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# Next Steps in Research

- Connected Automation
- Privacy and Security
- Data Delivery for V2I
- Human Computer Interaction
- CAV Policy

# Connected & Autonomous Vehicles – 2040 Vision


- Infrastructure investment and design
- Communication devices
- Real time data use
- Driver licensing
- Workforce training needs
- Freight movement

traffic21
a transportation research institute of Carnegie Mellon University

# Proposed PennDOT Actions

**2014-2016**

- **Thorough evaluation of all existing and planned capacity/LOS enhancement and ITS related investments.**
- **Collaboration with private sector to convert data into information for sending to cloud.**
- **Prioritization of safety and mobility applications.**
- **Identification and prioritization of key locations for DSRC and roadside equipment deployment.**
- **Funding allocation for DSRC and roadside units.**

# Proposed PennDOT Actions

**2016-2020**

- **Upgrading signal controllers, equipment and firmware where necessary.**
- **Early small-scale deployment of V2I applications at key locations.**

# Proposed PennDOT Actions

**2021 - 2030**

- **Collaborate with local and state educational institutions to enhance workforce training.**
- **Update driver testing criteria for Level 3 automation.**
- **Design of driver licensing training for emergency situations, system malfunctions, regulations and human interaction levels.**
- **Work with the trucking industry and State Police to design features tailored to these stakeholders.**
- **Deployment expansions – large scale deployment of equipment and applications.**

# Proposed PennDOT Actions

**2031 – 2040**

- Provide for a new license class for those wishing to drive their manual cars.
- Dedicate some highway lanes to autonomous vehicle use.
- Reconfigure and repurpose lanes.
- Phase out freight infrastructure (e.g.  over-height warnings, weigh stations) as new technologies are introduced.