



Wyoming DOT Connected Vehicle Pilot Deployment Program

SAFETY COMMUNICATION TECHNOLOGY SHOWCASE

OCTOBER 30, 2018

Agenda



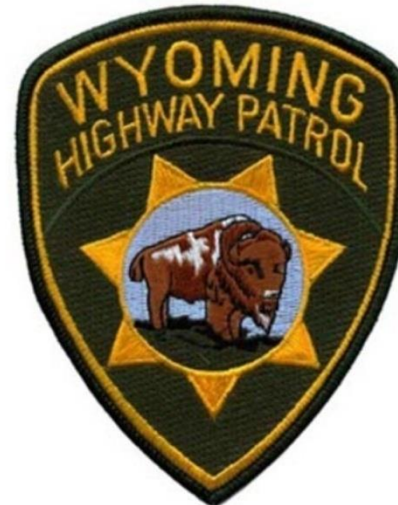
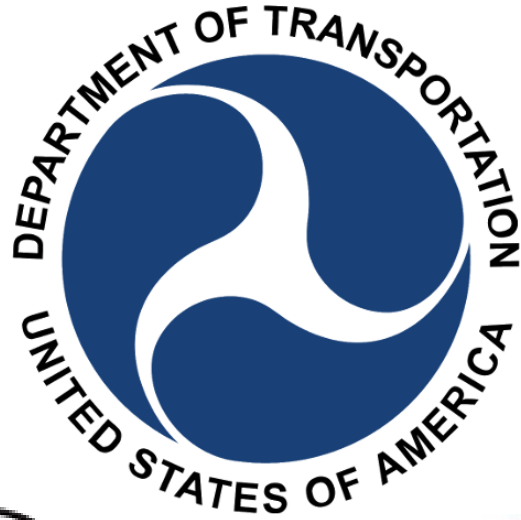
- Welcome
- Project Background
- Partner Remarks
- Behind the Scenes
- Next Steps for Deployment
- Ribbon-Cutting
- On-Road Demonstrations
 - I-80 and the Archer Complex



