Connected Vehicle Technology
Applications and Possibilities

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The **Connected Vehicle** system uses wireless technologies to exchange information with:

- Other vehicles (V2V),
- Roadside infrastructure (V2I), and
- Other travelers (peds, bikes, etc) (**V2X**)

to help the driver avoid hazards and drive more efficiently

INFORMATION BASED ON WHAT THE VEHICLE CAN "LEARN" BUT CAN'T SEE

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How are we Connected?

Vehicle Telematics

Cellular 4G technology
Navigation, Infotainment, Corporate connection
Vehicle to the cloud (corporate) – not to other cars
Relatively slow (high latency)
Subscription based (fee for service)

V2X (Vehicle to Everything)

Uses dedicated 5.9GHz spectrum
  802.11 standards (DSRC)
  3GPP Rel 15 (4G Cellular V2X)
Short-range, low-latency (10-50 ms)
Ad-hoc, decentralized communication
Free public spectrum

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Roadside and Vehicle Hardware

Roadside Unit (RSU)

On-Board Unit (OBU)

Connection to Traffic Signal System / Infrastructure

Connection to Vehicle Equipment

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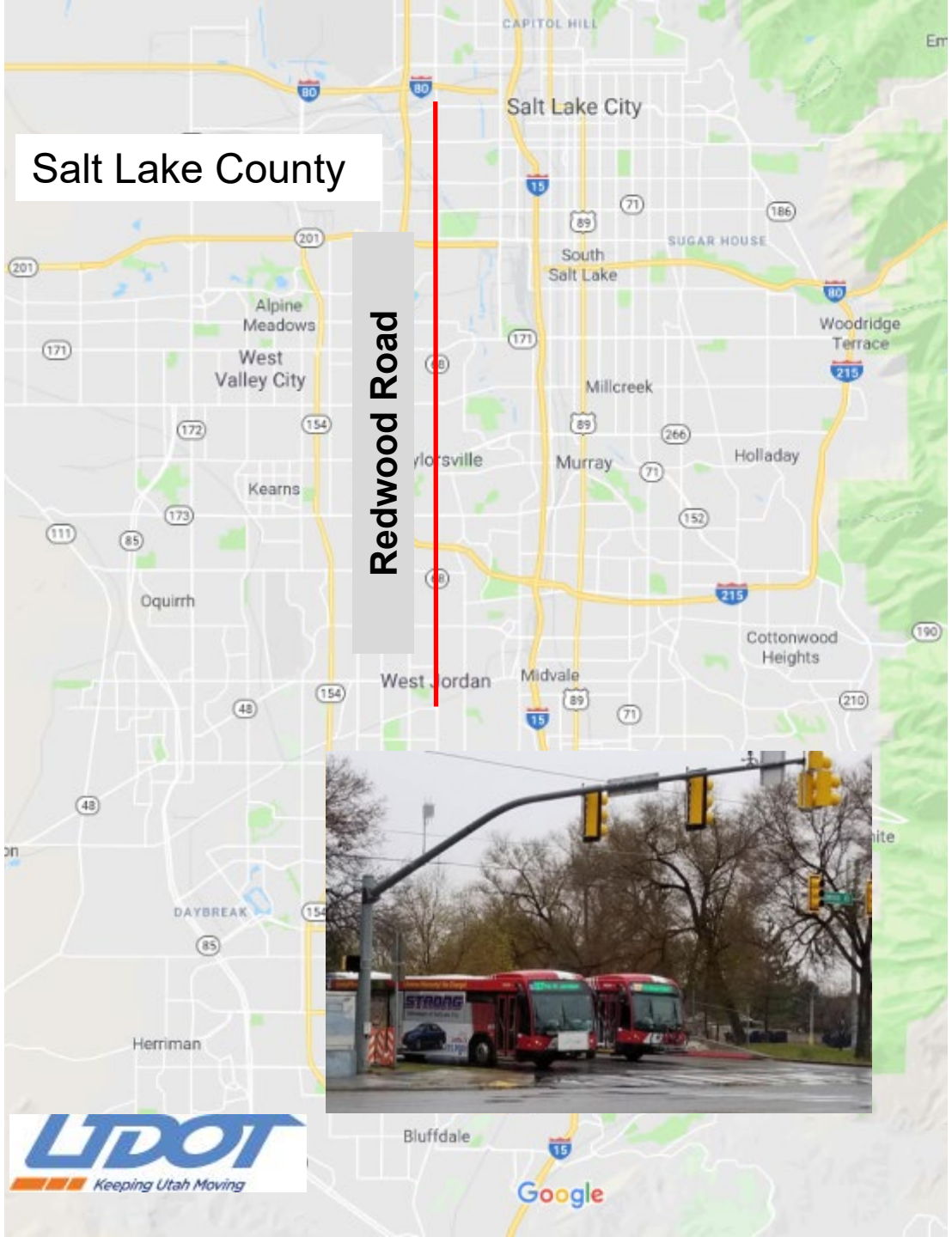
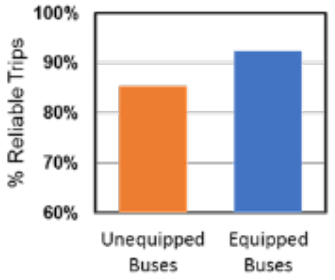


