

GPS Fleet Tracking Purchasing Guide



Introduction to the GPS Fleet Tracking Buying Process

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Technology offers several competitive advantages for businesses. The latest in many industries is GPS fleet tracking. A GPS (global positioning system) uses satellites to track the GPS unit. Computers record the precise location of the unit at any given time and location. In a fleet tracking system, the units are installed or connected to vehicles so that managers have visibility on where the vehicles are and how they are being used. There are devices so sophisticated that the units can also provide maintenance information, such as fuel and brake usage.

Smart fleet management increases productivity while maximizing efficiency and reducing expenses associated with misuse of time and equipment. Many businesses use vehicles as an integral part of their operation, such as the following:

- Building and Construction
- Chemical
- Energy and Mining
- Plumbing and HVAC
- Food and Beverage
- Government
- Trucking
- Taxi Services
- Utilities, Cable and Telecommunications
- Passenger Transportation Services
- Landscaping
- Towing
- Mobile Workforce, such as Sales

Buying process

The first step in the buying process is to determine what you want the GPS monitoring for. Are you looking for vehicle location services only? Do you want to improve your carbon footprint or save fuel costs?

Before speaking with a seller, it is important to know the answer to the following buying concerns.

- **How many vehicles do you plan to monitor?** The number of vehicles influences how many units you need and the subscription plans that accompany those units.
- **How large of a tracking area do you need to cover?** If your organization has a smaller work radius, it is recommended that you work with a local provider as you will save money. If your fleet travels nationwide, a larger company may be better suited as they'll have the best data plans in terms of service, network and price.

Once you have evaluated the dealer's services, it's essential to compare them to determine which company offers the best value for your needs. The cheapest company may not be the best overall option.

- **Buying tip:** GPS fleet tracking devices are useless without the satellite, wireless and data services required to obtain, log and send appropriate information. Make sure your selected dealer works with reputable and proven service providers to ensure your experience is flawless.

Cost

The cost of using a GPS fleet tracking system depends on a variety of factors. Since it will require an investment of hardware per vehicle, the number of vehicles in the fleet plays a part in overall expenditure. Depending on the type of unit, installing a fleet management system will also require data and wireless services as well as software for the home computer systems to monitor the data reported.

The cost also depends on the type of reporting you want to use. For instance, you can have a unit store data for download later. Such passive devices can be obtained for a one-time fee as low as \$100 per vehicle. If you are looking for real-time data, the price moves to between \$20 and \$50 a month per vehicle. Features have an impact on cost too. Larger and more sophisticated systems can be as much as \$100 a month per vehicle.

Time frame

Installation time per vehicle ranges from one to four hours, depending on the vehicle and how integrated the unit is with the vehicle electronics and engine system. A sophisticated unit on a car will take less time than one on a semi or dump truck. Depending on the size of your fleet and the coverage, it could take a few weeks to be fully functional.

In addition, you and any administrative staff will need to get training on the reporting software and how to use it. Most vendors will provide onsite training during installation, and online training modules for new employees.

Choosing the right GPS fleet tracking system depends on industry trends, device types, dealer services and more. This purchasing guide will help you narrow down what makes the most sense for you and your company so you make the best decision.

Trends

GPS fleet tracking technology continues to evolve to meet the demands and needs of consumers. The following trends in the industry may impact your decision on the type of GPS solution and manufacturer you choose.

Minimizing operating expenses

Cutting fuel costs is one of the biggest savings that come with having a GPS fleet tracking system. The system allows you to identify where there is opportunity for improvement in fuel efficiency. For instance, the system can track vehicle speed; according to the United States Environment Protection Agency, for every 5 mph over the speed limit, it can cost up to 20 cents more gallon of gas. If multiple vehicles in the fleet are routinely exceeding the speed limit, that can add up quickly.

The system can also monitor idling time, as each hour of idling is the equivalent of driving 25 miles. You can set an alert to notify you when a vehicle has been idling a specific amount of time or run reports to see how much a vehicle has been in an idling status during the day or over a period of a time.



