



It takes only seconds to verify
that the sewer was cleared
45 minutes before Eva fell

On the way to work on her bike, Eva hits a wet spot, and before she can slow down, the bike slides out from under her and she hits the pavement. Luckily for Eva, she was wearing a helmet and cycling on a bike path, not in traffic, so she is not hurt badly. The bad news, however, is that she has fractured a bone in her arm and will not be able to work at her job as a nurse in a Stockholm hospital for several weeks.

This accident, like many others, becomes an insurance claim. To determine possible liability, the insurance company wants to know why the pavement was wet on an otherwise sunny day and if this could have anything to do with the fact that a clogged sewer had been reported to Stockholm Vatten, the city water works. Clearing the sewer, however, is a job handled by Stockholm Entreprenad, an independent niche company responsible for upkeep and maintenance of the city's streets and parks, which in turn employs sub-contractors for many jobs like this one.

Using an application called MobiWin QA, it takes Stockholm Entreprenad only seconds to verify that the sewer was cleared 45 minutes before Eva fell on her bike. Although pavement was undoubtedly still somewhat wet, Eva was simply going too fast and didn't see it in time. Stockholm Vatten has no liability for the accident.

Service delivery verified

MobiWin QA is a quality assurance system with a map presentation running under Microsoft Windows that functions as a control center for mobile units equipped with GPS positioning equipment and Mobitex. The application now being deployed by Stockholm Entreprenad in all of its vehicles, as well as those of subcontractors, runs on the Swedish Mobitex network operated by Mowic. With this system, Stockholm Entreprenad is able to track the movements of all units, whether they are clearing sewers, plowing snow, cutting grass or providing some other service for the city.

"We now use MobiWin QA for all route planning to optimize routes and minimize the distance traveled and to monitor traffic on our computers," says Veronica Runing, project manager at Stockholm Entreprenad. "The system also compiles reports and statistics that allow us to verify that work is performed as contracted, and if necessary, we can go back and check when and where a particular job was done. MobiWin QA is a very powerful tool."

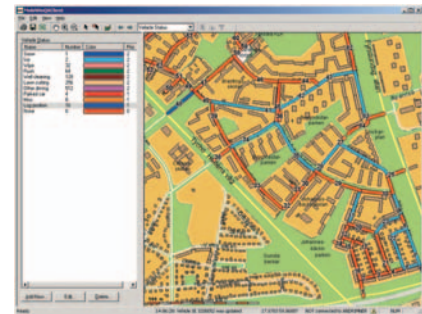
User response has been very positive both among the Stockholm Entreprenad's own employees, who operate about half of the company's approximately 140 vehicles, and among subcontractors. Initial concerns that sub-contractors might bridle at having their work monitored so closely proved to be unfounded. On the contrary, most sub-contractors are committed to delivering quality services and are pleased that Stockholm Entreprenad

is able to verify that they are getting what they pay for. Stockholm Entreprenad is also not interested in charting the performance of any individual worker, but only in monitoring service delivery.

The first mobile installations of MobiWin QA used a mobile data terminal with a touch screen. This relatively expensive piece of equipment quickly proved to be unnecessary, however. Instead, the mobile unit is now equipped with a black box with a single button for signaling that a deviation has occurred. The type of deviation is then determined at the control center based on the vehicle's loca-

Entreprenad has also reduced its costs for fines and penalties charged when contracted services are not delivered or not performed on time.

"On the whole, we are very satisfied with MobiWin QA. It works extremely well and is easy to use. Network coverage is excellent, and the system is very reliable. The people at Mowic and B&M Systemutveckling have also been fantastic to work with. Everyone has made an extra effort to ensure that the project was a success," concludes Veronica Runing. <



Timely delivery of quality services

tion and the type of service that it is performing. For vehicle operators, the system thus could not be simpler.

"Our greatest challenge in winning acceptance for the new system was among district supervisors," reports Veronica Runing. "They were used to planning routes manually and did not immediately appreciate the benefits of the follow-ups that the system supports. In several cases, it took some time to convince them that they could perform their work more efficiently on a computer screen, but once they started using the system, they were very impressed."

Service quality enhanced

The MobiWin QA system has now been in operation for about 18 months. Because it is a very powerful system with many features, Stockholm Entreprenad is still not using its full functionality. However, as Veronica Runing points out, changing the way an organization works takes time, and introduction of the system has therefore taken place slowly, one step at a time. In the future, Stockholm Entreprenad plans to make greater use of functions for monitoring prioritized roads and hopes to implement functions for sending work orders to mobile units.

As yet, there has been no formal evaluation of cost savings or increased efficiency resulting from the installation. Nonetheless, it is clear that the route planning functions have reduced miles traveled. Service quality has improved, and Stockholm

MobiWin QA

MobiWin QA is a quality assurance system with GPS and mapping functions that functions as a control center for service vehicles. In addition to automatic vehicle location (AVL) and tracking of vehicles in real time, the system has a number of powerful functions for quality assurance.

- Route planning with full driving directions
- Real-time monitoring of service delivery
- Follow-ups of completed measures against planned measures
- Follow-ups of service quality
- Clear and simple reports of deviations
- Follow-ups of time limits and prioritized roads
- Detailed follow-ups of routes and times

The product was launched at the end of 2002, and version 2.0 was introduced one year later. New features in the latest version include functions for editing the road network and a web-based interface for the main functions that allows supervisors, contractors and customers to log in and follow many operations in real time on a digital map with an ordinary web browser, such as Internet Explorer. Stockholm Entreprenad uses this functionality to allow its customers, which are primarily municipal authorities, to monitor operations, but it would also be possible to provide the same information to the public so that people could check when their street will be plowed, for example.

"Stockholm Entreprenad is the largest installation of MobiWin QA to date," notes Per Bergström, system designer and co-owner of B&M Systemutveckling. "Working with Stockholm Entreprenad has helped us to improve the system in a number of ways. We are now working on service order dispatching and a number of other functions that the customer has requested for the next release."