

Road Condition Reporting App



Wyoming Department of Transportation

Vince Garcia

Ali Ragan

Trenton Rawlinson

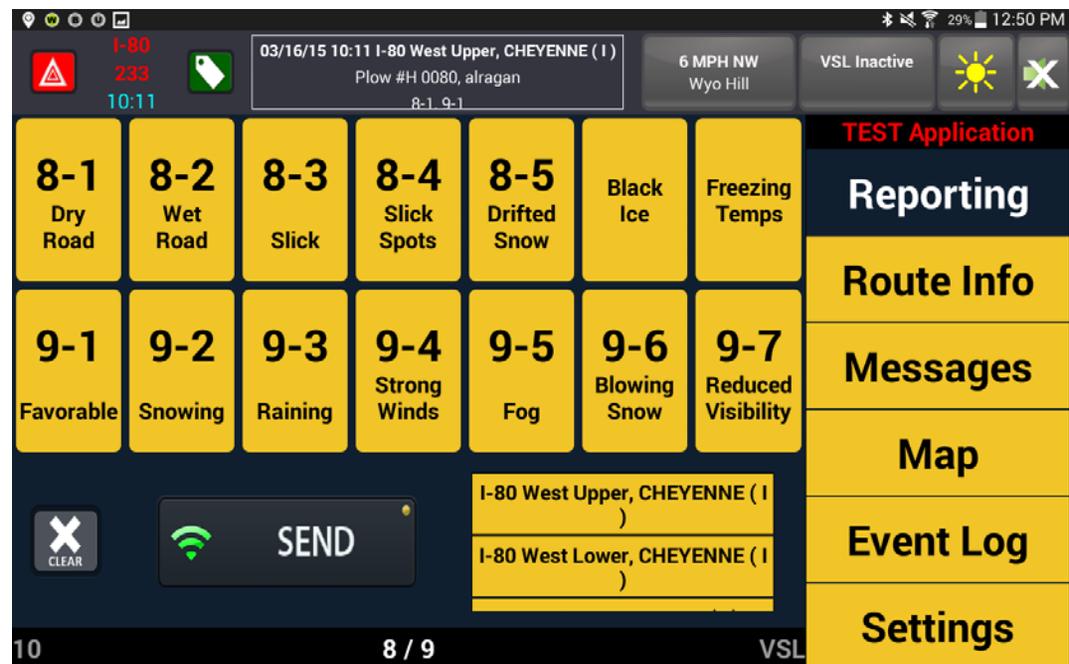
Application Overview

- Created the Concept of Operations in October 2013
- Development began in early 2014
- Deployment in December 2014: about 20 vehicles, 34 users
- Along I-80 and I-25 corridor
- Sole-source contract with AVL vendor CompassCom, developed by subcontractor NeoTreks
- WYDOT Telecom installed WiFi working with Versatel
- Off-the-shelf Samsung Galaxy Tab 4 10.
- Mounted in vehicles



Goals

- Reduce radio traffic
- Streamline TMC processes
- Improve timeliness, accuracy of road condition reporting
- Provide more information to maintenance workers
- Increase efficiency
- Improve roadway safety



Overview: Reporting



- Road and weather (8 and 9 codes)
- Incident reports (10 codes)
- Variable speed limits
- Snow Performance Measures

