DEPARTMENT OF TRANSPORTATION

**Connected and Automated Vehicle Scenario Planning**

MnDOT used this scenario as part of a **scenario planning process with stakeholders** to create the agency's first Connected and Automated Vehicles Strategic Plan.

For more information, see www.dot.state.mn.us/automated.

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**SCENARIO:**

# ADVANCING TECHNOLOGY

*Today's technology gets incrementally better and becomes more common*

## SUMMARY

Moderate advances and wider adoption of CAV technologies that were available or in advanced stages of testing in 2019.

## KEY ASSUMPTIONS

- Continued progress and innovation in CAV, but connected and Level 4 highly automated vehicles not common
- Highly automated shuttles can operate in limited approved areas

## INDICATORS

| Connectivity | Automation | Electrification | Sharing |
|---|---|---|---|
| LOW | LOW | LOW | LOW |

## A DAY IN THE LIFE

*Parker is traveling in the early morning from their farm outside Fergus Falls— a small rural town of almost 14,000 people about 80 miles south of Fargo, ND— to visit her father at his suburban assisted living community. She loves that her father can get around within the small community on his own, using the wheelchair-accessible automated shuttle. While the car dealers say affordable Level 4 AVs are coming soon, she is happy to have all the latest safety features on the pickup she recently bought. The automatic braking and lane keeping make her trip safer as she passes another long platoon of trucks on the highway.*

## WHAT'S DIFFERENT FROM TODAY?

| TECHNOLOGY INDICATORS | | |
|---|---|---|
| **Connectivity** | **LOW** | – 15% of vehicles can communicate with other connected vehicles, roadside infrastructure (e.g., traffic signals) and devices (e.g., smart phones)<br>– Truck platooning on rural expressways and interstates is common |
| **Automation** | **LOW** | – 15% of vehicles are highly automated<br>– Highly automated shuttles only in approved zones |
| **Electrification** | **LOW** | – 5% of vehicles are electric (up to 15% in urban areas), still a an increase from today<br>– Shuttles in approved zones are electric |
| **Sharing** | **LOW** | – Public agencies and private entities are only beginning to work cooperatively<br>– Shared mobility fleets (e.g., Uber, Lyft) and public transit work together in many cities<br>– 5-10% of travel done using mobility-on-demand (up to 20% in cities), usually as non-shared rides |

| DISTRIBUTION OF BENEFITS | |
|---|---|
| **Users** | – Where in use, connected and automated technology applies primarily to motor vehicles (i.e., cars, trucks, transit)<br>– People walking, rolling and bicycling benefit from motor vehicle safety devices<br>– Individuals with limited mobility benefit from automated shuttles in approved zones |
| **Locations** | – Connected and automated vehicle safety features are not limited to any specific geography in the state<br>– Automated zones could be anywhere but more likely in areas with greater density – urban cores, campuses (college, medical, corporate), etc. |

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