



MWD

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

9-10

August 4, 1997

To: Board of Directors (Engineering and Operations Committee — Information)
 (Budget & Finance Committee — Information)
 (Information Systems Ad Hoc Committee—Information)

From: *for* General Manager Edward J. Meyer III

Submitted by: Lambertus Becker Antoinette Christovale
 Chief Financial Officer *for*

Subject: Information Systems Strategic Plan (ISSP) Assessment Update

RECOMMENDATION(S)

For information only

EXECUTIVE SUMMARY

The Information Systems Strategic Plan (ISSP), developed in 1992, identified 19 key business applications that needed to be reengineered and could be streamlined through the use of a new computing infrastructure and software applications. Between November 1993 and October 1995, a major portion of the applications was implemented using Oracle and PeopleSoft packaged software. An initial benefit assessment of the implementation was prepared in March 1996 and presented to your Board. This report provides an update to that assessment.

Metropolitan was operating with an antiquated, 25-year-old financial system that was cumbersome and inflexible. As Board and management requests for information increased, the need for a more manageable and integrated District-wide information system became more acute.

Implementation of the ISSP is a long-term project with a diverse set of goals. Numerous benefits have been achieved as a result of this program. A new client-server infrastructure was implemented, eliminating dependence on the mainframe system and moving the District closer to year 2000 compliance. Old computer applications were replaced by new ones (Purchasing, Inventory Control, Accounts Payable and Receivable,

General Ledger, Revenue Accounting, Fixed Assets, Human Resources Management and Payroll), permitting more efficient tracking and reporting capabilities. A new chart of accounts was implemented, allowing greater detail in the recording of cost information for management reporting. The Materials Management process was reengineered, resulting in a decentralization of warehouse and data-entry responsibilities and replacement of some inventory items with Just-In-Time vendor contracts. As a result of implementing a new Fixed Assets module, a complete physical inventory of fixed assets was conducted with excellent results.

The primary benefits of the ISSP project are the essentially intangible properties of improved timeliness, quality, consistency and availability of data which enable effective transformation and execution of the District's business processes. As noted above, a majority of those benefits have been realized. There are, however, unrealized benefits in several areas including the Health, Safety, and Environmental (HSE) application; integration of some data systems; elimination of "shadow" Information Systems personnel; and data redundancy. These areas have been made a priority for FY 1997/98 and are reviewed in this report.

Staff has completed an assessment of the value/benefits of this project. These benefits come in the form of both tangible (hard dollar) savings and intangible (soft dollar) savings. The benefits can be further divided into annual savings already attained, and future savings. Summarizing these savings, the value of this project to date for the District ranges from between \$6,849,000 and \$11,522,000 with estimated cumulative savings of between \$27,115,000 and \$35,756,000. In addition, there are between \$15,910,000 and \$28,755,000 of potential future benefits.

The cumulative, accrued value of these benefits to the District is illustrated in Table 1 below. This table shows the accumulation of current savings over time and the potential benefit future projects would have in improving the payback period. Three (3) areas are highlighted that show the payback period under various assumptions.

Table 1 - Summary of Current and Future Benefits (Cumulative)
(\$ in Millions)

Current	To-Date	97/98	98/99	99/00	00/01	01/02	02/03
Min Savings*	6,859	10,235	13,611	16,987	1 20,363	23,739	27,115
Max Savings*	11,522	15,561	19,600	23,639	27,678	31,717	35,756
Future	Savings						
Min Savings**	0	0	3,182	6,364	9,546	12,728	15,910
Max Savings**	0	0	5,751	11,502	17,253	23,004	28,755
Combined	Savings						
Min Savings	6,859	10,235	16,793	2 23,351	29,909	36,467	3 43,025
Max Savings	11,522	15,561	2 25,351	35,141	44,931	54,721	3 64,511

*Year-to-year increases by Subtotal Annual Savings from Table 2

**Year-to-year increases by Future Annual Savings Total from Table 3

Area 1: The shaded area labeled "1" shows the expected Phase 1 payback period occurring under minimum or maximum savings conditions - fiscal year 2000/2001 or 1998/1999 respectively. This payback period would be achieved assuming that no additional work on the Phase 1 project is undertaken by MWD staff. In other words, that the additional phases of the project would not be implemented.

Area 2: The shaded area labeled "2" shows a payback period occurring in fiscal years 1998/1999 or 1999/2000. This payback period is achieved if phase 1 is completely implemented and returning minimum or maximum savings as shown in Table 3 of this report.

