Wyoming DOT Connected Vehicle Pilot Deployment Program

CV PILOT UPDATE

TRB 2019

Wyoming Based/National Significance

Key Technology Partners

WYDOT Team

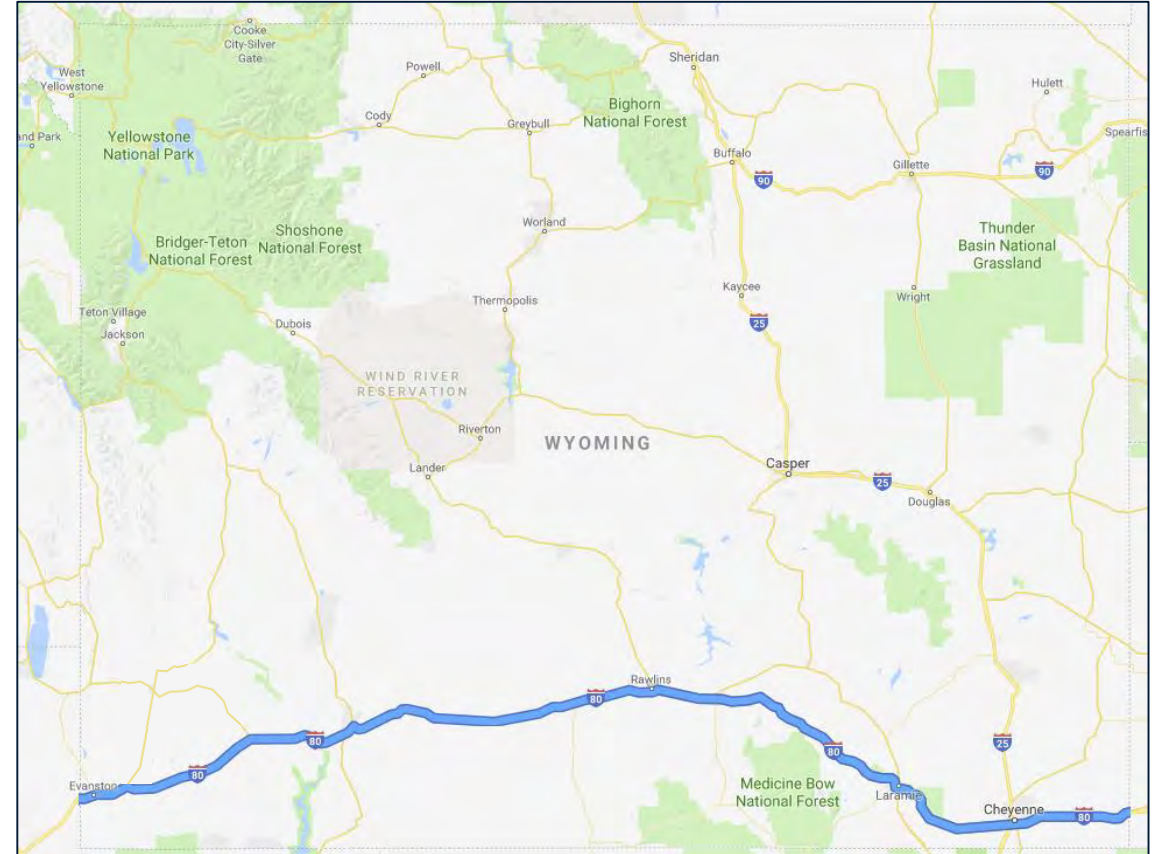|		
Equipment	Traffic	Telecom
Patrol	GIS/ITS	District Personnel
Rigging Shop	IT	Public Affairs

