MWD
METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

BOARD ACTION

- **Board of Directors**
  Water Quality and Operations Committee

March 11, 2008 Board Meeting

8-3

Subject

Appropriate $2.45 million; and authorize (1) final design of La Verne Shops Upgrades at the Weymouth plant; (2) La Verne Shops ISO 9000-2001 certification, Phase I; and (3) agreement with Tetra Design (Approp. 15395)

Description

This action authorizes final design of expansions and upgrades for Metropolitan's maintenance support shops, which are located at the Weymouth plant in La Verne. These facilities include the Machine, Fabrication, and Coatings Shops. The building improvements will be designed by Tetra Design, an architectural consulting firm. This action also authorizes repairs or upgrades of 15 pieces of equipment, procurement of four new items, and Phase I implementation of ISO 9000-2001 certification for all of the shops. This project is categorized as an Infrastructure Upgrade project, is budgeted within Metropolitan's Capital Investment Plan (CIP), and is consistent with previous site master planning efforts at the Weymouth plant.

Background

The F. E. Weymouth Water Treatment Plant, which is located in the city of La Verne, was placed into service in 1941. Specialized shops have been located at the Weymouth plant since that time. These specialized shops are involved in all major refurbishment and emergency response projects that occur within Metropolitan's conveyance and distribution system, and within its treatment plants. The shops were expanded in the 1960s when larger facilities were built, and expanded again in the 1980s to support a major rehabilitation of the Colorado River Aqueduct pumps. The La Verne Shops are housed in four buildings: the Fabrication Shop, Machine Shop, and Coatings Shop East and West. See **Attachment 1** for the location maps.

The La Verne Shops are operated full-time supporting Metropolitan's rehabilitation and maintenance work, capital projects, and fulfilling contractual obligations with outside and member agencies. In addition to routine maintenance support of Metropolitan facilities, the Fabrication, Machine, and Coatings Shops provide support during Metropolitan and member agency emergencies. This emergency response capability minimizes costs, risks and response time, and increases product quality. While the La Verne Shops provide services to member agencies and to the California Department of Water Resources (DWR), Metropolitan's needs are prioritized before providing assistance to other agencies. Support to member agencies typically includes agency-requested service connections, which involves fabrication, coating, and lining of turnout components. Metropolitan has had a formal agreement with DWR since the 1980s to provide shop services that support maintenance activities along the State Water Project. Recent examples of this support include repairing a pump shaft for the Pearblossom facility, and impellers for the Edmonston and Oso facilities. This work is performed on a fee-for-service basis and includes machine rates, raw materials, and fully burdened labor rates, which include additives and overhead.

Retaining the in-house capability to perform the functions provided by the La Verne Shops is important to Metropolitan, as there are few firms in the western U.S. with similar capabilities. In recent years, private firms with machine shop and fabrication capabilities have tended to increase the amount of work outsourced to off-shore facilities, instead of retaining it locally. These firms have little ability to respond expeditiously to emergency needs.

In July 2002, Metropolitan's Board authorized the initial phase of work for the La Verne Shops Upgrade Program. The scope included refurbishment and replacement of Machine Shop equipment. To date, staff has refurbished or replaced half of the 19 pieces of equipment. In December 2005, staff initiated a study to evaluate the floor space

requirements for the Machine Shop, Fabrication Shop, and Coatings Shop, to improve safety and efficiency, to assess storage space needs for shop materials, and to coordinate the upgrades with other planned projects at the Weymouth plant.

In April 2006, the Board authorized preliminary design for expansion of the shop buildings. In addition, the shop equipment in the Coatings, Fabrication, and Machine Shops was reevaluated under a comprehensive equipment modernization plan. The preliminary design is complete and staff recommends that final design proceed at this time on the upgrade projects. This work is consistent with the Draft La Verne Area Master Plan. Staff also recommends that Tetra Design, an architectural consulting firm, perform final design of building improvements for the Machine, Fabrication, and Coatings Shops under a new professional services agreement described below. Lastly, staff recommends that the Maintenance Support Shops' Quality Management System become ISO 9000-2001 certified by initiating Phase I of the process, to create a cost-effective and efficient synergy between the shop upgrades and the finished work products. Three phases of the certification process are scheduled to be completed at the same time that the upgraded shops begin service.