Labor is another high operating cost that can be monitored and reduced with the implementation of a GPS fleet tracking solution, as it allows you to see the hours a vehicle is in operation. You will see start and end times, days worked and be able to run reports for average daily, weekly and overtime hours. Such reports can be used as an electronic timesheet, reducing overtime or timesheet fraud, as well as offering real-time opportunities to identify and avoid overtime costs. It also reduces labor hours in the office environment for dispatchers, bookkeepers and clerical support. There is less paperwork to shuffle because key elements are captured in the computer and available at a mouse click.

A GPS fleet tracking system can also offer efficient routing for faster delivery and response time. You can program it to provide the most direct route to any location as well as help lost drivers find their way. Many systems offer updates to current traffic conditions so you can re-route drivers to avoid delays. For industries that respond to calls, the system can let you see which vehicles are closest to a particular location, enabling efficient job assignment and saving time and fuel.

All these features give your organization the chance to improve its carbon footprint. Reducing fuel consumption and spending less time on the road while improving productivity releases fewer carbons into the air and the environment. Maintenance plays a part as well. With real-time oil life and tire pressure monitoring, you can improve your fuel usage, saving money and the planet at the same time.

Improving fleet safety and security

Misuse of vehicles is another costly item for companies. Whether it's unauthorized vehicle use or unsafe driving, such events have the potential to waste time, energy and money.

You can monitor unauthorized vehicle use through location services, route tracking and monitoring idling time. Some systems allow you to set up a "geofence" – an area that is permissible for the vehicles to operate within. When the vehicle goes outside of the perimeter, the system notifies you.

This also helps in fleet security. If a vehicle is stolen, you can see it quickly and respond promptly by notifying authorities. You can track its location and replay its route to aid in the recovery. Fast action reduces the likelihood of the thieves stealing tools or other property in the vehicle.

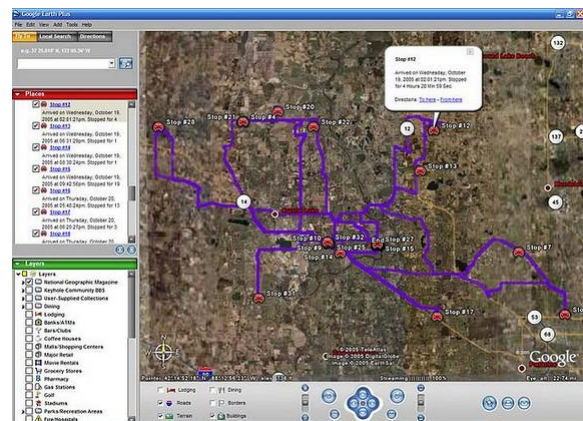
Dangerous driving, like excessive speeding, not only consumes additional fuel but can also result in tickets or accidents. You can set alerts for when a vehicle goes beyond a preset speed limit or watch speeds in real-time on your computer screen.

Unsafe driving puts your entire company at risk, not just the driver or passenger in the vehicle. Serious accidents can result in loss of life and/or significant damage to an asset. Reviewing driver activity on a regular basis will make everyone pay more attention to how they drive, where they drive and increase overall safety.

Better management

The real-time and accurate data supplied by the fleet tracking system also improves backend and behind-the-scenes business processes. For instance, you can improve your billing procedures.

Instead of waiting for a driver to get back to the office and file their paperwork, you can pull job data from the computer. Many systems integrate vehicle monitoring data fields right into the billing system, allowing you to customize invoices and print or send at the click of a button.



The system also reduces the need for paperwork. It becomes an electronic mileage log and timecard for drivers. Many systems integrate into popular accounting systems so you can download invoices, payments, and payroll and tax information between systems. This increases efficiency while reducing the need for staff to review, enter and file paperwork.

It also enables better maintenance management. A proactive maintenance program reduces cost and extends the life of the vehicles in your fleet. A GPS fleet monitoring system allows you

to track the maintenance requirements for every vehicle in your fleet. You can set reminders based on time, miles, engine running time or real-time monitoring. The system will email you or send an alert through the reports module. It will also help reduce the chance that the vehicles will break down while out on the road, eliminating costs associated with emergency repair like towing.

