Leveraging Web GIS for Everyday Work & Disaster Response in Utilities

Presented By
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A Little Background

- Customers Served – Approx 820,000,
- Approx 850,000 Poles, 45,000 mi Distribution & 5,500 mi Transmission
- Service area is approx 30,000 sq miles of Oklahoma and a small part of Arkansas
- GIS Dept ArcServer set up October 2013

Smart Meters

Overview

Video

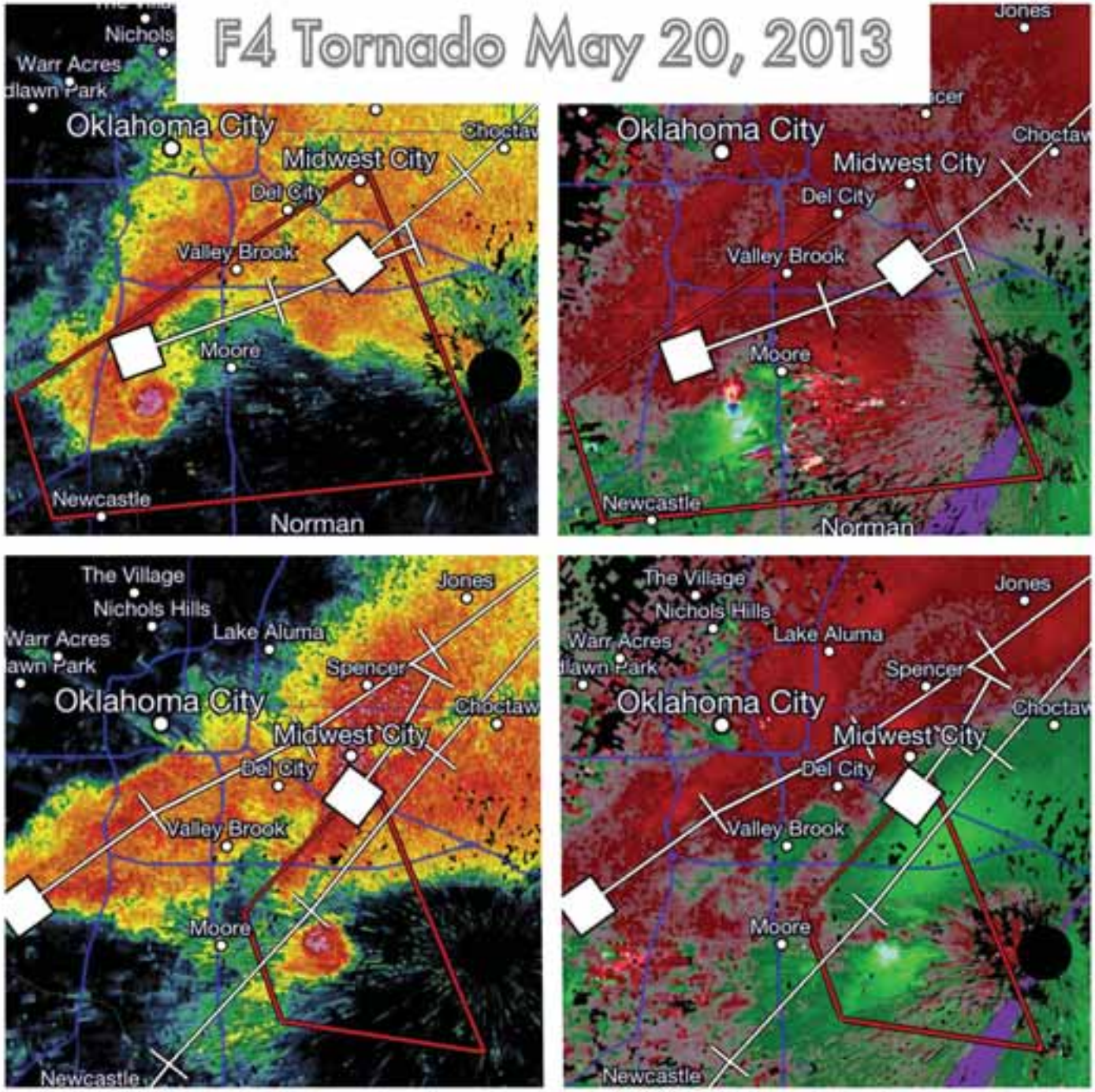
Implementation of Smart Meters

Implementation started in February, 2010 and was completed December 2012 with approximately 820,000 meters deployed

Implementation Of Smart Meters completed Dec 2012

- Meters send a “Last Gasp” when power is interrupted
- Rely on Access Points, Relays, and other meters to transmit those “Last Gasps”
- Recently integrated with Verified Outage System

F4 Tornado May 20, 2013



Overview

Video

Click on the image

May 20th, 2013 Tornado

EF 4 Tornado hits Moore, OK

Wipes out a path of OGE electric devices, including meters

Many meters were unable to send a last gasp due to the network being destroyed

Smart Meters

Everyday Web Maps

OMS Routing

Transmission View

Barns, Shops & Wells

Distribution Territory

A web map was determined to be the best solution

- Dynamic
- Search by address
- Easily modified
- Truck starting locations
- Device and Circuit Info

