THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

# Report

Business Technology Group

- **Information Technology Strategic Plan (ITSP) – Quarterly Report for the period ending June 2011**

## Summary

This report provides a quarterly update on progress to implement Metropolitan's Information Technology Strategic Plan (ITSP) and on information technology (IT) activities in general for the period ending June 30, 2011. There were a number of important milestones achieved during the period that are summarized in this report. Key milestones for the upcoming quarter ending September 30, 2011 include completing requirements and system definition for the new Lease Management System; completing software upgrade rollout of service pack 2 for Windows Vista operating system and conducting final user acceptance for the Water Quality Monitoring and Rapid Event Detection System.

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 was recently updated based on 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.

## Detailed Report

Attached are highlights of progress and major milestones reached on IT projects / initiatives during the period of April 1 through June 30, 2011. The projects are categorized by business driver as follows:

**IT STRATEGIC PLAN**

**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

Date of Report: 10/11/2011

| Enhanced Reliability: | Through 4th Quarter<br>FY Budget: $6.81 M FY Expended: $2.28 M |
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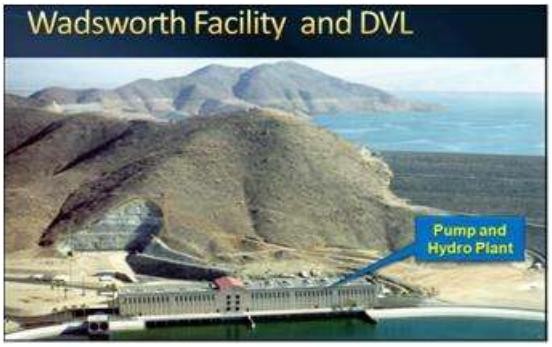
## Key Accomplishments Included:

**Completed Initial Investigation Phase for the Wadsworth Pumping Plant Controls Upgrade**

- During the period, staff completed the initial investigation phase of control and protection upgrades for the Hiram W. Wadsworth Pumping Plant. As a part of this effort, staff also began the RFQ/RFP processes to solicit qualified firms to assist Metropolitan with this project. Upon completion of the RFQ/RFP processes, staff will return to the Board for authorization to proceed.




**Completed Preliminary Design Report for the Uninterruptible Power Supply (UPS) Upgrade**

- In April, a preliminary design report to replace the uninterruptable power supply for the data center at Metropolitan's Headquarters at Union Station was completed. The upgrade project will replace existing 12-year-old data center UPS that have reached the end of its service life. The purpose of the UPS is to prevent fluctuations in electrical power and to serve as a backup power supply in the event of loss of utility power.

**Enhanced Reliability by Conducting Regular IT Disaster Recovery (DR) Exercises**

- Information Technology DR exercises were conducted in April and May as part of on-going efforts to refine Metropolitan's ability to recover critical IT systems in the event of a disaster. The April exercise involved the activation of the IT Incident Command Post and included IT Emergency Management Team members who provide critical support in the event of a major incident. The May exercise executed recovery strategies for Metropolitan's financial systems. Both DR exercises were successfully completed and met all recovery objectives.

**Other Key Activities and Accomplishments**

- Continued the requirements definition phase for the **Environmental and Safety Management Information System.** This project will replace Metropolitan's existing multiple environmental and safety systems consisting of stand-alone databases, spreadsheets and 14-year-old applications (Incident Reporting System and

Permits System). Vendor selection and negotiations will be completed, followed by Board action in October.

- During the period, IT staff continued with an **Oracle Financials version upgrade** (11.5.9 to 11.5.10.2) to help ensure continued reliability by allowing Metropolitan to receive on-going extended maintenance support from Oracle. This upgrade is also better positions Metropolitan for future migration to version 12 of the Oracle financial applications.

- The Property Management Unit within the Real Property Development and Management Group maintains property interest in approximately 8,000 parcels covering over 170,000 acres. Staff currently manages Metropolitan's real property activities such as property leases, licenses, entry permits and easements using in-house developed software comprised of modules that range in age from 10 to 17 years-old. A new system is needed as the existing system no longer meets all of Metropolitan's business needs and newer commercial off-the-shelf software is now available that will provide a more cost-effective solution than modifying/enhancing the outdated existing system.

- In June, IT staff working closely with key stakeholders completed the review of RFP responses for implementing a new **Lease Management System** to replace existing software. The effort to implement a new Lease Management System is expected to begin in the second quarter of fiscal year 2011-12.

- **Two-Way Radio Upgrade Project** – Metropolitan's existing Two-Way Radio communication system was initially designed and installed 18 years ago. The original system was originally designed with local communication needs in mind utilizing limited radio frequencies that do not provide regional communication coverage. This current limitation restricts communications of daily operational needs by Water System Operations field staff working across a wide regional area such as the treatment plants, Colorado River Aqueduct pumping plants, conveyance and distribution system facilities. In addition to using the two-way radio system for daily operational needs, it is an important element

of Metropolitan's communication strategy for the emergency response plan.

