How can telematics benefit your public works agency?

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For public sector fleets, data-driven operations are critical to optimizing costs, maintenance, performance and more

But many organizations lack reliable data to inform their decisions. Telematics solutions fill the gap, providing the insights needed to improve operations and future planning for everything from winter maintenance to road construction.

As you consider which telematics solution to implement, there are countless factors to consider

You may be comparing features across several different vendors. This guide breaks down the key questions and issues you'll want to keep in mind. You'll also find several success stories from public works agencies just like yours so you can see how telematics can enhance your operations.

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CHAPTER 1

Improving public works fleet efficiency

Telematics can be incredibly useful in boosting efficiency for seasonal and ongoing maintenance of your public works vehicles.

Complex fleets, like those that support winter operations, often require sophisticated integrations to properly manage their programs

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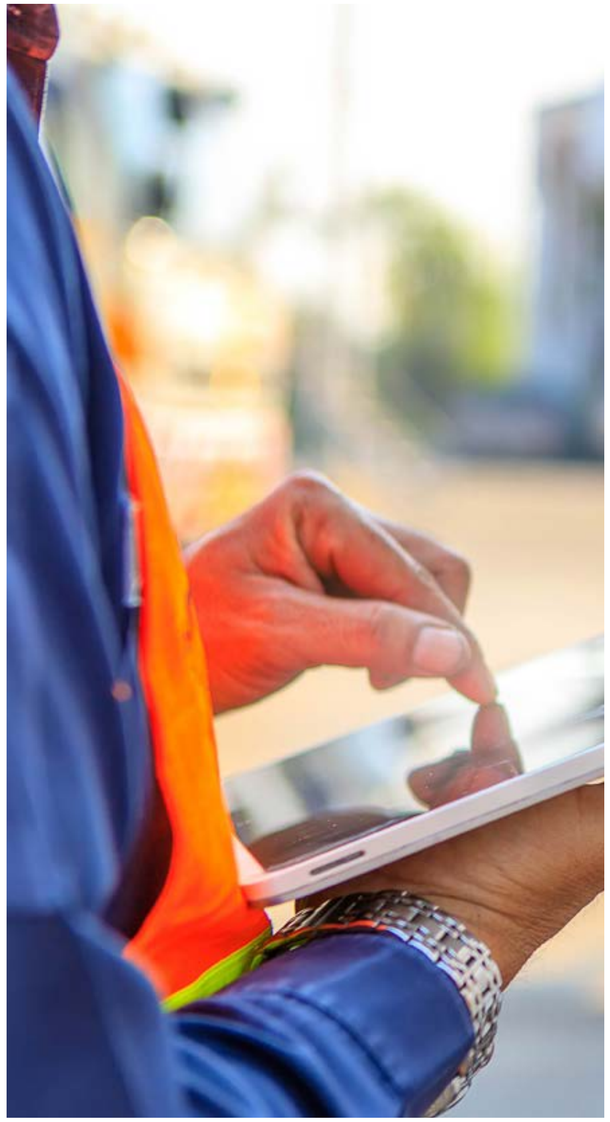

A telematics solution designed to meet the unique challenges of public works fleets offers multiple benefits for managing operations, allowing you to:

Improve operational efficiency and drive down costs

- Monitor and control material (salt, sand, etc.) usage
- Use data on fuel usage and idling to cut fuel consumption and assess electric vehicle suitability
- Support vehicle-sharing and motorpools for cost savings and efficiency
- Offer insight into fleet usage to aid in rightsizing
- Optimize routes for reduced mileage

Promote operator safety

- Track unsafe driving behavior and customize driver training
- Provide in-vehicle driver alerts and receive instant collision notifications
- Track vehicles in harsh conditions using rugged devices

Gain insight into vehicle location

- Track the precise location and route of every vehicle in real time
- Dispatch efficiently based on complete visibility of fleet
- Deliver complete visibility of the workforce for faster emergency response