La Verne Shops Upgrades – Final Design Phase ($2.3 million)

Machine Shop Building Expansion

The Machine Shop performs specialized machining and repairs that support Metropolitan and DWR facilities, and operates full-time throughout the year for scheduled rehabilitation and emergency repair of specialized equipment such as large pumps and valves. The Machine Shop building is recommended for expansion, with the addition of 12,000 square feet of new space adjacent to and just south of the existing building. Currently, the work areas surrounding each machine are cramped and safety clearances are tight. The increased floor space will permit larger and safer work areas around each piece of equipment, and will provide adequate areas for staging parts near each machine while maintaining clear walkways throughout the building. The expansion will also include a 500-square foot calibration room to house instruments used to measure machined surfaces. Further, the project will replace the existing Machine Shop roof, which has reached the end of its useful life and is beyond reasonable repair.

Fabrication Shop Building Expansion

The Fabrication Shop performs planned and emergency pipe fabrication, component fabrication and welding, pump and turbine overlay repairs, sheet metal design and fabrication, and general maintenance support. The Fabrication Shop building is recommended for expansion, by adding 9,300 square feet of new space adjacent to and just south of the existing building. The increased floor space will permit a more efficient layout of existing and proposed new equipment, material handling, and staging, and will provide safer equipment access. New 40-ton dual bridge cranes will be installed in the new expanded space to handle plate and fabricated components. The existing shop crane rails will be extended outside the building to load fabricated components onto trucks for transport, and into the expanded Machine Shop building so that the cranes can be utilized in both buildings. The addition of new cranes will improve safety and handling of materials, equipment, and components throughout the Fabrication and Machine Shops. The existing Fabrication Shop building will also be retrofitted to meet current seismic design criteria.

Coatings Shop Buildings Consolidation

The Coatings Shop performs sandblasting and coating applications for pipes, pumps, and other fabricated components. The current coatings facilities are split between two buildings over 200 feet apart. The east building is of sheet metal construction, which was built in the 1940s. The Coatings Shop buildings are recommended for consolidation and expansion with the addition of 13,000 square feet of new space adjacent to the southeast side of the existing west building. This new consolidated Coatings Shop building will provide office space and workspace for coating equipment, material staging areas, workbenches, and post-painting handling operations. Adjacent to the new building addition, an additional 5,000 square feet of outside storage will be added for temporary storage of components waiting to be coated. The existing east building will be used for storing mobile coating equipment, paint, materials, and parts.

Shop Equipment Modernization

The equipment in the Machine, Fabrication and Coatings Shops was evaluated to assess: (1) Useful life remaining and its functionality; (2) Production efficiency; and (3) Reliability, safety, and emergency response capability. Most of the 77 pieces of equipment are over 20 years old and are in need of some level of refurbishment. Fifteen pieces have been identified for replacement or upgrade, including a mechanical saw, hydraulic saw, 3 spray/drying booths, steam cleaning equipment, hazardous material storage container, 3 lathes, vertical machining center, press brake, hydraulic shear, plasma cutting machine, and a vertical turning lathe. Four new pieces of equipment have been identified for procurement, including a plate roll, vertical turning lathe, radial drill, and blast booth. The new equipment will improve workflow processes, safety, reliability, and quality, and will reduce overall production time.

La Verne Shops ISO 9000-2001 Certification - Phase I ($150,000)

The International Organization for Standardization (ISO), through its ISO 9000-2001 certification program, is recognized as the worldwide standard by which the best quality procedures are implemented and followed. ISO certification has been implemented by public agencies such as the California Environmental Protection Agency, due to the value the program brings to continuously improve processes, and private entities such as Northwest Pipe Company and Ameron International, with the objective of improving overall efficiency and productivity in design and manufacturing, increasing business, and maintaining effective operations. Staff recommends that ISO 9000-2001 certification be combined with the La Verne Shops Upgrade project to ensure that this investment in the shops is leveraged to provide the highest possible value in quality shop production and efficiency.

