

UC387

Snow Plows, AVL and Public Data Consumption

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lowadot.gov/GIS



Just the Facts

(Iowa 5 year average)

- * 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



Why Do it?

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

Data Collected

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

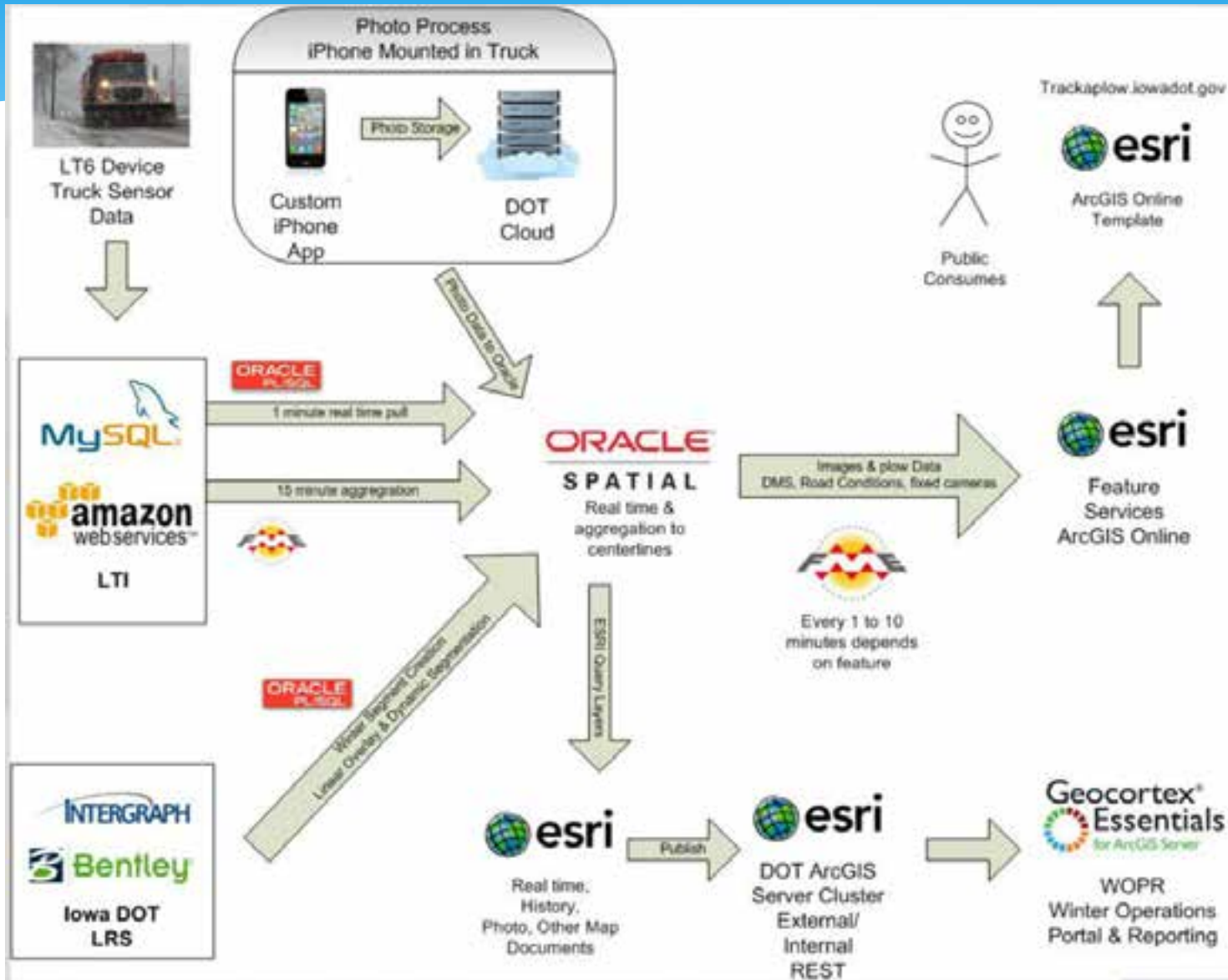


Robust Architecture

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



Architecture



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



Same Response?