Area 3: The shaded area labeled "3" shows expected minimum or maximum savings reached in the tenth year as originally estimated in the authorizing Board letter.

DETAILED REPORT

I. SUMMARY OF MARCH 14, 1996 ASSESSMENT

Metropolitan began the process of updating and enhancing its information systems environment through the implementation of new software and hardware under the Phase One project of the Information Systems Strategic Plan. The goal of the initial implementation of Phase One was to replace the core business applications at Metropolitan utilizing a new technical environment. This consisted of implementing:

- Oracle Financials, including the General Ledger, Accounts Receivable, Revenue Accounting and Fixed Assets modules
- Oracle Materials Management, including the Purchasing, Inventory Control, and Accounts Payable modules
- PeopleSoft Human Resource Management and Payroll modules
- Pyramid hardware, utilizing the Oracle data base.

The initial Phase One system implementation occurred over a two-year period (November 1993 through November 1995). Through November 1995, approximately \$17.7 million of the original \$23 million appropriation were spent. A projected net annual cost savings of \$1,483,000 was achieved through the following activities:

Data Integrity - Data was converted to a single, shared data base which permitted users easier access and more capacity to share data in a timely manner. Data accuracy was significantly improved. Causes for inaccuracies were detected and corrected. Decentralization of data entry permitted information to be captured closer to the point of origin, causing more efficient and timely processing to take place.

Materials Management - Oracle Purchasing, Financials, and Inventory software replaced IBM mainframe systems. The software provided

electronic interfaces to replace paper transactions. Inventory responsibility was decentralized. Just-In-Time delivery was initiated, resulting in a decrease of requisitions and paper transactions. Staff was reduced by eighteen full-time equivalents, investment earnings increased, vendor discounts resulted in increased savings and inventory handling costs were significantly reduced.

Fixed Assets - Asset accounting entries were calculated automatically, eliminating the need for manual entry. Asset responsibility was enacted at the individual level, permitting more accurate tracking of assets.

Payroll/Human Resources - Staff was decreased by five full-time equivalents, while simultaneously gaining increased efficiency in payroll activities and no loss of time in processing benefits to employees.

General Accounting - Staff decreased by three full-time equivalents. Finance core business processes were altered to produce efficiencies in cost transactions, accounting processes, and budget processes. Period closes completed in 20 working days prior to April 1995 were reduced to 7 - 10 days.

Information Systems Infrastructure - New development of applications created easy integration into the Oracle data base, data was more easily accessed by end-users with decreased risk of software disruptions.

II. UPDATE OF BENEFITS OCCURRING SINCE THE MARCH 1996 ASSESSMENT

Since March 1996, continuous improvement has been achieved in all of the functional areas. The demand for information has risen steadily since implementation of the ISSP in 1993. Additional reporting capabilities and reliability of information have permitted both the Board of Directors and District managers to receive timely information while operating with fewer staff members. Staff has become proficient in using the applications, and processes and procedures have been streamlined, resulting in increased efficiency with an overall reduction of District personnel by approximately 186 since 1994. Although the entire reduction is not directly related to ISSP implementation, this automation has been highly instrumental in the District's ability to increase productivity while simultaneously reducing staff. An additional \$1,300,000 has been spent, bringing total expenditures to \$19.0 million. Below are key changes and benefits, by application area, that have occurred since the March 1996 assessment.

Annual Cost Savings

Annual cost savings reported to the Board in March 1996 totaled \$1,483,000. Using an escalation factor of 3.4% (CPI from November 1995 to June 1997), adjusted savings in 1997 dollars are \$1,533,000. This updated cost savings amount, plus additional hard and soft cost savings identified since the March 1996 report, are summarized in Table 2 below:

Table 2 shows a summary of annual cost savings through June 1997. The number to the left of each item references the paragraph, following the table, where each item is discussed.

Table 2. - Summary of Cost Savings (through June 1997)

