

AVSAL: Costs and Benefits, Two Systems Compared.

An in-house study by Organizational Results in cooperation with General Services and Maintenance divisions.

MoDOT Summary Statement::

Based on the findings of this study, the overall decision for or against Automated Vehicle Status and Location system should be made on benefits as a whole, rather than on costs alone. MoDOT employees acting on AVSAL reports, recommend using AVSALs. The comparative analysis of the two systems tested by MoDOT suggests Fleet Point to be the preferred system. Should Aware agree to cooperate with Fleet Point, MoDOT could buy units from both companies with all units reporting to one data collection and presentation system.

Background:

MoDOT headquarters and the St. Louis Area District each tested an AVSAL system. AVSALs are different from GPS devices, in that a GPS device shows a driver the current location, or directions to a destination. An AVSAL uses a vehicle's computer, GPS, a cell phone service, and various computer services to report both the status and location of a vehicle to dispatchers and managers. It is possible for an AVSAL to provide GPS information to the driver, but neither test system did so.

The primary goal of this project was to compare two AVSAL systems, and recommend which system, if either, to be MoDOT's only system. The St. Louis Area District had previously experimented with AVSALs, and then used an RFP process to select one for further development and use in other districts. The system they selected is Fleet Point. Various division in headquarters had previous experience with International's Navistar Aware system as related to a fuel efficiency study. Headquarters selected the Aware system for further study in Districts 3, 4, and 5.

Costs and Benefits:

AVSAL systems in general have obvious costs. Their benefits are never as obvious, and take longer to be realized. Benefits require system installation and then development for clear presentations of the massive data collected. Users must be educated and encouraged; they must take time to understand data presentations; and they must be motivated to take action. Thus, benefits require time for installation, development, education, and actions. When properly used an AVSAL system can:

- Change driver behavior to save fuel costs from less idling, better acceleration, and shorter routes. (This benefit has the most potential for provable savings greater than system costs.)
- Identify personnel behavior problems.
- Check property damage claims for validity, and save money on denied claims.
- Help local managers monitor work in more than one location at a time, or direct work to areas not yet treated and avoid wasted expenditures.



Overall Costs and Benefits (cont'd.):

- Help mechanics fix problems before costly damages, lost time, or accidents happen; and also to predict routine maintenance for better scheduling with related cost savings.
- Help regional managers understand the fleet better with respect to lemon vehicles, under-utilized vehicles, or equivalent makes and models that do not have equivalent maintenance or fuel costs.
- Assist dispatchers to respond better to trouble reports, accident response, and disaster response—with a potential to save dollars and lives. Dispatchers can send help based on location plus availability. (For instance a further away crew, not currently set up in a work zone, can respond faster than a closer crew, which has to break down a work zone before it can respond.)
- Work in conjunction with traffic monitoring or other systems to send the right kind of equipment to the right location. (For instance, sending truck plows to where traffic conditions allow plowing speeds, and sending specialty equipment to where congestion requires slow-speed plowing.)

Two Systems Compared:

MoDOT found the one-time price per vehicle was about \$800 for either system, when installed with the same capabilities (one unit with two extra switches). Software and monthly service fees and values were hard to compare since their reporting systems were so different.

The separate MoDOT efforts resulted in more time spent customizing the Fleet Point System than the Aware system. If the same effort had been applied to both systems, it may have resulted in similar end products. However, MoDOT found Fleet Point's final interface caused less frustration for first-time or occasional users. Both systems relied on "intuitive" interfaces or on-line training, which work well for enthusiast, but more formal education options are needed.



To help with monthly fees (and better real-time performance), the Fleet Point system can report to MoDOT owned servers for data compilation and distribution. This would reduce service fees (and some time-delays), but would increase MoDOT's network costs. Fleet Point also has the potential to use a MoDOT owned radio system instead of a third-party cell phone system. This would further reduce fees, but increase radio costs, and require a replacement of transmitters within installed AVSAL units. The Aware system offered neither option.

While all of MoDOT's fleet is a major opportunity for Fleet Point, MoDOT's newest International fleet is a small opportunity compared to International's trucking business. Customer service from Fleet Point suggests an interest in MoDOT as a major customer. Customer service from Aware appeared as if MoDOT were a minor customer. However, this appearance may have been caused by a change in the Aware customer service structure, during our study. Either way, Fleet Point provided better customer service, during the study.



Two Systems Compared (cont'd.):

The International, Navistar Aware system is related to the International Truck Company. Because of the relationship, Aware units can be factory installed on new trucks. However, MoDOT had problems when connecting add-on equipment, such as a salt spreader. The related support problems may also have been due to Aware's changing service structure. No effort was made to install Aware on trucks by other makers, or any other types of vehicles, in part due to our poor experience with connecting add-on equipment.

The Fleet Point system is not related to any vehicle maker. Its business depends on adapting units to any vehicle, and to any vehicle's customizations, such as salt-spreaders, lift-buckets, or safety-lights. ("Vehicles" includes "equipment" such as tractors, sweepers, and motor graders. We refer to them as vehicles because some "equipment" cannot have AVSAL units. Such as trailers, pavement saws, and salt spreaders when separate from trucks.) MoDOT found Fleet Point capable of installing AVSAL units on any vehicles, with any modifications—except International trucks.

Since International is selling its proprietary Aware system, the company was unwilling to cooperate with Fleet Point. International would not help Fleet Point connect to truck computers, nor would they allow Aware units to report to Fleet Point data collection servers. This forces MoDOT to choose between Fleet Point, which worked well with all equipment except International trucks; and Aware, which worked well with International trucks only. MoDOT is caught in the middle with significant numbers of vehicles either way. Alternately, we could make compatibility a requirement of future vehicle purchases, in which case, International would need to offer compatibility or not sell to MoDOT.