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

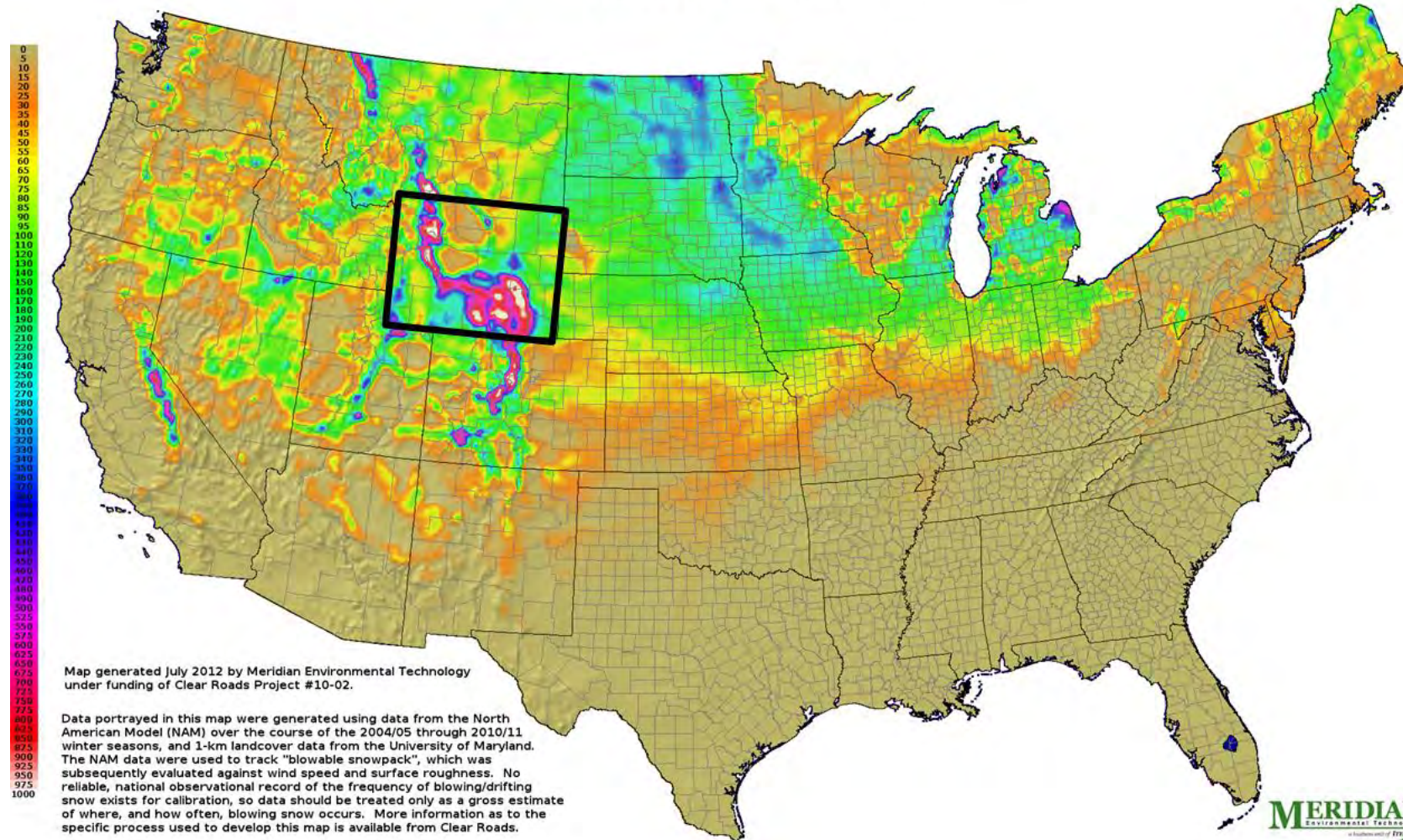- Seasonal peaks as high as 70%

I-80 Corridor

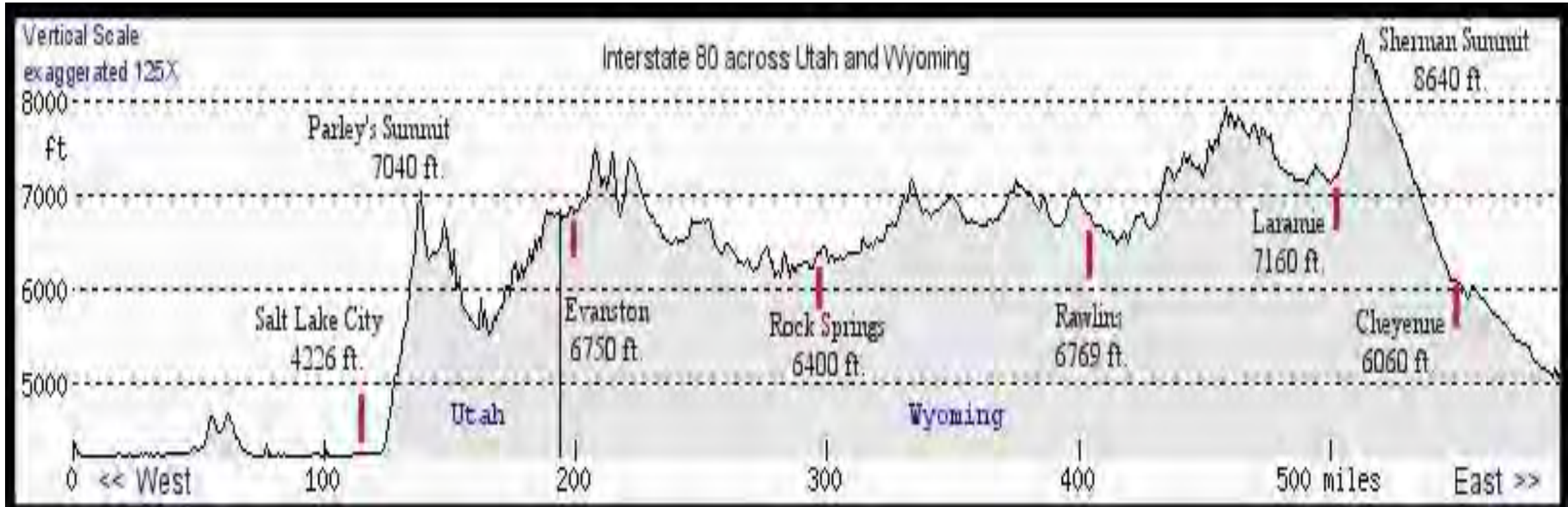National Highway System Routes
- Interstate
- Non-Interstate
FAF Truck Volume/Day
50000   25000   12500

I-80 Corridor

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

Map generated July 2012 by Meridian Environmental Technology under funding of Clear Roads Project #10-02.

Data portrayed in this map were generated using data from the North American Model (NAM) over the course of the 2004/05 through 2010/11 winter seasons, and 1-km landcover data from the University of Maryland. The NAM data were used to track "blowable snowpack", which was subsequently evaluated against wind speed and surface roughness. No reliable, national observational record of the frequency of blowing/drifting snow exists for calibration, so data should be treated only as a gross estimate of where, and how often, blowing snow occurs. More information as to the specific process used to develop this map is available from Clear Roads.

I-80 Corridor

I-80 Corridor

Interstate 80 across Utah and Wyoming

Vertical Scale exaggerated 125X

Parley's Summit 7040 ft.

Sherman Summit 8640 ft.

Salt Lake City 4226 ft.

Evanston 6750 ft.

Rock Springs 6400 ft.

Rawlins 6769 ft.

Laramie 7160 ft.

