UC387
Snow Plows, AVL and Public Data Consumption

Eric Abrams – Iowa DOT
eric.abrams@dot.iowa.gov
iowadot.gov/GIS
* 9479 miles of road (23,989 lane miles)
* 900+ trucks
* 233,000 tons of rock salt
* 17,000,000 gallons of salt brine
* 40 inches snow, 54 precipitation days
* $45,000,000 average budget
* 10% Reduction of salt is about 1.3 million dollars

Just the Facts
(Iowa 5 year average)
Why Do it?

- Cost Control
- "Real" use of materials
- Strained budgets
- Laborious record keeping
- No statewide understanding of fleet
- Response consistency
- Operator material auditing and reporting
- Impact of winter operations on pavement
Data Collected

- Speed
- Location
- Blade position
- Material types and rates
- Air and pavement temperature
- Engine bus
- Photos
Robust Architecture

- Oracle Spatial Database gives real time access to plow data
- Web Services
- Database central/software neutral
- Create once use many
Cost

* $3000 a truck for AVL equipment
  * Data is $7 a month
* Camera install and custom development
  * iPhone 4s
  * $78,000 for 200 trucks
  * $40 data plan
Analysis

- Fleet management
- Storm response and return to normal
- Material usage and pavement condition
- Traffic speed and response to treatment
- Blade longevity
- Predictability of travel
Heads Up Display

Sensor issues

Different Truck types

Same Response?
Heads up Icons
Blasting
WOPR - Storm Progress
WOPR – Storm Response
Plow info to the public in January 2014

Pushed data with FME from Oracle Spatial to ArcGIS Online as a feature service

Plow
Plow Photos
DMS
Road Conditions
Fixed cameras
Waze
Analytics
Partners that leveraged the service

* Iowa State University Mesonet
* MACH - Law Enforcement
* TransSuite
* TV/Radio
* Emergency management
* General Public
* Department of Natural resources
Trackaplow.iowadot.gov
That was quite a snowfall! We’ve been out all night and currently (1/6/2015 at 4:13 a.m.) have 274 plows on the road to get ready for the morning commute. Please be safe and buckle up, allow some extra time to get where you are going and extra space between your vehicle and the car in front of you. Check current plow locations at http://trackaplow.iowadot.gov/
Public Examples

IDOT snowplow image: I-35 and Hwy 20. Some snow starting to coat roadway. Heading our way. #iowawx #iawwx
We have 217 plows out in eastern Iowa where snowy roads are causing some travel troubles. This is U.S. 18 just east of Charles City today (11/24/2014 at 8:27 a.m.)

Check out the current plow location and photos from the windshield of some of the plows at http://trackaplow.iowadot.gov

You can find road conditions and incident reports at www.511ia.org.

The Iowa DOT currently has 174 trucks out in eastern Iowa. We’ll have some photos directly from the windshield of the plows once the sun comes up. To check for plows in your area, go to http://trackaplow.dot.iowa.gov

Travis Edrington Are there any other state DOTs as awesome as this one?

Iowa Department of Transportation shared Zero Fatalities Iowa’s photo.

8 people like this.

2 shares
Jerry Gallagher KWWL @JerryGallagher 1h
Road conditions are worse in far northeastern Iowa. This picture is from an @iowadot plow on Hwy 52 north of Decorah.

Iowa DOT @iowadot 58m
What you need to know for Thanksgiving travel dmreg.co/1qY6kZF via @DMRegister
We have 423 snowplows on IA roads. Track the plows and view images taken from the dashboard @trackaplow.iowadot.gov.

Karen @karenl_m · 9m
@iowadot Wow! What a cool feature

Rusty Dawkins @rustywx · 11m
Absolutely love this. See where the snowplows are in Iowa, click on blue to see their view! iowadot.maps.arcgis.com/apps/webappview... H/T @ChrisKuball

Statewide Iowa 511 @statewide511 · 19m
We have 423 snowplows on IA roads. Track the plows and view images taken from the dashboard @trackaplow.iowadot.gov
Nina Friis @friedly · 3h
@iowadot Will do; I'm copilot today.

Kurt Beyer @beyerku · 3h
One of my favorite things about the Iowa DOT: Live snowplow tracking and live snapshots from the plows trackapllow.iowadot.gov #awesomesauce

Iowa DOT @iowadot · 3h
@friedly Sorry, but this dry snow blows around and it's just going to get worse as the day goes on. Please be safe.

Sioux City Journal @scj · 2h
RT @statewideia511: Please use care when driving in the snow. http://trackapllow.iowadot.gov bit.ly/1DbuWCy #sxwweather
Usage

The graph shows the usage over time, with a peak on January 5, 2015, indicating 393,515 request(s) at 2015-01-05 GMT.
Future

* Staff or COTS for analysis
* More data to the public and supervisors
* Review of system and focus on needed functionality
* Plow and DMS notification
* Look at more integrated devices
* Predictive Analytics
Thanks

Eric Abrams – Geospatial Manager
Iowa Department of Transportation
Ames, IA
eric.abrams@dot.iowa.gov

http://iowadot.gov/gis
http://trackaplow.iowadot.gov