While the initial costs to implement a GPS tracking solution may seem daunting, most organizations with them in place recoup their costs in three to six months. Average statistics include:

- Approximate 20% improvement in productivity
- Fuel costs decreasing from 25% – 35%
- For every \$1 spent on fleet management, experience a return of \$2 to \$5

Types

GPS trackers fall predominantly into two categories: passive and real-time devices. Passive devices retain data that must be actively retrieved. Real-time devices are constantly connected to a server and either automatically send data to the server or are accessible from a computer terminal at any time.

They are also referred to as GPS Data Loggers (passive), Data Pullers (passive) and Data Pushers (real-time).

- **GPS Data Loggers:** log position and other programmed data in its internal memory for download later. The device is connected to a computer either by USB or memory card to retrieve the information for review and use.
- **Data Pushers:** the most common type of GPS unit. These devices “push”, or send, data to the server instantly. In real-time, someone monitoring the vehicle from an office, personal computer or even smartphone can see vehicle location, speed and other preprogrammed variables.
- **Data Pullers:** always on and can be probed from a computer or smartphone. The unit retains the data for review and analysis when it is opened by an active check. These types of devices are more common in situations where only an occasional check on location or status is necessary rather than streaming live all the time.

We'll go into more explanation on how these types vary below.

Passive GPS trackers

Passive units are common in food and beverage and landscaping businesses, as well as basic security and investigative services, where occasional checks on location are the predominant requirement. Passive GPS trackers save data for download later. When you want to review the stored data, you simply remove the memory card or connect the unit to your computer with a USB cord.

Quick features include:

- Available as plug in devices or can be hardwired into the vehicle's electrical system
- Can clip on the interior dash or can be fastened on the windshield

You can determine what data you want the unit to record like location, route, speed, idling time, driving time and more. They are typically inexpensive and don't require a monthly subscription fee. As a fairly basic system, the software only needs simple and infrequent updating.

Real-time GPS trackers

Real-time GPS trackers can also be plugged into the vehicle or hardwired in. Many manufacturers also have options to order new vehicles with the technology imbedded into the dash. These units include a transmitter that "pushes" or "sends" data on a continual basis to a server where it's simultaneously saved and viewable. This allows an operator to view or monitor a vehicle on the move or use the saved data to run reports to analyze use.

These units can be programmed to monitor, save and send the same data as passive units. They do require a monthly subscription fee to maintain the ability to have precise live data updates. They will also require more frequent updates for both the server software system and the hardware (units) installed on or in the vehicles.

This is the type of GPS tracker used more frequently in industries like logistics, transportation, and construction. Other trades that use them include utilities, public works, police and other emergency responders. These activities have the most to gain by tracking fuel use, mileage, driver activity and location to cut costs and optimize services.

Each type of GPS tracker has its benefits. When you are trying to decide which type to implement in your business, consider these questions:

- What details do you want to track?
- Which is more important to you: frequent tracking updates or total daily activity?
- Who will run and monitor the system?
- Do you need remote access to fleet tracking data?
- Will you be dispatching or rerouting your vehicles on the fly?

Specifications

There are many aspects of a GPS fleet tracking solution that you should consider when comparing technology, software, and diagnostics. These different options can impact the cost so they need to be weighed carefully in your final decision.

One of the considerations should be the tracking device placed in the vehicle. The units come in a range of sizes, power and capability.

Power	2 AA batteries, lithium batteries or 9 -40 volts
Environment	Temperatures for peak performance range from -30C to 85C with humidity of up to 95% non-condensing
Frequency	850/900/1800/1900
Transmit power	Class 4 (2W@850/950 MHz) or Class 1 (1W@1800/1900 MHz)
GSM functionality	Text, PDU or MO/MT
GPS functionality	NMEA or binary
Interface	AT commands, UDP or TCP

For passive units, also ask about type of data output and storage capacity.

The size of fleet will make a difference. Beyond the cost per unit per vehicle, there are more options available to medium or enterprise fleets than smaller fleets based on practicality and need of use. Also, certain dealers may not have the infrastructure to support many large fleets given the data usage and server requirements. So be sure to ask what they can reasonably support well.

Standard options

There are several options considered standard for real-time devices. They are as follows:

- Location services that include routes driven and stops made are fairly standard
- Speed and idling monitoring
- Mileage and fuel tracking
- Maintenance alerts and unsafe driving habit notifications



These options should not increase the price. As a reminder, some of these may not be available for passive units because of the nature of that device's capabilities.