The Team



Wyoming Based/National Significance



Key Technology Partners



WYDOT Team



Equipment

Traffic

Telecom

Patrol

GIS/ITS

District
Personnel

Rigging
Shop

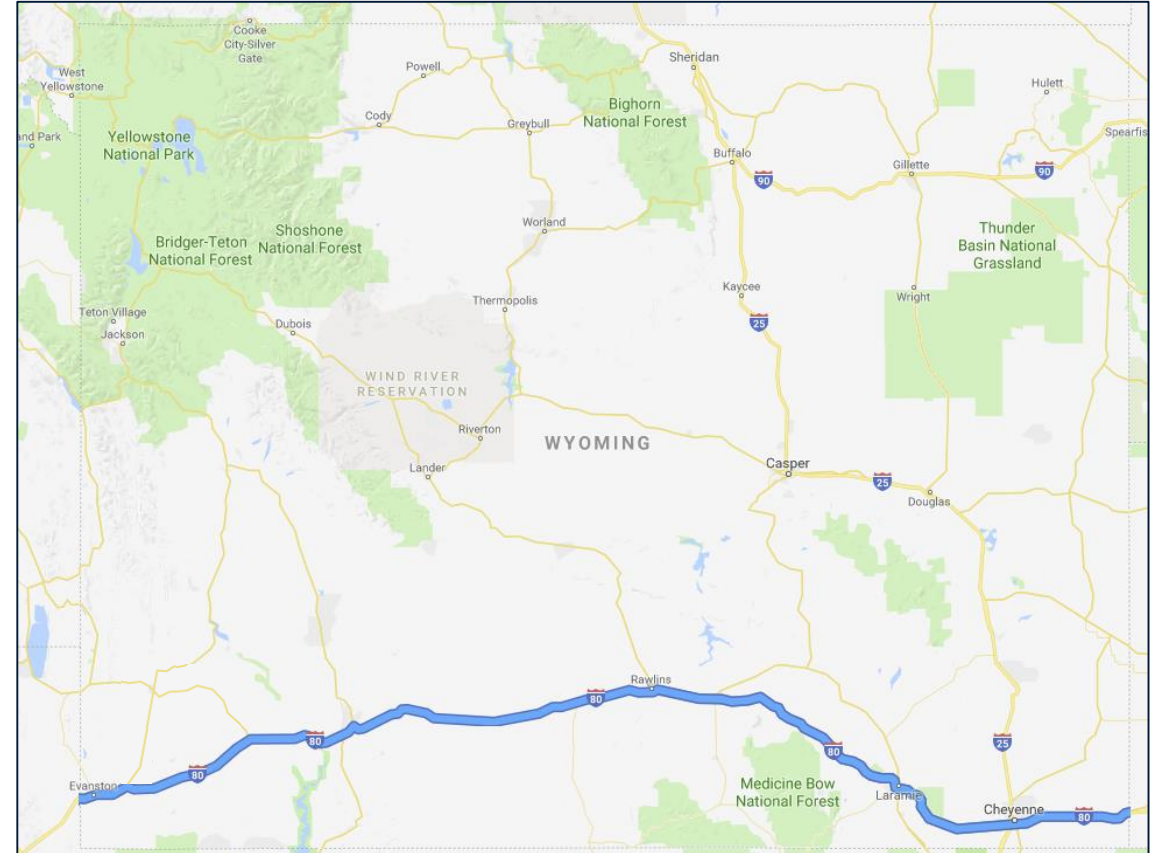
IT

Public
Affairs

Corridor Overview

I-80 Corridor

- Runs 402 miles along Wyoming's southern border
- More than 32 million tons of freight per year
- Truck volume is 30-55% of the total traffic stream on an annual basis
 - Seasonal peaks as high as 70%