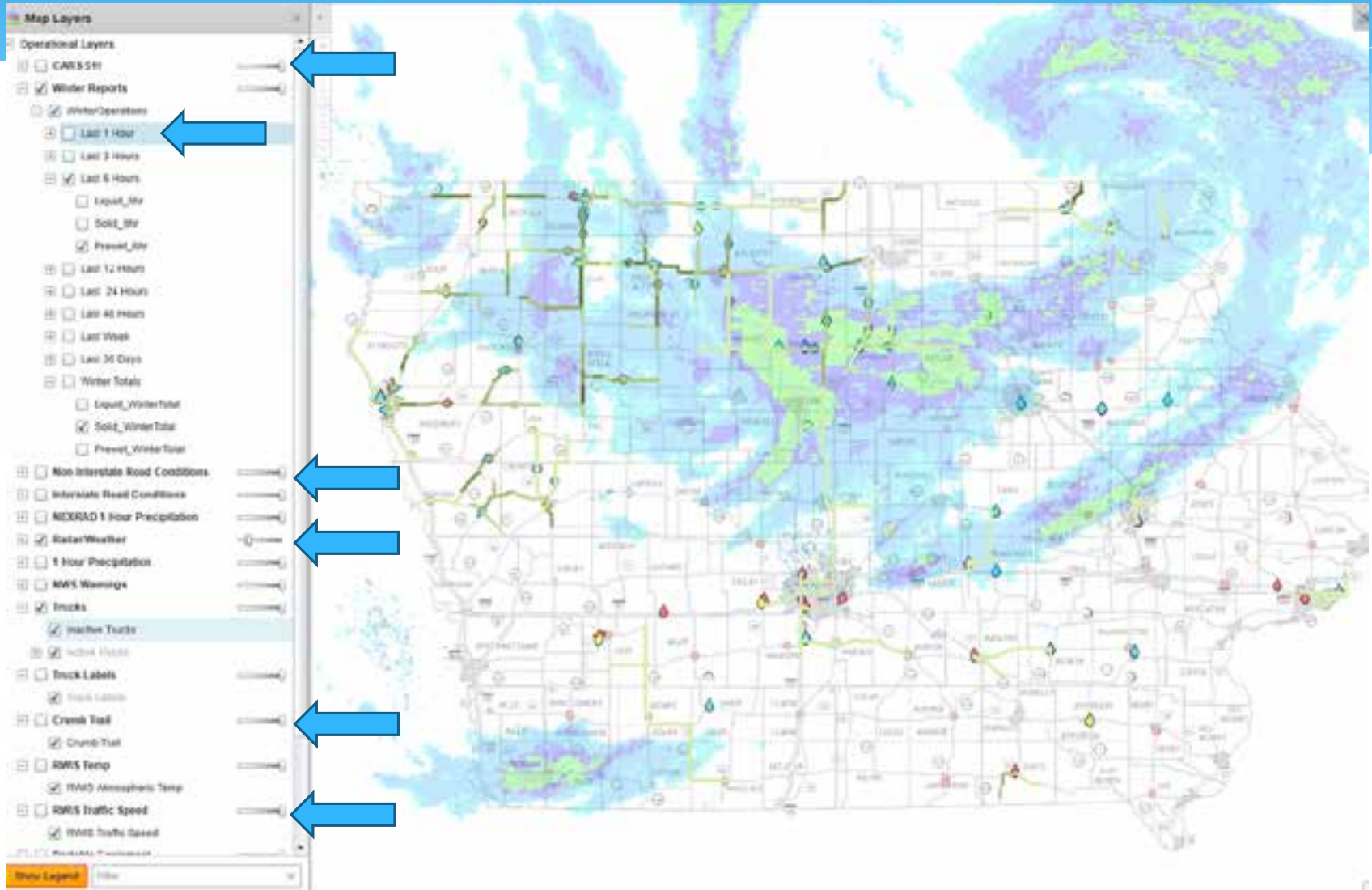


Heads up Icons

Blasting



WOPR - Storm Progress



WOPR – Storm Response

WOPR

Winter Operations Portal & Reporting

Search...

Sign In

Identify Results (51)

I want to...