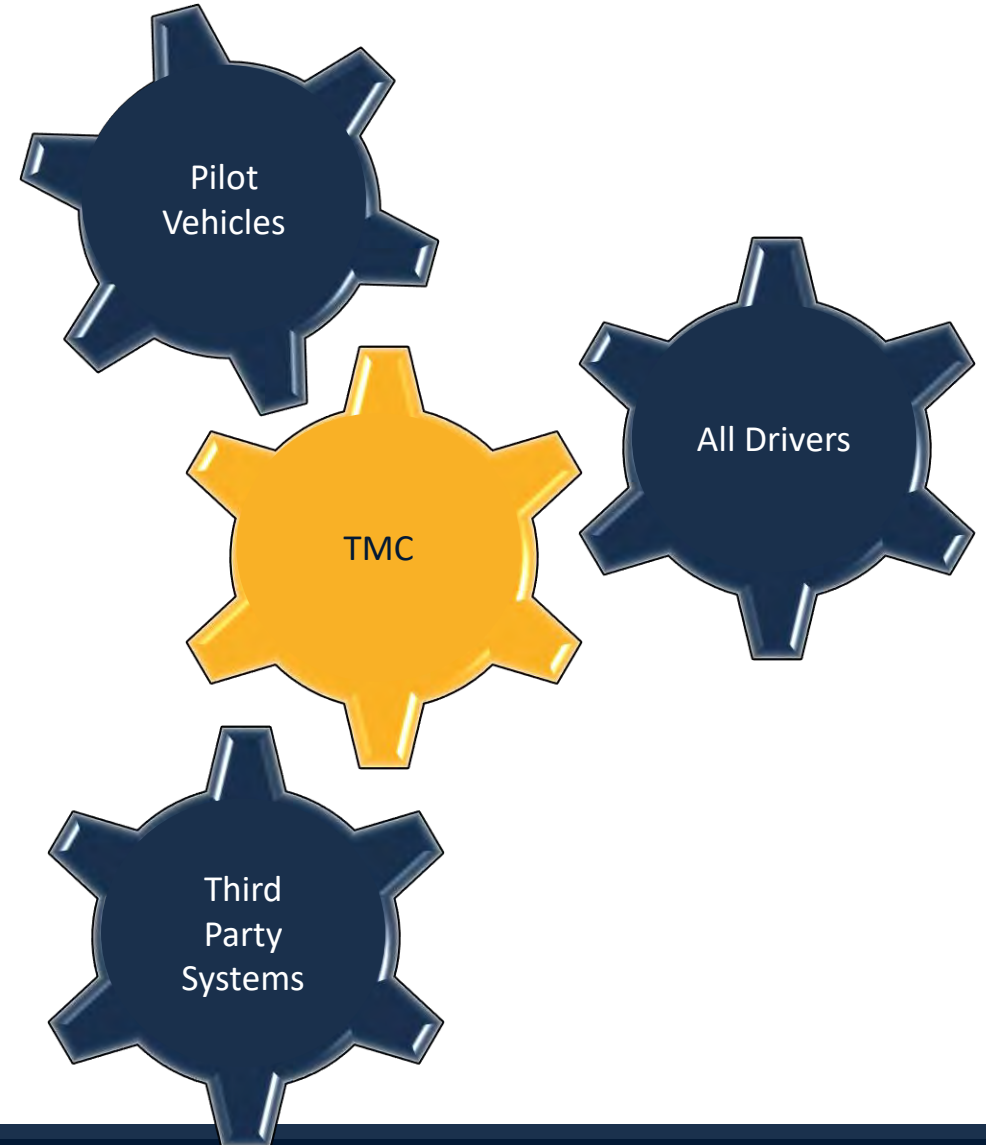Cheyenne 6060 ft.

