



- Information Technology Strategic Plan (ITSP) - Quarterly Report for the period ending March 2009

### Summary

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This report provides a quarterly update of the Information Technology Strategic Plan (ITSP) and information technology (IT) activities in general for the period ending March 31, 2009. There were a number of important milestones achieved during the period that are summarized in this report. Key milestones for the upcoming quarter ending June 30, 2009 include implementing the Learning Management and Employee Relations Modules as part of the PeopleSoft HR system; completing the audio and video upgrades for the board committee room US2-456; commencing to produce invoices from the upgraded Water Billing System; and completing the data gathering phase as part of updating the IT Strategic Plan.

The ITSP provides a roadmap to guide the investment and deployment of information technology at Metropolitan over the next three to five years. The plan is currently being updated in light of changing business needs and technologies. The goal of the plan is to leverage information technology investments to increase long-term reliability, while improving Metropolitan's overall efficiency and effectiveness. Oversight of IT investments is provided by the IT Guidance Committee consisting of senior management and the Capital Investment Plan (CIP) Evaluation Team as part of the annual CIP planning process.

### Attachments

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**Attachment 1** provides a summary of Board actions and the appropriations for the ITSP programs through March, 2009.

**Attachment 2** provides a summary of the appropriations and expenditures through March 31, 2009.

**Attachment 3** provides a summary list of IT capital projects and their status.

### Detailed Report

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Below are highlights of progress and major milestones reached for IT projects / initiatives during the period of January 1<sup>st</sup> through March 31, 2009. The projects are categorized by business driver as follows:



#### IT STRATEGIC PLAN


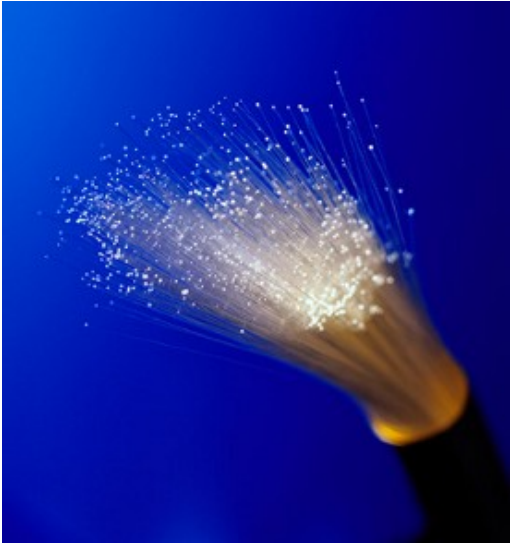
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**Enhanced Reliability** – Enhance system reliability

**Improved Water Quality** – Ensure water quality excellence

**Enhanced Cyber Security** – Effectively manage and safeguard assets

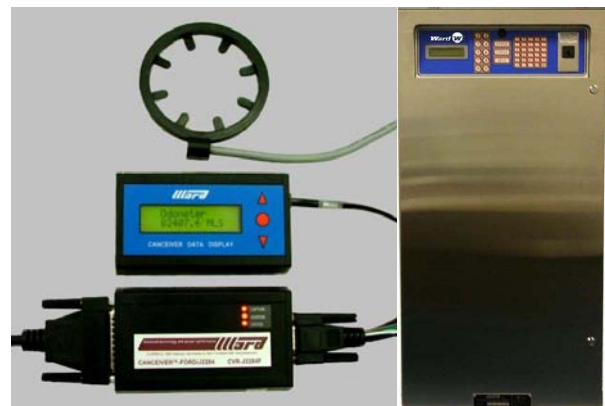
**Productivity / Cost Efficiency** – Improve process efficiency and effectiveness