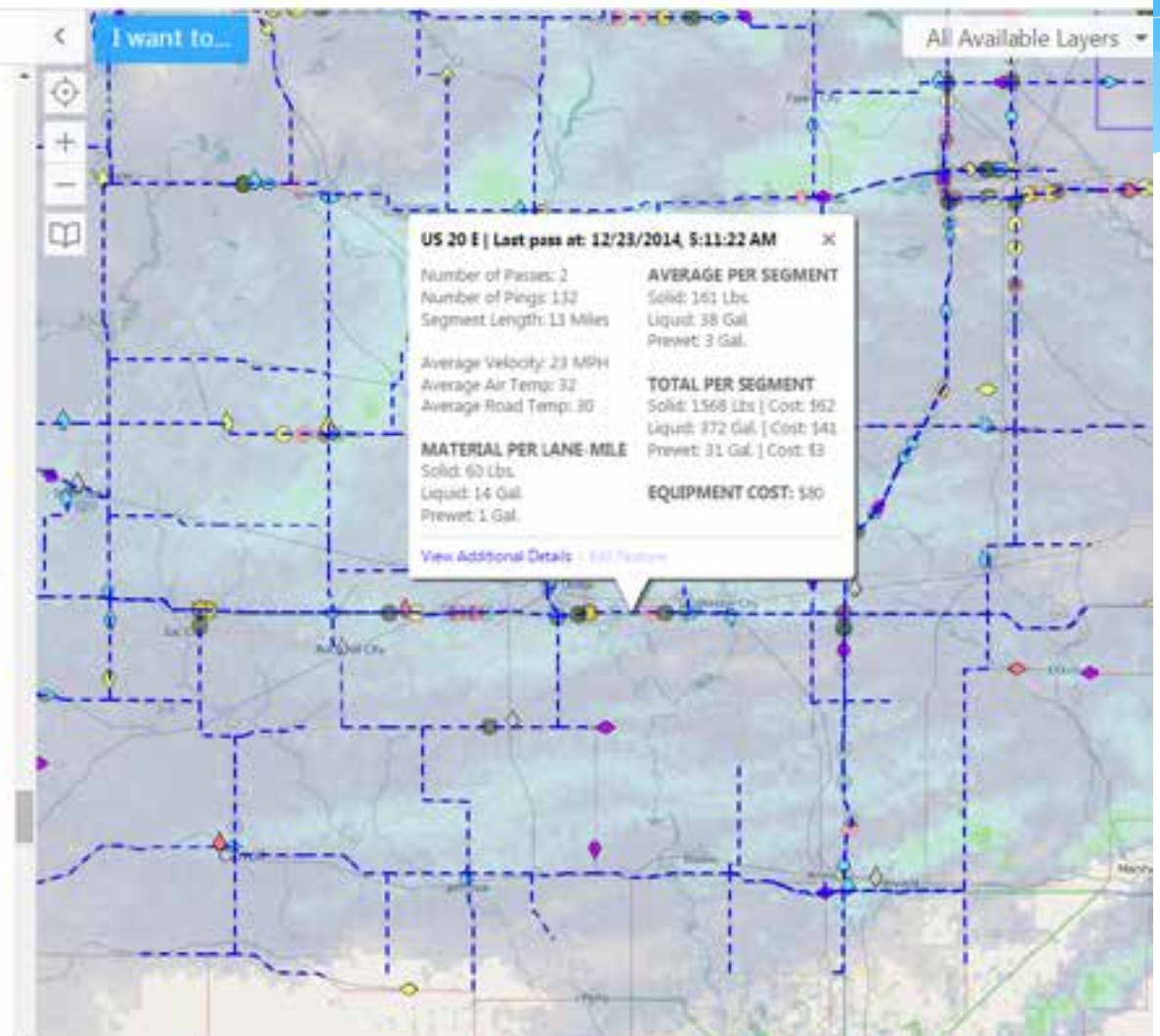
All Available Layers

A32869 - 12/23/2014 7:07:19 AM
US 20 W at Post 121 Offset 049



Click on Picture for Full Screen

A32869 - 12/23/2014 6:57:20 AM