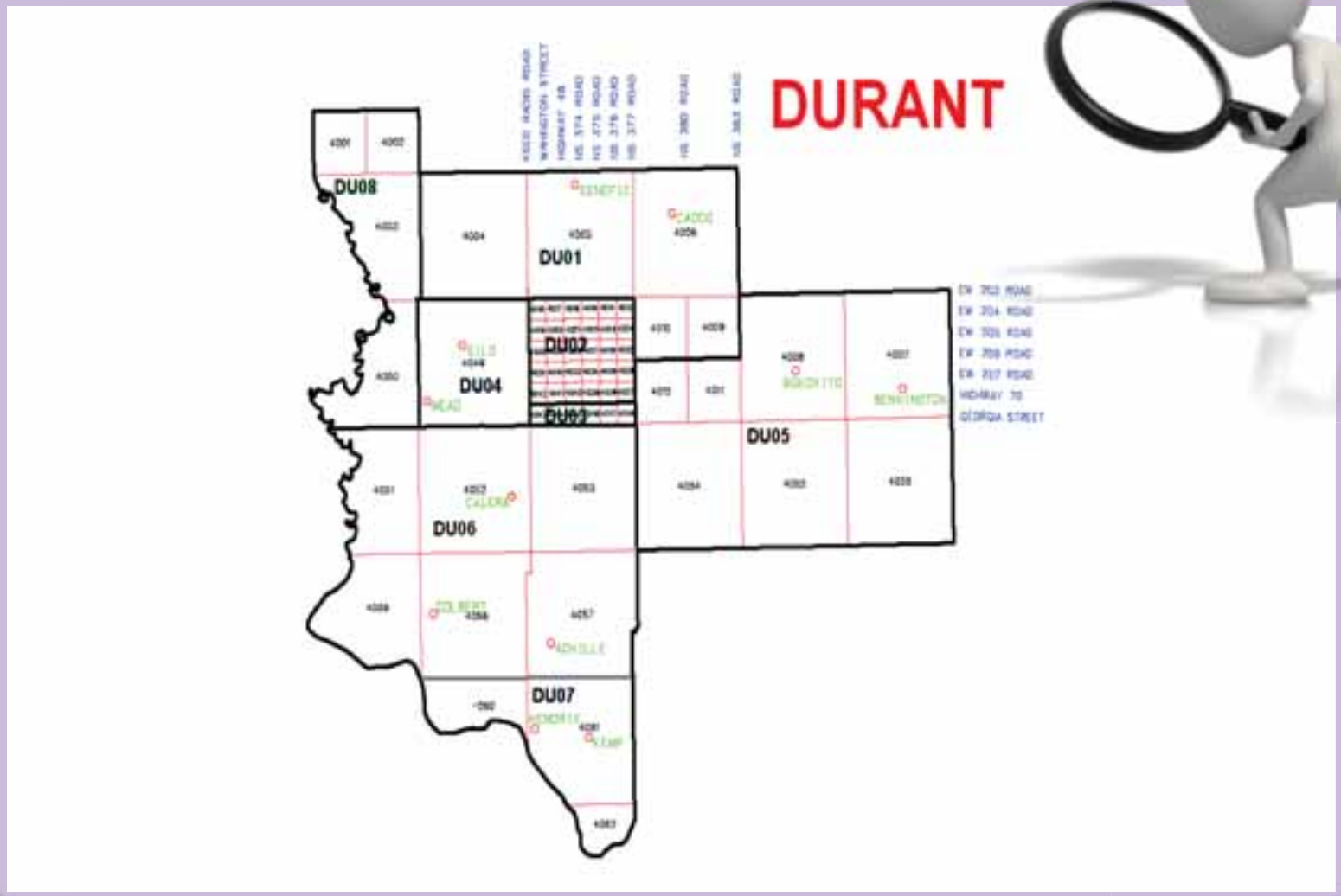
OMS Routing Map

Dispatchers request new maps for routing trucks

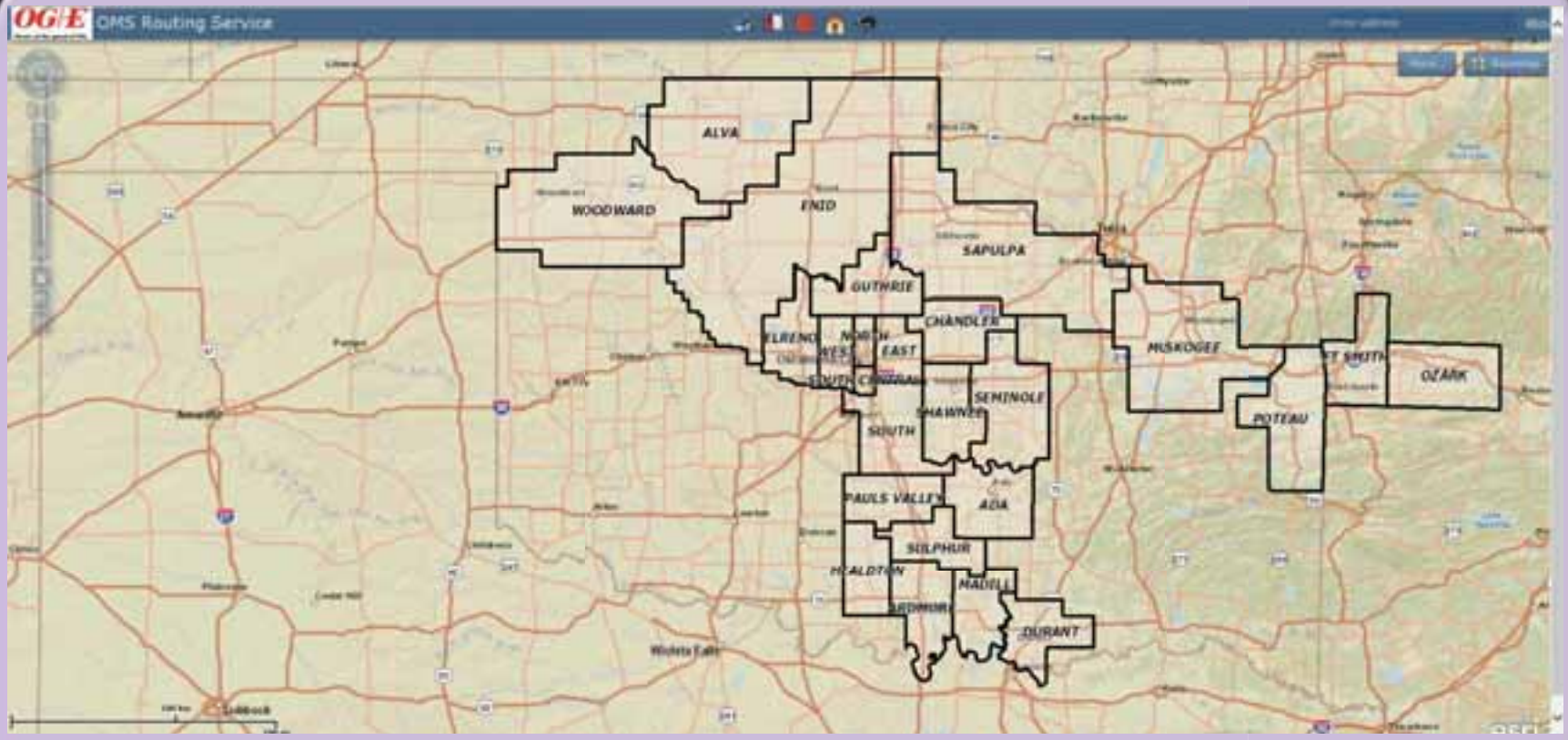
The current ones had not been updated in several years

