

# The journey to safer roadways.

## Where we've been.

Safety is in our DNA. At every crossroads, 3M has been a leader in adapting roadway infrastructure to meet the needs of human drivers.

**80 years**  
of innovation

Visible guidance:  
AT NIGHT

**1st**

Retroreflective  
signs & pavement  
markings

IN RAIN

**1st**

Wet retroreflective pavement  
markings & optics

AT DAWN & DUSK

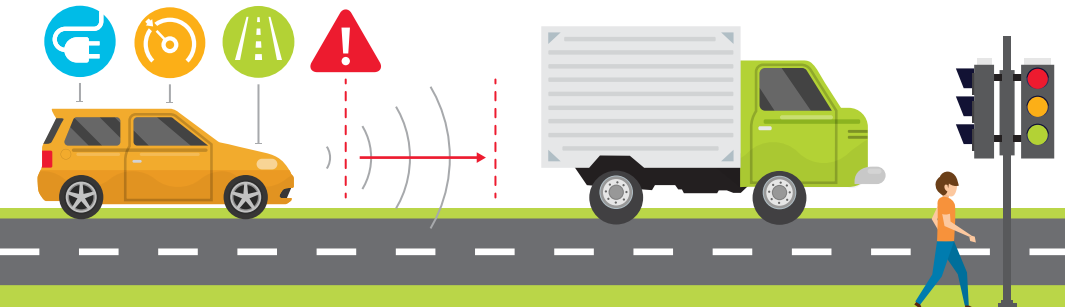
**1st**

Fluorescent colors for  
retroreflective  
sheeting

## Where we are.

Advanced Driver-Assistance  
Systems (ADAS):  
A foundation for the future

Vehicles with Levels 1-2 Automated Driving Systems are on the road, and 3M is working with Automotive OEMs, automotive suppliers, component manufacturers and DOTs to develop safe solutions.

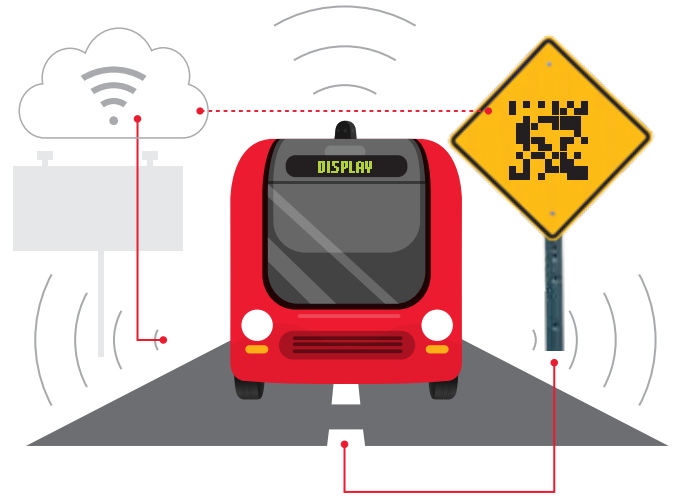


**Safety | Mobility | Convenience.**

# Where we're headed.

## Roads & vehicles: A symbiotic system

Infrastructure should enable—not impede—the safety and performance of automated vehicles. Together, they form one engineered transportation system. 3M solutions can help enhance safety and redundancy—ultimately preparing the way for levels 3-5 Automated Driving Systems.



3M is developing technology in three phases...

### PHASE 1: Pavement Markings



Allow detection by sensor modalities—and humans—in varying weather conditions

### PHASE 2: Digitally-enabled Materials



Embedded and encrypted digital codes for enhanced detection and interpretation at highway speeds

### PHASE 3: Safety Intelligence



Data exchange between Connected Automated Vehicles (CAV) and infrastructure to discover trends, recommend safety improvements, maintenance needs and more

## 3M™ Connected Roads: enabling intelligent infrastructure.

### SAFETY:

Eliminate  
**80-90%**  
of accidents

caused by  
human error<sup>1</sup>



### EFFICIENCY:

Reduce delays  
up to **95%**

with better flow through  
intersections<sup>2</sup>



### ECONOMY:

Estimated  
annual savings  
**\$2,000**

per automated  
vehicle (reduced  
crashes, travel time,  
fuel and parking)<sup>3</sup>



Join us at [3M.com/ConnectedRoads](http://3M.com/ConnectedRoads).

1. Center for Transportation Research, The University of Texas at Austin. <http://library.ctr.utexas.edu/ctr-publications/0-6847-1.pdf>

2. Pavement Markings and Machine Vision, <http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=4004>

3. Preparing a nation for autonomous vehicles: opportunities, barriers and policy recommendations, <https://www.sciencedirect.com/science/article/pii/S0965856415000804>