US 20 E at Post 135 Offset 037



WOPR – Storm Response

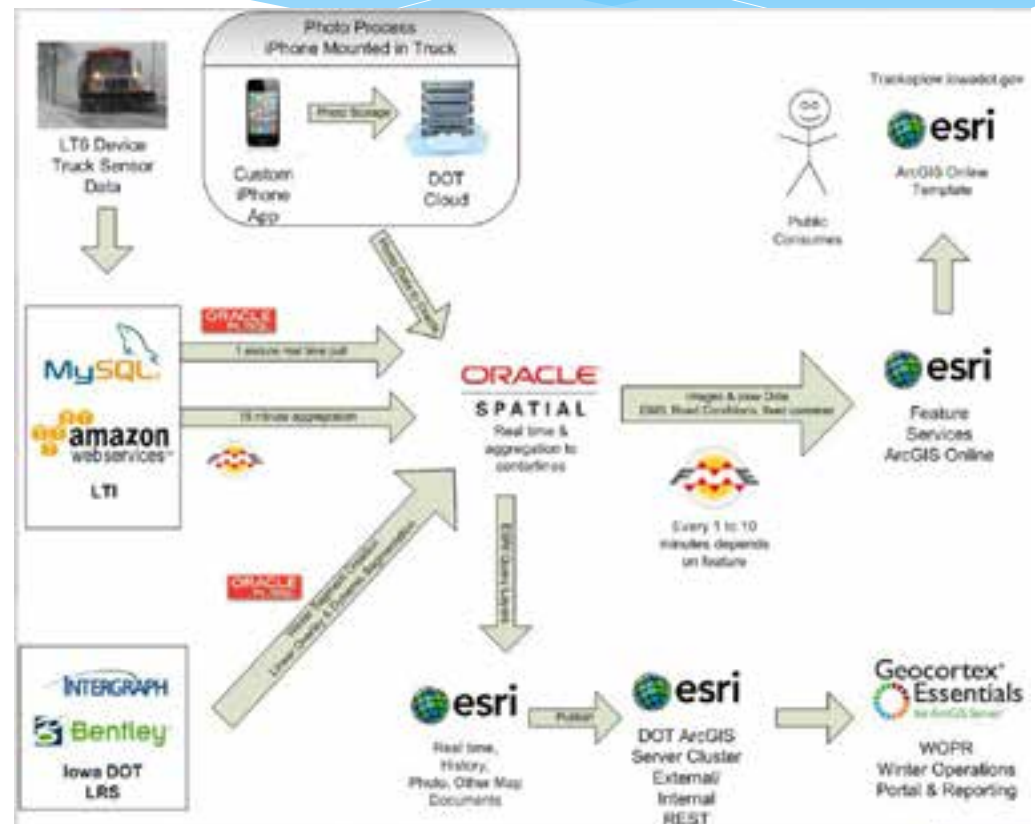


Public Information

Plow info to the public in January 2014