Utah

Wyoming

0 << West   100   200   300   400   500 miles   East >>

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

Pilot Vehicles

All Drivers

TMC

Third Party Systems

Behind the Scenes

System Design

Integrate with Existing Systems

Leverage Open Source Software

Use Standards

Agile Development

Acceptance Testing

System Security

SECURITY BY DESIGN

HSM
On-board units

HSM
Road-side units

VPN
Protect data in transit

HSM & Background Checks
For TMC

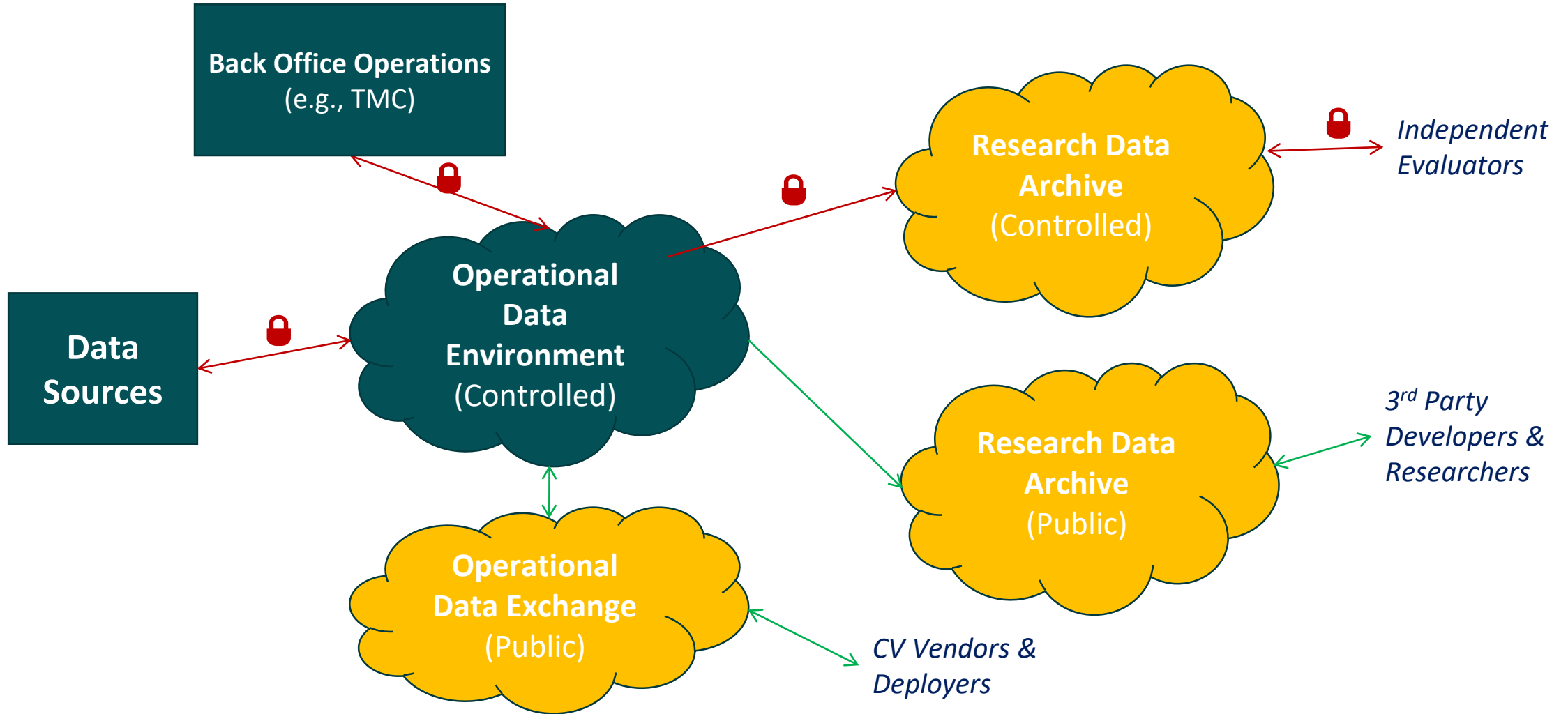**Database Encryption**
Tables w/ Potential PII

