

Second Generation CARS-511

Route-Based Reporting for ATIS (telephone component)



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Topics

- ▶ Overview of road and travel reporting function in Wyoming
- ▶ Previous 'Conversant' phone system
- ▶ New IVR system – CARS-511
- ▶ Additional and remaining issues

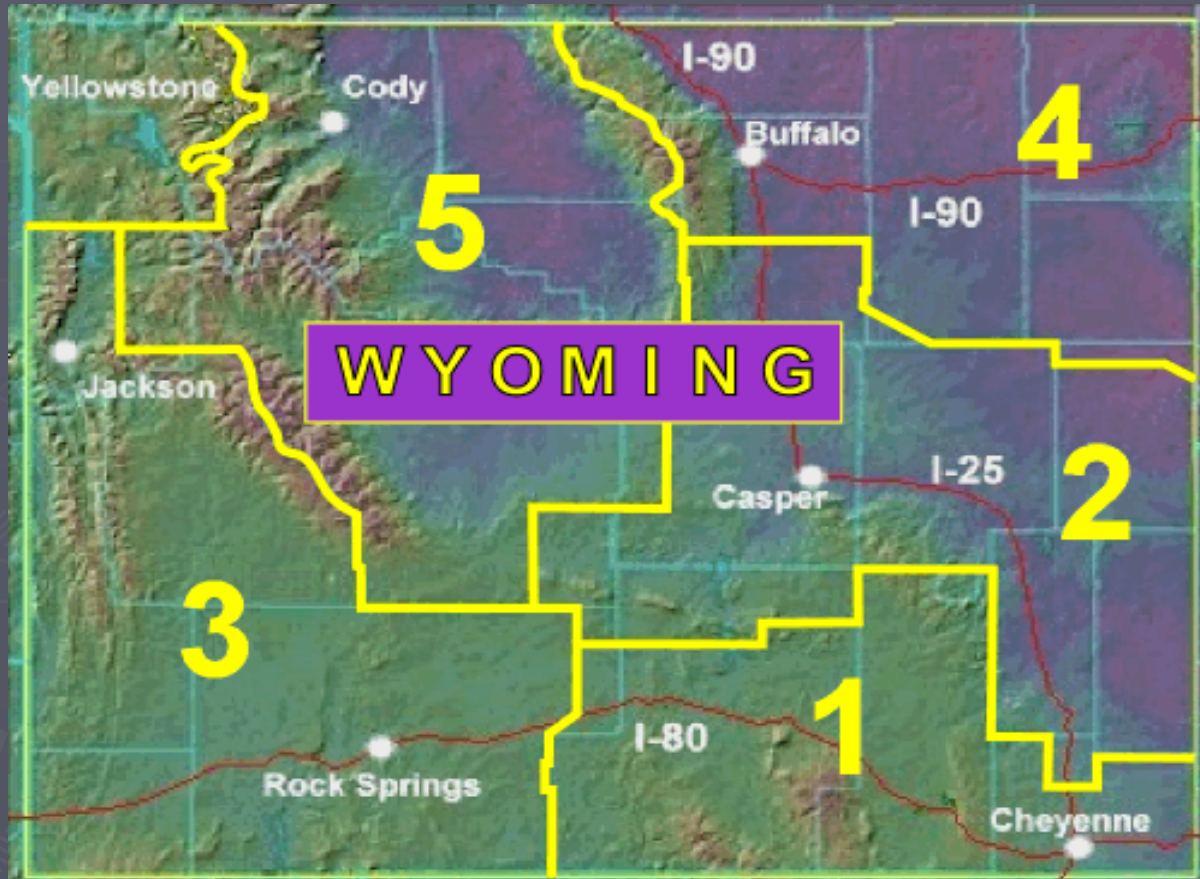
Condition reporting in Wyoming

- ▶ Highway Department (now WYDOT) began road condition reporting in early 1970s
 - Based on first-hand reports from field to dispatchers
 - ▶ Specialized '8' and '9' codes devised
- ▶ Used "code-a-phone" technology
 - Very limited call capacity
 - By mid-1990s -- system seriously outmoded

