

# From Tradition to Technology

Bringing a resistant staff up to speed with infrastructure maintenance management.

**C**ombating tradition is never an easy battle, especially in a municipality where resources and funding must be kept to a minimum. While younger employees may welcome new methods and technologies, the older, more seasoned staff often look upon change with reluctance. These workers carry a level of pride, having earned their respect from years marked by fads that emerge and dissipate. As the adage goes, why fix what isn't broken?

This was the question put to Overland Park, KS, in 2002 when public works supervisors told their crews that a computerized system would be used for traffic maintenance and management throughout the city. Their response to the question was simple: progress.

The public works department maintains more than 12,547 street lights and 241 signalized intersections. The department has about 70 people in the maintenance division, including seven working supervisors. For years, Overland Park had tracked its traffic asset data through paper logs and had kept an existing inventory in an Access database. Though crews felt the method worked well, public works supervisors understood the limitations to their data; accurate record keeping was difficult and quick analysis was nearly impossible. The city wanted to be able to manage its sign and signal data effectively, in part because the records would help solve legality concerns. Anytime accidents occurred and a street sign was called into question, the public works department needed to account for where its records showed the sign to be and exactly when the sign had been installed. This would prevent the city from being liable for accidents it hadn't caused.

"Everyone had agreed that we needed to address those legal problems," said Overland Park Work Management Systems Administrator Cheryl Carner. "It became really important to know exactly where and when our signs were placed so we could prove it in court."

With its plan in place, Overland Park extended the use of the infrastructure management system (IMS) that the city had used in other public works divisions for the last ten years. The software, *GBA Master Series*® ([www.gbaMS.com](http://www.gbaMS.com)), provided applications for workflow setup, work

order management, asset management, and GIS mapping integration.

The software provided a centralized data repository that would make housing the collective data for liability claims easy. However, problems emerged not with the data storage, but with the initial usability. The end goal would be to streamline the traffic inspection and maintenance process for more efficient work, but like any newly realized project, that was not how it began.

After implementation, crews soon became burdened by data entry responsibilities. They still used paper logs to record the data from the field, but were given the added task of adding their findings into the system at the end of the day. This meant field crews were spending half of their time in the field inspecting and performing maintenance, and half of their time in the office entering data. While crews appreciated the integration with GIS, which allowed them to see asset data on maps for better spatial understanding, they began complaining that rather than speeding up their work, the new workflow was actually slowing them down.

"The crews weren't very thrilled," Carner said. "We knew that the software would help us, but we needed a better way to do data entry."

## Bringing Management Tools Together

The solution was closer than the city thought. Since the IMS software allowed for easy integration with other applications, Manager of Technical and Administrative Services Mike Ross and other public works employees were able to develop a customized interface that



The screenshot shows a 'Work Orders' window with the following details:

- Work Order #: 98-000094
- Category: 334 Traffic Signals
- Status: 4 (On-Going)
- Problem: 340 Signal Out
- Status Date: 02/16/2007 1: AM
- Main Task: 310 Signal Repair
- Location: E CENTRAL AVE
- Cause: 30 Found in Field
- Assigned Crew: [Empty]
- Supervisor: 145.2 Jerry Cheng
- Lead Worker: 170 Lucy Doe
- Priority: 2 Medium
- Account #: [Empty]
- Project ID: [Empty]
- Project Name: [Empty]
- Reason: 1 Emergency Repair
- Assigned By: 180 Brett Manson
- Assigned Date: // AM
- Start Date: 02/16/2007 01:00 PM
- End Date: 02/16/2007 05:00 PM
- Request Comments: On diving back to the office (JC) noticed Signal at Central and Edgemore was out. It has since been repaired.

**Signal work order record includes work order number, status, status date, category, problem, main task, location, cause, assigned crew, supervisor, lead worker, comments, and much more.**

would allow crews to use mobile handheld devices to enter and edit data directly in the IMS database through GIS maps. Software customization was highly effective for the public works department because it allowed the department to collect and edit data specific to its needs. The custom-made interface was built on top of the city's IMS and GIS data. Essentially, the interface worked as an extension of the IMS for easy distribution and editing of data. The interface, called City Asset Management Program (CAMP), provided the traffic crews only with the information and the tools they needed for work management and inspection records.

After converting the data into the IMS, the public works department was able to identify inaccuracies in its information, such as misspelled street names and duplicate records. To reduce future double entries and improve accuracy, the public works department decided to revise its workflow. Instead of entering the data into the IMS themselves, the inspectors would notify the maintenance division once a project was complete, and the maintenance division would enter the data. Since the maintenance division builds and maintains the database, it has a sense of ownership over the input information and understands the importance of getting it right the first time.

Having the data linked to GIS also makes referencing easier for inspectors. With regard to street lights, field crews used to have to visit the location of the

information—used to take days or even weeks to do,” Carner said. “Now it just takes seconds. The system really helps when I want to create a report showing an entire quarter’s performance measures. All I have to do is run a filter, and in less than a day, I can retrieve the data that used to take me a month to collect.”

### Looking Forward

After CAMP had been created for the sign crews, other crews within the public works department began to appreciate the usability that the interface provided and wanted to include their asset class in the interface. What began as a project for one specific crew spread to include every section of the department, making it possible for everyone in public works to distribute and retrieve pertinent infrastructure and GIS data. The city expanded the IMS and developed the customized interface to include signals, street lights, rights-of-way, storm structures, and storm conduits. Similar to the sign inventory, the

asset and perform a day-burn to identify which lights were connected with which controller. Now, they can simply look the data up in the IMS.

Compiling data has also improved. “Some tasks—such as creating an annual report that shows how many signs were installed during the year and other pertinent

information—used to take days or even weeks to do,” Carner said. “Now it just takes seconds. The system really helps when I want to create a report showing an entire quarter’s performance measures. All I have to do is run a filter, and in less than a day, I can retrieve the data that used to take me a month to collect.”

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**Infrastructure maintenance management progress became a reality as data became more accurate and work became more efficient.**