They were difficult to read

The Way It Used To be Done



OMS Routing Web Map



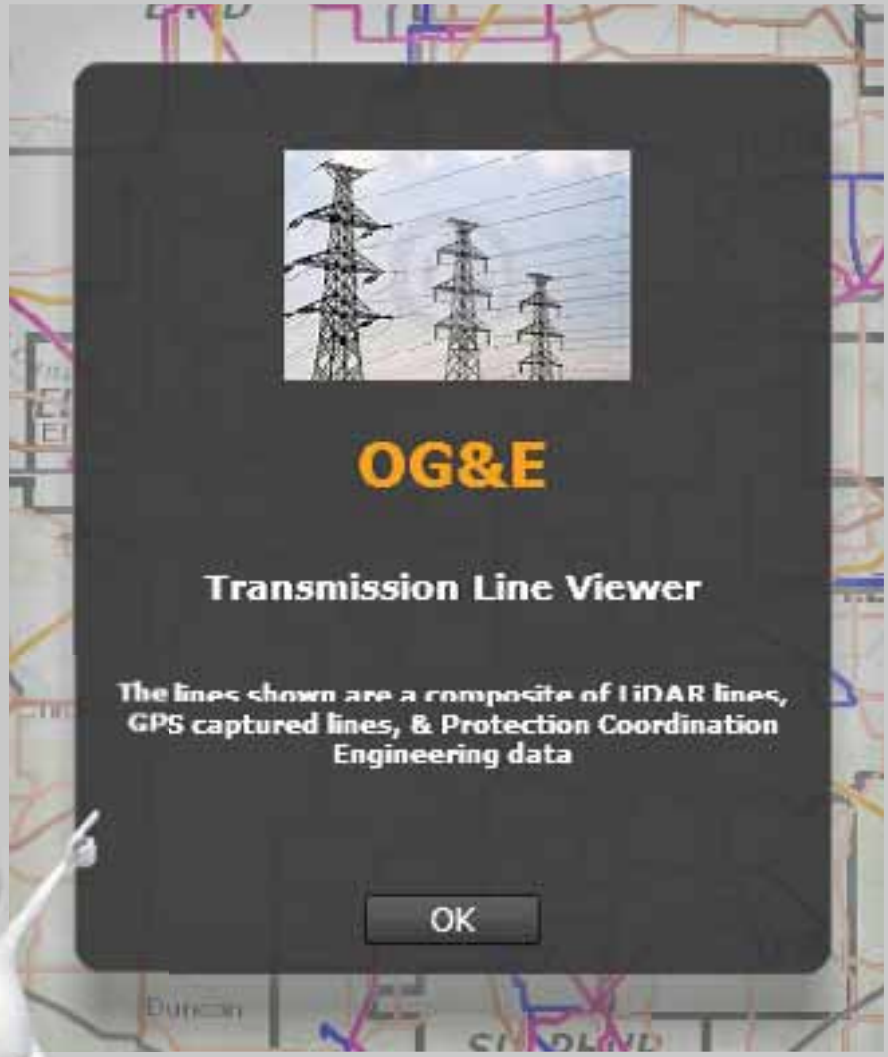
Click to start video

OMS Routing

Transmission View

Barns, Shops & Wells

Distribution Territory



Need for a Transmission System View

No System View, line by line only

In a storm event, difficult to identify area of damage, especially if new

No quick access to related files

Back to main

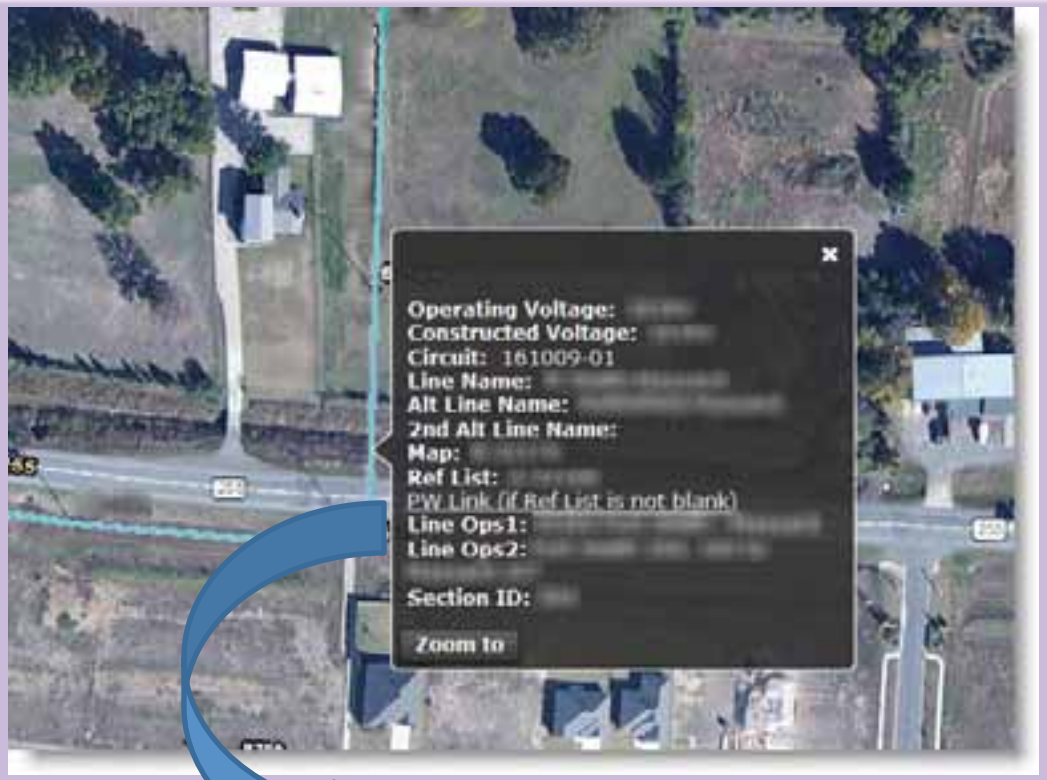
Links to ProjectWise

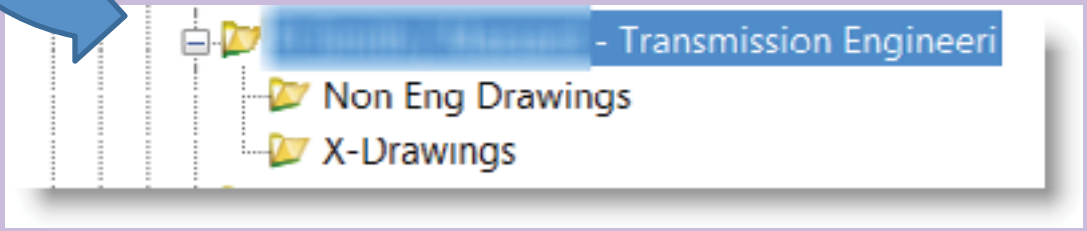
1

2

3

4





A Link to ProjectWise and line specific drawings was provided for quick access to files