Monitor operational status and levels of service

- Manage the entire fleet through a single, consistent system
- Monitor route completion and individual vehicle functionality
- Reduce downtime for improved customer service
- Enable predictive maintenance for improved uptime

Improve citizen satisfaction

- Increase transparency by publicly sharing vehicle locations and route completion
- Improve public safety by enabling citizens to plan their routes based on real-time data
- Automate common workflows to improve customer service

CHAPTER 2

Telematics against the elements: Winter operations

Winter driving conditions pose great risks to citizens, and it's the job of winter operations fleet managers to do everything in their power to mitigate these risks. Well-managed winter operations are pivotal for ensuring the safety of all motorists, and citizens at large.

While safety comes first, winter operations fleet managers are also responsible for meeting environmental compliance mandates and managing operational costs.

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Let’s look at how telematics helps manage these multiple obligations, allowing you to:

Monitor fleet health

Fleet managers can use telematics to understand vehicle faults and diagnostics and monitor sub-optimal vehicle performance for indicators of pending failures. It’s also easy to develop preventative maintenance plans based on real-time data, ensuring snow removal equipment is available when needed.

Dispatch efficiently

Even the best plans sometimes need adjusting due to unforeseen situations. If public works operators need to dispatch a vehicle to help with a tough assignment or replace another shift, telematics delivers the visibility required to make an informed decision based on the proximity of all available assets. Knowing the exact whereabouts of their vehicles enables fleet managers to make any necessary changes without slowing down snow clearing. Efficient dispatching – whether planned or unplanned – also promotes increased operational cost savings.

Monitor material usage

Winter operations staff are responsible for providing clear roadways in a sustainable way that avoids excessive material usage. Research has shown that the overuse of de-icing agents poses harm to the environment and human health by contaminating groundwater and the soil. Telematics provides winter operations staff with insights from the controller, such as solid application and liquid application rates. With these metrics, operators can make informed decisions to help safeguard both our motorways and the natural environment.

Strengthen compliance and accountability

Telematics solutions allow public works staff to access live service maps to view real-time compliance to levels of service (which also includes route completion metrics). To go above and beyond for the community, they can make service-level information available to citizens via public information systems. These systems give motorists mobile application and website access to updated data on snow removal status. With this type of information in hand, motorists can plan their commutes to avoid potentially dangerous roadways.

Assist with dispute resolution

Telematics offers winter operations staff a tool to support or refute malicious claims. The combination of plow position status, spreader controller data and precise vehicle location with an exact timestamp helps paint a detailed picture of all vehicle activity at the time of a claim. There’s evidence that the use of telematics helps reduce the cost of fleet collisions.

CHAPTER 3

A decision-maker's checklist for choosing a telematics solution

There are countless factors to consider, and you may be comparing features across several different vendors. This checklist breaks down the key questions and issues you'll want to keep in mind.

1. Clarify your objectives and requirements

Planning and future-proofing your public works telematics program starts long before you select a vendor. First, you have to understand the current challenges and mandates that are driving your agency to explore telematics. Defining your priorities, strategies and business goals is crucial before you can find a partner that supports and empowers you to achieve them. It may be helpful to consider how vendors measure up in the following areas:

Security

Ensure potential providers have robust data security policies, the highest possible cybersecurity standards and necessary certifications (for example, FedRAMP).

Safety

Evaluate telematics providers' capabilities in areas such as safe driving reporting, risk management summaries and vehicle inspection reporting with centralized data.

Fleet optimization

Assess vendors' ability to minimize costs by tracking variables such as idling, fuel efficiency and engine data for preventive maintenance.

Compliance

Investigate vendors' capacity to streamline fleet compliance with features such as electronic logging and integrated vehicle inspection applications, as well their ability to provide the tools to prove public works activity compliance against required levels of service standards.

Expandability

Consider whether a solution enables expansion through features such as third-party device integration, hardware add-ons and integration with OEMs, and whether it provides an interface with the solution platform to obtain data and/or build solutions as an extension of the platform (i.e., Software Development Kits [SDKs]).