Savings Area: (All \$'s in 1,000's)	Hard \$ Savings		Soft \$ Savings		Total \$ Savings	
	From	To	From	To	From	To
1996 Savings from March 1996 Report	\$1,483	\$1,483			\$1,483	\$1,483
SUBTOTAL (PRIOR SAVINGS)	\$1,483	\$1,483			\$1,483	\$1,483
ANNUAL SAVINGS:						
1997 Adjusted Savings from March 1996 Report	\$1,533	\$1,533			\$1,533	\$1,533
1.1) Just-In-Time Purchasing	5	25	5	75	10	100
1.2) Operating Equipment Physical Inventory	273	273			273	273
1.3) 10.7 Oracle Upgrade			15	75	15	75
1.4) Salvaged Equipment			90	360	90	360
1.5) Staff Reduction	219	219			219	219
2.1) Ease of Contract Implementation			12	75	12	75
2.2) Increased Functionality			10	50	10	50
2.3) Budget Process Modification	10	50	25	75	35	125
2.4) Variance Reporting			50	100	50	100
2.5) Reports on-line	74	74			74	74
2.6) Staff Reduction	438	438	441	441	879	879
3.1) Oracle Licensing Agreement Negotiation	89	89			89	89
3.2) Upgrades UNIX Computers & Oracle	(26)	(26)			(26)	(26)
3.3) Installation of Additional UNIX Computer	(33)	(33)			(33)	(33)
3.5) Staff Reduction	146	146			146	146
SUBTOTAL ANNUAL SAVINGS	\$2,728	\$2,788	\$648	\$1,251	\$3,376	\$4,039
ONE TIME SAVINGS:						
3.4) Year 2000 Compliance	2,000	6,000			2,000	6,000
TOTAL YEAR TO DATE (CUMULATIVE) SAVINGS	\$6,211	\$10,271	\$648	\$1,251	\$6,859	\$11,522

1. Materials Management and Fixed Assets Management

1.1) Just-In-Time (JIT) Purchasing. Five additional just-in-time contracts were implemented, bringing the current total to 22. Seven more are scheduled for implementation by the end of fiscal year 97/98. JIT contracts have continued to decrease the number of requisitions and paper transactions required throughout the District. Each JIT contract has an estimated savings value of between \$5,000 and \$25,000 and a cost avoidance of between \$5,000 and \$75,000 per year. The amount of the savings and cost avoidance depends upon the volume of purchases and the potential value of the inventory in each contract.

1.2) Operating Equipment Physical Inventory And Cycle Counting Process. In April 1996, an inventory of operating equipment was conducted. A total of 511 unlocated items, with a net book value of \$279,000, was reported. This compares favorably with the prior inventory which resulted in a total of 1,354 unlocated items with a net book value of \$824,000. Tracking of the equipment was made more efficient through the Oracle Fixed Asset system, which will provide increased ability to track and assign responsibility for operating equipment and prevent future unlocated items. Cycle Counting provides for ongoing assessment of inventory without warehouse work stoppage, requiring less intensive labor and time resources. A net annual savings of \$273,000 has resulted from implementing Oracle Fixed Asset System

1.3) 10.7 Oracle Upgrade - The Materials Management Process Team will implement Oracle 10.7 with minimum modifications, which will result in increased efficiencies to the Inventory Control business process. Once this upgrade is completed staff expects between \$15,000 and \$75,000 of cost avoidance per year.

1.4) Salvaged Equipment. Computer security policies and procedures were developed to prohibit the unlicensed distribution of software during the salvage process. Both software and data are now routinely de-installed or removed from the hard drives before disposal of computer equipment. This has sharply decreased Metropolitan's risk of loss of confidential data and intellectual property. The average value of the software licenses per system salvaged is between \$600 and \$1,200. MWD salvages generally range between 150 and 300 systems per year. Therefore the potential loss reduction is between \$90,000 and \$360,000.

1.5) Staff Reduction. Three additional positions have been eliminated, bringing the total to 21 positions, for a savings of \$219,000.

2. General Accounting/Human Resources and Payroll

Some of the primary benefits associated with Oracle Financials and PeopleSoft are direct access to data, timely information and increased functionality. Since March 1996, the month-end closing process has been further reduced from 10 working days to 5 to 7 days. Users are now able to directly access reports with drill down capabilities rather than submitting requests through Finance. This allows users to perform their own analyses and permits Finance to provide management with better and more timely financial information. Payroll and Human Resources reports are updated nightly and distributed over the District's wide area network. Prior to implementation there was a two-week delay. Getting this information in a more timely manner is critical to proactive decision making. Raw data in PeopleSoft is utilized on a daily basis to respond to a wide

variety of ad hoc report requests and feed other systems which depend on current Human Resources data. This improves accuracy and eliminates a great deal of data redundancy which existed in the legacy environment.

2.1) Ease Of Contract Implementation - As a result of implementing PeopleSoft, the 1996 AFSCME and MAPA MOUs were implemented more effectively than in the legacy environment. The ease of contract implementation using PeopleSoft has been improved by a factor of 100-150%. The average cost of implementing a labor contract under the old system ranged from between \$25,000 and \$100,000. On average, MWD executes 1.5 labor agreements per year. Cost avoidance in contract implementation ranges from \$12,000 to \$75,000 per year.