OMS Routing

Transmission View

Barns, Shops & Wells

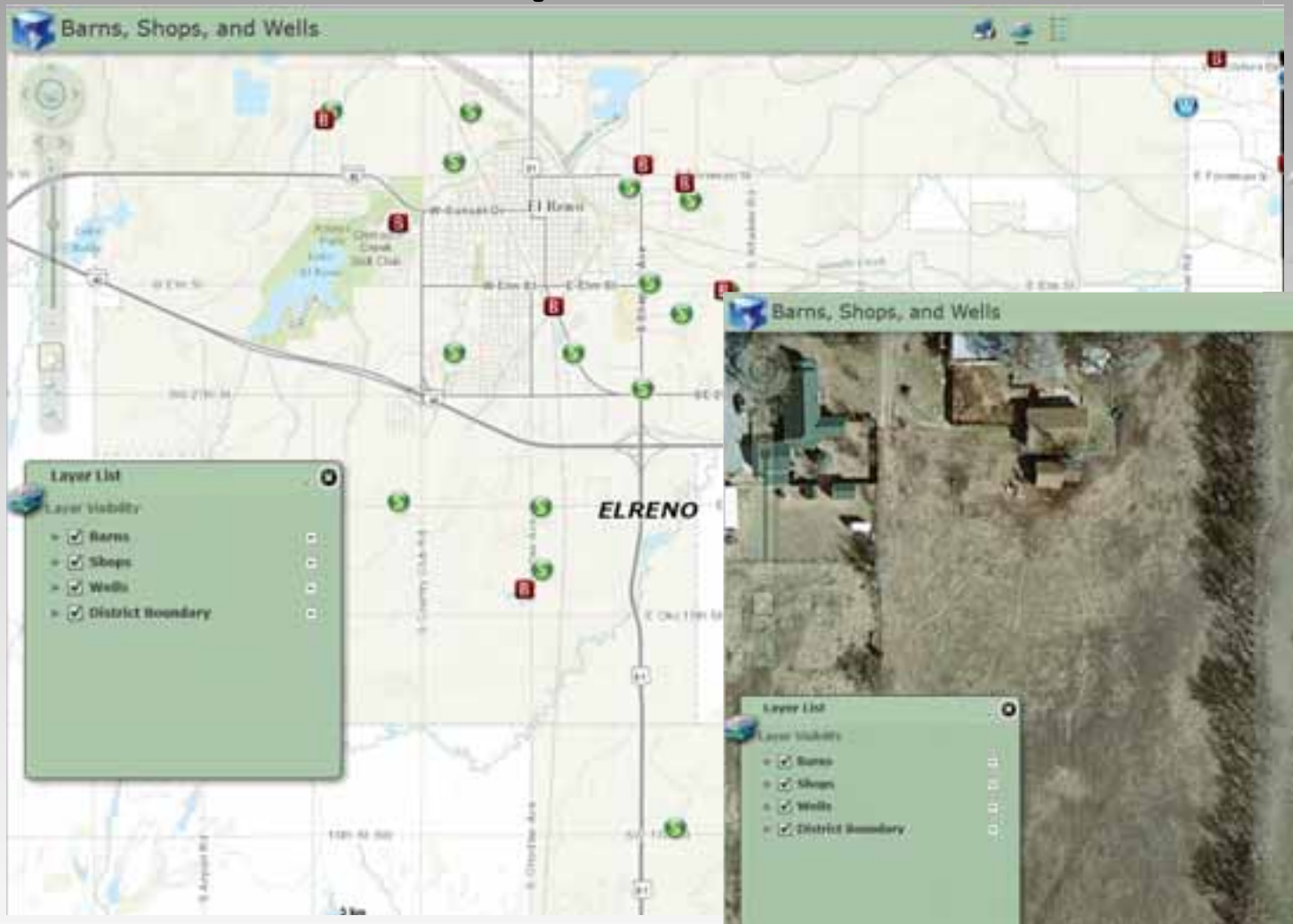
Distribution Territory

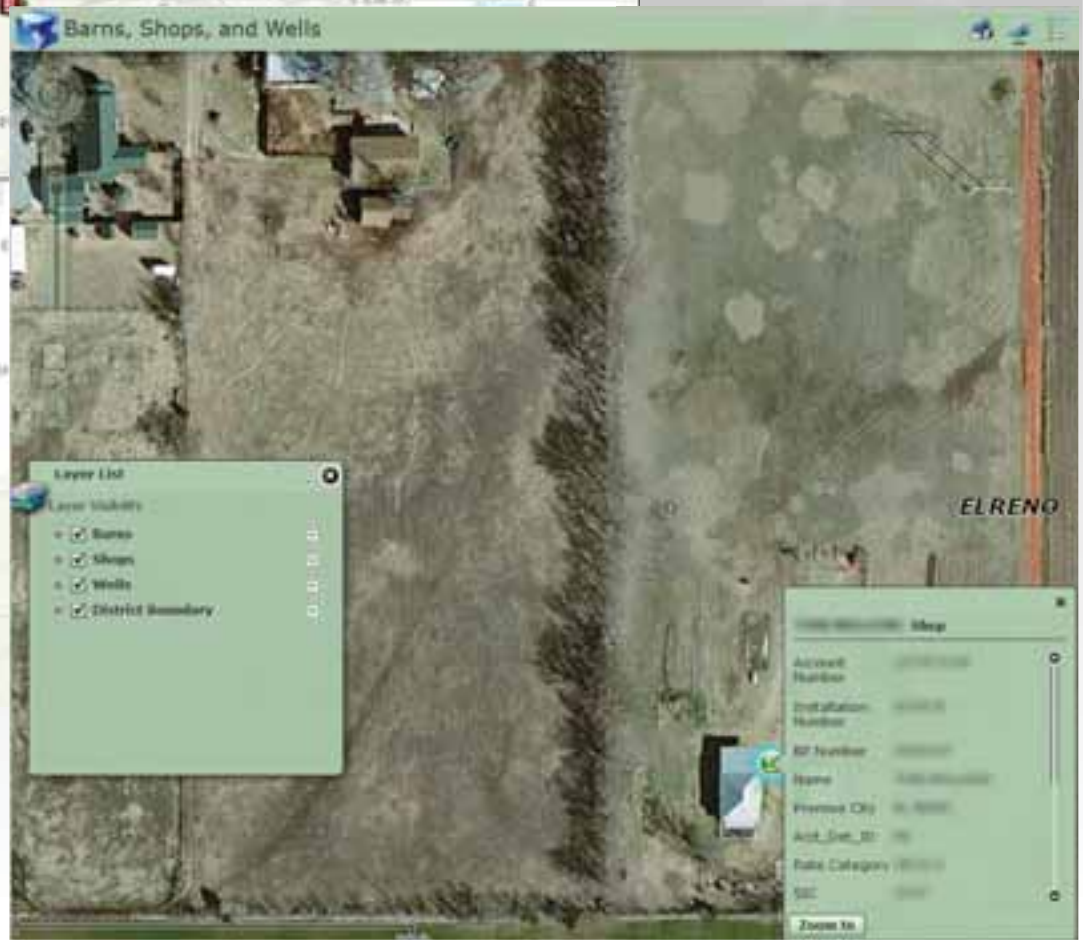
Quick Access to Specific Meter types

Load Research Analysts needed a quick way to identify meters that were tagged Barns, Shops, and Wells in our customer databases

- Each site would have to be visited to determine the meter actually belonged to a Barn, Shop, or Well
- With aerials turned on, they can now quickly see if meters belonged to one of those structures
- Only visit those that could not be conclusively identified

