State-of-the-Art Roads Management in Michigan

by Margaret Ray, James Jackson, and Craig Garrett

Common economic challenges faced by modern government must be measured against performance and transparency, especially as roads and bridges reach maturity and supply costs escalate.

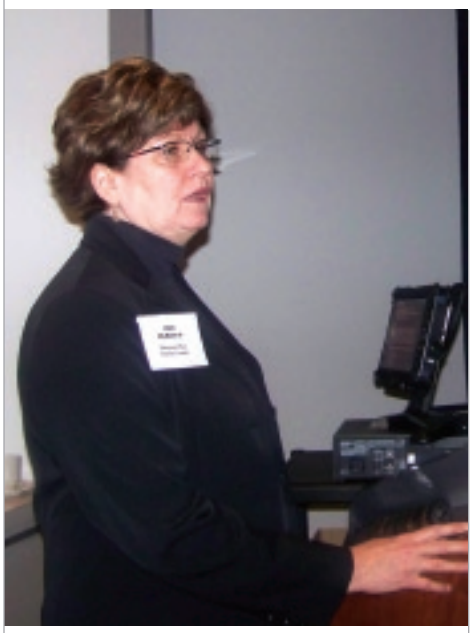
It's a tough balancing act, with the solutions requiring thought, chalk time, and strong leadership. But evolving technology is again proving to be a valuable tool in the quest to mind the checkbook *and* meet citizen needs.

Wayne County, Michigan, is using agile new software and satellite and wireless technology in road maintenance, fleet management, and cost reduction in its department of public services (DPS). The roads infrastructure management system (RIMS) enables DPS staff to capture (near) real-time data on service requests, track requests to completion, and use these data to assess and bolster service. Just as important, RIMS technology projects and tracks funding needs that are critical in forecasting labor and supply costs.

RIMS was launched during the first term of Wayne County Executive Robert Ficano, who realized the value of cost-effective technology as a way to improve performance and increase customer satisfaction.

RIMS uses hand-held and vehicle devices via satellite and wireless technology to manage the flow of information. With the click of a button, county forestry staff, for example, use real-time data to inspect trees, to help locate trees identified with disease or insects, and to identify trimming and removal projects. Tracking also allows management to dispatch staff more quickly and efficiently in emergencies or other warranted occasions.

Director James Jackson presenting RIMS system to approximately 150 public works and municipal managers at Cityworks User Group Conference held in Canton, Michigan, Wednesday, March 5, 2008.



Department of Technology RIMS Project Manager Margaret Ray co-presenting with Director James Jackson at Cityworks User Group Conference, March 5, 2008.

Advanced technology can help service the mountain of demands of a $125 million budget, a fleet of cars and trucks and equipment, nearly a thousand workers and staff, and a vast network of suppliers. The department has already used technology to trim costs and balance the department's budget.

WAYNE COUNTY AT THE FOREFRONT OF ACCOUNTABILITY

Dozens of RIMS applications are available to help Wayne County trim costs even further and better manage services. RIMS testing will run through 2008. Full implementation after 2008 will mean that hundreds of vehicles and staff are equipped and servers are in place.

Executive Ficano supports this and other service advances, noting in his State of the County remarks that the economic challenges in the Michigan economy can make it tough to predict future revenue and costs. Uncertainty is also rough on staff morale, the county executive said.

"Each year our county employees are asked to do more with less," Ficano says. "Nonetheless, we are required by county charter and existing ordinances to provide certain services. Nowhere is this more prevalent than in our department of public services, where we provide the residents and visitors of Wayne County road maintenance, county permitting, and an exceptional park system."

RIMS technology actually dates to 1997, when DPS first proposed a commercial system that would support management efforts to collect and report on county roadway assets and associate the work completed to maintain the assets, thus tracking corresponding labor costs, equipment, and materials. The RIMS project is the result of years of study and careful consideration by the DPS roads division on how to streamline operations and reduce the amount of time spent on non-value-driven tasks.

Historically, the roads division had managed paper-based and electronic systems. Database applications, developed by roads division personnel for specialized functions, currently are not integrated or implemented to allow access and the sharing of data across the organization. As a result, data value is limited and additional time (staff hours) are being spent on hand-entering data from paper forms and manually transferring from one isolated system to the next.

Recognizing potential benefits, the county's technology department aligned its efforts and recommended RIMS to complement DPS operations. The project also provides citizens with a timely status of their service requests, and it provides other county departments and county commissioners with a tracking service for their requests.