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

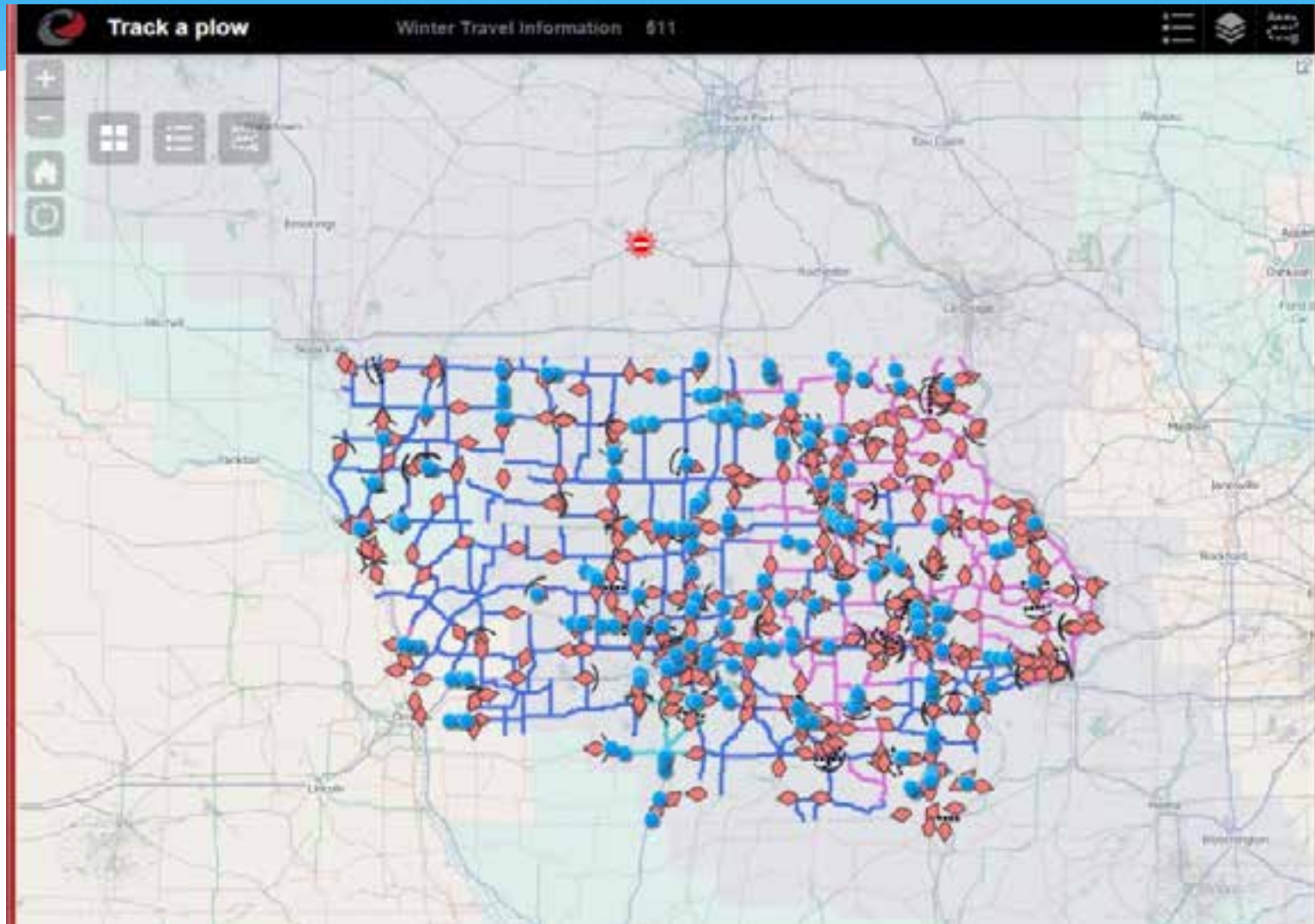
- Plow
- Plow Photos
- DMS
- Road Conditions
- Fixed cameras
- Waze
- Analytics