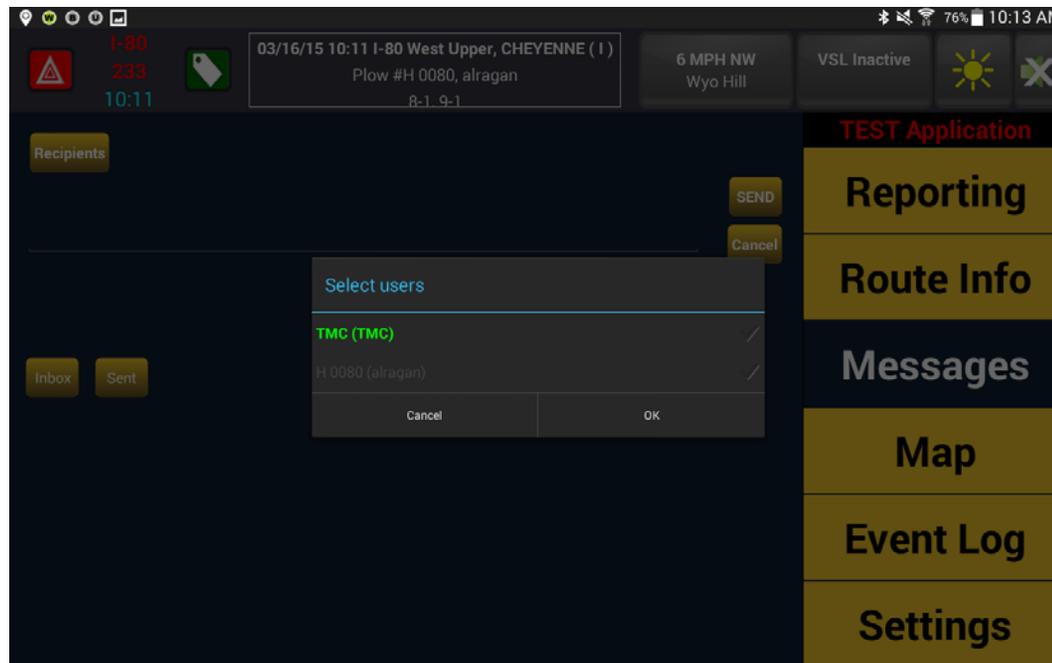
Overview: Route Info



- DMS
- RWIS

- Route information

Overview: Messages



- Send messages to the TMC
- Messages to and from other users

Device communication

- No ongoing communication costs

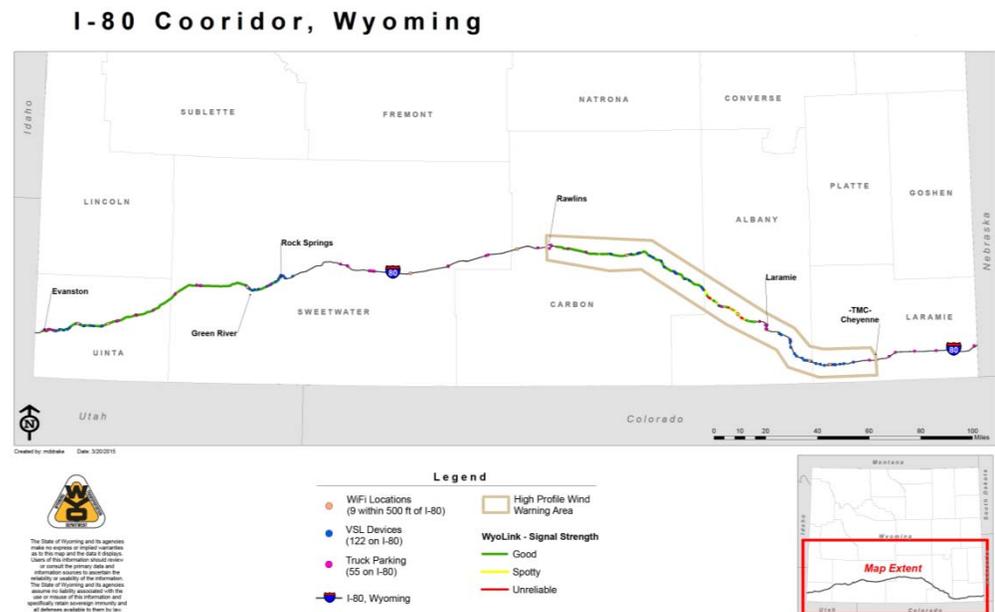
- Primary communication: Wi-Fi

Hotspots installed along Interstate 80, Interstate 25

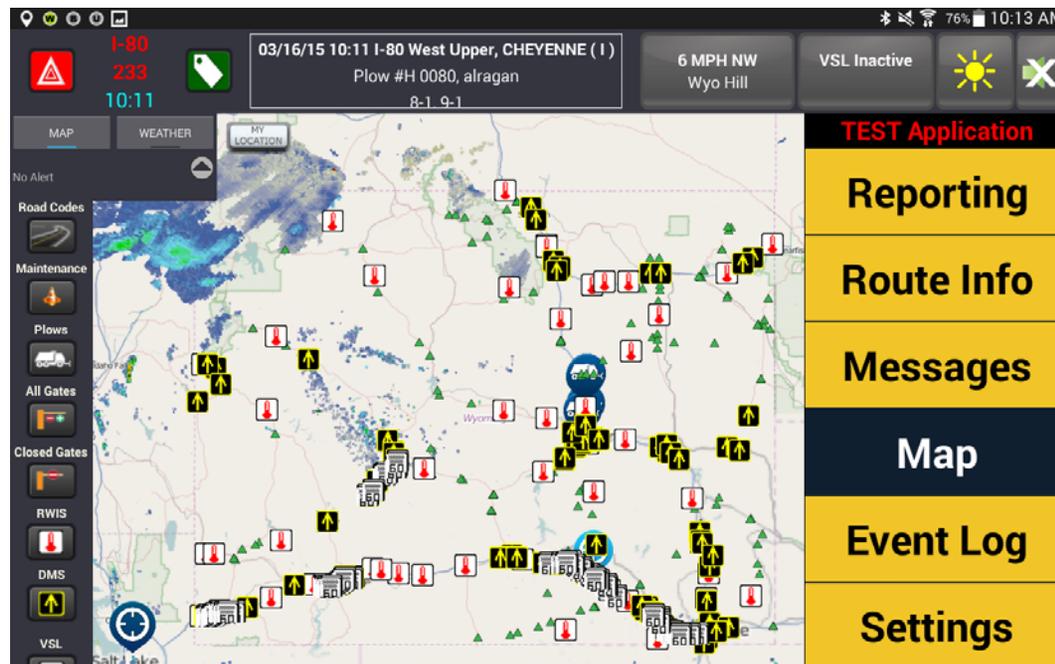
Cost per site roughly \$200

Range varies, as little as .25 miles and up to 1.25 miles

- WyoLink Radio Network
