Automated Vehicle Project in Iowa

• Just beginning......

• Project Purpose – partnership to develop strategies that further the research, development, testing, operation, and implementation of automated vehicles in the State of Iowa.

• Partners:
  – Iowa DOT
  – HERE of North America
  – University of Iowa
  – Iowa State University
Automated Vehicle Project in Iowa

• Why do this?

  Improve Iowa’s transportation system to increase:

  Safety
  Capacity
  Mobility
  Efficiency
  Economic vitality
  Intermodal freight efficiency
Traffic Fatalities

- 35,200 in U.S. for 2015
- 320 in Iowa for 2015
- 260 to date in Iowa for 2016
How technology can help...

• 95% of crashes at least partially driver error
• 80% estimated decrease in fatalities with deployment of Automated Vehicle Technologies
Congestion in Iowa

• 2015 – 1400 traffic incidents per month (state system only)
• Average lane clearance time is 56 minutes
• 1500 Highway Helper services per month
  o Des Moines, Iowa City/Cedar Rapids, Council Bluffs
• 2.8% likelihood of a secondary crash per minute of lane blockage
Bottlenecks, 23%

Traffic Incidents, 27%

Work Zones, 12%

Bad Weather, 28%

Special Events, 5%

Poor Signal Timing, 5%

Non-recurrent Congestion

Recurrent Congestion
Automated Vehicles
Automated Vehicle Technologies

Automated Vehicles – include connected (V2X) technologies and autonomous (vehicle sensors) technologies. CV, AV, CAV
Automated Vehicle

**AUTONOMOUS VEHICLE**
Operates in isolation from other vehicles using internal sensors

**AUTOMATED VEHICLE**
Automated vehicles leverage autonomous and connected vehicles

**CONNECTED VEHICLE**
Communicates with nearby vehicles and infrastructure; Not automated
Automated Vehicle Project

Two Main Key Components:

• High definition/3D digital mapping (cloud based) of paved roads, centimeter level accuracy – ingested by the vehicle State, city, county, bike trails in Iowa City/Cedar Rapids area

• Predictive Travel modeling and validation – ingested by the vehicle
Vehicle Awareness
HERE HD Live Map Cloud Communication
HERE HD Live Map
HERE HD Live Map

- What this is – cloud computing of HD Live mapping, Intermodal freight efficiency, Live integrated CV/AV Corridor
Automated Vehicle Technology must.....

• Work in all weather conditions
• Predict anticipated traffic and roadway conditions
• Communicate seamlessly with other automated vehicles
• Use HD mapping for precise vehicle location
Automated Vehicle Project

• Build this bridge as we are crossing it, learning and growing as the project develops
• Continue to increase technology awareness