Next generation 'legacy' system

- ▶ Utilized two Avaya "Conversant" servers
 - Owned, housed and operated by WYDOT
 - 144 Concurrent telephone lines
- ▶ Operational since 1998
 - Difficult, cumbersome navigation
 - No aggregation feature; long call times
- ▶ Hybrid regional/route-based system
 - Based on field district boundaries
 - Route-based for interstates

WYDOT Field Districts



Decision to build new system

GOALS

- ▶ Provide consistent, reliable, accurate and timely information
- ▶ Minimize procedural changes for dispatchers
 - Retain previous “WRR front-end” data entry interface
 - Imported data then converted to TMDD format
- ▶ Add voice response capability
- ▶ Institute full route-based reporting

Route-based reporting stems from demographics, travel patterns

- ▶ Wyoming is one of the most 'rural' states
 - Least populated state – just over 500,000 residents
 - Lowest population density among 'Lower 48' states
- ▶ Population tends to cluster in municipalities
 - Many rural areas virtually uninhabited
- ▶ In-state trips predominantly town-to-town
 - Travelers often traverse remote areas
- ▶ I-80 is major transcontinental route
 - Continues Wyoming's traditional role as a 'bridge state'

Other related statistics

- ▶ State highway system – approx. 6800 miles
 - Very high ratio of highway miles/per resident
- ▶ Top ranked state for miles driven per person
 - Wyo: 18,385 miles, nat'l ave: 9,915 miles
- ▶ Also high ranked in per-capital vehicle ownership
- ▶ *And then ... there's call volumes*

Call Volumes

▶ Maine	105,659	0.73%
▶ New Hampshire	129,480	0.89%
▶ Alaska	193,139	1.33%
▶ Vermont	391,584	2.70%
▶ Rhode Island	434,454	2.99%
▶ New Mexico	908,595	6.26%
▶ Iowa	1,362,893	9.39%
▶ Minnesota	1,406,816	9.69%
▶ Kentucky	2,411,363	16.61%
▶ Idaho	2,626,188	18.10%
▶ WYOMING	3,136,337	21.61%

Winter Weather factors

- ▶ High elevation
- ▶ Frequent strong wind; blowing snow
- ▶ Rapidly changing conditions
- ▶ Relatively frequent road closures



WYDOT's new IVR system



WYDOT's new IVR system

▶ Entirely route-based

- 308 distinct road segments
 - ▶ Rural only, generally outside city or urban limits
 - ▶ Lengths range from less than a mile to 50+ miles
 - Covers approximately 6400 miles, average length: 21 miles
 - ▶ About one-quarter of segments not regularly reported
 - ▶ Each segment tagged with alphanumeric identifier; includes location and public route number information

▶ Aggregation feature

- More segments doesn't mean longer call lengths
- Improved convenience for callers
 - ▶ Can select single route, as opposed to number of towns

Example: I-80 – Utah to Nebraska



Example: I-80 – Utah to Nebraska

WYOMING

Segment EM180W

I-80: From exit 235 to exit 255
(Walcott Jct. to W. Elk Mtn. Intchng.)