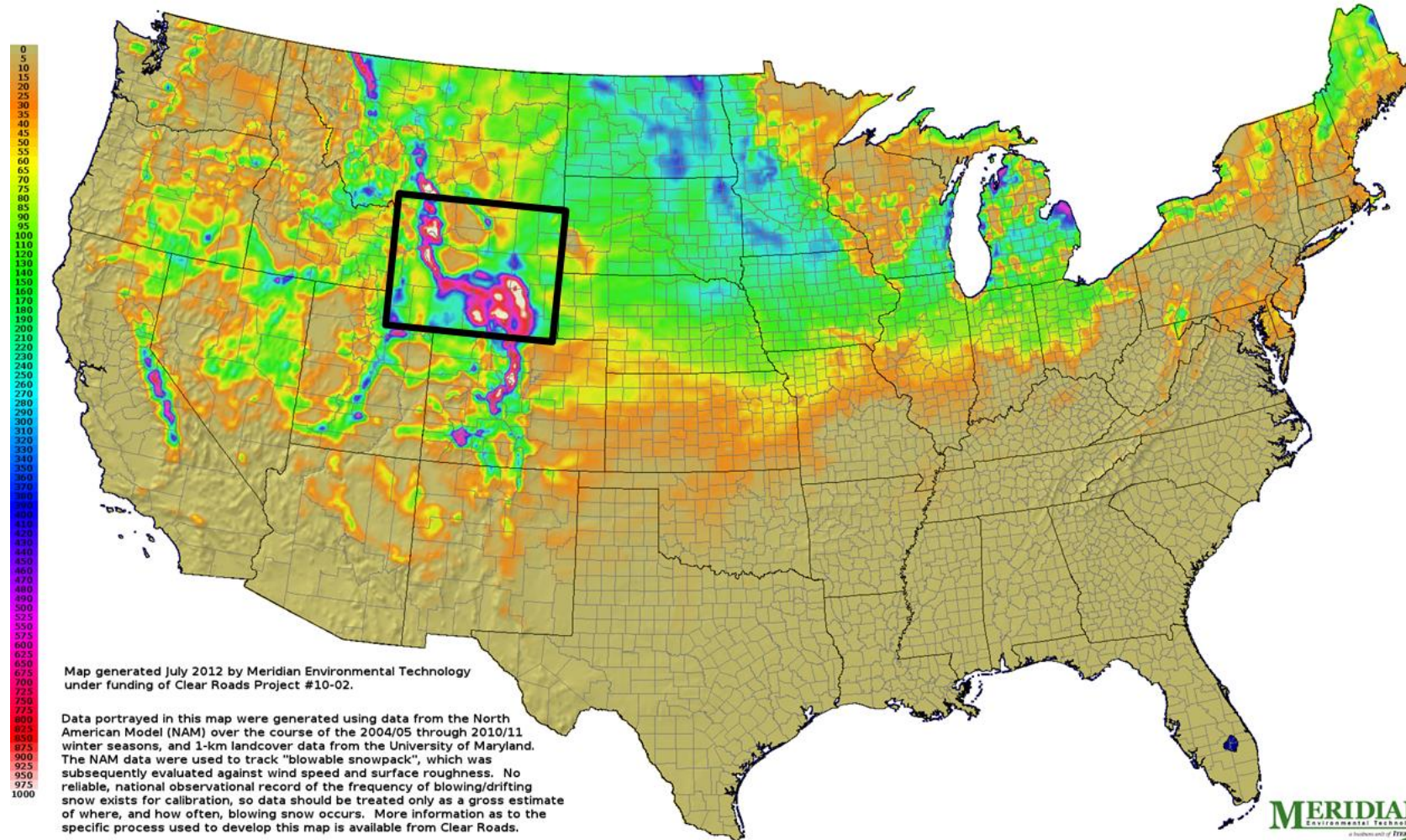
I-80 Corridor



I-80 Corridor



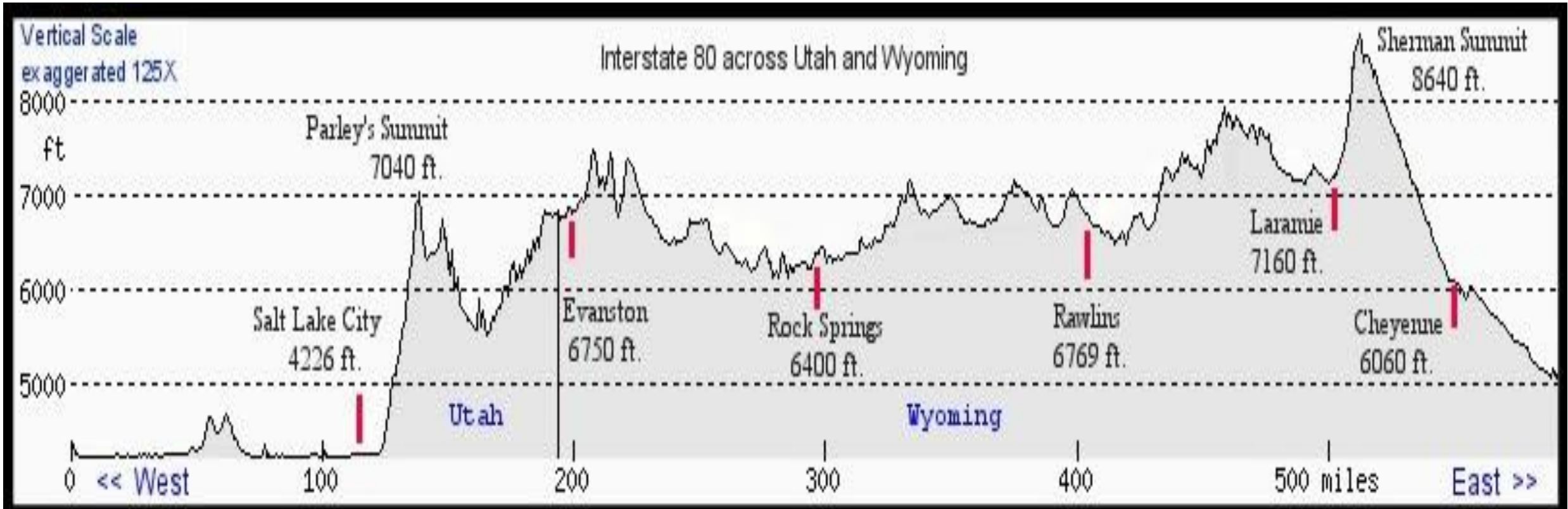
U.S. Annual Hours of Blowing Snow Estimated from Modeled Data