Sustainability

Explore vendors' available tools to support environmental sustainability – such as fuel consumption reports and compatibility with electric vehicles/hybrid electric vehicles – and their ability to provide electric vehicle suitability assessments.

2. Identify key vendor attributes

Successfully implementing a telematics solution requires an experienced, reliable and results-driven partner. Identify vendor criteria to eliminate some of the guesswork as you evaluate various vendors' offerings.

3. Consider case studies

Working through a successful path to procurement ensures your telematics program implementation is completed on time, stays on budget, complies with regulations, and achieves near- and long-term success. Ask for evidence on how a vendor has helped other public works agencies succeed.

4. Define your key measures of success

What does successful implementation look like for your agency? Understanding the answer to that question will help you make a purchasing decision that ensures a smooth onboarding process, complete stakeholder buy-in and satisfaction, and easy agency- wide adoption of your new telematics solution.

5. Understand how you'll be supported at every stage

Customer support is a critical component, from day one onward. For onboarding: will your vendor support you with project management, solution engineering, field service and training programs? And for post-deployment, will they offer account management, solutions engineering, technical support and ongoing education?

CHAPTER 4

How to successfully implement telematics in your fleet

Apart from choosing a telematics provider, implementation is one of the most daunting tasks for a fleet manager. Telematics solutions dramatically alter public works fleet management – for the better, no doubt – but change is always difficult in complex operations.

These 11 steps will help ensure a smooth rollout during a large telematics implementation:

1. Know the size and shape of the project

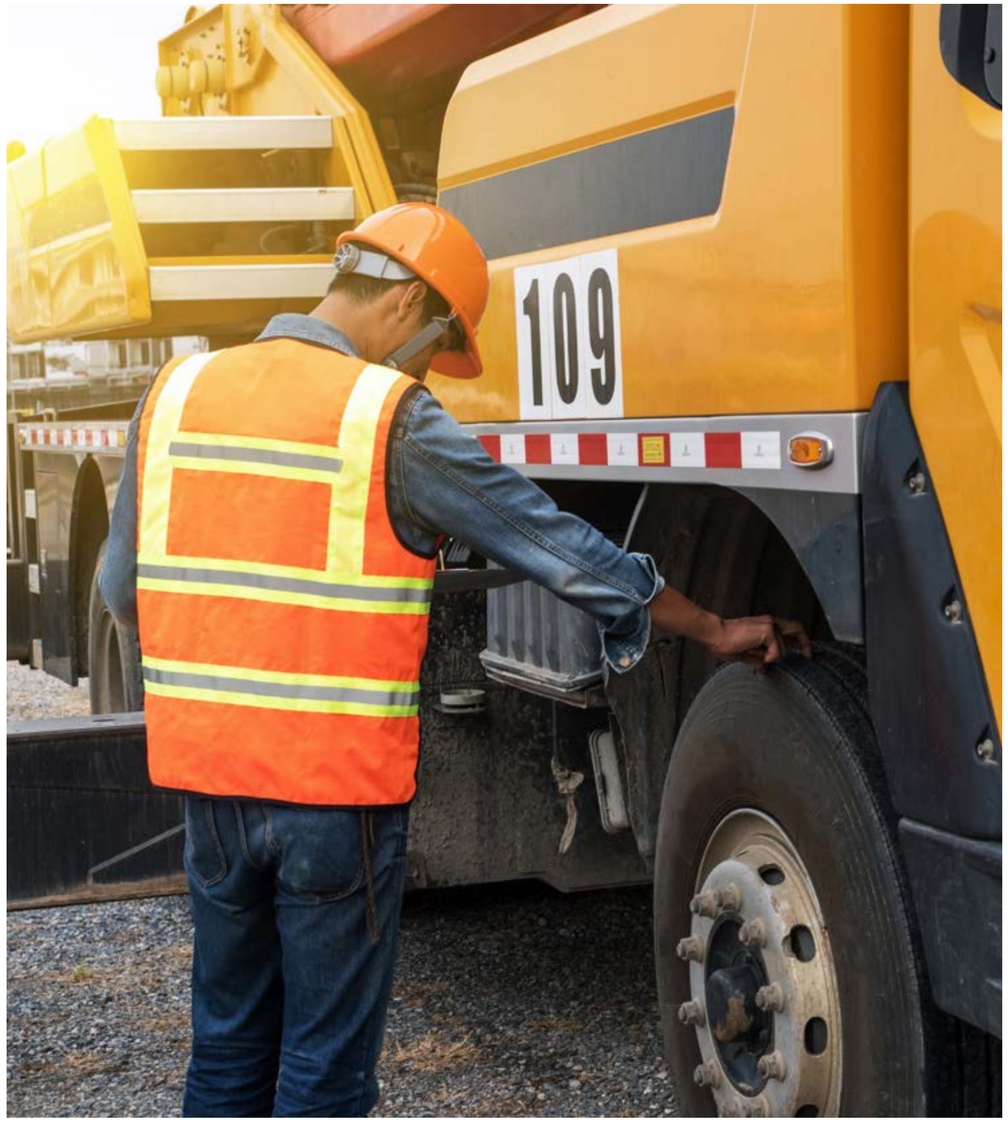
It sounds like an oversimplification, but taking the time to document a complete vehicle list, home location for each vehicle, vehicle availability and the existing installation is key to the rest of this list. Be sure to remove any vehicles from the list that will be decommissioned before the end of the upgrade window and plan for new additions that will be coming in during the same time.