2.2) Increased Functionality - The legacy payroll system maintained no Human Resources data beyond what was essential to support the payroll function. PeopleSoft maintains comprehensive data on employee job, position and benefits history. It also contains additional integrated functionality such as a Training Administration which has recently been implemented corporate-wide. Staff estimates the value of having this additional data for automated reporting in the system at between \$10,000 and \$50,000 per year.

2.3) Budget Process Modification. The FY 1997/98 Budget process was considerably enhanced through the use of data obtained through Oracle in a timely manner, enabling managers to view up-to-date expenditures, from which budgets were calculated and activities analyzed. The value added by this enhanced capability is estimated at between \$25,000 and \$75,000 per year. In addition, the new process saves staff time and overtime during the budget development process worth between \$10,000 and \$50,000 per year.

2.4) Variance Reporting. Using the Oracle platform, a system of variance reporting was developed, highlighting budget versus cost data and requiring explanations for variances. Information is now provided to managers within 10 working days after the financial period close. This process helps to identify and correct significant variances earlier in the fiscal year. The added value of this capability is estimated to be between \$50,000 and \$100,000 per year net.

2.5) On-Line Reports. Standardizing the financial reports and implementing them on-line has reduced the number of computer reports that were previously generated under the old system. This has resulted in an annual net savings of \$74,000.

2.6) Staff Reduction. Six additional positions have been eliminated, bringing the total to eleven positions, for a savings of \$438,000. It should be noted that as the District's focus on cost containment has increased, the amount of time dedicated to cost analysis has increased substantially. As a result of the new tools available through Oracle Financials, existing staff

have absorbed this workload which otherwise might have required the addition of up to seven FTE's, which represents a cost avoidance of \$441,000.

3. Information System Infrastructure

3.1) Oracle Licensing Agreement Negotiation. The Oracle License and Maintenance Agreement was renegotiated in April of 1997. The new agreement brings our current number of licenses into compliance and locks in the maintenance and support price until May 2001. This results in a net annual cost savings of \$89,000.

3.2) Upgrades UNIX Computers And Oracle Database Management System. Capacity of the UNIX computers was increased to accommodate the processing of raw data available to District users. The Oracle data base system has been upgraded, enabling the District to conform with application systems and vendor supported release levels. New releases of the Oracle application and data base management systems will provide additional functionality and ensure conformance with new regulations and industry standards as they become effective. The net annual cost assessed for these upgrades is \$26,000.

3.3) Installation Of Additional UNIX Computer To Support PMIS (Project Management Information Systems) And SOMMS (System Operation Maintenance Management System). The Engineering Division developed and implemented a PMIS application system using Oracle's CASE (Computer-Assisted Software Engineering) tools and database management system. The Operations Division is in the process of implementing Maximo's SOMMS (System Operations Maintenance Management System) application system which will be integrated with the Oracle data base environment. An additional Pyramid UNIX computer was installed to support these new application systems and their future growth. The net annual cost assessed for these upgrades is \$33,000.

3.4) Year 2000 Compliance. PeopleSoft modules, timekeeping, training and payroll are all currently year 2000 compliant. Oracle version 10.7, which will be upgraded during FY 1997/98, is year 2000 compliant. Contracting with Oracle to develop and provide the upgrade places responsibility on the vendor to assure compliance. It is estimated that the District will achieve compliance for the Financial Systems two years ahead of schedule. Converting to Windows NT hardware further ensures year 2000 compliance, as the standardized hardware selected specifies year 2000 compliance. Industry estimates list the cost of updating a legacy system for year 2000 compliance in an organization the size of Metropolitan to run between \$1,000,000 and \$3,000,000 per major

business system. Therefore the cost avoidance value of Phase 1 implementation of PeopleSoft and Oracle is between \$2,000,000 and \$6,000,000.

3.5) Staff Reduction. Two positions have been eliminated for a savings of \$146,000.

Future Outlook

Additional savings are anticipated with the implementation of several planned system enhancements. The estimated future savings and benefits are summarized in Table 3.