I-80 Corridor



I-80 Corridor



I-80 Corridor

One of the most heavily instrumented rural corridors in the United States

136 Variable Speed Limit Signs

supported by 94 traffic sensors

54 Electronic Message Signs

44 Weather Stations

52 Webcams



WYDOT's Approach

Roadway Design

- Good roadway design
- Select best geometry using powerful modeling tools

Mitigation

- Slope modifications
- Snowfence

Technology

- Intelligent transportation systems
- Connected vehicle technology

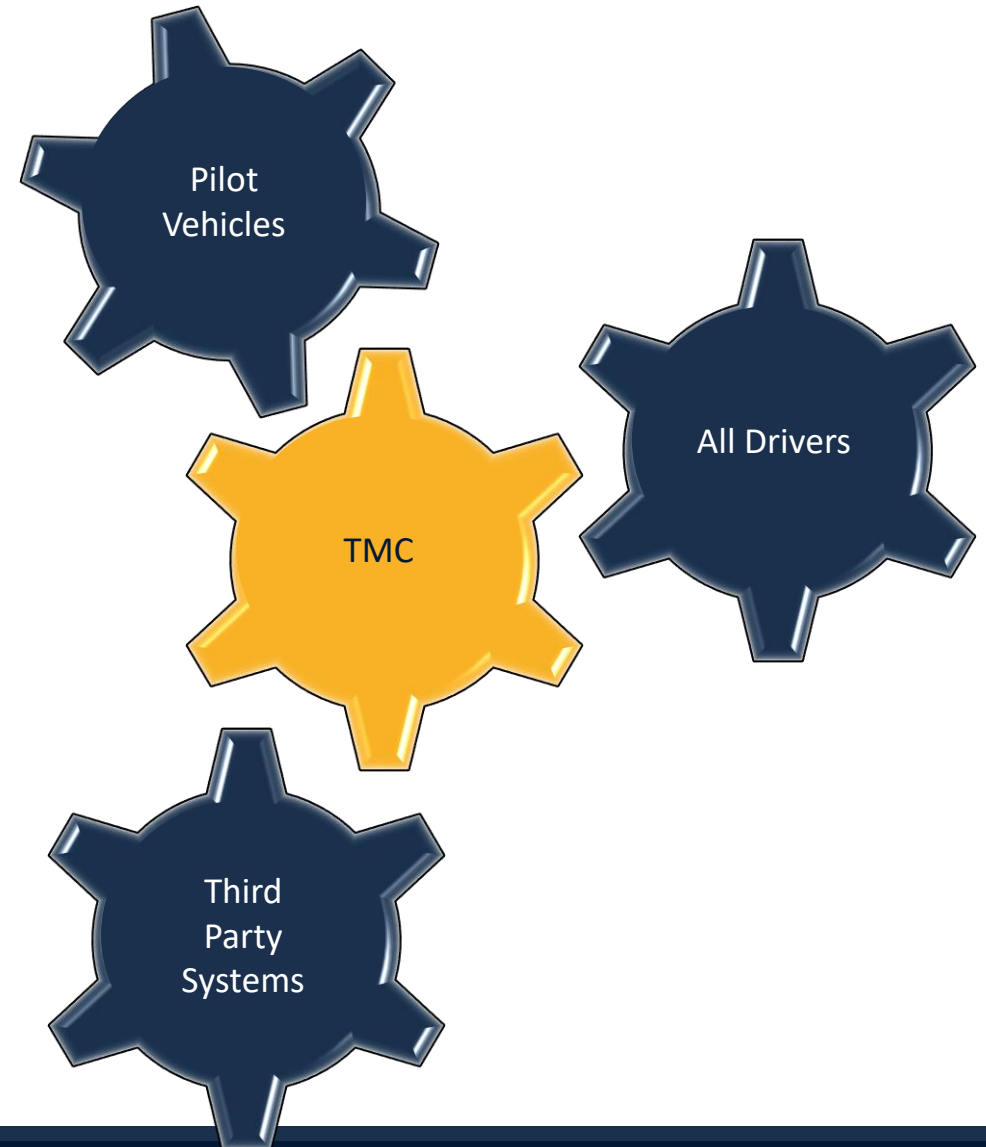
Connected Vehicle Pilot



Connected Vehicle Technology

Benefits to Drivers

- Pilot participants will have better information from V2V and I2V messages
- The TMC will have improved information from pilot vehicles
- All drivers will benefit from more timely and accurate alerts
- Information shared with 3rd parties



CV Pilot Partner Remarks



Game changing
technology

Safety and
efficiency of the
transportation
system



DOOLEY oil inc.