Barns, Shops, & Wells





OMS Routing

Transmission View

Barns, Shops & Wells

Distribution Territory

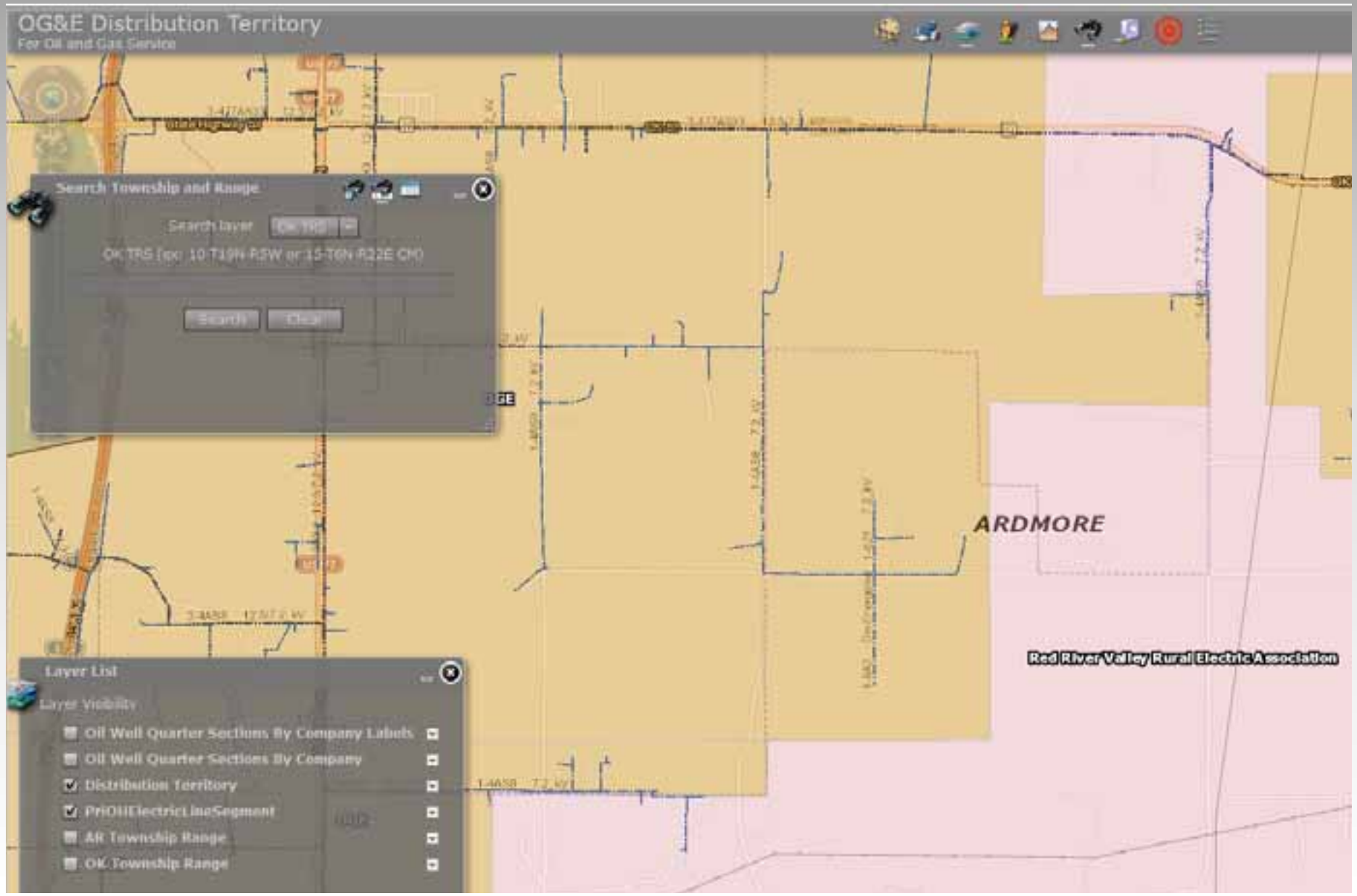
Quickly Identify OGE Service Territory

- Search by Township, Range, and Section
- Quickly see if existing Distribution lines available for new service
- In the future, would like to add to AGOL

OGE Distribution Territory

There was a need to quickly identify if new customers were located within negotiated territorial boundaries and to see if distribution lines were readily available for service

