PennDOT Automated Vehicle Location (AVL) System Pilot

PennDOT began a pilot including 119 plow trucks in 2014-15 with the Automated Vehicle Location (AVL) system, which uses in-truck technology to log and share data in real-time for that truck. The AVL unit in each truck sends a cellular signal through the system showing where a truck is located and whether or how much material is being spread from the truck.

In the 2015-16 winter, the pilot expanded to 516 PennDOT dump trucks and 212 contracted rental trucks. Through the 2016-17 winter, PennDOT will continue installing AVL in the more than 2,200 department dump trucks and roughly 300 contracted rental trucks on interstates and expressways across the state. The trucks and their operators maintain the more than 40,000 miles of roadway for which PennDOT is responsible.

PennDOT will use AVL to:

- Monitor vehicle movement and plow-route coverage.
- Monitor the system during winter storms or emergencies and, if needed, see the closest truck to an area that needs additional service and direct trucks to that location.
- Review data on effectiveness in returning traffic to pre-storm conditions.
- Review usage of materials such as salt and anti-skid through the various stages of a weather event.
- Interface with other department technology to combine real-time weather and road conditions with corresponding material-usage rates.

What if I don't see a truck on 511?

- AVL will be installed on the rest of our fleet throughout the winter so you may be viewing a route with a backup truck or that hasn't yet had a unit installed.

What if I see a plow truck stopped before or during a snow storm?

- PennDOT staff regularly work long shifts during storms and for safety and due to practical reasons, staff will take breaks occasionally during storms.
- PennDOT does not maintain fuel storage tanks so you will see trucks stopping at gas stations to refuel.
- After its cycle, each truck stops at a stockpile to reload material and so operators can use the restroom.
- Trucks need to go at a safe speed and will slow down during especially challenging conditions. They also get stuck in the same traffic that other motorists get stuck in, making it especially important for motorists to avoid unnecessary travel during winter weather if possible.
- Under a winter event that requires the spreading of salt as opposed to plowing a significant amount of snow, a truck may not begin its next cycle on purpose to allow the salt that was already placed to work as opposed to plowing that salt back off.

- Since weather is unpredictable and keeping traffic moving as safely as possible is the department's primary goal, trucks may be staged at strategic points along interstates and expressways before storms begin so they can quickly start treating roads once conditions warrant.

Why are trucks spaced differently on the highways?

- Trucks follow specific truck routes – the average truck route is 40 miles long!
- Each truck on a highway has different numbers of lanes to clear, different elevations to deal with and different levels of traffic, so not all routes will take the same length of time.
- Under ideal conditions in a low-accumulation storm, a truck route will take an average of 90 minutes on interstates and expressways.
- With more traffic and worse weather, these routes will take longer.

Cost and Savings:

- The AVL system pilot is part of Governor Wolf's GO-TIME initiative that leverages inter-agency coordination and collaboration to maximize efficiency, modernize state government operations, and provide the highest quality services.
- The pilot, as one of seven GO-TIME projects identified by PennDOT in 2016-2017, is expected to realize a cost savings of $1.8 million over the next four to six years based on a combination of reduced salt usage and better use of department equipment.
- The unit cost per truck is $1,200, with an average monthly cellular plan of roughly $35 per month.

PennDOT's future plans for AVL:

- Continue to show AVL information on 511 for transparency for the public.
- Continue evaluating AVL data to identify potential areas for improvement as well as best practices.