- Cell phone use would not provide as much coverage and would come with higher costs

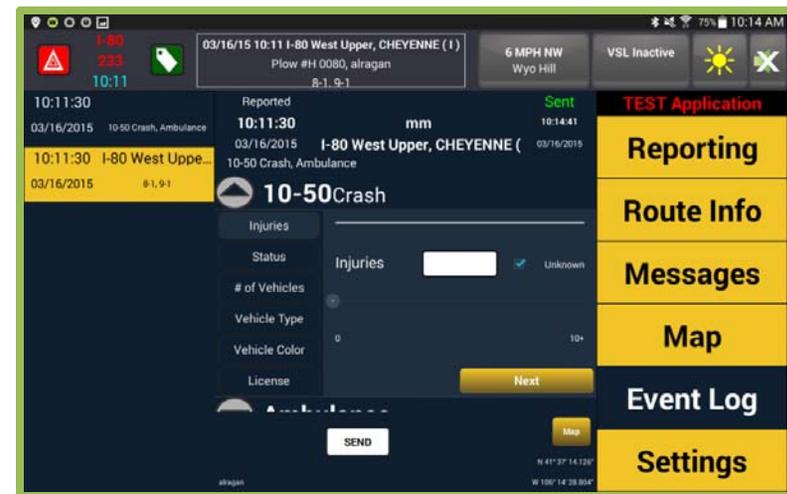
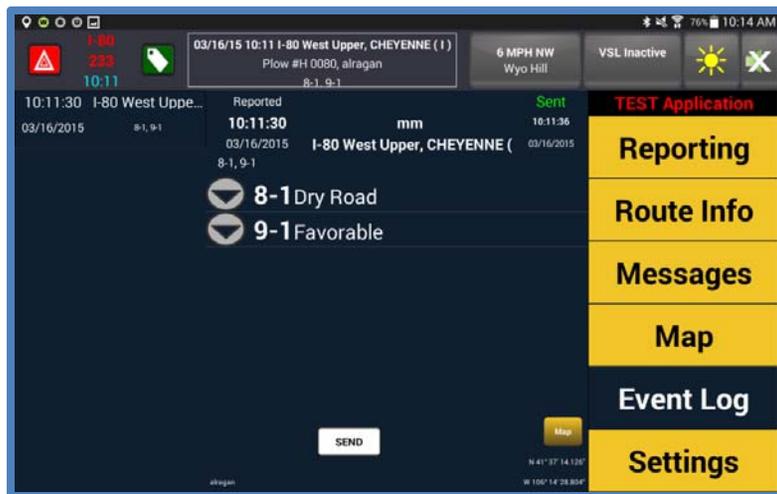


Overview: Road Map



- WYDOT fixed assets
- Other maintenance vehicles

Overview: Event Log



- Review previous reports
- Append information

System Integration

- Reports had to be integrated into existing Condition Reporting System (CRS)
- Built on a new application to communicate with TMC

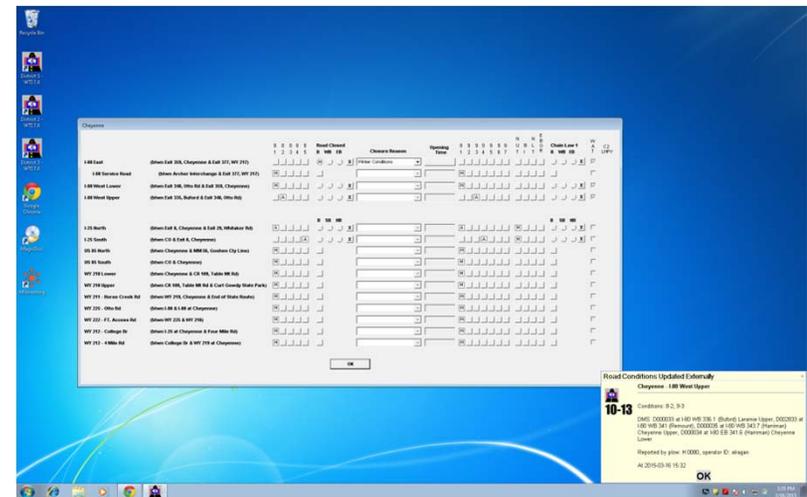
Wyoming State Government Citizen Business Government Visitor