ISO 9000-2001 has basic principles that: (1) focus on customer needs, requirements and expectations; (2) use specific processes related to activities, resources, and products; and (3) encourage continual improvement in overall performance. Tetra Design will work closely with Metropolitan staff to analyze, define, and implement distinct processes over three phases, which are expected to last three years. Phase I will commence with a determination of how and where the ISO 9000-2001 process applies to the shops by conducting a quality gap analysis of the existing Quality Management System, and an audit of procedures and work instructions. If the audit recommendations support continuing the program, staff will return to the Board in late 2008 to request authorization of Phase II, which is envisioned to provide quantifications of benefits in cost savings, and will begin to document processes with the objective of reducing production time, rework, and material waste. Finally, Phase III will include an external audit to measure the program's effectiveness and to certify that the quality system has met ISO requirements. Tetra Design will supply all necessary documentation sufficient for Metropolitan to become ISO 9000-2001 compliant and to obtain subsequent ISO certification. An added benefit of this effort is that ISO certification has proven to work well in the context of succession planning due to its well-defined yet continually improving processes which set a lasting standard of expectations for staff, aiding in the assignment of responsibilities, and allowing management to better measure results. When work is reviewed, approved, executed and inspected effectively, changes and risks are minimized. An ISO 9000-2001 system supplies the framework for the efficient execution of work following a properly established Quality Management System.

The Tetra Design scope of work involves extensive data collection; development and documentation of 22 independent processes and procedures that control the flow of work in the shops, such as purchasing, production, document control, and nonconformance management; development of audit and record-keeping processes; and preparation of the certification application. Staff recommends that Tetra Design perform this work in conjunction with the shop upgrades.

Based on other public and private entities' experience with the certification process, the estimated total cost for ISO 9000-2001 certification is $735,000; the payback period for this effort is estimated to be eight years or less. If the conclusions of Phase I are favorable, staff will return to the Board for authorization to proceed with Phase II and Phase III.

Professional Services Agreement

Tetra Design was selected through a competitive process via Request for Proposals No. 831 to provide engineering and architectural services for upgrading the La Verne Shops. The planned scope of work for Tetra Design is to perform final design of the improvements and to obtain ISO 9000-2001 certification for Phase I, as described above. Metropolitan has established a Small Business Enterprise participation level of 20 percent for the Tetra Design agreement. Staff will return to the Board in the future to recommend award of a construction contract for the La Verne Shops Upgrades. At that time, staff plans to recommend an amendment to Tetra Design's agreement to provide technical support during construction.

Summary

This action appropriates $2.45 million and authorizes final design phase activities for the building expansions, consolidation, and equipment modernization of the Machine, Fabrication, and Coatings Shops. This action also authorizes an agreement with Tetra Design in an amount not to exceed $1.55 million for final design of the La Verne Shops Upgrades, and Phase I of the ISO 9000-2001 certification process. Final design activities include preparation of drawings and specifications, and development of a construction cost estimate. Metropolitan staff will perform project management, permitting, design review and support, and advertisement for bids. For these projects, the cost of final design is approximately 11 percent of the total estimated construction cost. Engineering Services' goal for design of projects with construction costs greater than $3 million is 9 to 12 percent. The construction cost for these projects is anticipated to range from $15.5 million to $20 million.

These projects are consistent with Metropolitan's goals for sustainability by improving shop efficiency and product quality, which lead to lower power consumption, less material waste, and more efficient operation. These projects have been evaluated and recommended by Metropolitan's CIP Evaluation Team and funds have been included in the fiscal year 2007/08 capital budget. See **Attachment 2** for the Financial Statement.