<p><b>Productivity / Cost Efficiency:</b></p>	<p><b>Fiscal Year 2008-09 to date</b>  <b>Budget: \$ 1.87 M      Expended: \$ 1.78 M</b></p>
<p><b>Key accomplishments included:</b></p> <p><b>Continued Deployment of Servers for Phase One of the IT Infrastructure Upgrade</b></p> <ul style="list-style-type: none"> <li>■ Phase One of the IT Infrastructure Upgrade will improve reliability and is estimated to avoid \$2.6 million future capital expenditures over five years by implementing special “virtualization” software that allows one physical server to be partitioned to act as many separate “virtual servers.” This will enable Metropolitan to significantly reduce the forecasted number of physical servers to be purchased over the next five years.</li> <li>■ During the period, staff continued to partition physical servers to create virtual servers. To date, 27 virtual servers were created translating to a cost avoidance of approximately \$405,000. The cost avoidance associated with this project helps Metropolitan reduce future server expenditures as the “virtual servers” will replace physical servers, once the physical servers reach end-of-life.</li> </ul> <p><b>Continued IT Network Upgrade Phase II for the Wide-Area-Network (WAN)</b></p> <ul style="list-style-type: none"> <li>■ The scope of the IT Network Phase II project is to upgrade Metropolitan's wide area network (WAN) to strengthen its overall reliability by eliminating potential single points of failure, improving electrical grounding of communication sites, and increasing capacity to handle growth in traffic. This project consists of (4) sub-projects:                     <ul style="list-style-type: none"> <li>■ <b>Fiber-Optic and cabling upgrade:</b> This sub-project focuses on improving network reliability in the desert region. Installation and testing of the new fiber at Eagle, Iron Mountain, and Gene Camp is complete. The remaining activity is to connect the new fiber to the users via the installation of new network switches, which is targeted to be completed in the fourth quarter of fiscal year 2008/09.</li> </ul> </li> </ul>	 

- **WAN Microwave Upgrade:** This sub-project is geared to provide alternate communication paths to/from selected Metropolitan sites to improve reliability by eliminating potential single points of failure. The major procurements associated with this sub-project are currently underway.
- **Communication Facility (Grounding / Battery) Upgrade:** This sub-project will increase communication reliability by replacing battery back-up equipment and upgrading the grounding systems at key communication sites. These upgrades will ensure Metropolitan’s WAN continues to function in the event of power loss, and will protect equipment from lightning damage and other power disruptions. To date, all battery upgrades have been completed. Grounding assessments on the planned 15 sites have also been completed.
- **WAN Monitoring System (Network Monitoring Tools):** This sub-project deploys a tool that allows staff to remotely monitor and troubleshoot problems on the WAN. This capability will enable increased level of network reliability and minimize staff travel time to remote hilltop and desert locations where these devices are located. The monitoring system has been received and successfully tested at Union Station and the Weymouth plant. System-wide rollout is underway and is in partial operation. Full deployment is expected to be completed by the end of June.

**Addressed Technical/Installation Issues for the Fuel Management System**

- The Fuel Management System will allow Metropolitan to more effectively and efficiently manage fuel inventory. Metropolitan currently tracks fuel usage and fuel inventory information manually. The Fuel Management System will automate the capture of fueling data by eliminating the manual entry of fuel tickets, tracking of fuel usage, and inventory records, resulting in an estimated productivity savings of approximately \$180,000 annually with a payback period of approximately six years, once the system is fully implemented.



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- During the period, staff temporarily halted installation of the new fuel management system, as a result of recently identified technical issues. While the issue has been remedied, this has resulted in an approximate three month delay to the installation schedule, but did not impact the overall project budget. The revised target completion for installation of the Fuel Management System is June/July 2009.

**Completed Preparation for IT Strategic Plan Update**

- Metropolitan’s Information Technology Section initiated work to update its IT Strategic Plan (ITSP). The current plan was prepared in 2002. The ITSP provides the framework to guide the investment and deployment of information technology at Metropolitan, and requires updating periodically in light of changing business needs and technology.
- During the period, the project team was assembled to update the IT Strategic Plan (ITSP), which included selecting a consultant through a competitive process. In addition, a Steering Committee was established to oversee the ITSP update process. The Steering Committee is comprised of senior management and representatives from across Metropolitan’s various business units. The ITSP update is to be completed by September 2009.




**Other key accomplishments during the period:**

- On February 27, staff conducted an IT Forum with Member Agency IT Managers. Objectives of the forum included exploring opportunities to lower IT costs, sharing knowledge / resources and to communicate experiences on major / innovative initiatives.