Advanced options and features

Advanced features may have an additional cost associated with them. These features are more in-depth and ingrained into the overall system of tracking and reporting. Not all dealers will offer custom reports, driver identification or engine fault codes, for instance.

If you want mobile capabilities and real-time location updates, those may come at a premium, requiring subscription as well as wireless and data plans. You can also elect for packages that include software and systems capable of sending text message and email alerts for predetermined infractions, such as operating outside of the geofence, maintenance needs, and excessive idling time.

Add-ons

There are many [additional tools](#) you can add to your GPS fleet tracking solution that will improve efficiency and boost their effectiveness. Some of the most common are:

- **Magnetic and weatherproof mounting.** You can place the device on almost any metal service and be confident that the weather will not affect it. Price: under \$50.
- **Power savers.** These put the device into a sleep mode when not needed, such as when a vehicle is not moving. Devices can also be programmed with on and off times. This is nearly a standard feature now, with little additional cost if any.
- **Remote starter disable.** This allows the operator or the home office to render the vehicle unable to start. This helps eliminate theft and prevent unauthorized use. Price: under \$100 per vehicle.
- **In-car camera systems.** Having a camera inside the vehicle has many uses, from driver monitoring to recording driving and accidents. This improves safety and can improve efficiency. Installing this feature is under \$200 per vehicle, depending on the quality of the camera.
- **Salter/Sander monitoring system.** Excellent for city, county and state public works activities, the salter/sander monitoring system gives management visibility and control over how much salt or sand is spread out. It tracks which roads were treated and maintains records of quantity used and time spent.
- **Remote start.** Remote start allows the driver or home office to start the vehicle before entry. This helps with climate control as well as priming hydraulics on large equipment. This add-on is approximately \$100 - \$400, depending on the vehicle or piece of

equipment.

- **Gas detection systems.** This feature improves worker safety when they work in confined spaces with oil and gas or fire and HAZMAT. The sensors can recognize the presence of more than 120 gases in unsafe amounts, warning the drivers before they exit the vehicle. This add-on is under \$500 per vehicle and requires a subscription.

Questions to Ask a Dealer

Fleet management and monitoring is a complicated decision process. Choosing a dealer that has all the features you require at a price you think is reasonable requires research and conversation. Both you and the dealer need to be active participants in the development of a system that meets all of your needs.

When you are speaking with a dealer, beyond the software and hardware, ask how much control the company has over the system they are selling. Are they the manufacturer or a third-party seller? When you work directly with a manufacturer, you may have more access to customization options; or, you can request something that they may not offer as a stock option but would be willing to develop for your use.

Inquire about their service history:

- How many satellites does their system use?
- How often have they experience outages?
- Does it need frequent maintenance?



Ask about installation support. Do they send technicians to your location to install all the GPS units? In some cases, each vehicle may need to go their service center. Is that something you can accomplish reasonably? How long will installation take for each vehicle? You will need to schedule and account for the time with your customers, job site and employees.

Also ask about the software support:

- Is the software web-based or does it need to be installed on specific computers?
- What are the administrative controls for access into the system modules?
- Are there various levels that can be assigned?
- How often does it need updating?

Customer support is another important consideration:

- Will they provide training?
- If so, onsite or online?
- Can you arrange a demonstration for your personnel so they can see the system in-use and ask questions?

Whether you are purchasing a GPS fleet tracking solution or leasing it, ask about repairs:

- Can you repair yourself?
- Do you need to send technicians to a class or to get certified by the manufacturer?
- What repair is considered operator or field level and okay to self-perform?
- At what point does the system need to be repaired by the dealer?
- What routine maintenance is required, if any?
- What about recalibration?

Finally, ask about warranties. You never know what is going to happen on a jobsite, out in the field or on the driver's route. Software develops glitches, computers crash and networks go down. What kind of warranty is available? Are there differences in warranties for clip-ons versus hardwired units? What would void a warranty?

As always, look at testimonials from current customers as well as reviews on third-party websites. By evaluating dealers for options, services and support, you can choose the best possible GPS fleet tracking solution that will improve your business.

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