Actions and Milestones

November 2009 – Completion of final design

March 2011 – Completion of construction

Policy

Metropolitan Water District Administrative Code Section 5108: Appropriations

Metropolitan Water District Administrative Code Section 8121: General Authority of the General Manager to Enter Contracts

California Environmental Quality Act (CEQA)

CEQA determinations for Options #1 and #2:

La Verne Shops Upgrades - Final Design Phase

The environmental effects from the funding, design, and construction of the La Verne Shops Upgrade Program were evaluated in the F. E. Weymouth Filtration Plant Ozonation Facilities and Site Improvements Program Final Environmental Impact Report (Final EIR), which was certified by the Board on April 12, 2005. The Board also approved the Findings of Fact (Findings), the Statement of Overriding Considerations, the Mitigation Monitoring and Reporting Program (MMRP), and the projects themselves. Addendum No. 1 to the Final EIR was certified by the Board on January 9, 2007. The Addendum disclosed the proposed modifications to the Fabrication and Machine Shops and the new Coatings Shop. The current board action is solely based on appropriating funding and authorizing final design, construction, and operation of the La Verne Shops Upgrade Program at Weymouth, and not on any changes to the approved program itself. Hence, the previous environmental documentation acted on by the Board in conjunction with the proposed actions fully complies with CEQA and the State CEQA Guidelines. Accordingly, no further CEQA documentation is necessary for the Board to act on the proposed actions.

The CEQA determination is: Determine that the proposed actions have been previously addressed in the certified 2005 Final EIR, findings, SOC, MMRP, and 2007 Addendum and that no further environmental analysis or documentation is required.

Professional Services Agreement-Tetra Design; La Verne Shops ISO 9000-2001 Certification

The authorization of a new professional services agreement with Tetra Design is not subject to CEQA because it involves other government fiscal activities, which do not involve any commitment to any specific project, which may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines). The ISO 9000-2001 Certification effort is not defined as a project under CEQA because it involves continuing administrative activities (Section 15378(b)(2) of the State CEQA Guidelines).

The CEQA determination is: Determine that the proposed actions are not subject to CEQA (Sections 15378(b)(4) and 15378(b)(2) of the State CEQA Guidelines).

CEQA determination for Option #3:

None required

Board Options

Option #1

Adopt the CEQA determinations and

a. Appropriate $2.45 million in budgeted funds;
b. Authorize final design of the La Verne Shops Upgrades and ISO 9000-2001 certification, Phase I; and
c. Authorize agreement with Tetra Design in an amount not to exceed $1.55 million.

Fiscal Impact: $2.45 million in budgeted funds under Approp. 15395.

Business Analysis: This option will modernize Metropolitan's Machine, Fabrication, and Coatings Shops, improving shop safety, emergency response capabilities, production time and efficiency; and will help in the delivery of higher quality products.

Option #2

Adopt the CEQA determinations and

a. Appropriate $1.25 million in budgeted funds;
b. Authorize final design of the Coatings Shop Buildings Consolidation and Shop Equipment Modernization, and ISO 9000-2001 certification, Phase I;
c. Do not authorize final design of the Machine Shop and Fabrication Shop Building Expansions; and
d. Authorize agreement with Tetra Design in an amount not to exceed $0.85 million.

Fiscal Impact: $1.25 million in budgeted funds under Approp. 15395.

Business Analysis: This option would address consolidation of the Coatings Shop buildings, and roof replacement, seismic retrofit, and upgrade of existing equipment in the Machine Shop and Fabrication Shop buildings. This option would also improve shop production time and efficiency, but would not improve the Machine and Fabrication Shops' safety and emergency response capabilities, and would not address tight working conditions due to crowding of equipment.

Option #3

Do not proceed with the La Verne Shops Upgrades.

Fiscal Impact: None

Business Analysis: This option will forego an opportunity to improve Metropolitan's operational flexibility, to minimize impacts to member agencies during scheduled or emergency shutdowns, and to make improvements to the work environment.

