

VDOT Innovation and Technology Implementation Plan

Primary Tasking

VDOT will be a leader in innovation and technology by implementing early deployments to:

1. Improve safety to the goal of **zero annual** fatalities
2. Improve operations, providing increased mobility and reduced congestion; connecting people and moving goods in a more timely and efficient manner
3. Concurrently reduce infrastructure costs and improve State of Good Repair in order to repurpose spending from obsolete assets to core needs and innovative approaches.
4. Drive the implementation toward significantly reduced overall public sector transportation infrastructure investment

Transition

Make Virginia the leader and the desired test bed for the implementation of new technologies by our ability to enable rapid pilot testing in a real-world environment, with rapid implementation once proven successful.

Quick Wins

1. Develop the roadway of the future by beginning the replacement of traffic signals with connected vehicle technology in coordination with the automotive industry. Target of 10 years for full implementation.
2. Begin deployment of enhanced edge of pavement and other lane markings in coordination with the automotive industry to eliminate road and lane departure crashes. Target of 10 years for full implementation.
3. Implement a cloud-based data portal to provide road condition, traffic incident, work zone, multimodal traffic data, and roadside signage information for connected and automated vehicle consumption. 1 year for full implementation.

End State

The roadway of 2030:

1. Will support a mixed vehicle fleet composed of standard vehicles, connected vehicles, vehicles with driver-assist functionality and fully autonomous vehicles.
2. Will operate at higher speeds safely.
3. May convert existing express lanes to lanes dedicated to fully automated vehicles to maximize the benefits of that technology.
4. Will have directional and other signage transmitted into vehicles from the cloud; making roadside signage and structures obsolete.
5. Will have electronic roadside equipment broadcasting signal phase and timing instead of standard traffic signals; making traffic signals and poles obsolete.
6. Will charge for tolls, transit, and parking through cloud-based payment systems; making traditional toll booths, fare collection, and open road tolling infrastructure obsolete.
7. Will have enhanced edge of pavement and other lane markings preventing road and lane departure crashes and allowing fully automated vehicles to drive safely; allowing for fewer guardrail/barrier installations, reducing infrastructure and maintenance costs.
8. Will have reduced lane widths due to the improved driving of connected and automated vehicles; 12' or 13' lanes would only be needed for freight vehicles and wide loads.
9. Will have a different typical section and pavement structure that is more cost-effective and appropriate for the increased number of connected and automated vehicles.