2. Review your solution

Take a hard look at the data and insights you're receiving from your solution so that you can take advantage of additional functionality you may not have needed during the initial installation. For example, has driver behavior proven harder to coach than anticipated, triggering the need to add camera technology? Now is the time to make those changes.

3. Appoint a project manager at every partner organization

This is an often overlooked step that can prevent problems from occurring in the future. The end-customers and any other interested parties like third-party installers should each set a project manager for the implementation.



4. Establish and keep a communication rhythm

Weekly meetings with all project managers and other stakeholders offer the assurance that no more than a few business days will go by before everyone can discuss an issue. Even if there's very little to discuss, keep the schedule going. Some of these meetings will be five minutes long and some will be an hour. It will all depend on the nature of what's going on that week, but constant communication is critical.

5. Develop a statement of work, and keep it updated

One of the project managers should take the lead in developing a project plan or statement of work that outlines who does what, key deliverables and deadlines. By agreeing to these specific goals in advance, and making the inevitable changes together, the working group can avoid confusion and hold each other accountable.

6. Develop field best practices

Before undertaking dozens or hundreds of vehicles at a time, the team should develop a step-by-step description to remove the old device, install the new one and any new add- ons, document the installation and update the portal. Existing documentation can serve as a starting point, but specifics will need to be discussed. Using an assembly line approach is often effective.

7. Create a job aid

By documenting the best practices developed above, the project management team can turn any employee with basic mechanical skills into an installer. When a small number of vehicles can't practically be brought into a central location or a third party must be hired, a thorough job aid can provide training before the installation and accountability after. Setting good expectations for the final product is always a good idea.

8. Plan the whole project, and update it often

After establishing procedure and a job aid, but before fully diving into the installation project, the project management team should update the statement of work to include estimated installation timelines for each site and vehicle type. This plan should be examined at least two weeks in advance of any planned activity to ensure any needed hardware can arrive on time and there are no last minute surprises.

9. Review as you go

Don't wait until the last installation to review deliverables. One member of the project management team should be responsible for confirming that no mistakes have been made in naming vehicles by comparing vehicle name, VIN and device serial number to confirm they're all showing up as expected.

10. Never stop retrofitting

Each time a device is reinstalled into a new vehicle, it should be evaluated to confirm that the cellular network technology is viable for the projected life of that vehicle. Additionally, evaluate whether it supports any potential add-ons or changes and is in good working order. The more devices you upgrade ahead of time, the more risk you can mitigate.