Staff Recommendation

Option #1

2/28/2008

James F. Green *Date*

for *Eddie A. Rigdon*

Manager, Water System Operations

2/29/2008

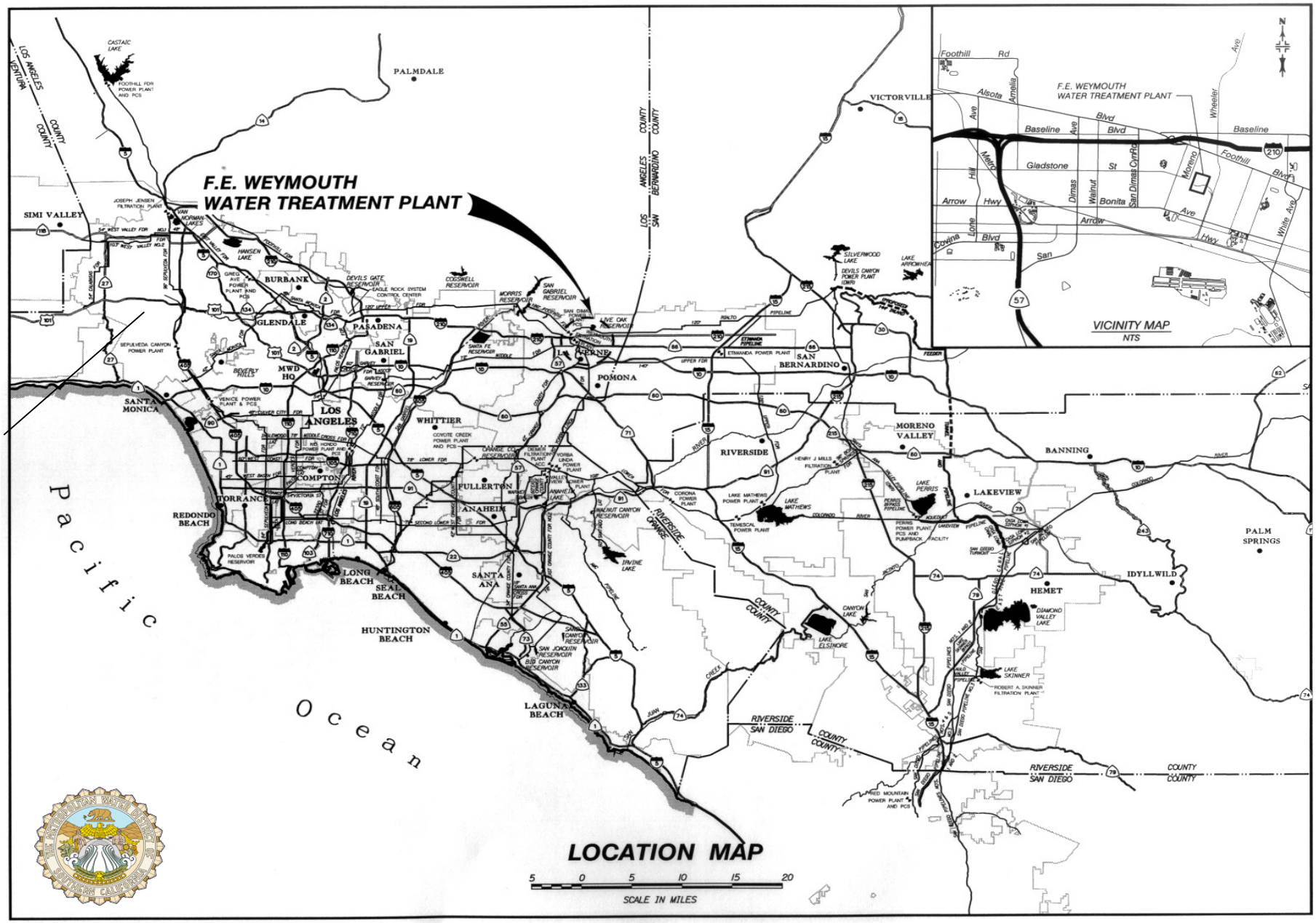
Jeffrey Kightlinger *Date*

General Manager

Attachment 1 – Location Maps

Attachment 2 – Financial Statement

BLA #5613


F.E. WEYMOUTH
WATER TREATMENT PLANT
LOCATION MAP
SCALE IN MILES
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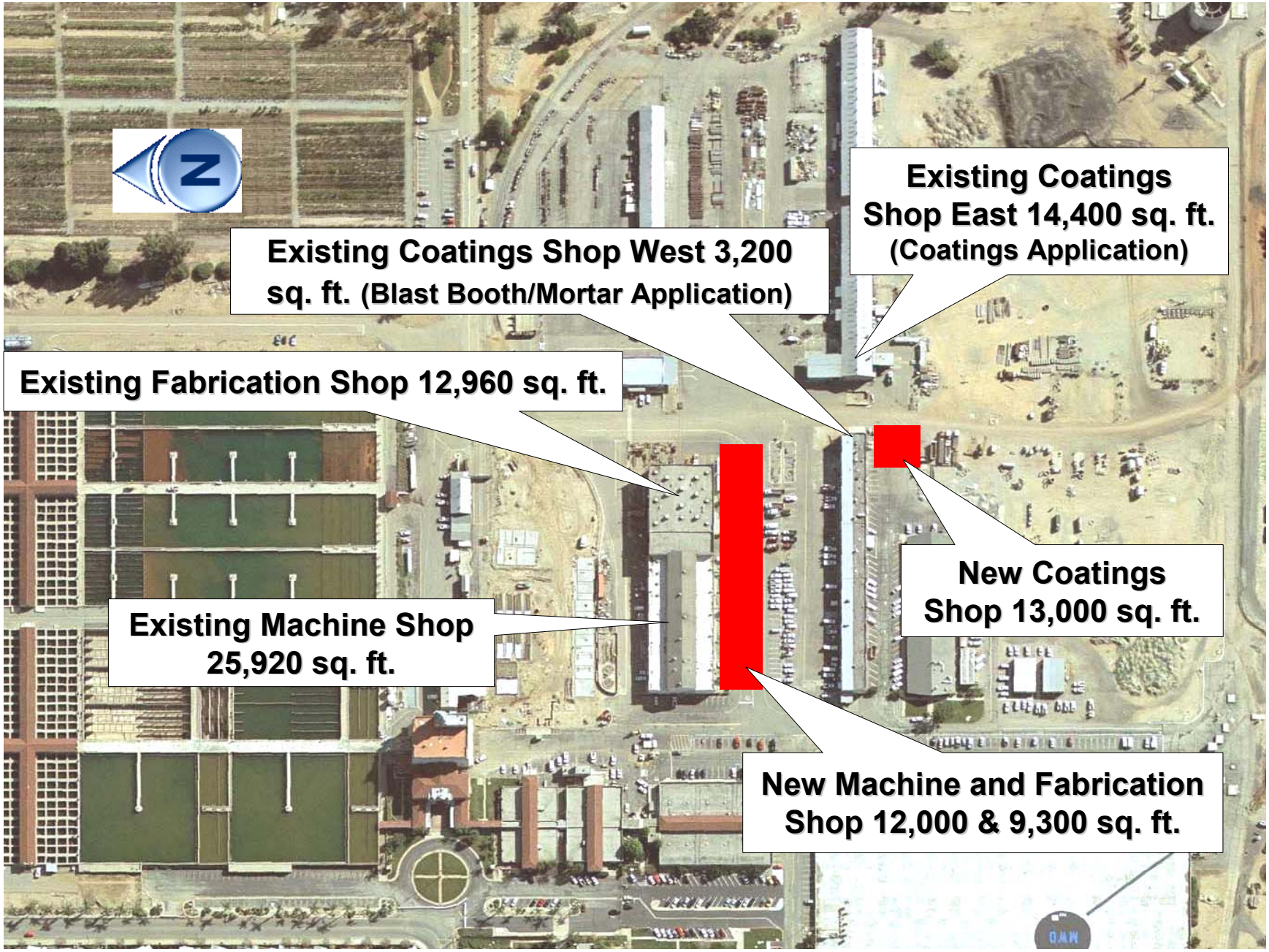
VICINITY MAP
NTS
F.E. WEYMOUTH
WATER TREATMENT PLANT
Pacific
Ocean
PALMDALE
VICTORVILLE
SIMI VALLEY
BURBANK
GLENDALE
PASADENA
SAN GABRIEL
MWD HQ
LOS ANGELES
WHITTIER
POMONA
SAN BERNARDINO
RIVERSIDE
MORENO VALLEY
BANNING
LAKEVIEW
PALM SPRINGS
IDYLLWILD
HEMET
SANTA MONICA
COMPTON
TORRANCE
REDONDO BEACH