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

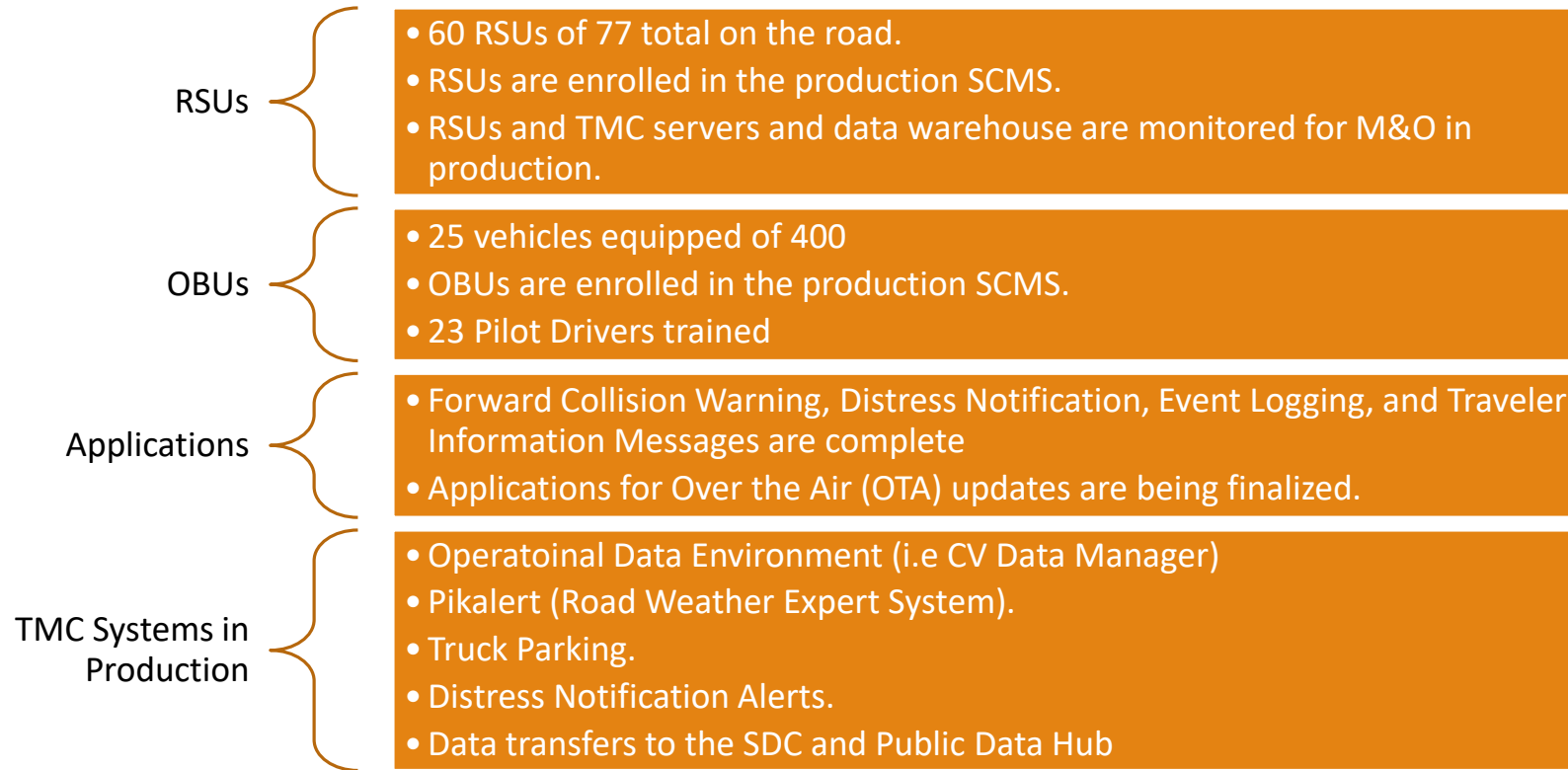Equip 400 partner vehicles with CV Technology

Driver training

Operate the system for demonstration period

Collect data and assess performance

Plan for long-term sustainability

WYDOT CV Pilot: Where are we today?

RSUs
- 60 RSUs of 77 total on the road.
- RSUs are enrolled in the production SCMS.
- RSUs and TMC servers and data warehouse are monitored for M&O in production.

OBUs
- 25 vehicles equipped of 400
- OBUs are enrolled in the production SCMS.
- 23 Pilot Drivers trained

Applications
- Forward Collision Warning, Distress Notification, Event Logging, and Traveler Information Messages are complete
- Applications for Over the Air (OTA) updates are being finalized.

TMC Systems in Production
- Operatoinal Data Environment (i.e CV Data Manager)
- Pikalert (Road Weather Expert System).
- Truck Parking.
- Distress Notification Alerts.
- Data transfers to the SDC and Public Data Hub

Connected Vehicle Pilot

visit the Wyoming Connected Vehicle Pilot website
https://wydotcvp.wyoroad.info

email
dot-cvpilot@wyo.gov