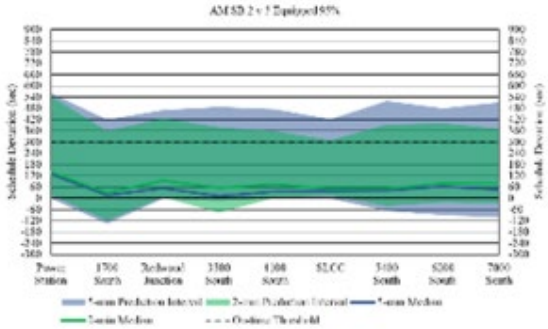
Applications for the Technology

Transit Signal Priority

- Give the bus priority at an intersection when running behind schedule
- Operational since Dec 2017 with UTA

- Schedule reliability improved by about 6%
  - Decrease in schedule deviation
  - Minimal impact to other traffic





UDOT Connected Vehicle Deployments

Salt Lake County

Utah County

EXISTING PROPOSED

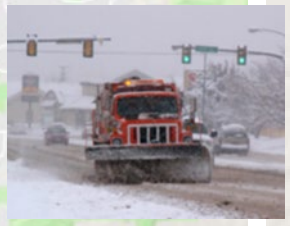
UTA TSP

UDOT Plows

Current Deployment:
130 RSUs
35 UTA Buses
52 UDOT Snow Plows

Additional Roadside Deployment:
98 RSUs for Buses
67 RSUs for Plows

Additional Vehicle Deployment:
60 UTA Buses
30 UDOT Plows



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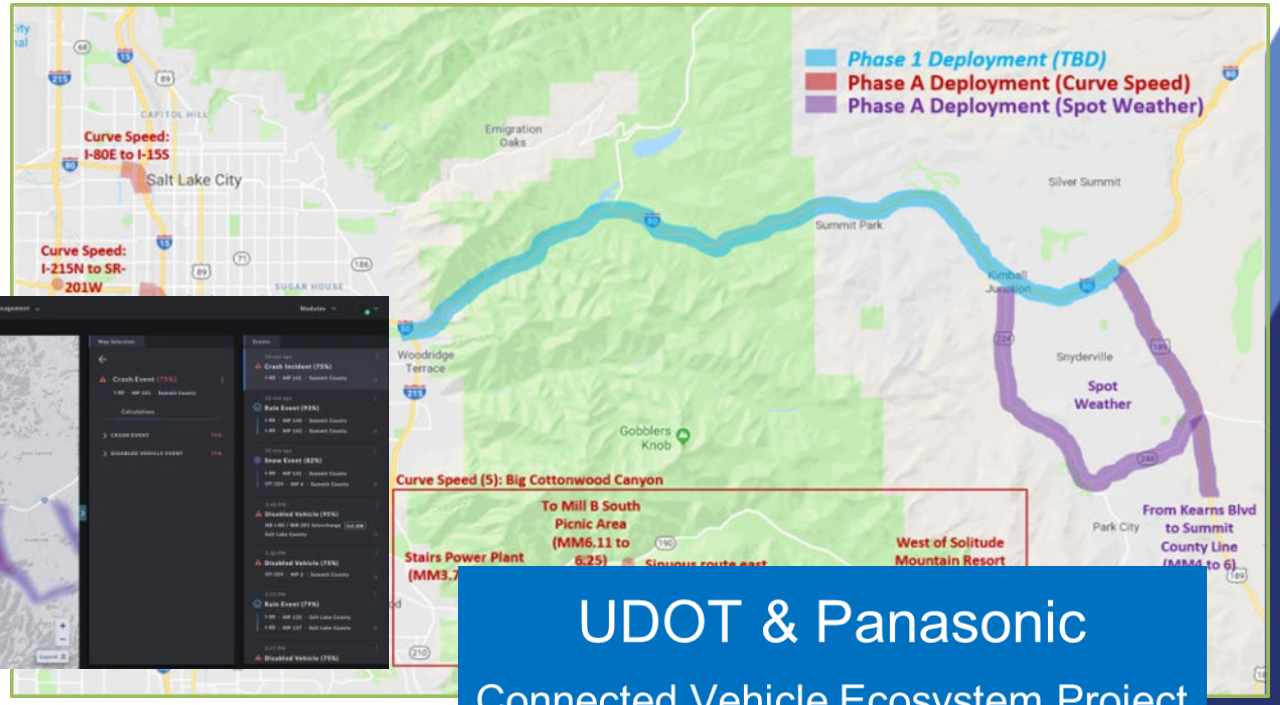
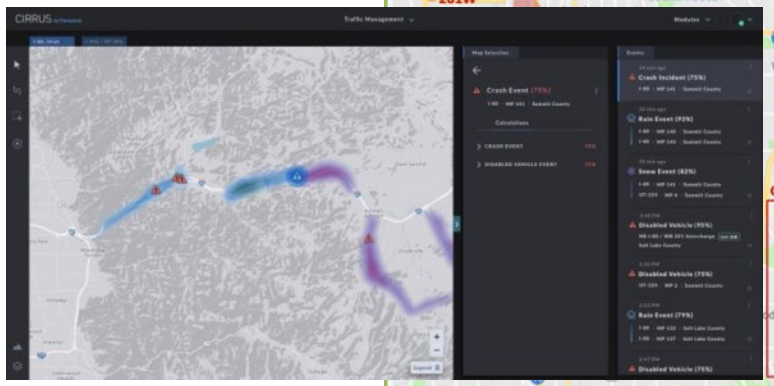
Applications for the Technology

- Crash Data Insights
- Curve Speed Warning
- Weather Data Insights
- Spot Weather Impact Warning
- Right Light Running Alert
- Pedestrian Presence Alert
- Road Condition Assessment
- Data Access – public / private partners
- Many more. . .





UDOT & Panasonic

Connected Vehicle Ecosystem Project

UDOT

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