FULLERTON
ANAHEIM
SANTA ANA
LONG BEACH
SEAL BEACH
HUNTINGTON BEACH
LAGUNA BEACH
LAKE ELSINORE
LAKE MATHEWS
LAKE PERRIS
DIAMOND VALLEY LAKE
LAKE SKINNER
SILVERWOOD LAKE
LAKE ARROWHEAD
CASTAIC LAKE
HANSEN LAKE
SAN GABRIEL RESERVOIR
LIVE OAK RESERVOIR
MORRIS RESERVOIR
COGSWELL RESERVOIR
DEVILS GATE RESERVOIR
SANTA FE RESERVOIR
PALOS VERDES RESERVOIR
WALNUT CANYON RESERVOIR
SAN JOAQUIN RESERVOIR
BIG CANYON RESERVOIR
SANTIAGO CANYON RESERVOIR
IRVINE LAKE
CANYON LAKE
LOS ANGELES COUNTY
VENTURA COUNTY
SAN BERNARDINO COUNTY
ORANGE COUNTY
RIVERSIDE COUNTY
SAN DIEGO COUNTY
Foothill Rd
Alsota Ave
Amelia
Baseline Ave
Blvd
Gladstone St
Arrow Hwy
Lone Hill Blvd
Covina
San Dimas
Dimas
Walnut
Bonita Ave
San Dimas Cyn Rd
Moreno
Wheeler
Foothill Blvd
White Ave
210
57
N


