QUICK GUIDE

How to Use GPS to Improve Fleet Utilization
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One of the key functions for fleet managers is to ensure their fleet has the right mix of equipment and that the equipment is utilized well. While it may be up to operations to determine the specific types of equipment needed and the number required to support daily use, fleet managers can assist with the analysis of utilization to determine if a department has the right mix of vehicles and equipment. They can also help determine if a department has excess equipment that should be removed or reassigned, or if the department can justify the need for additional equipment.

This quick guide will explore the ways in which fleet managers can use a GPS system to increase the accuracy of fleet data to improve utilization analysis and lead to a better managed fleet.
Maintenance Forecasting

Understanding utilization can also help fleet managers with maintenance forecasting. Good preventive maintenance programs use both time and usage intervals to schedule routine maintenance services. By measuring the average daily use, fleet management systems can forecast the approximate dates when maintenance services will be due for a particular vehicle. The more frequent and more accurate the usage readings, the more accurate the maintenance forecasting. Without good utilization data, services tend to be time driven which can result in either under- or over-maintaining vehicles.
Utilization Challenges

Historically, the collection of accurate vehicle meter readings to determine utilization has been challenging. Without an automated way to collect odometer readings, fleets have to rely on driver-maintained logs, yard checks to collect readings, or monthly usage reports. Some fleets also capture meter readings during fueling, either on paper logs or by keying the readings into the fuel island controller. The big problem with manual collection is that meter readings may be inaccurate due to human error and lack of validation.

The more frequently readings are collected, the more accurately a fleet manager can calculate usage between readings. When readings are collected infrequently, then the data collected can only give a broad picture of that asset’s usage. For example, monthly usage statistics may say a vehicle traveled 1000 miles, but a fleet manager wouldn’t know if that was consistent use, or a few long trips with the vehicle being idle the rest of the time. Surveys or daily logs can help to get a more accurate picture about the number of trips made, when the vehicle is used and how far it goes on each trip, but these are labor intensive to maintain.

Another problem is that drivers can usually only report odometer readings which measure distance traveled. Unless the vehicle is equipped with an engine hour meter which can measure the operating time of the engine, it’s very difficult to measure when the vehicle is stationary, but in use. This can be important for public safety, utility, construction and service fleets where a vehicle may be parked, but the engine and equipment on the vehicle is constantly running. Low distance statistics may suggest vehicles are under-utilized when, in fact, they are being used all day long.
Improve Data Collection with GPS

All of these problems can be solved by automating the collection of utilization data through an AVL/GPS system that is connected to a vehicle’s on-board computer. A GPS system can capture important usage data either directly from the on-board computer, or by using GPS latitude and longitude readings to calculate the distance traveled. The systems can also collect engine hour readings and idle time information, key-on and key-off events, and on/off data from devices on the vehicle, like door openings, lift arm activation, or PTO engagement.

This is valuable data to fleet managers and offers a number of key benefits:
1. Accuracy

Data is collected electronically and does not require manual data entry. Because events are time-stamped, they can be easily ordered in a meter journal and used to link to other transaction events such as repairs and fueling. Many fleets with GPS systems don’t allow manual entry of usage on work orders or fuel transactions, instead link these events to the closest GPS-supplied reading to avoid errors.

2. Frequency

Data collected every few minutes, or batch data reported when a vehicle returns to the yard, vastly improves the number of observations that can be collected and analyzed. This allows a fleet manager to measure day-to-day, and even hour-to-hour utilization of an asset. By plotting usage graphically, managers can see the times of day a vehicle is in operation and any variations in daily and hourly usage. This can be invaluable in evaluating the need for vehicles, opportunities to share vehicles, or in justifying more resources to take the load off of highly-utilized units.
3. Maintenance

The frequency and accuracy of vehicle usage data can improve preventive maintenance forecasting and result in maintenance cost savings. Frequent readings create a usage profile and pattern that makes it easier to predict when vehicles will meet usage-based maintenance thresholds. This will result in more accurate scheduling of vehicle services, eliminate vehicles being over-serviced, as well as allow fleet managers to respond to any recent changes in vehicle usage patterns that may increase or decrease the need for service due to rising or declining usage. Fleets can see real cost benefits from reducing excessive services caused by a time-dependent PM schedule and from reduction of potential breakdowns of highly utilized equipment that was not serviced enough.
4. Demand

The daily demand for vehicles is particularly challenging to measure. A vehicle may appear to be highly used, but it is difficult to tell if that is from one trip to the same location every day or because the vehicle is making many starts and stops during the day. By collecting key-on and key off and attachment on/off data, fleet managers can get a complete picture of the number of trips a vehicle makes and how often equipment is used. This is valuable in making decisions about the need for vehicles, opportunities to share or pool vehicles and providing alternatives such as rentals and other transportation methods.

5. Engine Idle

Monitoring engine operation and vehicle idle is another important utilization metric. Unnecessary idling wastes fuel and pollutes the environment. Organizations can often save money by identifying operators that are leaving vehicles running when they shouldn’t. It can also be useful in determining the on-site usage of, for example, a public safety vehicle parked at a scene. This information used in conjunction with the demand and distance data can provide a more complete picture about a vehicle’s daily operations.
6. Attachment Usage

By linking the GPS system to sensors on vehicle attachments, data can be collected that can provide information to operations about the use of the equipment. Doors opening and closing on transit vehicles can measure where and how frequently passengers board. Sensors tied to salt spreaders can measure when the spreader is on and even report the amount of material applied. Sensors on a plow can indicate when the truck was plowing and sensors on lift arms of sanitation equipment can indicate when a stop is made to collect trash from a customer. These indirect indicators can be used in conjunction with other utilization data to provide another dimension of knowledge regarding volume and operating activity that be used to justify the need for equipment.
Return on Investment

The return on investment for automating utilization collection can come from a number of different sources:

- Finding under-utilized equipment that can either be used to redistribute the workload of highly-utilized assets or eliminated from the fleet can result in big capital cost savings. Assets that don’t need to be replaced will reduce annual capital spend for the next and each subsequent replacement cycle.

- Under-utilized assets get regularly scheduled services to keep them in safer operating condition. Removing these vehicles from the fleet will reduce the overall number of PM services that need to be completed, reducing labor hours and avoiding PM part costs.

- Aligning maintenance intervals to occur when the vehicle is about to meet the OEM recommended maintenance interval can generate savings from doing PMs too frequently or missing PMs on highly-utilized vehicles. Fleets that can move to more usage-based intervals can see the total number of PM services that must be delivered annually decrease.

- Eliminating under-utilized assets can result in a one-time increase in disposal revenue, particularly if the reduction results in retiring assets ahead of schedule.

- Fuel savings can occur from reducing unnecessary idling and eliminating unnecessary vehicle usage. When operators have their usage and idling monitored, vehicles may travel fewer unnecessary miles and decrease unnecessary idling resulting in lowered fuel consumption.
AssetWorks GPS Solutions

Armed with more accurate, frequent and complete data about the operation of equipment, fleet managers and operations departments can work together to better align the fleet to meet the operating needs of the business and achieve real, recognizable savings.

AssetWorks GPS solutions are designed to fit every fleet’s needs and budget. Choose from real-time active GPS, lower cost passive GPS or a combination of the two depending on your specific vehicles and the work they perform each day.

A real-time integration between AssetWorks GPS solutions and FleetFocus maintenance management system means near real-time meter readings can be sent directly from the vehicle to FleetFocus, which saves time and allows for accurate scheduling of preventive maintenance.

For more information on how AssetWorks GPS Solutions can help you improve fleet performance, visit www.assetworks.com