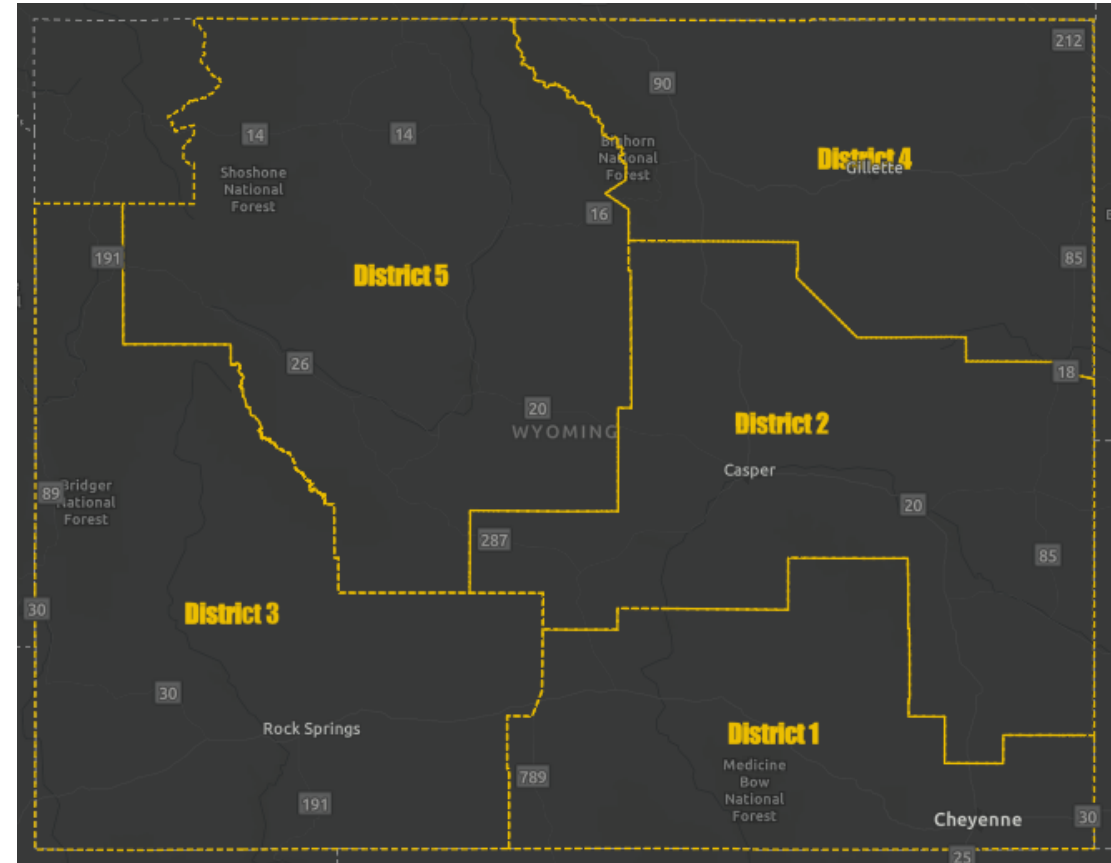


Trihydro

WYDOT Field Personnel



- Tom DeHoff, District Engineer, District 1 in southeast Wyoming
- Representing all districts
- Responsibilities
 - Traffic
 - Construction
 - Equipment
 - Maintenance
 - Contractors



WYDOT Field Personnel

- Top Priority: Safety of personnel
 - Maintenance: Summer and winter activities
 - Traffic: Striping and other traffic operations
 - Construction: Work zone safety



Every year about
8 snow plows
are hit in spite of flashing
lights around the plow to
make them visible.