Existing Coatings Shop East 14,400 sq. ft. (Coatings Application)
Existing Coatings Shop West 3,200 sq. ft. (Blast Booth/Mortar Application)
Existing Fabrication Shop 12,960 sq. ft.
New Coatings Shop 13,000 sq. ft.
Existing Machine Shop 25,920 sq. ft.
New Machine and Fabrication Shop 12,000 & 9,300 sq. ft.

Financial Statement for La Verne Shops Upgrade Program

A breakdown of Board Action No. 3 for Appropriation No. 15395 is as follows:

	Previous Total Appropriated Amount (Apr. 2006)		Current Board Action No. 3 (Mar. 2008)	New Total Appropriated Amount
Labor				
Studies and Investigations	$ 197,000	*	$ -	$ 197,000
Final Design	361,900		320,000	681,900
Owner Costs (Program mgmt, permitting, bidding process)	201,000		575,000	776,000
Construction Inspection and Support	-		-	-
Materials and Supplies	1,194,673	*	-	1,194,673
Incidental Expenses	13,300		5,000	18,300
Professional/Technical Services	904,900		-	904,900
Tetra Design	-		1,550,000	1,550,000
Contracts	389,000		-	389,000
Remaining Budget	758,227	*	-	758,227
Total	**$ 4,020,000**		**$ 2,450,000**	**$ 6,470,000**

*Reflects reallocation of $334,527 from Materials and Supplies to Remaining Budget and Studies to reflect completion under budget of the refurbishment of six pieces of shop equipment.

Funding Request

Program Name:	La Verne Shops Upgrade Program		
Source of Funds:	Revenue Bonds, Replacement and Refurbishment or General Funds		
Appropriation No.:	15395	**Board Action No.:**	3
Requested Amount:	**$** 2,450,000	**Capital Program No.:**	15395-E
Total Appropriated Amount:	**$** 6,470,000	**Capital Program Page No.:**	E-42
Total Program Estimate:	**$** 26,000,000	**Program Goal:**	E – Cost Efficiency/Productivity