

Measure It and Manage It

Vehicle tracking with mobile GIS technology boosts productivity for Public Works Department

South Windsor, Connecticut is a northeastern US town with 25,000 residents. The town's Public Works department provides municipal services for all seasons including snow plowing, leaf collection and lawn care maintenance of parks and public areas throughout the community.



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Mike Gantick,
Public Works Director
South Windsor

Like all Public Works directors, Mike Gantick juggles the ongoing challenge of pursuing performance improvements in the face of budget deficiencies.

In Public Works departments, with mobile assets and mobile work crews, there is sometimes a disconnect between field work activity and timely, accurate knowledge about that activity back at the office.

“The need to work more efficiently and streamline operations is always present, but not knowing the location or progress of your assets and work crews in real time creates an information gap that hinders productivity and performance improvement,” says Gantick, Public Works Director for the town of South Windsor, CT.

The right technologies, of course, can bridge that gap, and with their ArcGIS® Server software, South Windsor did have a mission-critical part of the technology equation in place. What they lacked, however, was an affordable way to mobilize their GIS data, in order to collect useful measurement data on the performance and progress of work crews and vehicles throughout each day.

As Gantick explains, enabling technologies haven't always been accessible at a practical cost for resource-strapped local governments.

“We've always known about solutions like traditional AVL technology, where mobile tracking hardware is mounted to vehicles, but that solution can be cost prohibitive and too inflexible for our needs,” says Gantick.

With the arrival of integrated GPS technology on BlackBerry smartphones, however, Gantick and Scott Roberts, South Windsor's Director of IT, saw the opportunity they'd been waiting for.

“Suddenly, we could envision an affordable, single-device solution for bringing our GIS data to the field. We quickly began to explore how the BlackBerry platform could enable this,” explains Roberts.

Freeance Mobile on BlackBerry Brings GIS Data to the Field

“We wanted the ability to use our own GIS maps for field operations,” says Roberts. “Based on that requirement alone, Freeance Mobile software was the right solution for our needs.”

Scott explains that the Freeance Mobile software on the BlackBerry form factor also met several other must-have criteria, including overall affordability and the flexibility to move the device from crew to crew, and vehicle to vehicle.

For a northeastern U.S. town that sees snowy, stormy winters, hot summers, and rainy spring and fall seasons, the need to redeploy Public Works assets and work crews is as perpetual as changes in the weather. Tracking these vehicles and crews is now accomplished with Freeance Mobile Tracking.

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- Mike Gantick, Public Works Director, South Windsor

South Windsor can deploy 20 BlackBerry smartphones at the start of each day. As the work crews move through the town, their location coordinates are collected and time-stamped at GPS collection points, and data is transmitted to the town’s server. At the office, the Public Works supervisor can see vehicle locations on a live browser-based map.

Measurable Productivity Gains at the Individual and Program Level

According to Gantick, access to this live information enables considerable productivity and performance gains.

“With a live map view showing the location of the leaf collection trucks, the supervisor can redeploy any trucks ahead of schedule, for an immediate early jump on the next day’s collection work,” Gantick says.

As well, with transparency into operational progress throughout the day, the supervisor no longer waits for an end-of-day report from every crew chief detailing which streets have been serviced. This lets him map the following day’s collection routes earlier, rather than after hours. “With this capability alone, the supervisor gains an hour of productivity every day,” Gantick reports.

The ability to see where crews are, and re-route as needed, is delivering time and cost savings year-round.

“Since our BlackBerry smartphones are not hard-mounted to vehicles, we can easily give contracted snow plow operators a BlackBerry for the day and view their progress. In one instance where a contractor was erroneously plowing a road outside our town jurisdiction, we were able to correct that right away,” says Gantick.

In another instance, a typo on the list of work duties saw one crew travelling to the wrong part of town one morning. The supervisor saw their location and was able to route them to the correct location, avoiding frustration and morale issues among the crew.

“In summary, our supervisor can now make better decisions on work activity and asset utilization based on progress and *proximity*, up to the minute. This information was previously unavailable to us in real time,” Gantick explains.

Accurate Data Improves Customer Service and Forecasting

South Windsor also analyzes collected data after operational events, to aid in customer service resolution and operational planning. Gantick explains how the high accuracy of the data contributes to those efforts, saying, “The tracking has been so accurate, we can actually look back and pinpoint which side of the road our vehicles were on, so we know exactly when streets we plowed and leaves were collected.”

When presented with a customer service issue, Gantick’s team has the data to verify precisely when roads were plowed, or leaves were collected, anywhere in the town.

With accumulated data, Gantick’s team can perform post-event analysis, examining the patterns of snow plowing or lawn mowing equipment, with an eye toward planning out more efficient travel routes for the next season.

“Being able to demonstrate our efforts to improve efficiency helps us illustrate that the department, and the town, takes customer service and the use of public dollars seriously.”



Affordable and Scalable for Government Operations

From an IT perspective, Gantick is pleased with how accessible the Freeance Mobile solution is to budget-conscious government organizations. "We were able to purchase 20 BlackBerry devices and Freeance Mobile software for approximately \$12,000," he reports. "Consider the efficiency gains and the value of this data for planning operations, it's an excellent return. And because it's a very scalable application, we'll continue to see additional value as we expand our usage in the future."

Roberts says Freeance's scalability is a welcome change compared to other software products he's evaluated. "Sometimes software that was initially well-developed does not advance with the needs of its market, which handcuffs an organization after they've already made an investment," he says.

"We are always looking to be a partner with our vendors so that we both benefit from advancing the software to meet the needs of our day-to-day operation. From day one, TDC has been a helpful and supportive partner, and our advances with the Freeance software is directly related to their efforts."

Roberts says plans are in the works to deploy Freeance Mobile's Where Is My Team application for public safety, which will allow the town's police canine team to record and document searches, and ultimately reduce the time spent on paper work. The technology allows for extremely accurate records of paths taken and locations visited during tracks for suspects, missing persons and evidence recovery. The GIS interface allows the points to be displayed on an aerial view map, showing landscape features and buildings. "When accessed via a webpage and viewed in real-time, the public safety dispatchers and incident commanders will be able to watch the team's location and deploy resources as needed." Roberts explains.

Roberts says South Windsor is also experimenting with overlaying live weather feeds from National Weather Service onto the town's GIS map. "This will consolidate our view of weather patterns to one central map, allowing us to more quickly redeploy crews based on weather conditions and storm forecasts."

Despite all the benefits they report, Gantick and Roberts say they're merely in the infancy stage with this technology. "There are many more opportunities ahead to further leverage our Freeance Mobile software," says Gantick. "We've really only just begun."



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Scott Roberts,
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Technology Profile

Freeance Software	Freeance Mobile 2.0 - Pro Edition, Freeance Web 5.1, Freeance AVL 3.0, Freeance Web 3.0
BlackBerry Solution	BlackBerry Enterprise Server v. 5.0.1 25 BlackBerry Storm and Tour 9630 smartphones
ESRI Software	ArcGIS Server 9.3
Wireless Carrier(s)	Sprint, Verizon
Database Software	PostgreSQL 8.3