Expenditures in the Productivity/Cost Efficiency category were lower than forecasted for the third quarter of fiscal year 2008/09. The fiscal year variance between budgeted and expended dollars is primarily due to significantly lower costs for upgrading Metropolitan’s video conferencing capabilities. Staff evaluated different alternatives and identified a design that resulted in much lower material and labor costs than originally estimated.



<b>IT FORUM</b> Metropolitan Water District of Southern California February 27, 2009 (FRIDAY)	
<b>To:</b>	Metropolitan Water District of Southern California (MWD) Member Agency CIOs / IT Directors
<b>From:</b>	David C. Edwards, CIO Metropolitan Water District of Southern California
<b>When:</b>	February 27, 2009 (Friday) 9:00am – Noon Continental Breakfast served at 8:30 am and Lunch following
<b>Where:</b>	The Metropolitan Water District of Southern California 700 N. Alameda Street Los Angeles, California 90012 US 1-102 (first floor lobby area – Check in with Security)  MWD Headquarters building is adjacent to Union Station  Free Parking is available in MWD underground garage (use entrance located at rear of building)  Contact at MWD – Stela Mangan (213) 217-6708
<b>Objective:</b>	To explore opportunities to lower IT costs, share knowledge / resources and communicate experiences on major / innovative initiatives

<p style="text-align: center;"><b>Enhanced Reliability:</b></p>	<p style="text-align: center;"><b>Fiscal Year 2008-09 to date</b>  <b>Budget: \$ 10.20 M    Expended: \$ 7.64 M</b></p>
<p><b>Key accomplishments included:</b></p> <p><b>Demonstrated new technology as part of the Union Station Headquarters Technology Upgrade Project</b></p> <ul style="list-style-type: none"> <li>■ The Union Station Headquarters Technology Upgrade project will upgrade audio, video and information technology-related equipment in the main Board room and committee rooms in Metropolitan’s headquarters building at Union Station.</li> <li>■ During the period, a mockup of the new Director stations in the Board room was installed and reviewed by management, and a demo of the new web streaming system was presented to the E&amp;CP Committee in March.</li> <li>■ Milestones in the fourth quarter of fiscal year 2008/09 include the completion of committee room audio/video upgrades in rooms 2-456 and 2-145, and public rollout of the new web streaming system for Board and committee meetings.</li> </ul> <p><b>Completed Parallel Testing for the Water Billing System Upgrade</b></p> <ul style="list-style-type: none"> <li>■ Metropolitan is upgrading its water billing system which is approximately 12 years old. The existing Water Information System (WINS) has become labor intensive to administer and very complex, as the original system was design to handle the previous bundled rate structure.</li> <li>■ This project will upgrade the WINS system and ensure timely, accurate, and auditable invoicing and accounting of all billing system transactions. The WINS system processes, stores and reports water transactions, incentive payments, customer usage, revenue data, and storage account balances to produce invoices for member agencies and to compute incentive payments for the Local Resources Program and Conservation Credits Program.</li> <li>■ During the period, staff successfully concluded three months of parallel testing for the Water Billing System Upgrade project. As part of the parallel test, results from the current and upgraded systems were compared to ensure billing accuracy and acceptable system performance. Staff is proceeding with the deployment phase, and final preparations are currently underway to create</li> </ul>	  

invoices using the new water billing system beginning April 2009.



- A subsequent deployment (Phase II) will provide member agencies with the ability to enter certifications on-line over the internet. Phase II is slated to be completed by the first quarter of fiscal year 2009/10.

**Completed Installation Phase as part of the Automatic Meter Reading (AMR) Upgrade Project**

- This project involves upgrading the AMR system at meter sites that support Metropolitan’s billing and monitoring of water delivery through service connections to member agencies. The current AMR system is based on outdated technology that is no longer supported by the telecommunications industry and must be replaced to continue functioning properly. There are approximately 480 water meters located throughout Metropolitan’s distribution system. Prior to the current main deployment phase, a comprehensive pilot phase was conducted to ensure a successful deployment.
- The AMR remote terminal units (RTUs) are small industrial computers installed at the meter sites which are used to calculate and transmit water meter readings. During this period, staff completed the installation phase for the upgrade project. This important milestone culminated extensive planning and execution between Water Systems Operations and Information Technology staff, involving installation at approximately 480 meter sites. Remaining tasks include completing a punch-list of wrap-up items.
- The AMR system is the primary source of data for providing information on the amount of water delivered to member agencies. The new system will provide near “real-time” data, vs. the current once-per-day data retrieval, increased security, reliability and improved communications.

