



**MWD**

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

**8-6**

December 10, 1996

**To:** Board of Directors (Engineering and Operations Committee--Action)  
(Finance and Insurance Committee--Action)

**From:** General Manager

  
\_\_\_\_\_  

**Submitted by:** Gary M. Snyder  
Chief Engineer

**Subject:** Authorization No. 1 to Appropriation No. 15268 to Increase Funding From \$1,271,000 to \$7,150,000 to Expend Budgeted Funds to Finance all Estimated Costs of Phase Two of the Record Drawing Restoration Program, and to Amend an Agreement

## **RECOMMENDATIONS**

---

It is recommended that your Board authorize the General Manager to have all work performed for Phase Two of the Record Drawing Restoration Program.

It is recommended that your Board authorize the General Manager to amend Agreement No. 8297 with the CorDax Corporation as anticipated by RFP No. 187 dated December 1995, in a form approved by the General Counsel, to increase the maximum payable from \$150,000 to \$1,250,000, including expenses, to provide services for conversion of all selected original hard-copy record drawings to electronic files.

It is recommended that your Board authorize an increase of \$5,879,000 in Appropriation No. 15268 from \$1,271,000 to a total of \$7,150,000 from the Pay-As-You-Go Fund to finance all costs of Phase Two of the Record Drawing Restoration Program.

## **EXECUTIVE SUMMARY**

---

Approval of these recommendations will authorize an increase in the appropriation in the amount of \$5,879,000 to finance all costs of the second phase of a two-phase program to complete a backlog of record drawing revisions, and conversions of selected priority hard-copy drawings to electronic files; and authority to amend Agreement No. 8297, as anticipated by RFP No. 187, to increase the maximum amount payable to the CorDax

Corporation from \$150,000 to \$1,250,000, including expenses, to provide services for the conversion of engineering drawings to electronic media format. This project was initiated under a separately approved pilot phase to quantify the work to be done, determine the most efficient means to accomplish the work, and to complete sufficient production to validate the program before requesting approval for full project funding. This initial phase has been successfully completed and included 1130 drawing revisions and conversion of 20,000 drawings to electronic files. The first phase also provided accurate cost and production rate information to establish the final project budget and schedule. The final phase will include updating all selected record drawings by Metropolitan, and converting selected priority hard-copy drawings to electronic files by a vendor. The total estimated program cost is \$7,150,000. Completion of the project is scheduled for late 1999.

## **BRIEF DESCRIPTION**

---

In May 1995, your Board authorized Appropriation 15268 (formerly Appropriation No. 708), in the amount of \$1,271,000, to finance the cost of Phase One of a two-phase Drawing Restoration Program (DRP). The program was designed to be completed in two phases because of lack of quantifiable information on the number of drawings, the extent of the revisions that had to be made, and the best process, including computer applications, that would be needed to complete the work in the most efficient manner. As a result of completing Phase One, a complete inventory of all drawings requiring revisions and conversion from hard-copy to electronic files has been made. This involved combing through Engineering Division's central files and Operations Division's files at remote sites to gather information that should be documented on the record drawings. As part of the pilot work, several alternative computer applications and processes were used to determine the most efficient means of transferring information from marked-up drawings which represent changes made to facilities during and after construction, and electronically converting (scanning) that information into record drawing electronic files. Hard-copy record drawings not requiring revisions were also included in the scanning process so that electronic files for each facility would be complete.

As a result of Phase One, staff now has an accurate inventory of the specific drawings that require revisions, the total number of selected drawings requiring scanning, and the most effective means of completing the work at the least cost. This work will be completed using a melded team of Metropolitan employees, who provide oversight and review; temporary employees; and an outside vendor to provide the bulk of electronic drafting and scanning services.

Completion of the DRP will provide Metropolitan with accurate up-to-date electronic files of drawings which are compatible with existing Intergraph and proposed document management systems. Storing information in electronic files will provide easier accessibility, and avoid on-going deterioration of hard-copy drawings. In addition, the cost of

cataloging, retrieving, copying, storing and general drawing maintenance will be greatly reduced. The estimated cost of Phase Two is \$5,879,000 and the total estimated cost of the program is \$7,150,000. A breakdown of all Program costs is contained in the Financial Statement on Attachment A.

It is also proposed to amend Agreement No. 8297 as anticipated by RFP No. 187 with the CorDax Corporation to provide services for the conversion of Engineering and Operations Divisions' hard-copy record drawings into electronic format, and to provide technical support for establishing electronic drawing files, in an amount not to exceed \$1,250,000, including expenses. The vendor was selected through the Request for Proposal process (RFP No. 187 dated December 1995), from which there were five respondents. The RFP anticipated the services being extended for a term of one year, with the option to renew for a period of 12 months on a year-to-year basis. The CorDax Corporation was selected on the basis of understanding the requirements of the RFP and experience with the type of work requested. The consultant's fee schedule is contained in Attachment B.