WYDOT Field Personnel



➤ Roadway Safety

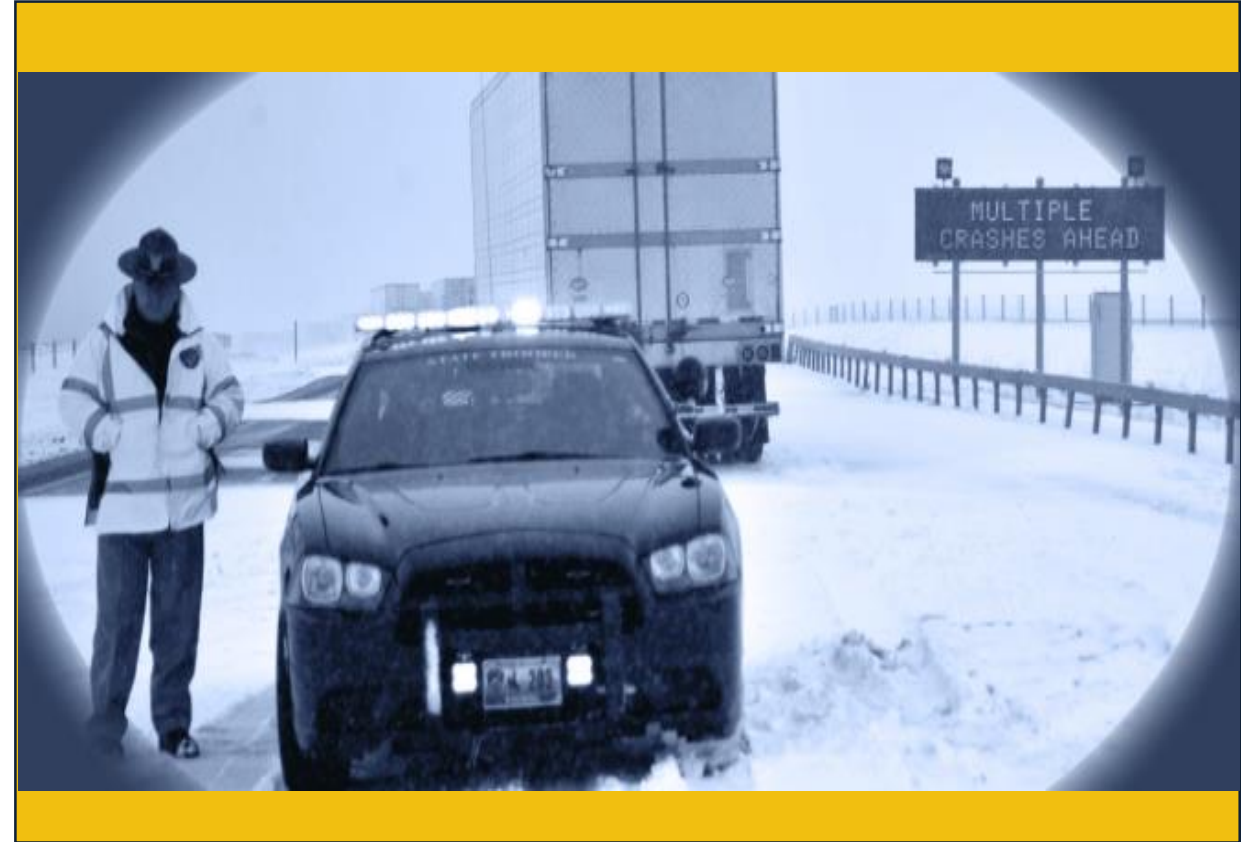
- Fewer crashes and less severe crashes result in fewer deaths and fewer road closures
- Fewer crashes mean WYDOT employees and other responders remain out of harm's way



Wyoming Highway Patrol



- Pleased to participate in pilot
- Timely information will benefit the public
- Parked patrol vehicles will announce position which minimizes risk of a crash



I-80 Corridor



Wyoming Highway Patrol



- Troopers made 24,905 traffic stops on I-80 in Wyoming last year and 106,630 traffic stops statewide.
 - *Each stop puts officer in jeopardy*
 - *CV applications provide patrol officers with more protection on the road*

- Responding to incidents quicker can improve public safety
 - *Distress Notification application can minimize secondary crashes and allow Troopers to respond more quickly to crashes*