Expenditures in the Enhanced Reliability category were lower than projected for the third quarter of fiscal year 2008/09. A variance in this category is expected to remain as projects were deferred to focus available resources on the highest priority efforts. The deferred projects include Preliminary Design of the Diamond Valley Lake Control System Upgrade/Replacement, Electronic System Register, Water Planning Application, Water Treatment Process Optimization, and CAD Drawing Management System.



<p><b>Enhanced Cyber Security:</b></p>	<p><b>Fiscal Year 2008-09 to date</b>  <b>Budget: \$ 0.68 M      Expended: \$ 0.42 M</b></p>
<p><b>Key accomplishments included:</b></p> <p><b>Continued Phase II of the Information Security Remediation Initiative</b></p> <ul style="list-style-type: none"> <li>■ Staff continued efforts to enhance and upgrade Metropolitan’s IT security infrastructure as part of Phase II of the Information Security Remediation initiative. In this project, proactive measures were implemented to better secure Metropolitan’s network environment against emerging cyber threats.</li> <li>■ To date, staff has completed five components including:                     <ul style="list-style-type: none"> <li>■ Physical migration of six SCADA-related applications to a separate secure network.</li> <li>■ Deployment of Metropolitan’s wireless network and associated security infrastructure.</li> <li>■ Deployment of a Security Information Management system to provide a dashboard summarizing security monitoring data, and highlighting any suspicious activity.</li> <li>■ Deployment of a security vulnerability assessment tool.</li> <li>■ Deployment of a Wireless Local-Area-Network (LAN) security analyzer</li> </ul> </li> <li>■ The remaining initiatives involve installing a new monitoring and scanning security system for Metropolitan’s database environments; evaluating/implementing encryption as appropriate for data on laptops and for e-mail; implementing additional security protection for key servers; and other measures to strengthen Metropolitan’s cyber security.</li> <li>■ During the period, staff completed deployment of a wireless Local-Area-Network (LAN) security analyzer. The analyzer is used to monitor, troubleshoot and detect unauthorized wireless access points on the network.</li> <li>■ Staff continued implementing a new database security system. Once fully implemented, the system will provide vulnerability assessments and real-time network traffic monitoring for critical databases.</li> </ul>	  

**Other key accomplishments during the period:**

- In March, staff attended the 2009 Industrial Control Systems Joint Working Group Inaugural Symposium held by the United States Department of Homeland Security. The Working Group meeting provided a forum for communicating and partnering across all critical infrastructure sectors regarding best practices for securing industrial control systems (e.g. SCADA).
- As part of the on-going security awareness effort, staff published monthly cyber security tips on Metropolitan’s internal website. The security tips for the period include:
  - Defending Cell Phones and PDAs Against Attack
  - Safeguarding Your Data
  - Secure Your Home Vista PC in 10 Easy Steps
- In addition, staff continued to provide IT security orientation for all Metropolitan new hires.

Expenditures in the Enhanced Cyber Security category are under budget for the third quarter of fiscal year 2008/09. The forecast for this category is expected to be on target for the fiscal year.



