Wyoming DOT
Connected Vehicle Pilot Deployment Program
Phase 2

KATE HARTMAN
Wyoming’s I-80 Corridor

Heavy Freight Traffic
- Major E/W freight corridor
- Freight = over half of annual traffic

Severe Weather Conditions
- Roadway elevation
- Heavy winds, heavy snow and fog
- Severe blowing snow and low visibility

Adverse Impacts on Trucks
- Higher than normal incident rates
- Multi-vehicle crashes
- Fatalities

Source: WYDOT (Dec 17, 2015)
Why this project is important

700 incidents involving commercial vehicles occurred on I-80 since project kick-off.
Why this project is important

Over the past year...

- **250 Hours**
  - Full Lane Closures

- **~180 Hours**
  - High Profile Vehicle Restriction

- **37 Days**
  - Inclement Weather
Need for Actionable Road Weather Info

The need for actionable information is growing

Aug 2016

Estimated Firms Subscribed to WYDOT’s CVOP

800

Downloads of WYDOT 511 App*

26,443

Sept 2015

WYDOT’s Commercial Vehicle Operator Portal (CVOP)

Created for trucking community and designed with their input. Includes:

- Road weather forecasts (surface conditions, visibility, wind)
- Pre-event forecast information through FHWA’s RWMP’s Pathfinder initiative

*Downloads since Feb 2016 when app was released
Freight firms across the country need I-80 travel information.

302 out of 1330 users did not provide location information.

Five states not represented: Connecticut, Hawaii, Maryland, Rhode Island, Vermont
WYDOT CV Pilot Phases

The Pilot is comprised of three phases

Phase 1
• Planning (Sept. 2015 – Sept. 2016)

Phase 2
• Deployment (Oct. 2016 – April 2018)

Phase 3
• Demonstration (May 2018 – Oct. 2019)

- Concept Development
- System Planning
- Deployment Plan

- System Design
- System Build
- System Testing and Acceptance

- Real-World Demonstration
- Evaluation
- Maintenance
## Five Focus Areas

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<tr>
<th>Focus Area</th>
<th>Description</th>
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<tr>
<td>Manage following speed and distance between vehicles</td>
<td>• By alerting trucks to slowing traffic ahead to prevent multiple-vehicle crashes</td>
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<td>Provide custom alerts and advisories</td>
<td>• For vehicles that are at risk due to their weight, profile, or traveling speeds due to high-winds or near work zones, including alerting drivers if vehicles are too tall for bridges</td>
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<td>Provide location-based parking information</td>
<td>• With a focus on directing drivers to safe parking areas in the event of a road closure</td>
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<td>Allow first responders to be notified of a crash automatically</td>
<td>• Based on vehicle metrics, such as airbag deployment</td>
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<td>Use data collected from vehicle’s weather sensors</td>
<td>• Such as the status of windshield wipers and if anti-lock brake systems are activated. This information will be used to develop advisories and forecasts for travel to fleet management centers and the general public.</td>
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Performance Improvements

Road Weather Condition Input
1. Improve road weather condition reports received into the TMC

TMC Information Dissemination
1. Improve ability of the TMC to generate wide area alerts and advisories
2. Efficiently manage closures, restrictions and speed limits
3. Effectively disseminate and receive messages from TMC to en-route vehicles
4. Improve information to commercial vehicle fleet managers

Vehicle/Roadside Alerts & Advisories
1. Effectively transmit and receive V2V messages to reduce incidents and their severity
2. Enhance emergency notifications of a crash

Outcomes
1. Improve speed adherence and reduce speed variation
2. Reduce vehicle crashes
Wyoming Connected Vehicle Pilot

DSRC Based

Freight-Focused

Integrated with TMC

Integrated with WYDOT Fleets

Forward Looking
Impacts of WYDOT’s CV Pilot

Enhanced:
- Safety
- Mobility
- Reliability
- Productivity

Wyoming I-80 Drivers:
- Safer and faster travels on I-80
- Increased amount and reliability of available information

Fleet Managers:
- Improved truck and driver productivity and safety

WYDOT:
- Reduced crash and road closure
- Improved emergency management
- Enhanced data collection and dissemination capability

US DOT:
- Sustainable momentum for nationwide innovation and further deployment of CV-technologies
CV Applications

On-Board Applications

• Applications available to equipped vehicles

TMC Operations Applications

• Support for WYDOT Traveler Information and Traffic Management
Onboard Applications

- Forward Collision Warning (FCW)
- Distress Notification (DN)
- I2V Situational Awareness
- Work Zone Warning (WZW)
- Spot Weather Impact Warning (SWIW)
Onboard HMI

- Critical Warnings
- Advisory Warnings

- Speed Limit
- Distress Notification Button
- Settings Button
- Vehicle Speed
- Forward Collision Warning

CONNECTED VEHICLE (CV) PILOT DEPLOYMENT PROGRAM – PHASE 2
Status

- Operational Readiness Demonstration – **Going On NOW**
- Successful demonstration begins Shakedown period with “Friendly” Fleets
- Shakedown period ends with Phase 3 beginning
- RSU Installations – Ongoing
- Memorandum of Understanding (MoU) with trucking companies being finalized
Operational Readiness Approach

Steps to Achieving Operational Readiness

- Requirements Verification and Acceptance Testing
- Support Systems Readiness Checklist
- Operational Readiness Demonstration

Two Day Event in Cheyenne. Begins our shakedown period with WYDOT fleets ~100 vehicles
Phase 2 to Phase 3 Roadmap

We are here

SCMS in early 2018

Winter of 2017 Frequent testing and updates

May 2018
Project Team
A Challenge Worth Solving
For More Information

https://wydotcvp.wyoroad.info/