Behind the Scenes

System Design



System Security



SECURITY BY DESIGN



HSM
On-board
units



HSM
Road-side
units



VPN
Protect
data in
transit



HSM &
Background
Checks
For TMC



Database
Encryption
Tables w/
Potential
PII

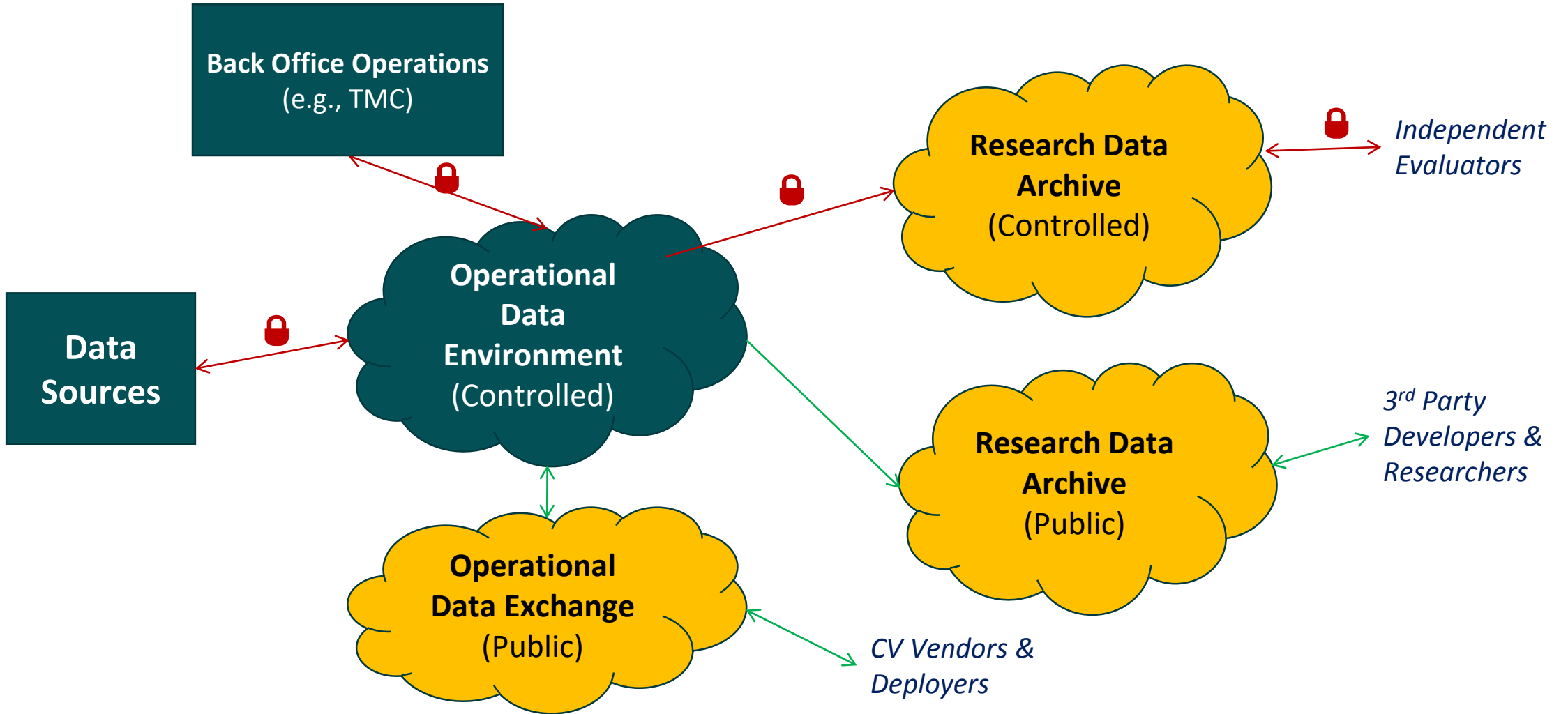


SCMS
Certificates
and
Validation



Firewalls
IPv4 and
IPv6

Data Management



Programmatic privacy protection and data fluidity enable rapid innovation, now and in the future

System Interoperability



➤ Future CV Ecosystem

- Many vehicles
- Many vendors
- Many jurisdictions



➤ Messages between vehicles and infrastructure must be seamlessly exchanged and understood by each other

➤ **Interoperability of CV Systems is vital to national deployment**

Next Steps for Deployment

Next Steps for Deployment

Equip 400 partner vehicles with CV Technology

Driver training

Operate the system for demonstration period

Collect data and assess performance

Plan for long-term sustainability



Project Dedication



Wyoming's Connected Vehicle Pilot Project is dedicated to all families who have lost a loved one on a Wyoming highway.

Connected Vehicle Pilot



WYOMING DOT CONNECTED VEHICLE PILOT

IMPROVING SAFETY AND TRAVEL
RELIABILITY ON I-80 IN WYOMING



visit the Wyoming Connected Vehicle Pilot website
<https://wydotcvp.wyroad.info>

email
dot-cvpilot@wyo.gov