



## The Four “Rs” of Education – Reading, Writing, ‘Rithmetic and . . . Repair

**Business Case:** Hawaii State Department of Education Implements Work Order Management System.

**The Challenge:** To replace a time-intensive, error-prone manual approach for processing maintenance and repair work orders at schools located throughout the state of Hawaii.

**The Solution:** TRM replaced the legacy system with a best-in-breed, web-based work order management system – then customized that system utilizing its TRM RulesManager™ business rules engine to further improve efficiency.

- ◆ **The Result:** In just the first phase of implementation, the newly automated approach allowed work crews to reduce the backlog of repair orders by more than half. DOE officials look forward to expanding the system throughout the state, estimating that it will allow them to chip away at an estimated \$500 million backlog. They also now have the time and tools they need to plan preventive maintenance, stopping problems before they occur.

### Hawaii’s Schools Learn Valuable Lessons About Work Order Management



In July 2005, in accordance with an education reform law, the Hawaii State Department of Education (DOE) took over all responsibilities associated with facility repairs and maintenance for the island of Oahu’s 167 schools. The idea of eliminating a layer or two of bureaucracy certainly was appealing. But the problem itself was growing. As is the case in many aging school districts, building managers were faced with concrete cracks, leaky roofs and broken restrooms – all of which posed safety and health risks for students and staff alike.

Repairs were being made, but progress was slow. Except in cases of extreme emergency, work orders had to be requested individually, on paper. Requests were faxed to a central response center, where as many as three different staffers might be charged with entering them into “the system.” Prioritization approaches were inconsistent; funding wasn’t always available. Numerous requests were lost. A local newspaper reporter claimed to have recently surfaced one school’s 1994 request for wash basins, as well as a 1996 request for tree removal – both, as yet, unanswered.

A work order management system clearly was needed – but what kind? The Hawaii DOE turned to Total Resource Management (TRM) for help. After a thorough review and needs analysis, TRM recommended the industry’s best-in-breed enterprise asset management system, Maximo®.

#### A Simple, Organized Approach – Improved Upon by Enhanced Programming

Maximo allows school administrators and custodians to enter work orders over the Internet. Orders are seen immediately by staff at the central response center, who – following training on the new system – are able to acknowledge receipt, then forward the work orders directly to the appropriate district maintenance personnel. Work orders are prioritized – “emergency” orders require action within two hours, “trouble” calls are responded to within 48 hours, and “routine” calls are added to the list of items to be addressed during regularly scheduled maintenance visits.

Total Resource Management consultants then took the system one step further by adding its proprietary software. TRM RulesManager™ is a sophisticated,

easy-to-use business rules engine that allows users to refine their business processes to meet specific needs. RulesManager has allowed the DOE to automate steps for certain processes; staffers receive email notifications when their attention is required for certain types of work.

To ensure that the Department of Education gets the most from its investment in Maximo, TRM provided training to response center personnel and maintenance supervisors. Training materials were provided in several formats to meet the needs of individuals in various roles at various locations. TRM consultants also worked with DOE staff to refine their business processes to meet already defined performance metrics, so as to measure improvements.

The Department of Education piloted the Maximo implementation with 170 schools on the island of Oahu. Within the first six months, the DOE's backlog of repairs for these schools dropped by more than half, from 3,000 to 1,200 – and nearly 90% of all work orders were addressed within the required time frames.

### Bringing Benefits to the Entire School System

The new Maximo-based system is expected to roll out to repair and maintenance staff on Hawaii's outer islands this summer, and to all of Hawaii's 256 schools by fall 2006. The DOE's maintenance supervisors are planning to begin a comprehensive facilities assessment – that is, reviewing assets, resources and needs on a school-by-school basis. DOE staff also will utilize Maximo and RulesManager to analyze repair costs down to the individual school level, which will allow them to compare costs between schools, and also to determine when in-house repair resources are more cost-effective than outside vendors.

Perhaps more importantly, the efficiencies and analyses that the Maximo-based system brings to the DOE allow its maintenance managers to begin planning more proactively. A cycle-based approach has been used with schools on Oahu for several years. This approach entails having a crew visit schools one at a time, specifically to make all needed repairs at that school, before moving on to the next school in the district. The cycle is repeated until all schools in the district have been visited. Maximo allows the facilitating of the review, scheduling and distributing of the work orders,

**School Work Request**

Use this page to enter information for a new Work Request.

- Type information about the problem or work needed in the fields provided.
- To clear your entries, click Reset.
- To enter the information you typed, click Submit.
- To attach required documents to your work request, use the Attachments table at the bottom of the screen.

**Description:** Broken water pipe

**Location:** 2-40-842000-31 REOLU ELEM BLDG A RM 101

**Reference Location:** None

**Contact:** Christina

**Work Type:** EMERGENCY

**Problem Code:** BLDO

**Cause Code:** OC

**Request #:** 1025160

**School Code:** DOE

**Work Phone:** 300-0000

**Email:** 1000@oc.com

**Status:** REQUEST

**Reported Date:** 3/8/06 11:06 AM

**Job Details:**  
Pipe broke and caused flooding. We had to turn off the water to the entire building.

Buttons: Submit, Reset, Cancel

Attachments: Displaying 0 - 0 of 0

### Sample Emergency Work Order - requires action within 2 hours.

thus making the system more efficient. It also allows schools to submit work orders on demand and to check the status of the work orders.

DOE managers also see the potential for growing the new Maximo-based system to provide the information needed to improve performance on inventory and equipment usage. "I'm seeing the immediate benefits of this system and am receiving positive feedback from a lot of people," says Gilbert Chun, acting director of the Accountability Branch, DOE. "I'm excited to reap all the benefits that Maximo and TRM can bring to my schools."

### About Total Resource Management

Total Resource Management (TRM) is focused on improving the asset and operational performance of organizations through the effective use of information technologies. TRM is an IBM Premier Business Partner with over fifteen years; experience delivering asset and service management solutions based upon IBM Maximo. TRM supports clients across a wide range of industries, including government, defense, cities, facilities, energy, utilities, transportation and life sciences. TRM is based in Alexandria, Virginia and has business centers across the U.S. For more information, visit [www.trmnet.com](http://www.trmnet.com) or call 703-548-4285.