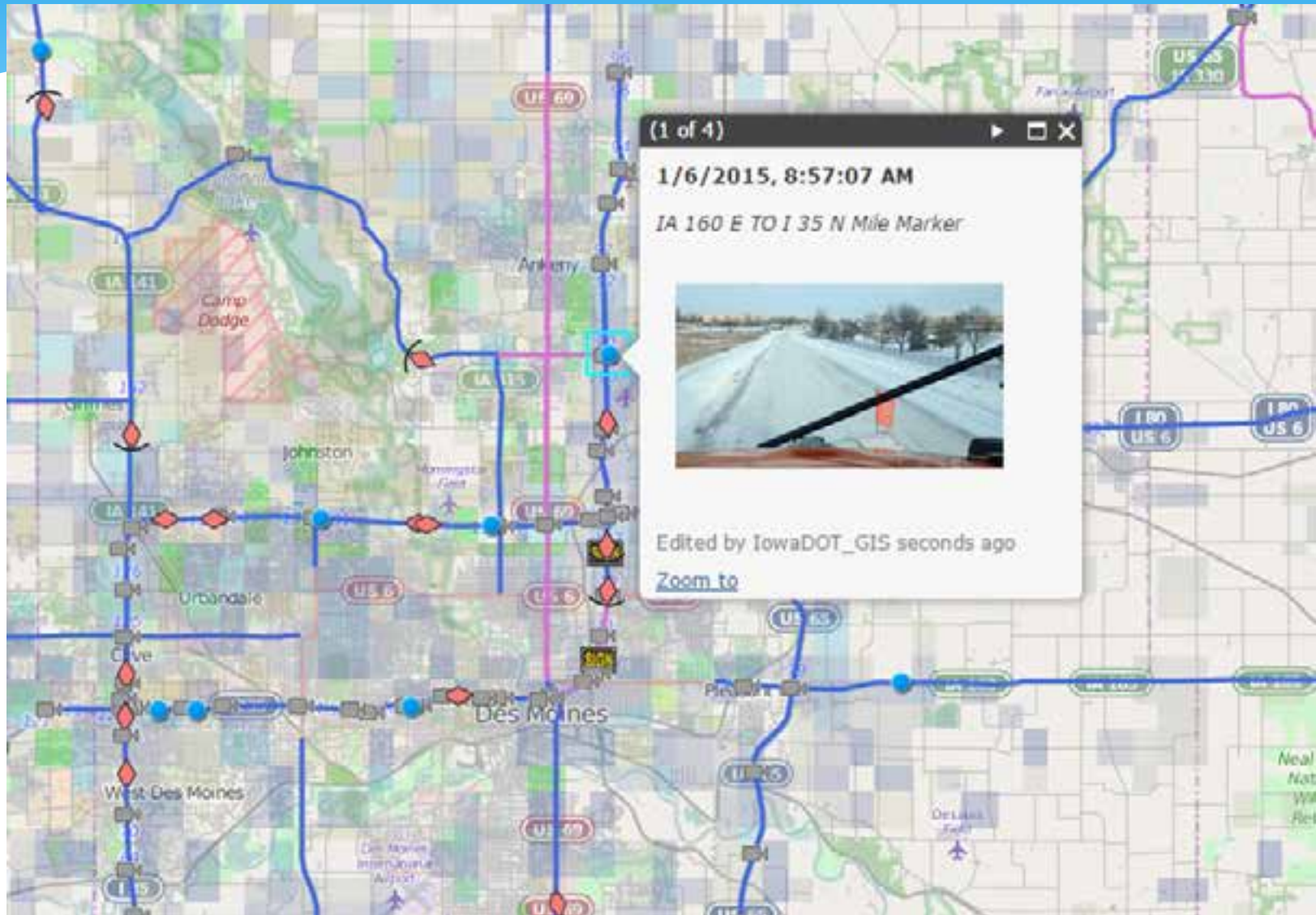
Partners that leveraged the service

- * Iowa State University Mesonet
- * MACH - Law Enforcement
- * TransSuite
- * TV/Radio
- * Emergency management
- * General Public
- * Department of Natural resources

Trackaplow.iowadot.gov



Trackaplow.iowadot.gov





Iowa Department of Transportation

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://trackplow.iowadot.gov/>

Like · Comment · Share · Edit · 1 hr

-  Deb Muehl, Gary Snyder and Tracy Parker Tolliver like this.
-  1 share
-  **Kevin Scott** Thanks gang you all do good work . Make sure the drivers know at least someone appreciates what they do .
Like · Reply · 0 minutes ago
-  **Iowa Department of Transportation** Thanks for the comment. I will pass along your comment to our snowfighters.
Like · Reply · Commented on by T.J. Bramble (T) · about a minute ago
-  Write a comment...

Album: Timeline Photos

Posted by T.J. Bramble (T)

Shared with: Public

Boost Post

-  Tag This Photo
-  Edit Location
-  Change Date

- Open Photo Viewer
- Download
- Make Profile Picture for Page
- Move To Other Album
- Embed Post
- Delete This Photo



Public Examples



Write a comment...
Press Enter to post

Nikiesha Thomas What time is this supposed go start
Like · Reply · 17 minutes ago

KWWL
about an hour ago · [in](#)

IDOT snowplow image: I-35 and Hwy 20. Some snow starting to coat roadway. Heading our way. #kwwlwx #iawx



Like · Comment · Share

3 people like this.

Write a comment...
Press Enter to post

Shirley Kohler Oh, yay, just in time for my drive to work!
Like · Reply · about an hour ago

KWWL

Timeline Photos

[Back to Album](#) · Dickinson County Emergency Management's Photos · Dickinson County Emergency Management's Page

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Dickinson County Emergency Management

Photo from 1:25pm today on Hwy 71 in Milford - taken by an Iowa DOT snow plow. See images from snow plows at <http://trackplow.iowadot.gov/>

3 hrs

The Chamber of the Iowa Great Lakes, Eric Rademacher, Jennifer Jensen and 18 others like this.

24 shares

Emilee Buchholz Doesn't make me feel better knowing they're paying attention to their cell phone and not the road!!

1 · 2 hours ago

Dickinson County Emergency Management The cameras are fixed and the photos are taken automatically.

1 · 2 hours ago

Emilee Buchholz Haha ... Ok... that's much better then!

1 · 2 hours ago

Mike Bergendahl opps my bad...should have read all the comments first!