Table 3 - Future Annual Savings

Savings Area: (All \$'s in 1,000's)	Hard \$ Savings		Soft \$ Savings		Total \$ Savings	
	From	To	From	To	From	To
1) Benefits Administration	\$713	\$713			\$713	\$713
2) Improved Recruiting Process	248	248			248	248
3) Legacy Electronic Timekeeping System			50	200	50	200
4) Elimination of Mainframe	300	300			300	300
5) Health, Safety & Environmental Sys	696	696			696	696
6) Oracle Upgrades	150	500			150	500
7) Package Integration			25	100	25	100
8) Shadow IS Organizations			1,000	3,000	1,000	3,000
TOTALS	\$2,107	\$2,457	\$1,075	\$3,300	\$3,182	\$5,757

Within PeopleSoft is a reservoir of largely untapped functional areas. As time, resources and priorities permit, these functions are being made available throughout the District. Recent examples include enhanced Training Administration capability and Grievance Tracking.

Since the implementation of Payroll in November of 1995, PeopleSoft has been through two major software upgrades and the third is currently underway in order to prepare for the implementation of the Time & Labor module which will replace the mainframe timekeeping system.

Metropolitan will continue to fine-tune business policies, roles and procedures to take full advantage of the new products. These refinements will result in additional benefits. There are however, nine benefit areas cited which remain as yet unrealized from this project. The areas are as follows:

- 1) Implementing the Benefits Administration function to manage open enrollment and event maintenance for all employees, and to track key data on benefit plans. Anticipated annual cost savings upon implementation will be \$713,500.

2) Improving the recruiting process, including the identification of qualifications and skills, the specification of job requirements, the creation of recruitment checklists and the development of fixed interview schedules. Anticipated annual cost savings upon implementation will be \$248,000.

3) Replacing the legacy Electronic Timekeeping System (ETS) with the PeopleSoft Time & Labor module, which will yield superior business functionality while allowing the District to divest itself of an outmoded and expensive computing platform. The estimated cost avoidance in this area is \$50,000 to \$200,000 per year.

4) Elimination of Mainframe - The IBM mainframe is still being used for two mission critical applications in the District. These applications are Time and Attendance Reporting and Electronic Mail/Calendar. A replacement client-server based mail/calendar system was activated in March 1997. Migration to that system should be complete by September 1, 1997. The client/server PeopleSoft Time and Labor module that will replace the mainframe system is scheduled to go on-line between November 1997 and January 1998. With the implementation of these last two systems, this benefit will be realized representing an annual savings in hardware and software costs of \$300,000.

5) Health, Safety and Environmental (HSE) applications identified in the ISSP have also not been implemented. A comprehensive review of HSE systems by staff has been underway since 1996. Anticipated annual savings of approximately \$696,000 should result from implementation.

6) With the Oracle 10.7 upgrade scheduled for completion in July 1998, staff estimates a cost avoidance savings of between \$500,000 and \$600,000 per year. This savings is the result of implementing this upgrade without most of the customizations contained in the current version of Oracle. We expect Oracle upgrades to occur about every two years at a cycle cost of between \$200,000 and \$700,000.

7) Package integration was listed as a major benefit of this project. To date, the integration of our systems has dramatically improved, but there is still need for improvement. For example, the Oracle modules were heavily customized to meet MWD business practices as they existed in 1995. This high degree of customization has resulted in some integration problems and has caused some difficulty in keeping up with current vendor software releases. The Oracle upgrade project approved by the Board in June 1997 is designed to address this issue. The potential cost avoidance through better package integration ranges from \$25,000 to \$100,000 per year.

8) Another goal of this project was to "bring the so-called 'shadow' Information Systems personnel out of the background and fully integrate

such staff in the District's new distributed information systems environment." This integration of Information Systems personnel has not been accomplished to the degree desired. Staff has identified this as a priority for FY 1997/98 and is developing a project plan to address this issue, which is linked to efforts to develop a new Information Systems Strategic Plan. Elimination of duplication of effort in this area could result in a savings of \$1,000,000 to \$3,000,000.

9) Strong partnerships between the Information Systems staff and other District divisions was another goal of this project. The reorganization of the IS Division was the first step in rebuilding these partnerships. Other steps are planned as we move forward with development of a new Information Systems Strategic Plan. Savings in this area are combined in #8 above.

The unrealized benefits and future opportunities listed above are being addressed through the development of the new Information Systems Strategic Plan and additional project plans that will be submitted to your Board.

The ISSP has had a synergistic effect on many other projects, such as SOMMS, the Executive Reporting System and PMIS, which provide additive cost savings as well as cost avoidance. Tracking total cost benefits related to ISSP becomes more difficult as other systems, which enhance the Oracle/PeopleSoft core, are developed and executed. Implementation of the new version of Oracle software, the continual enhancement of District business practices and the improvement of skill levels of Metropolitan staff will produce further efficiencies and create additional cost avoidance in the future.