OGE Distribution Territory



Smart Meters

Everyday Web Maps

ICS

Weather

Planning Tools

Custom Widgets

Looking Ahead

Having weather information available along with Transmission and Distribution information allows the ICS to

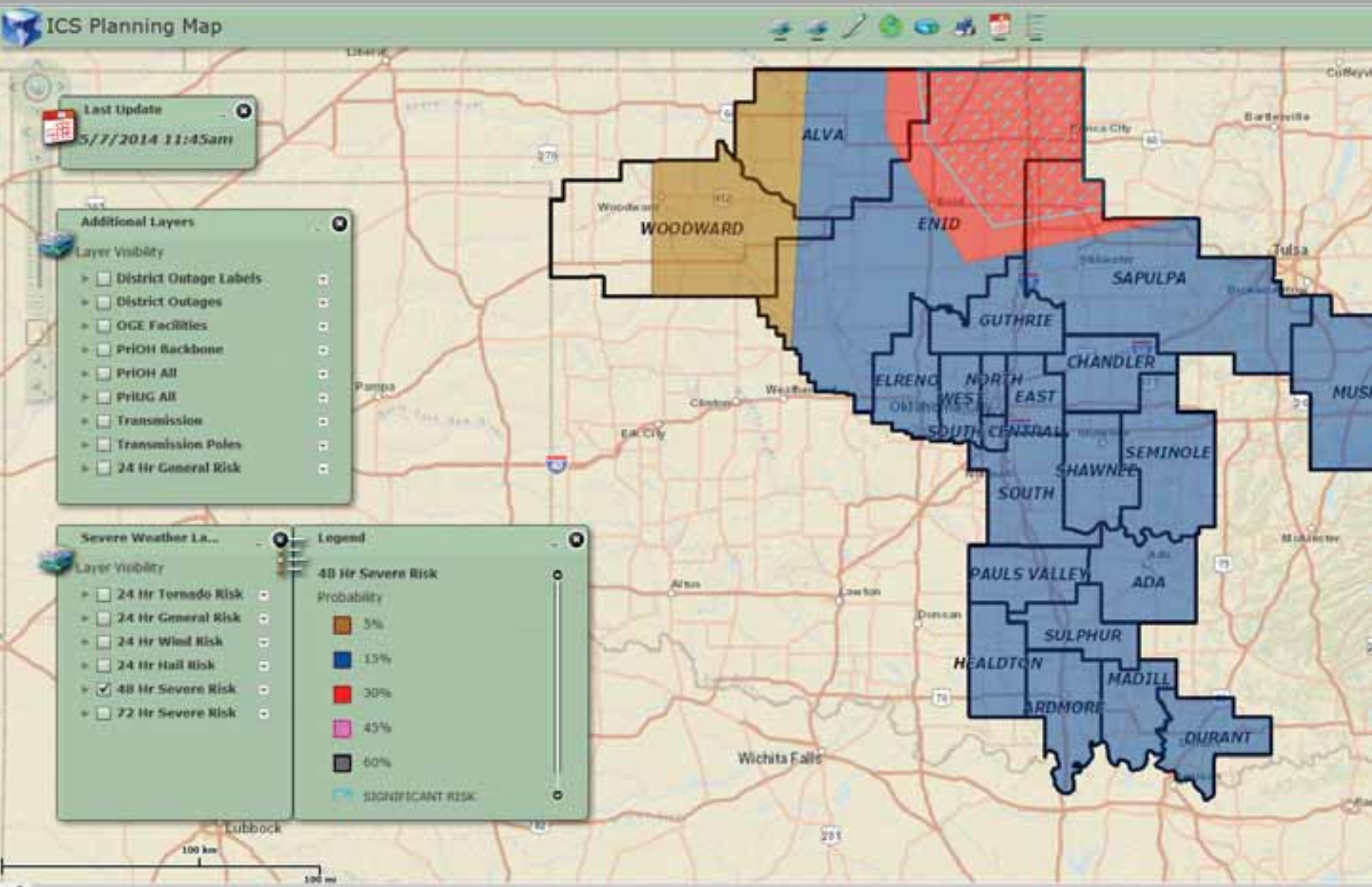
- Pre-position crews and material
- Be aware of dangerous weather
- Know when its safe to send crews out
- Visualize where the most extensive damage may exist

