a 25- to 30-dBA attenuation.

With a maximum source level of 94 dBA, the vault structure would reduce the noise onsite at the turnout facility to 69-64 dBA with the doors closed. This is just below the County limit for industrial uses, 70 dBA (see Table 3-a). Based on this analysis, the proposed concrete vault would provide noise attenuation that is marginally sufficient for reducing the onsite noise level to the standard limit.

The nearest sensitive receptor (house 500 feet from the site) would be exposed to a noise level of about 27-30 dBA from the pumping station. This is well below the 45 dBA significance level for residential

properties, as set by the County code. Therefore, the operation of the pumping station would not result in a significant adverse noise impact at the closest residential receptor.

5.2.2 Maintenance Activities

The continuous operation of the pumps will require periodic maintenance activities by the personnel inside the pump room. As discussed above, the noise level inside the pump vault would be as high as 94 dBA. Therefore, U.S. Occupational Safety and Health Administration (OSHA) standards need to be applied for the pump maintenance workers/technicians.

The OSHA noise regulations are designed to protect workers against the effects of noise exposure, and list the permissible level of exposure as a function of the length of time to which the worker is exposed.

Paragraph (a) of Section 1926.52 of Code of Federal Regulations (CFR) 29, as well as California OSHA in Title 8, Group 15, Article 105, Section 5095, require protection against the effects of noise exposure when 8-hour time-weighted average sound levels exceed a permissible exposure limit (PEL) of 90 dBA measured on the A scale of a sound level meter set at slow response. The exposure level is raised 5 dBA for every halving of exposure duration as shown in **Table 8** (OSHA Permissible Noise Exposures).

Table 8
OSHA PERMISSIBLE NOISE EXPOSURES

Duration per day (hours)	***Sound Level (dBA)***
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ or less	115

Paragraph 29 CFR 1926.52(b) states that when employees are subjected to noise doses exceeding those shown in Table 8, feasible administrative or engineering controls must be used to lower employee noise exposure. If such controls fail to reduce sound to the levels shown in the table, personal protective equipment must be provided and used to reduce noise exposure to within those levels.

Paragraph (c) defines continuous noise as noise levels where the maximum occur at intervals of 1 second or less, and Paragraph (d)(1) requires that a "continuing, effective hearing conservation program" be administered whenever levels exceed those in the table. However, no details are given about the components of such a program. Paragraph (d)(2) gives instruction on how to calculate an employee's noise exposure when the employee is exposed to two or more periods of noise at different levels.

The requirements of 29 CFR 1926.101 are: (a) Hearing protection devices shall be provided and used wherever it is not feasible to reduce the noise exposure (level times duration) to within the PEL specified in Table 8 (see above); (b) hearing protection devices inserted in the ear shall be fitted by competent persons; and (c) plain cotton is not an acceptable protective device.

California OSHA Section 5098 (Hearing Protectors) of Subchapter 7 group 15 article 105 (Control of Noise Exposure) (a) (1) states that: "Employers shall make hearing protectors available to all employees exposed to an 8-hour time-weighted average of 85 decibels or greater at no cost to the employees. Hearing protectors shall be replaced as necessary."

6. MITIGATION MEASURES

The onsite operational noise is estimated to be below the County limit and no additional treatment would be required.

For maintenance activities, the personnel working inside the pump room shall use ear protection to comply with OSHA requirements.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX

CALCULATIONS AND MEASURED NOISE DATA
(UltraSystems Environmental)

Calculation of Noise inside the Pump Room

1. PWL Calculation

Assumption:

Single stage pumps
Motors: 900 rpm (NEMA Rated)
Direct drivers
Pump efficiency: 70-75%
No lagging on pipes, no absorption in the pump room

Practical Data Based on Manufacturer's Specs[a]						
Frequency	*Pump Data (dB)*		*PWL (dB)*	*Motor*	*PWL (dB)*	*Total*
(HZ)	*SPL(manufac)*	*PWL*	*3 Pumps[b]*	*PWL*	*3 Motors[b]*	*PWL (dB)*
125	80	95	100	95	100	**103**
250	81	96	101	95	100	**103**
500	80	95	100	95	100	**103**
1000	78	93	98	95	100	**102**
2000	75	90	95	95	100	**101**
4000	71	86	91	92	97	**98**

a. In consultation with Veneklasen Associates.
b. PWL + 10*log(3)

SPL = Sound pressure level, specifies the acoustic “disturbance” at a point; thus it depends on the distance from the source, losses in the intervening air, room effects, etc.

PWL = Sound power level, is related to the total acoustic power radiated by a source.

2. Room Correction

Calculation of Noise inside the Pump Room

Frequency (HZ)	*Absorption Coefficient (concrete)[1]*		*Surface Area Absorption (Sabin)*		*Air Absorption*		*Total Room Absorption (Sabin)*	*Room Correction[3]*	*Corrected Total SPL*
	Walls & Ceiling	*Floor*			***Coefficient (m)[2]***	***Absorption***			
125	0.1	0.01	558	18	0.0005	76	652	-12	**91**
250	0.05	0.01	279	18	0.0005	76	373	-9	**94**
500	0.06	0.015	335	27	0.0005	76	437	-10	**93**
1000	0.07	0.02	391	36	0.0005	76	502	-11	**91**
2000	0.09	0.02	502	36	0.0005	76	614	-12	**89**
4000	0.08	0.02	446	36	0.002	302	785	-13	**85**

Reference: *Handbook of Acoustical Measurement and Noise Control*, C.M. Harris, ed.

1. Table 30.1 page 30.15-16
2. Air attenuation coefficient at 45% humidity and 68 ^{o}F -- Figure 4.2 page 4.5
3. PWL - SPL = 16.3-10log(A_{total}); or = 10*log(4/$R_{absorption}$)+10; or from Figure 4.7 page 4.13

Measured Data at Pollock Wells Pumping Station
2660 Fletcher Drive, Los Angeles
(1/13/05)

Inside the Vault, 3 ft from the operating pump			
Run Time:	**0:10:09**	LDN:	80.3dB
LEQ:	80.3dB	CNEL:	80.3dB
TWA:	63.6dB	TAKM3:	81.3dB
SEL(3):	108.2dB	Pa2Sec:	26.2
Ovl:	0.00%	LN5:	82.3dB
Peak:	94.5dB	LN10:	81.7dB
Max:	84.5dB	LN50:	80.2dB

Outside (above the stairs of) the vault - vault door open			
Run Time:	**0:10:38**	LDN:	64.6dB
LEQ:	64.6dB	CNEL:	64.6dB
TWA:	48.1dB	TAKM3:	66.3dB
SEL(3):	92.7dB	Pa2Sec:	0.7
Ovl:	0.00%	LN5:	66.8dB
Peak:	85.2dB	LN10:	66.1dB
Max:	72.0dB	LN50:	64.3dB

Outside (above the stairs of) the vault - vault door closed			
Run Time:	**0:10:05**	LDN:	61.0dB
LEQ:	61.0dB	CNEL:	61.0dB
TWA:	44.3dB	TAKM3:	63.7dB
SEL(3):	88.9dB	Pa2Sec:	0.3
Ovl:	0.00%	LN5:	64.8dB
Peak:	83.5dB	LN10:	63.6dB
Max:	70.4dB	LN50:	60.0dB

THIS PAGE INTENTIONALLY LEFT BLANK