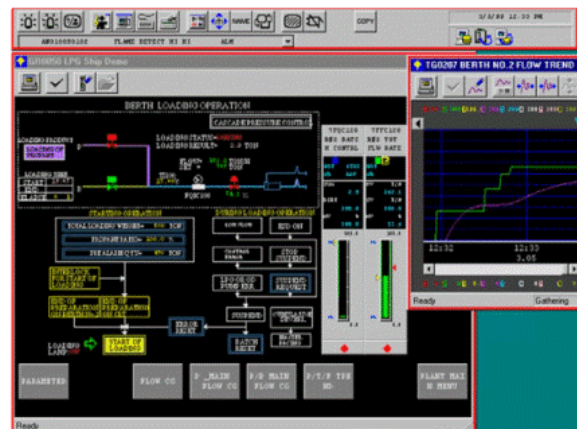
**Improved Water Quality:**

**Fiscal Year 2008-09 to date  
Budget: \$ 0.01 M      Expended: \$ 0.04 M**

**Key accomplishments included:**

**Completed Programming for the Plant Inlet Flow Metering Upgrade Project**

- The purpose of the Plant Inlet Flow Metering Upgrade project is to ensure WSO operators and the SCADA system receive accurate inlet flow readings. Accurate inlet flow readings are critical for determining proper chemical feed dosages. This project involves modifying SCADA Automated Process Control (APC) programs to calculate plant inlet flow using multiple methods to help ensure the inlet flow figures provided to the WSO treatment plant operators are correct, even when one of the meters is not providing accurate readings.
- As of March, the Plant Inlet Flow Metering Upgrade Project is substantially complete. IT staff is working with WSO on remaining tasks and the project is expected to be completed by June 2009.





**Skinner Oxidation Retrofit Program**

- During the period, IT staff continued support of the construction effort at the Skinner plant by responding to technical questions and requests for information; and ensured compliance with Metropolitan specifications related to the design, programming, and installation of hardware and software to control the ozone treatment process at the Skinner facility.

Overall, expenditures in the Improved Water Quality category were higher than planned for the third quarter of fiscal year 2008/09. A variance is expected to remain for the fiscal year based on progress and projected expenditures for the Plant Inlet Flow Metering project.



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**Attachment 1**

**Summary of Board Actions:**

The following table provides a sequential listing of ITSP Board appropriations through December 31, 2008:

Board Action Date	Appropriation No.	Description	Amount Appropriated
September-01	15376	Telecommunication Infrastructure Program	\$ 1,334,000
November-01	15378	IT Security Related Improvements	\$ 879,000
September-02	15378	Peoplesoft Upgrade	\$ 472,000
October-02	15397	Control System Enhancement Program (CSEP)	\$ 11,000,000
February-03	15406	Laboratory Information Management System (LIMS)	\$ 1,175,000
May-03	15408	Maintenance Management System (MMS) Upgrade	\$ 605,000
July-03	15411	Oracle E-Business Suite & Grants Management	\$ 4,038,230
September-03	15376	Enterprise GIS Project	\$ 4,377,000
October-03	15411	Peoplesoft Self Service Modules	\$ 1,850,000
April-04	15376	IT Infrastructure Program	\$ 5,603,000
July-04	15378	IT Security Program	\$ 925,000
February-06	15376	IT Network Upgrade - Phase I	\$ 3,340,000
February-06	15397	Energy Management System (EMS) - Phase II	\$ 963,000
March-06	15397	Programmable Logic Controller (PLC) - Phase II	\$ 1,160,000
July-06	15411	Water Billing System Upgrade	\$ 3,480,000
July-06	15376	Two Way Radio - Phase I	\$ 557,000
October-06	15411	Integrated Budget Management System	\$ 4,440,000
October-06	15378	IT Security Remediation Initiative	\$ 2,160,000
November-06	15376	IT Network Upgrade - Phase II	\$ 3,950,000
March-07	15411	Human Resources Improvement - Phase II	\$ 2,500,000
March-07	15376	Union Station Headquarters Technology Upgrade	\$ 1,910,000
April-07	15397	Phase II of the Automatic Meter Reading Upgrade Project	\$ 4,410,000
June-07	15411	Transportation Management System	\$ 846,000
June-07	15376	Phase One of the Information Technology Infrastructure Upgrade	\$ 1,590,000
August-07	15411	Inventory Bar-Coding System	\$ 1,235,000
September-07	15376	IT Disaster Recovery Facility Upgrades	\$ 1,010,000
February-08	15376	Communication Infrastructure Reliability Upgrade	\$ 10,200,000
			<b>\$ 76,009,230</b>

**Details of Board Items during this period:**

- On March 9, 2008, staff provided quarterly updates on the Information Technology Strategic Plan (ITSP), and information technology (IT) activities in general, for the period ending December 31, 2008.