- During the period, IT staff continued to work with the Legal Department in the preparatory process related to the acquisition of regional clear channel radio-frequencies. The new frequencies are needed to expand Two-Way Radio coverage as part of the Two-Way Radio System Upgrade project.
- **Electronic Discovery Management System (e-Discovery) Project** – The e-Discovery project will reduce legal risk, effort, time and costs associated with discovery of electronically-stored information and enhance Metropolitan's legal compliance efforts. This project provides a comprehensive system with effective tools to comply with statutory requirements related to the discovery of electronically stored information needed for litigation. This system will help Metropolitan avoid exposure to e-discovery errors and delays that may otherwise result in possible court imposed sanctions in the context of litigation.
- To date, approximately 85% of the e-Discovery software has been installed and configured to meet Metropolitan's requirements. In addition, a small pilot was conducted to test the system's email archiving capability.
- The next area of focus will be to migrate historical email messages into the new e-Discovery email archive database where it will be preserved and available for future access. This will be completed by December 2011.

The fiscal year variance between budgeted and expended dollars is primarily due to projects being deferred to allow additional time to investigate alternative approaches and cost-effective options. One alternate approach identified, was to proceed with an interim minor version upgrade of the Oracle financial applications at this time and staging the major upgrade (and associated expenditure) to a later date. In addition, more time was taken to negotiate much better pricing for acquisition of regional two-way radio frequencies.

| **Enhanced Cyber Security:** | **Through 4th Quarter**<br>**FY Budget: $0.45 M FY Expended: $0.16 M** |
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| **Key Accomplishments Included:**<br><br>**Initiated the Supervisory Control and Data Acquisition (SCADA) Cyber Security Upgrades**<br><br>▪ In May, staff obtained Board authorization to proceed with the SCADA Cyber Security Upgrades project to reduce cyber security risks for Metropolitan's SCADA system by implementing additional countermeasures to help guard against unauthorized access. Current efforts are focused on further segregating the SCADA system from Metropolitan's business network prior to the security assessment phase.<br><br>**Published End User Computing Information Security Standards**<br><br>▪ During the period, the Information Technology Section published updated End User Computing Information Security Standards. This document provides information security practices to follow for all users of computers at Metropolitan.<br><br>**Other Key Activities and Accomplishments**<br><br>▪ IT staff began rolling out service pack 2 for the Windows Vista operating system running on desktops and laptops across Metropolitan. The software upgrade is intended to address security vulnerabilities in Microsoft's operating system, and improve system performance.<br><br>▪ Continued to monitor national efforts aimed at enhancing security capability for the water sector to help identify prudent steps and best practices.<br><br>▪ IT Security Team continued to publish a monthly cyber security tips on Metropolitan's internal website providing practical information on current security issues.<br><br>▪ Continued to provide IT security orientation for all Metropolitan new hires.<br><br>The fiscal year variance between budgeted and expended dollars is primarily due to a slight deferral of the Supervisory Control and Data Acquisition (SCADA) Cyber Security Upgrades project. This allowed available resources to focus on wrapping up remaining elements of Phase II of the Information Security Remediation Initiative. | <br><br> <br><br> |

| Improved Water Quality: | Through 4th Quarter<br>FY Budget: $1.03 M FY Expended: $0.95 M |
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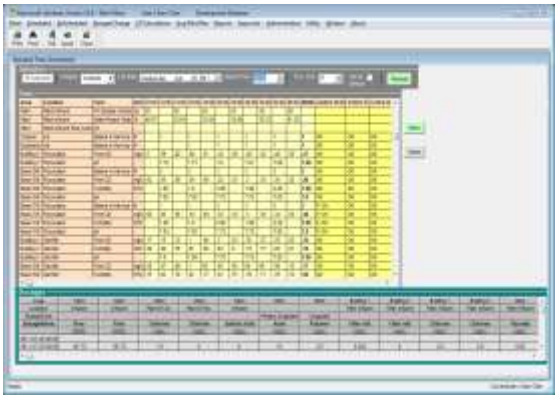
**Key Accomplishments Included:**

**Rolled-out the new Water Quality Monitoring and Rapid Event Detection System**

- Metropolitan recently rolled out a new Water Quality Monitoring and Rapid Event Detection System (WQMREDS). The event detection system software collects and analyzes data from existing water quality instrumentation located throughout Metropolitan's treated water distribution system. WQMREDS is used for real-time monitoring of water quality in the water distribution system and to notify staff of potential contamination and unusual water quality conditions.
- In June, end-user training was conducted and the new system was rolled out to the users.

