

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:

CONNECTED INFRASTRUCTURE

Connected vehicles and devices improve safety and efficiency

SUMMARY

The public sector makes significant investment in connected infrastructure to encourage CAV adoption, which has lagged due to slower than expected development of automated vehicle technologies.

KEY ASSUMPTIONS

- Level 2 and 3 AV technology is common but requires supportive connected infrastructure to achieve benefits
- Public agencies invest in connected technologies to make AVs more functional

INDICATORS

Connectivity

Automation

Electrification

Sharing



A DAY IN THE LIFE

At the peak of rush hour, Shandra leaves her home in Apple Valley—a suburb 20 miles south of Minneapolis. Ever since Interstate 35 became the region's premier connected corridor, driving has become safer and more efficient. At the freeway on-ramp, Shandra's car warns her of a crossing pedestrian she hadn't seen in the dusk. She easily slides into traffic and settles into a platoon of other connected cars, trucks, and buses. Messaging signs display the travel speed and travel times to various points, and the smoother flow of traffic has improved fuel efficiency. Once downtown, a display on the dashboard shows the optimal speed to avoid stopping at red lights. The connected signals and parking information devices make it easy to find a parking spot.



WHAT'S DIFFERENT FROM TODAY?

TECHNOLOGY INDICATORS

Connectivity	HIGH	<ul style="list-style-type: none"> 75% of vehicles can communicate with other connected vehicles, roadside infrastructure (e.g., traffic signals) and other devices (e.g., smart phones) Truck platoons are common on expressways and freeways
Automation	MED	<ul style="list-style-type: none"> 50% of vehicles are Level 3 AV Freight vehicles and services are highly automated
Electrification	MED	<ul style="list-style-type: none"> 15% of vehicles are electric (50% in urban settings)
Sharing	LOW	<ul style="list-style-type: none"> Public agencies and private entities share data for the purpose of making connected applications work There are multiple providers and platforms, which are not integrated across locations 5-10% of travel done using mobility-on-demand (up to 20% in cities), usually as non-shared rides

DISTRIBUTION OF BENEFITS

Users	<ul style="list-style-type: none"> Wide use of connected technology creates safety and mobility benefits for motor vehicle users vehicles (i.e., cars, trucks, transit) People walking, rolling and bicycling benefit from motor vehicle safety devices Individuals with limited mobility do not see many improvements because level 4 AV technology is not widely available and is expensive
Locations	<ul style="list-style-type: none"> Connected and automated vehicle safety features are not limited to any specific geography in the state Connected infrastructure is more prevalent in urban areas and along key corridors