Severe Weather in Oklahoma

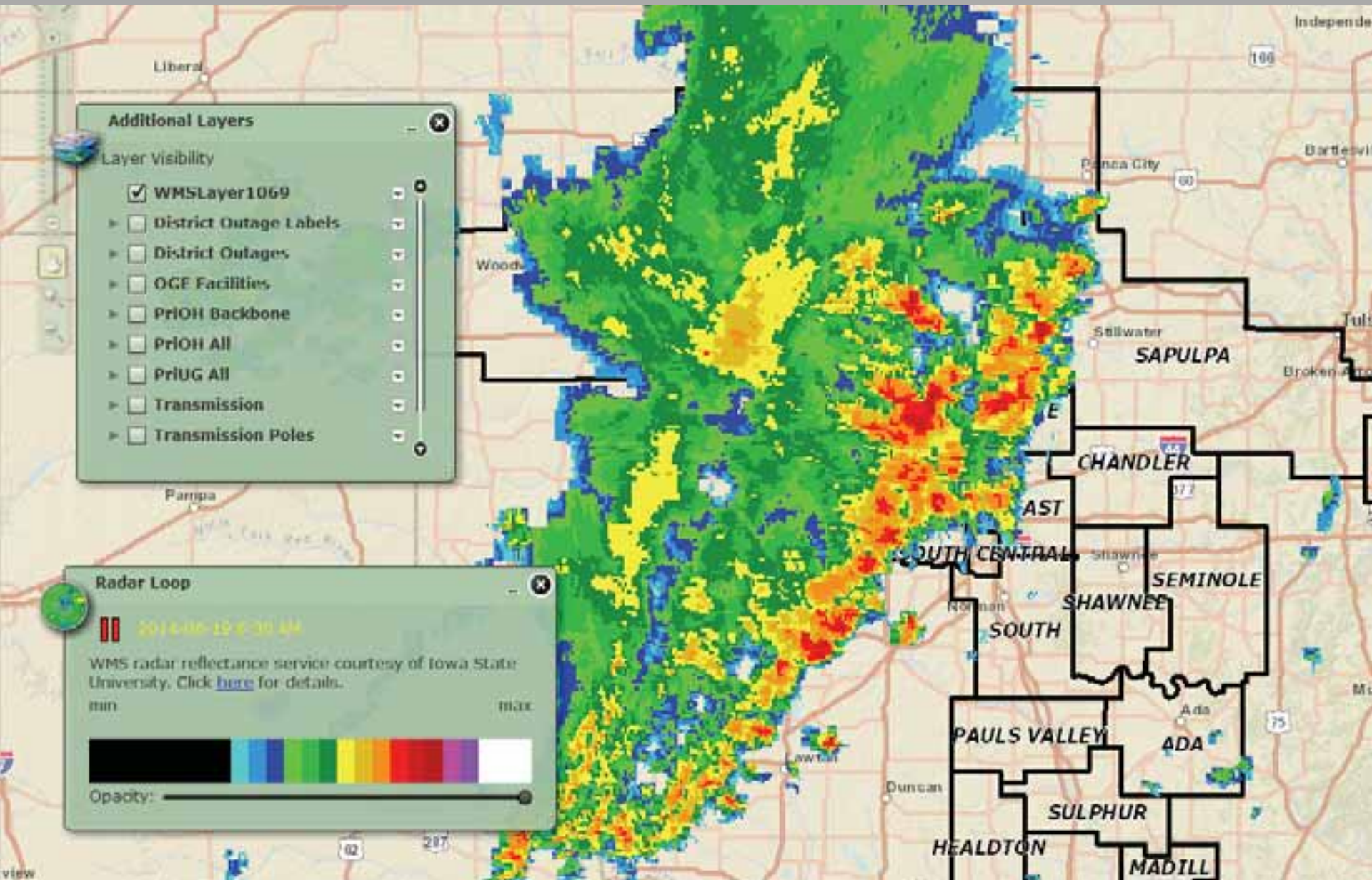
Oklahoma is known for its severe weather that can drastically effect our electric Transmission and Distribution lines.