UTAH

NEBRASKA

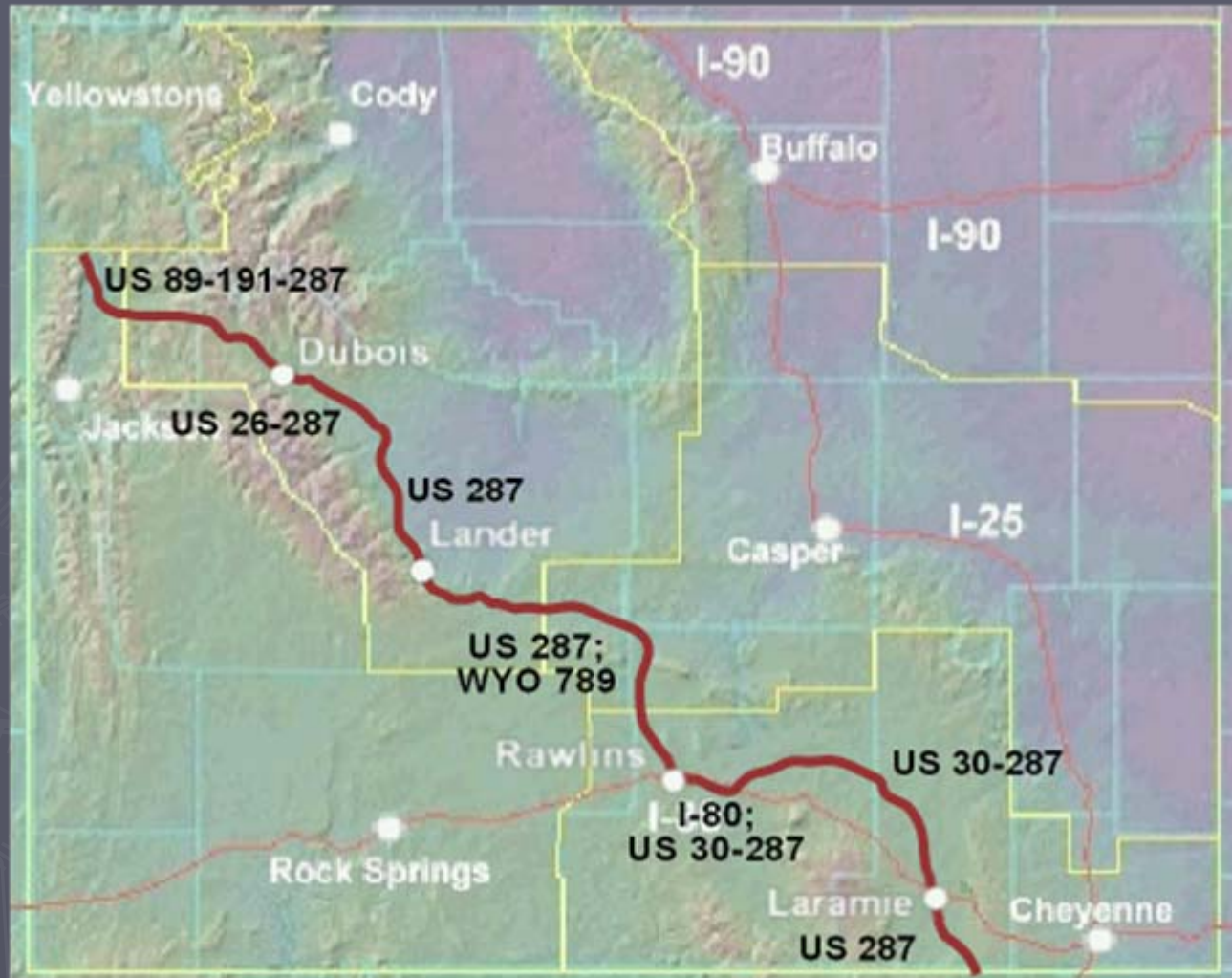
402 miles;
27 reporting segments



Development was time consuming

- ▶ Segment definitions link to landmarks
 - Structures, interchanges, road closure gates
- ▶ “From” and “to” points for each segment
 - Reference markers
 - Some end points based on state highway map
 - Other end points based on maintenance ops.
- ▶ Number of segments increased due to ‘multi-banded’ routes

Multi-banding example: US 287



What do we think we did right?

- ▶ Comprehensive RFP for IVRS
- ▶ A strong interdisciplinary team to review consultant documents
- ▶ Consultant and WYDOT met on a regular basis, worked together very well
- ▶ Placed an emphasis on clarity of speech
 - Longer phrases
 - Focused on correct localized pronunciations

A route-based reporting challenge

- ▶ Wyoming has 250-plus segments requiring frequent condition reporting
 - Must check road frequently to generate accurate, timely reports
 - Maintenance priorities concentrate forces on certain roadways
- ▶ Pilot project: Private citizen reporting
 - Slated for District 5 during 2006-07

Lessons learned

- ▶ Delays in system development
- ▶ Our timeline may have been unrealistic



Still Needed

- ▶ Resolution of 'open mic' issue
 - Need voice response *turned OFF* when not necessary to answer a request
 - Would reduce problems caused by extraneous background noise

Roll the credits:

Route-based reporting for Wyoming

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