Transportation Reports and Action Console (development)

TRAC Task List

Create new Task Update Now Last updated 2015-03-16 13:29:38

PK	Priority	Source	District	Description	Link	Created	Claimed	Completed	On Complete URL
24023	Emergency	Plow	0	10-50: Crash Ambulance Requested at 41.6205971-106.241334 Plow license plate: H 0080, Operator ID: alragan, Dept: 1035	N/A	2015-03-16 10:17:32 by alragan	Claim 24023	Complete 24023	DELETE https://trac_dev/wfidsbd01.gsisits.local/84
24035	High	Plow	1	10-13: Cheyenne - I-80 West Upper Conditions: S-1, 0-1 DNIS: D000033 at I-80 WB 336.1 (Buford) Laramie Upper, D002833 at I-80 WB 341 (Remount), D000035 at I-80 WB 343.7 (Harriman) Cheyenne Upper, D000034 at I-80 EB 341.6 (Harriman) Cheyenne Lower Reported by plow: H 0080, operator ID: alragan	N/A	2015-03-16 10:14:30 by alragan	Claim 24035	Complete 24035	null
24002	Medium	Plow	0	10-41: Operator on duty at 0.000000/0.000000 Plow license plate: H 0000, Operator ID: alragan, Dept: 1035	N/A	2015-03-16 10:14:00 by alragan	Claim 24022	Complete 24022	null
24034	Medium	Plow	1	10-7: Out of service Cheyenne - I-25 North - Southbound at Reference Marker 12.5 Plow license plate: H 0241, Operator ID: sprettyman, Dept: 2033	N/A	2015-03-13 14:11:56 by sprettyman	Claim 24034	2015-03-16 07:33:05 by thr X	null
24033	Medium	Plow	1	10-8: In service Cheyenne - I-25 North - Southbound at Reference Marker 12.5 Plow license plate: H 0241, Operator ID: sprettyman, Dept: 2033	N/A	2015-03-13 14:04:14 by sprettyman	Claim 24033	2015-03-16 07:33:07 by thr X	null
24032	Medium	Plow	1	10-7: Out of service Cheyenne - I-25 North - Southbound at Reference Marker 12.5 Plow license plate: H 0241, Operator ID: sprettyman, Dept: 2033	N/A	2015-03-13 14:02:35 by sprettyman	Claim 24032	2015-03-16 07:33:09 by thr X	null
24021	Medium	Plow	0	10-41: Operator on duty at 0.000000/0.000000 Plow license plate: H 0241, Operator ID: sprettyman, Dept: 2033	N/A	2015-03-13 13:47:47 by sprettyman	Claim 24021	2015-03-16 07:33:11 by thr X	null
24020	Medium	Plow	0	10-42: Operator off duty at 41.165254-104.844836 Plow license plate: H 0241, Operator ID:	N/A	2015-03-13 13:46:44	Claim 24020	2015-03-16 07:33:12 by thr X	null



Demonstration

- Road Condition Reporting app and Transportation Reports and Action Console (TRAC)
- Should be able to see two screens: a webcam view of the app and TRAC. You may need to slide the split screen to see both screens.

Evaluation: Efficiency Comparison

- TMC trainer used a stopwatch to evaluate the time needed to update Wyoming Travel Information (WTI), devices
- It took roughly 42 seconds to take a radio call and enter information into the WTI
- That time can be greatly impacted – during a closure it took 20 minutes for one operator to be able to enter information into the WTI

Evaluation: TMC Employees

- Haven't noticed time changes despite measurements
- About 1/3 say the time needed to update devices has increased
- 78% say WYDOT is better off with the app than without it

Evaluation: Maintenance Employees

- About 2/3 said they're able to send more reports
- Split on whether the tablet saves time
- 80% say it's useful and WYDOT is better off with the app than without it
- About 2/3 say they're not more informed about road weather information

Challenges/Lessons Learned

- Device communication cost the project several months
- Maintenance employee buy-in
- Explaining project goals, terminology with developers
- Mobile data management – keeping devices updated

Contact Information

Vince Garcia

vince.garcia@wyo.gov

Ali Ragan

ali.ragan@wyo.gov

307-777-2985

Trenton Rawlinson

trenton.rawlinson@wyo.gov