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**Attachment 2**

**Summary of Board Actions:**

The following table provides a summary of ITSP Board appropriations and expenditures through March 31, 2009:

<b>Appropriation No.</b>	<b>Program Description</b>	<b>Total Amount Appropriated</b>	<b>Expenditures (Through March 31, 2009)</b>
15397	Control System Enhancement Program (CSEP)	\$ 17,533,000	\$ 14,263,533
15406	Laboratory Information Management System (LIMS) Program	\$ 1,175,000	\$ 1,013,956
15408	Maintenance Management System (MMS) Upgrade Program	\$ 605,000	\$ 493,798
15411	Business, Finance & Human Resource (BF&HR) Program	\$ 18,389,230	\$ 15,256,834
15376	Information Technology Infrastructure Program	\$ 33,871,000	\$ 19,070,752
15378	Information Technology Security Program	\$ 4,436,000	\$ 3,543,148
		<b>\$ 76,009,230</b>	<b>\$ 53,642,020</b>

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**Attachment 3**

**Summary list of IT capital projects:**

<b>Enhanced Reliability</b>	
Control System Data Storage and Reporting	Completed
Email System Upgrade	Completed
Energy Management System (Phase I)	Completed
IT Business Systems / Data Recovery	Completed
Maintenance Management System Software Version Upgrade	Completed
Peoplesoft Software Version Upgrade (from 7.5 to 8.3)	Completed
Peoplesoft Software Version Upgrade (v8.9) as part of HMRS Phase II	Completed
Programmable Logic Controller Standardization (Phase 1)	Completed
Telecommunication Infrastructure Upgrade Program	Completed
Phonemail Replacement	Completed
Field Emergency Generator Upgrade	Completed
IT Network Upgrade (Phase I)	Completed
Energy Management System (Phase II)	Completed
Programmable Logic Controller - Lifecycle Replacement (Phase II)	Completed
Two Way Radio Upgrade (Phase I)	Completed
Control System Enhancement Program Implementation	In Progress
Automatic Meter Reading / Remote Terminal Unit Upgrade	In Progress
Control Systems Communications Upgrade	In Progress
Employee Relations Module and Learning Management Module Implementation	In Progress
Inventory Bar-Coding System	In Progress
IT Disaster Recovery Facility Upgrades	In Progress
IT Network Upgrade (Phase II)	In Progress
SMART Operations - formerly Real Time Operating System (RTOS)	In Progress
Communication Infrastructure Reliability Upgrade	In Progress
Union Station Headquarters Technology Upgrade	In Progress
Water Billing System Upgrade	In Progress
Colorado River Aqueduct (CRA) Control Integration	On Hold (*1)
Enhanced Distribution System Control	On Hold (*1)
<b>Improved Water Quality</b>	
Laboratory Information Management System Upgrade	Completed
Oxidation Demonstration Plant (ODP) Control System Replacement	Completed
Plant Influent Flow Metering Upgrade	In Progress
<b>Enhanced Cyber Security</b>	
Information Security Administration Software	Completed
Information Security Assessment/Remediation (Phase I)	Completed
IT Security Monitoring Improvement	Completed
SCADA Operator Authentication	Completed
SCADA Security Improvements	Completed
Information Security Assessment/Remediation (Phase II)	In Progress
<b>Productivity / Cost Efficiency</b>	
E-Business Suite	Completed
Enterprise Geographic Information System (Phase I)	Completed
Human Resources (Peoplesoft) Improvement Plan (Phase I)	Completed
Project Accounting and Grants Management	Completed
Transportation Management System	In Progress
Fuel Management System	In Progress
Integrated Budgeting Management System	In Progress
IT Infrastructure Upgrade (Phase I)	In Progress
IT Testing Tools	In Progress
Mobile Technology and Materials Interface	In Progress

**Footnote\***The Enhanced Distribution System Control and Colorado River Aqueduct (CRA) Control Integration projects are on-hold pending completion of predecessor projects.