11. Leverage OEM technology

Take the time to work with your provider to understand the data that comes from OEM telematics units (from vehicle manufacturers) so that you're ready to leverage the insights. If your project is delayed due to extreme weather or other factors, knowing which vehicles can leverage OEM telematics will empower you to use them and reallocate your installation resources to those that can't. Fleet managers can use OEM technology on new deliveries of vehicles to quickly deploy them, and then replace them with a more robust implementation as resources allow.

CHAPTER 5

Geotab public works in action

Geotab Public Works is a scalable and robust solution for government fleet management. It helps government agencies manage vehicles such as salt spreaders, snow plows, street sweepers and waste management vehicles.

Watch this video to learn more.

Available in the MyGeotab software platform, the Geotab Public Works solution supports timely servicing of all infrastructure while controlling costs, tracking material usage and more. Separate government fleets by databases or have a full view of all fleet types in one database. Customize and align the Geotab Public Works solution to your government needs and fleet goals.

But don't just take it from us. Our customers say it best.

Missouri Department of Transportation

Maximizing data value with a statewide telematics solution

The Missouri DOT needed to break down information silos created by multiple telematics solutions from separate vendors. By adopting a single, centralized Geotab platform, they can now capture information statewide and maximize the full potential of the data gleaned from fleets across 114 counties. Geotab Public Works:

- Delivers “heat sensor” map overlays for driver congestion
- Provides visibility into mobile workforce in areas such as fuel usage and driver behavior
- Enables automated vehicle location services, dispatch, and vehicle diagnostics

“Geotab has provided us with a system to manage the safety, productivity and utilization of our diverse fleet.”

Paul T. Denkler,
P.E. Assistant District Maintenance Engineer for MoDOT’s Central District and team lead for MoDOT’s AVL/GPS group.

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Town of Blacksburg

Moving from assumption-based to data-based decisions

The Town of Blacksburg used to rely on rough measurements and manual observation to determine how much salt its fleet used for winter operations. With Geotab, management can now make decisions based on real-time data, even in a rural area with connectivity issues. Geotab Public Works:

- Enables consistent uptime by using the cellular carrier with the best coverage
- Offers IOX add-ons for monitoring material usage in winter operations
- Delivers automated, customized reporting for increased transparency

"This is the first time I've ever worked with a company as knowledgeable and helpful as the team at Geotab. No matter who I speak to, or what issues I may come across, the entire team is ready to help at any time. It's a relationship I truly look forward to continuing for many years into the future."

John O'Shea,
Safety and Special Projects Manager for the Town of Blacksburg – Department of Public Works

Franklin County

Achieving Vision Zero safety goals

The Franklin County Engineer's Office has a major safety priority as part of the City of Columbus' commitment to Vision Zero, a worldwide initiative to eliminate all traffic fatalities and severe injuries. Telematics helped achieve this goal by:

- Setting driver safety benchmarks
- Monitoring speed and idling
- Reporting on vehicle type and driver identification
- Recognizing opportunities for driver training

"Being able to pinpoint who is driving each vehicle has allowed the team to identify those teammates who need additional help or training. We have gotten a really good response. We give attention where it's needed. I think the teammates appreciate it."

Jeff Markusic,
Fleet Superintendent in the
Franklin County Engineer's Office

Charlottesville, VA

Building public trust through telematics

Pushing out information to the public in real time was just a dream for Charlottesville, one that Geotab's Citizen Insights product in the Public Works solution was able to make a reality. During the initial pilot, citizens can see up-to-date information on which streets are set for leaf collection and which streets have already been collected. The city hopes to roll this out for snow removal as well to realize these benefits:

- Reduced callbacks for increased efficiency and productivity
- Increase service output with better upfront routing
- Increase trust in the community while reducing citizen inquiries

"I expect Citizen Insights to pay off in other ways as well, including improving routing of the snow removal and salt spreader trucks and to pinpoint inefficiencies and eliminate them."

