What's Next for Advanced Mobility

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WHY ADVANCED MOBILITY?

IT’S ABOUT ACCELERATING INNOVATION AND TECHNOLOGIES THAT MAXIMIZE THE EXPERIENCE OF PEOPLE, GOODS AND INFORMATION MOVING ON COLORADO’S TRANSPORTATION SYSTEM AND FOR COLORADO’S ECONOMY.
WHY ADVANCED MOBILITY?

SAFETY

80% reduction in crashes per NHTSA estimates

MOBILITY

40 to 400% increase in capacity

Connected – Autonomous – Sustainable – Safe
WHAT’S ADVANCED MOBILITY?

Connected – Autonomous – Sustainable – Safe
CONNECTIVITY: IT’S COMING

2022

TOYOTA + Volkswagen + Ford + VOLVO = Connected Vehicle

Road-Side Sensors + Fiber - Wireless + Network Connection = Streaming Data Realtime
CONNECTIVITY: WHAT IT DOES FOR YOU

VEHICLE to VEHICLE (V2V)
- Collision warnings
- Do not pass
- Intersection assist
- Platooning

CDOT to Vehicle (I2V or V2X)
- Work zone/emergency ahead
- Curve speed warning
- Red light warning
- Icy corner
- Alternate route
- Signal phasing and timing
- Speed harmonization
CONNECTIVITY: THE INTERNET OF ROADS

- Additional Connected Areas
- V2X Data Ecosystem
- DOT Data
- Accident Ahead
  2 miles ahead
Stage 1 timeline alignment: 2019-2022

500+ miles

Ready for automaker rollout (2021/22)

Provides smart systems approach

Aligns with V2X timeline
Upgrade 19 ramps along northbound I-25 in metro Denver

Connecting freeway operations to ramp metering systems for coordinated entrance of vehicles to keep interstate flowing

Technology partnership with Australia with cloud-based traffic mgt; first in U.S.

Significantly reduce traffic congestion along a segment of I-25 without adding new lanes
Data Analytics Intelligence System (DAISy) is a cloud-based data analytics platform that brings:

Near-term intelligence, efficiency and interoperability to CDOT’s existing transportation network (safety patrol, work zones, platooning, mobility on demand, dynamic routing)

Long-term enablement of world-leading automated transportation systems
DATA : REAL-TIME WORK ZONE DATA

Connected Devices Installed in Work Zone → GPS Location of Work Zone to WAZE → Colorado Traffic Management Center → Real Time Work Zone updates CDOT Website: www.CoTrip.org → Information for Traveling Public and Commercial Motor Vehicles
DATA INNOVATION: TRUCK PARKING SYSTEM

Pilot deployed on I-70 corridor

2 public and 2 private parking locations

Real time updates to VMS boards

CMV drivers can find parking on TSPS website

Improves fuel efficiency and decreases non-productive time for drivers
Device remotely tests tire tread and pressure
Results displayed on a kiosk or via text
Installed at Wooley Mammoth Park n Ride Winter 2019
Second installation in U.S.
3 winners selected to develop their technologies

Multi-year, 3-part challenge
Wildlife Vehicle Collisions (challenge open now)
Soft Shoulders (Spring 2019)
Sharp Curves
Automated “crash cushion” vehicle follows a manned, lead vehicle (which send position, speed and direction)

One vehicle in operation in NE CO with striping operations

Future vehicles to be deployed around the state with staff training in 2019
State Rapid Speed Benefits and Opportunities Study

Funded by the state and shared during development with technologists. Will address, among other issues:

• Which agency will oversee and regulate this new technology?
• What governance structure will apply?
• Which environmental approval processes will be applied?
• Determine what CDOT’s and private partner’s role in ownership, construction, operations, maintenance, and funding will be?
• While individual technologists may define specific beginning routes, how will this impact larger network and land use?

Technologists Feasibility Analysis

Funded by technologist and shared during development with the State Benefits and Opportunities Study. Will include:

• Technology assessment
• Routes and market assessment
• Operations Plan
MOBILITY ON DEMAND  ELECTRIFICATION  ??
Smart Mobility Plan

Assesses the readiness of the state’s facilities and provides a toolbox of technology and operations strategies

Addresses congestion management, transit, data enhancements, safety, and traffic control

Developed in partnership with regions and to be include in Statewide Transportation Plan, tool for regions to evaluate and access full range of technology concepts
ADVANCED MOBILITY: BRINGING IT ALL TOGETHER

Data Analytics Intelligent System
Active data project...

Energy
Through data and roadway power network...

Telemedicine & Education
Through fiber sharing...

Automation
Infrastructure for the future...

Safety & Operations
Saving lives and reducing delay today...

Fiber Optic Cable

CAUTION

MOBILITY OPERATIONS
Thank You

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