Because of the complexity of the project and the need for a robust system, the first phase of Wayne County's RIMS project involves a test system, which is currently in process within district three of Wayne County's roads. This pilot allows the roads management staff to track, flush out, and tweak issues and finalize workflow. In 2009, the second phase of the project will deliver a final build out and delivery of the RIMS application supporting the roads division.

RIMS technology allows management to monitor the timeliness with which each request is handled and to analyze existing workflows to determine whether adjustments should be made to improve these areas. The emphasis is on benchmarking of services to establish current performance criteria and, from this established level of performance, develop a plan that moves DPS toward continuous improvement of services through the ongoing assessment of the operational workflow processes.

RIMS will also provide staff with the ability to efficiently capture accurate monthly operations data for the county's Managing for Results (MFR) initiative. Without the development of RIMS, capturing and reporting these data currently require the manual compilation of literally hundreds of service request forms and then inputting these data into the MFR reporting system.

RIMS provides that department with the ability to print strategic results data *and* input them directly into the strategic results performance report in an extremely efficient manner. The bottom line is that citizens are better served.

The program is also instrumental in payroll, asset, and work management systems, improving communication and the timely transfer of information to and from the workforce.

Funding for any government unit is always a priority. Initial RIMS funding and in-depth analysis started in 2000, culminating in an intelligent transportation system appropriation from the U.S. Federal Highway Administration and Wayne County matching funds. Development of the core database was awarded to an information technology (IT) consulting firm specializing in enterprise information systems, along with three additional IT companies.

The second part of the project was awarded to a company that is responsible for developing the field interface and field-order updates and the automated vehicle locator devices.

Wayne County's RIMS project presents developers with an exceptional level of complexity because of the stiff requirements of the DPS, the number of users, business functions, and business systems that need to be integrated and supported. RIMS technology involves collaboration with consulting company servers, information delivery portals, and applications for mobile computing and automated vehicle location.

Wayne County also plans to share RIMS, offering surrounding communities the opportunity to interact with the system. "Wayne County is a two-billion-dollar business—and we're serious about running it like one," County Executive Ficano said.

Here's how RIMS is being used.

Pavement maintenance section. Maintains a road system of approximately 1,559 county primary and local roadways and 462 miles of state trunk lines and freeways. The pavement maintenance section will use RIMS to collect data, respond to citizens who notify the roads department of road hazards, dispatch reactive and preventive work orders to field operation crews, and track related infrastructure assets through the workflow process.

RIMS has the ability to geographically display active work along roadways using the automated vehicle locators in conjunction with consultant mapping equipment. Dispatchers can view current work-related activities, determine how they correspond with other already occurring incidents and surrounding infrastructure, and assign work teams more effectively, thereby improving workflow and managing costs.

RIMS also is being designed to enable the reporting of the total number of lane miles that are salted and plowed during the winter salting and plowing operations; RIMS can break down the labor, material, and equipment costs and totals for specific routes, storms, or county districts.

Traffic operations section. Control and manage inventory for the 100,000 signs and 1,458 traffic signals located on the state and county road systems. The application will enable (near) real-time data collection, documentation, and storage of review data obtained from inspection of county and state roadways to assure that traffic safety engineering principles are maintained in determining speed limits, signage, and other requirements. Supervisors can interactively schedule, route, and track crew activities.

Structure maintenance section. Real-time appraisal of the structural integrity for the 308 bridges on the Wayne County road system and 840 bridges on state trunk lines and freeways. Assets such as attenuators and bridges can be attached to work orders using ESRI mapping and geographical information system (GIS) positioning. Supervisors will schedule and track work teams for maintaining and ensuring the operation of 162 stormwater pump stations (546 pumps) and 207 impact attenuators, seven bridges, four tunnels, and the 12 pump houses for the Wayne County Airport Authority.

Forestry division. Collection of tree inventories and assistance for forestry supervisors in dispatching crews effectively. Real-time data collection will record inspections of trees, help locate trees identified as diseased or harboring insects, and identify locations of trees for trimming and removal. **PM**

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Margaret Ray is RIMS project manager, department of technology, Wayne County, Michigan (mray@co.wayne.mi.us); James Jackson is director, department of public services, administrative division, Wayne County (jjackso1@co.wayne.mi.us); and Craig Garrett is communications specialist, department of public services, Wayne County (cgarret1@co.wayne.mi.us).