<p><b>Contract Type</b>  <input type="checkbox"/> New  <input checked="" type="checkbox"/> Amended</p> <p><b>Contract Form</b>  <input type="checkbox"/> Lease  <input checked="" type="checkbox"/> Professional Services  <input type="checkbox"/> Construction</p>	<p><b>Funding</b>  <input checked="" type="checkbox"/> Capital-Appropriation No. 15268  <input type="checkbox"/> O &amp; M</p> <p><b>Budget Status</b>  <input checked="" type="checkbox"/> FY 96/97 Amount \$1,674,300  <input checked="" type="checkbox"/> Out-Year Amount \$4,517,800  <input type="checkbox"/> Non-Budget Amount</p>	<p><b>Type of Competition</b>  <input checked="" type="checkbox"/> Competitive Bidding                  RFP No. 187  <input type="checkbox"/> Negotiated Contract  <input type="checkbox"/> Sole Source</p> <p>Contract Type  <input type="checkbox"/> Fixed Price  <input type="checkbox"/> Cost Plus  <input checked="" type="checkbox"/> Time and Materials</p>
--	--	--

**PURPOSE/BACKGROUND**

Record drawings are the official, conclusive record of the original construction and subsequent changes and modifications of all Metropolitan's facilities. There are an estimated 200,000 original Engineering record drawings stored on hard-copy format. Whenever it is necessary to view or modify hard-copy drawings not on electronic files, they must be manually retrieved, modified, checked and returned to storage at considerable cost. In addition, appurtenances have been added and removed from Metropolitan facilities that are documented on drawing files at affected sites but are not shown on the original record drawings maintained within Engineering Records. This can result in Engineering staff inadvertently designing new structures or appurtenances that are not compatible with existing facilities at unnecessary additional costs and schedule delays to a project. Also, events such as the Northridge earthquake have demonstrated the importance of having up-to-date record drawings readily available for emergency repairs and plant modifications necessary to stay on-line during critical periods. Accurate record drawings are essential to planning and designing facility modifications, and

providing information to construction crews and plant personnel in locating utilities, and other critical installations and equipment.

Phase Two will consist of scanning 100,000 engineering hard-copy record drawings into electronic media format, and electronically updating 6,200 drawings that have revisions not shown on the original record drawings. The remaining drawings will not be converted to electronic format at this time due to their lesser importance to the functionality of a facility. Phase Two will be completed in late 1999.

## **ALTERNATIVES TO PROPOSED ACTION**

---

The alternative to the proposed action would be to continue manually revising, storing, and maintaining hard-copy drawings not on electronic files and at their current level of accuracy. This procedure will impose higher costs, and risk of exceeding project budgets and schedules than experienced with up-to-date electronic drawing files.

## **ACTION AND MILESTONES**

---

Phase One pilot project for the DRP was complete in late 1996, which converted approximately 20,000 existing original Engineering hard-copy record drawings to electronic format. Phase Two will complete the conversion of 100,000 selected drawings and is scheduled to commence in early 1997 and continue through the year 1999.

## **MBE/WBE**

---

Under the terms of the RFP, Metropolitan did not specify Minority-owned and Women-owned Business Enterprise (MBE/WBE) participation goals due to the specialized nature of the work requested, although the Respondents were encouraged to do business with MBE/WBE firms, however the CorDax Corporation is a certified minority fully-owned firm.

## **CEQA COMPLIANCE/ENVIRONMENTAL DOCUMENTATION**

---

The proposed project is exempt from the California Environmental Quality Act because it does not involve activities effecting environmentally sensitive assets.

**REVISED ATTACHMENT A**  
**TO 8-6**  
**(01/06/97)**

**FINANCIAL STATEMENT**

**(FY 1996/97 Capital Program No. 5-7080-61)**

The total estimated cost breakdown for the initial funding and Authorization No. 1 for Appropriation No. 15268 is as follows:

	<b>Initial Funding</b>	<b>Authorization No. 1</b>
Labor:		
Engineering and Technical Support	\$ 747,000	\$ 3,130,000
Project Management	<u>0</u>	<u>70,000</u>
<b>Labor Subtotal</b>	<b>\$ 747,000</b>	<b>\$ 3,200,000</b>
Incidental Expenses	\$ 15,000	\$ 100,000
Professional/Technical	0	1,250,000
Administrative Overhead	328,000	1,765,000
Contingency	<u>181,000</u>	<u>835,000</u>
<b>Program Total</b>	<b>\$ 1,271,000</b>	<b>\$ <u>7,150,000</u></b>
Projected Expenditure of Funds:		
Through Fiscal Year 1996/97		\$ 1,465,000
Fiscal Year 1997/98		1,725,000
Fiscal Year 1998/99		1,900,000
Fiscal Year 1999/00		1,225,000
Contingency		835,000
<b>Total</b>		<b>\$ <u>7,150,000</u></b>
Source of Funds: Pay-As-You-Go Fund		
Capital Program Estimate For FY 1996/97		<b>\$ <u>7,300,000</u></b>

**Class:** Three--Program is not directly affecting the delivery of water but demonstrates potential of economic savings that over-time will outweigh program costs, through reduced operations and maintenance, engineering, overhead and labor costs, and risk avoidance.

**CorDax Fee Schedule**

**Scanning Fees**

Basic Thresholding	\$ 3.20/Drawing
Advanced Thresholding	10.00/Drawing
Gray Scale Composites	30.00/Drawing
Quality Control	1.75/Drawing

**Personnel Fees**

Project Principal	\$125.00/Hour
Project Management	75.00/Hour
Systems Analyst	85.00/Hour
Scanning Technician	50.00/Hour
Catalog Entry	35.00/Hour