**Completed Requirements and Detailed Planning for Upgrades to Water Quality Related Applications**

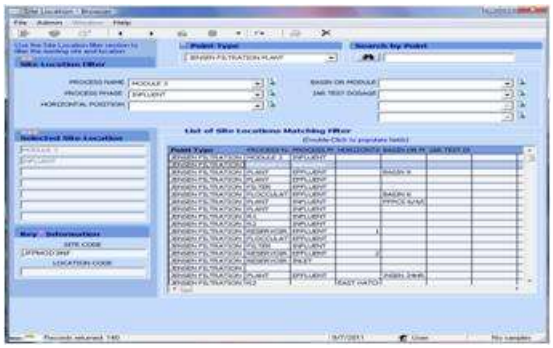
- During the period, staff completed requirements analysis and detailed planning for a number of key applications that support Metropolitan's water quality treatment, monitoring, and compliance reporting. Modifications are needed to selected applications to support new and changing regulatory compliance requirements, and other treatment process modifications. Upgrades to the following software application were initiated this period and are scheduled to complete in fiscal year 2011-12.
  - Upgrades are needed to the **Interim Enhanced Surface Water Treatment** (IESWTR) application to include Weymouth contact time calculation to be aligned with new filtration processes at the Weymouth Treatment Plant. The IESWTR software application is used by Metropolitan for California surface water filtration and disinfection treatment regulations compliance reporting.
  - **Labsheet** is software designed and implemented at each treatment plant to provide water quality compliance data collection and reporting. As new water filtration processes are introduced such as



fluoride and ozone, the Labsheet application must be updated to accommodate new data collection points, new calculations and reports. As an example, upgrades to the Labsheet application are needed as a result of Weymouth's recent plant influent configuration changes which affect water quality calculations.

- **Laboratory Information Management System (LIMS)** is an application used by water quality to manage water samples laboratory testing and capturing of the analytical results. LIMS annually manages over 50,000 water samples collected at MWD's water source, treatment, and distribution facilities for operational monitoring, regulatory compliance, and research projects. Annually over 70,000 chemical, microbiological, and physical tests are performed on these samples, with over 475,000 results measured. The planned upgrades to the LIMS system include software programming enhancements to improve validation logic to strengthen data entry accuracy and improve reporting capabilities such as the graphical display of test result data.

Expenditures for the Improve Water Quality category were generally on target for the fiscal year. All projects are projected to complete within Board approved budgets.



| **Productivity / Cost Efficiency:** | **Through 4th Quarter**<br>**FY Budget: $0.72 M FY Expended: $0.71 M** |
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**Key Accomplishments Included:**

**Completed the Mobile Technology Initiative**

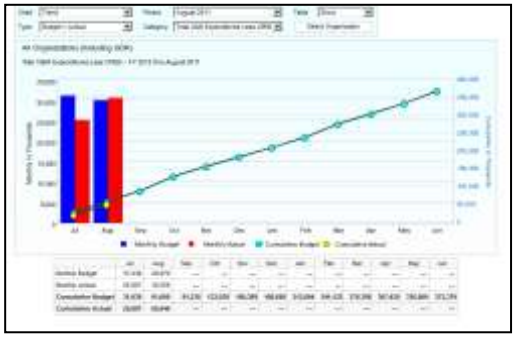
- During the period, staff completed the Materials Interface and Mobile Technology project in support of Water System Operation's Maintenance Management Improvement initiative. This project deployed handheld units for field maintenance workers, thus streamlining maintenance management operations.

**Completed Requirements Analysis and Initiated Software Enhancements to Enhance Efficiency**

- **The Water Information System (WINS)** is used to create monthly member agency water billings that are itemized by sub-agency, meter and program. WINS aggregates daily meter readings collected by the Automatic Meter Reading System and provides Water System Operations with screens and graphs for data accuracy verification. In addition, WINS validates water transfer certifications submitted electronically by the member agencies against agreements between MWD and member agencies**.**

  Enhancements are being made to the WINS software that will help reduce the amount of time needed to implement any future new water programs that may be approved by the Board of Directors.

- **The Integrated Budget Management System (IBMS)** is used to develop and disseminate all budgetary information for Metropolitan. The system allows each business area to develop its budget, and aggregates the budgets across the organization. IBMS is being upgraded to improve reporting capabilities and enhance the analysis and reporting of budget versus actual cost data.



**Other Key Activities and Accomplishments**

- **Continued to evaluate cloud computing technology options** for applicability at Metropolitan. Information Technology (IT) projects are being evaluated to determine where cloud solutions may provide a viable and cost-effective alternative to traditional "on-premise" solutions. Two IT projects currently being evaluated include the Environmental and Safety

Management Information System and the Lease Management System.

- **Staff assessed new technology for potential PC power savings**. The technology allows the PC's attached to the network to be shut down during off hours and automatically wakes up the devices long enough to apply security patches and software updates. Previously, staff has been advised to leave their devices powered on at night to receive and apply the patches/updates electronically. The assessment resulted in a recommendation to expand the testing from Union Station Headquarters to remote field facilities.
- **IT initiated an internship program** to provide college students hands-on work experience to augment their studies with practical work experience. Three IT interns have been approved for recruitment.

Expenditure for the Productivity / Cost Efficiency category was on target for the fiscal year. All projects are projected to complete within Board approved budgets.