Whether it's tornados, straight line winds, or ice storms, the ICS groups needs to be prepared and if possible pre-position resources

Weather depending on the Season



Radar


Additional Layers
Layer Visibility
WMSLayer1069
District Outage Labels
District Outages
OGE Facilities
PriOH Backbone
PriOH All
PriUG All
Transmission
Transmission Poles
Radar Loop
WMS radar reflectance service courtesy of Iowa State University. Click here for details.
min
max
Opacity:
Liberal
Pampa
Woodward
Ponca City
Stillwater
SAPULPA
CHANDLER
SEMINOLE
SHAWNEE
SOUTH
Norman
Shawnee
PAULS VALLEY
ADA
Ada
Duncan
SULPHUR
HEALDTON
MADILL
Lawton

Weather

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Looking Ahead

Actively Working On

- Adding NWS warnings and alerts of severe weather
- Customer Minutes of Interruption
- Automatic updates for weather layers
- New Reconnaissance and Assessment tools
- Logistics support
- Material lists

Current Outage Information

Most of our future improvements hinge on being able to access current outage information

Customer Counts & Duration

Attribute Table

Customer Count | Primary_Outages

Customers	Duration	CMI
130	4997	679592
78	4985	388830
12	1303	15636
59	2031	119829

Smart Meters

Everyday Web Maps

ICS

Moving Forward

Collector App

Operations Dashboard

Verified Outage System

Imagery

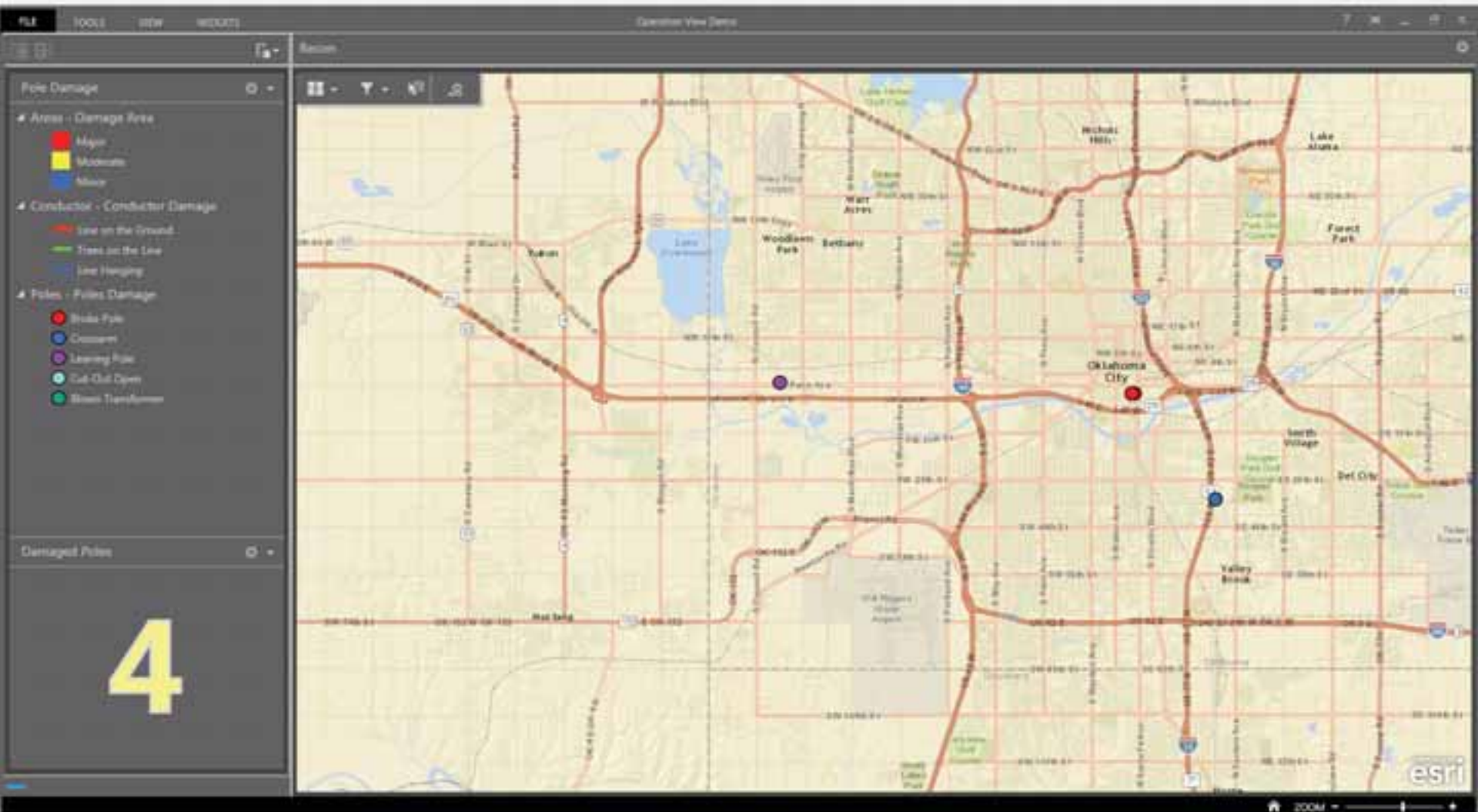
Reconnaissance

- Tasked with finding new technology to quickly assess storm damage and the need for resources
- Real-time view in the ICS
- ESRI Collector App seems to fit the company's needs
- Researching tablet costs and data packages

Collector App

Operations Dashboard

- Configurable
- Real – Time View



Collector App

Operations Dashboard

Verified Outage System

Imagery

Verified Outage System

The company recently went live with a system that uses both meter alerts and customer call information to verify that in fact an outage has occurred and not just a bump in the system

Using Verified Outage Data

- Show real-time outages in the ICS
- Use in Customer Count & Duration view to effectively route resources
- No longer need to wait on that one person that can provide the Excel file

Collector App

Operations Dashboard

Verified Outage System

Imagery

The Need for High Resolution Imagery

- Comparison – Before and After
- Efficient use of Resources – Send people where needed

Another View

Currently exploring options for high resolution aerial imagery

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