Ron Cook,
Systems Performance Analyst
for Charlottesville

Massachusetts Department of Transportation (Mass DOT)

Balancing safety, efficiency and sustainability

The Massachusetts DOT is using telematics paired with Automatic Vehicle Location (AVL) and GPS equipment to tackle one of the central challenges confronting winter operations professionals: monitoring and reducing road salt usage. With an advanced telematics solution, they can:

- Easily access granular information such as precipitation type and intensity, road conditions and dewpoint
- Enable data-driven decisions about the most effective and least environmentally damaging methods for clearing particular road types
- Offer access to live service maps to view real-time route completion tracking

"Now we can see the precise location of fleets, measure vehicle performance and evaluate operator behavior. All of this information helps us optimize performance and manage operating costs."

Mark Goldstein,
Mass DOT Highway Operations

Wellington County

A one-stop shop for improved service and better uptime

Wellington County was on the search for a secure telematics solution that could enhance their day-to-day operations. With real-time monitoring of vehicles as a top priority, the unified Geotab solution additionally allowed the county to:

- Enhance safety performance reporting including seatbelt use, harsh turning and braking
- Improve driver behavior armed with the facts about vehicle activity
- Better plan for vehicle maintenance to increase productivity

"We plan to stay the course with Geotab to improve fleet operations and usage while keeping drivers safe. Geotab is an easy-to-use, straightforward and clean system."

Brad Hutchinson,
Road Superintendent with
Wellington County

City of Spokane

Digitizing a manual waste management operation

Until very recently, City of Spokane waste management staff filled two full boxes with paper records – including route sheets – every week. To digitize and boost the overall efficiency of operations, the city implemented a joint solution with Geotab and Geotab Marketplace partner Rubicon to:

- Save up to $25,000 per year in printing costs
- Automate previously manual processes for improved efficiency and thousands of man-hours saved
- Optimize routing and improve lines of communication with customers

"The savings in printing and paper costs alone are in the thousands of dollars per year, plus we're reducing our environmental footprint. The operation is leaner and more efficient while also providing improved customer service to our residents."

Erica Jacobo,
Senior Continuous Improvement Analyst with the City of Spokane

Arlington County

Increasing operational efficiency and accuracy in reporting

Arlington's fleet-related jobs were often managed with spreadsheets, which required slow and frequently labor-intensive updates. The County required a wider view that offered more insight into its fleet operations. Geotab's telematics solution offered the right combination of tools for efficiency and flexibility to automate their processes.

The Geotab Public Works solution helped the County with several aspects across its operations including:

- Monitoring for vehicle idling, health and DVIR completion
- Driver safety and benchmarking
- Reliable fuel monitoring

"We can see where things stand now by looking at past history, routing and more. From an operational standpoint, Geotab has been very helpful."

Ben Baldwin,
Safety Specialist for Arlington

Learn more about Geotab Public Works.

About Geotab

Geotab is advancing security, connecting commercial vehicles to the internet and providing web-based analytics to help customers better manage their fleets. Geotab's open platform and Marketplace, offering hundreds of third-party solution options, allows both small and large businesses to automate operations by integrating vehicle data with their other data assets. As an IoT hub, the in-vehicle device provides additional functionality through IOX Add-Ons. Processing billions of data points a day, Geotab leverages data analytics and machine learning to help customers improve productivity, optimize fleets through the reduction of fuel consumption, enhance driver safety, and achieve strong compliance to regulatory changes. Geotab's products are represented and sold worldwide through Authorized Geotab Resellers.

To learn more, please visit **www.geotab.com** and follow us **@GEOTAB** and on **LinkedIn**.

This white paper is intended to provide information and encourage discussion on topics of interest to the telematics community. Geotab is not providing technical, professional or legal advice through this white paper. While every effort has been made to ensure that the information in this white paper is timely and accurate, errors and omissions may occur, and the information presented here may become out-of-date with the passage of time.

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