2 · about an hour ago

Kassie Guthrie It's a dash mounted camera

1 · 30 minutes ago

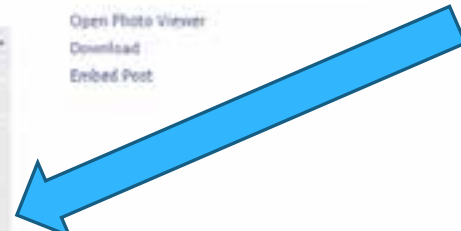
Album: Timeline Photos

Shared with: Public

[Open Photo Viewer](#)

[Download](#)

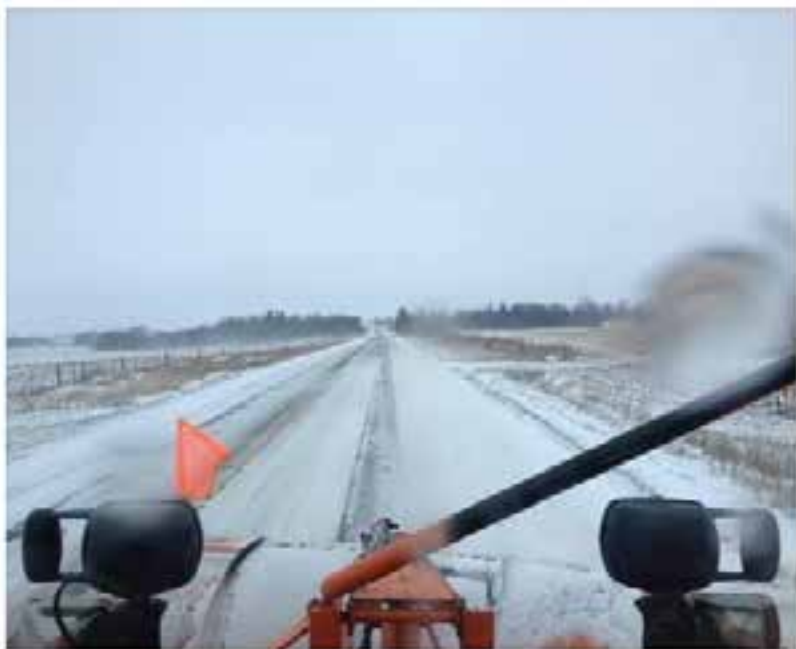
[Embed Post](#)



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.



Like Comment Share 8 1 2

8 people like this.

2 shares



Allen Hollopeter Thanks Steve for providing this info for the motorists on the highways and remember everyone be safe out there!

Like Reply · 24 mins



Write a comment...

Press Enter to post.



Iowa Department of Transportation

3 hrs · Edited ·

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>



Like Comment Share 5 1 3

5 people like this.

3 shares



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

Like Reply 2 · 3 hrs



Write a comment...

Press Enter to post.



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



🔄 2 ⭐ ...

 Iowa DOT retweeted



Jerry Gallagher KWWL @JerryGallagher · 1h

Road conditions are worse in far northeastern Iowa. This picture is from an @lowadot plow on Hwy 52 north of Decorah.



🔄 7 ⭐ 1 ...



Iowa DOT @lowadot · 58m

What you need to know for Thanksgiving travel dmreg.co/1qY6kZF via @DMRegister

🔄 1 ⭐ 1 ...



Heather Nell @poorbeatin · 8m

We have 423 snowplows on IA roads. Track the plows and view images taken from the dashboard @ trackaplow.iowadot.gov *



← ↻ 1 ★ 1 🗑️ ⋮

Expand



Karen @karenl_m · 9m

@iowadot Wow! What a cool feature

← ↻ ★ 🗑️ ⋮

View conversation



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/webappviewer...](https://iowadot.maps.arcgis.com/apps/webappviewer/index.html) H/T @ChrisKuball

← ↻ 2 ★ 1 🗑️ ⋮



Statewide Iowa 511 @statewideia511 · 19m

We have 423 snowplows on IA roads. Track the plows and view images taken from the dashboard @ trackaplow.iowadot.gov





Nina Friis @friisey · 3h

@iowadot Will do; I'm copilot today.



[View conversation](#)



Kurt Beyer @beyerku · 3h

One of my favorite things about the Iowa DOT: Live snowplow tracking and live snapshots from the plows trackaplow.iowadot.gov #awesomesauce



Iowa DOT @iowadot · 3h

@friisey Sorry, but this dry snow blows around and it's just going to get worse as the day goes on. Please be safe.

[View on web](#)



[Expand](#)



Sioux City Journal @scj · 2h

RT @statewideia511: Please use care when driving in the snow.
<http://trackaplow@iowadot.gov> bit.ly/1DbuWCy #suxweather



Ashley Richmond @WHBFashley · 2h

@statewideia511 @iowadot @alicekangtv Cool gfx for your story..... yesterday

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

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<http://iowadot.gov/gis>

<http://trackaplow.iowadot.gov>

