Wisconsin Predictive Analytics for Roadway Safety and Enforcement

Andi Bill

WISCONSIN TOPS
TRAFFIC OPERATIONS & SAFETY LABORATORY

Levels of Situational Awareness

ACTION

THREAT RECOGNIZED

SITUATIONALLY AWARE

UNAWARE

Law Enforcement
(In Field)

MACH

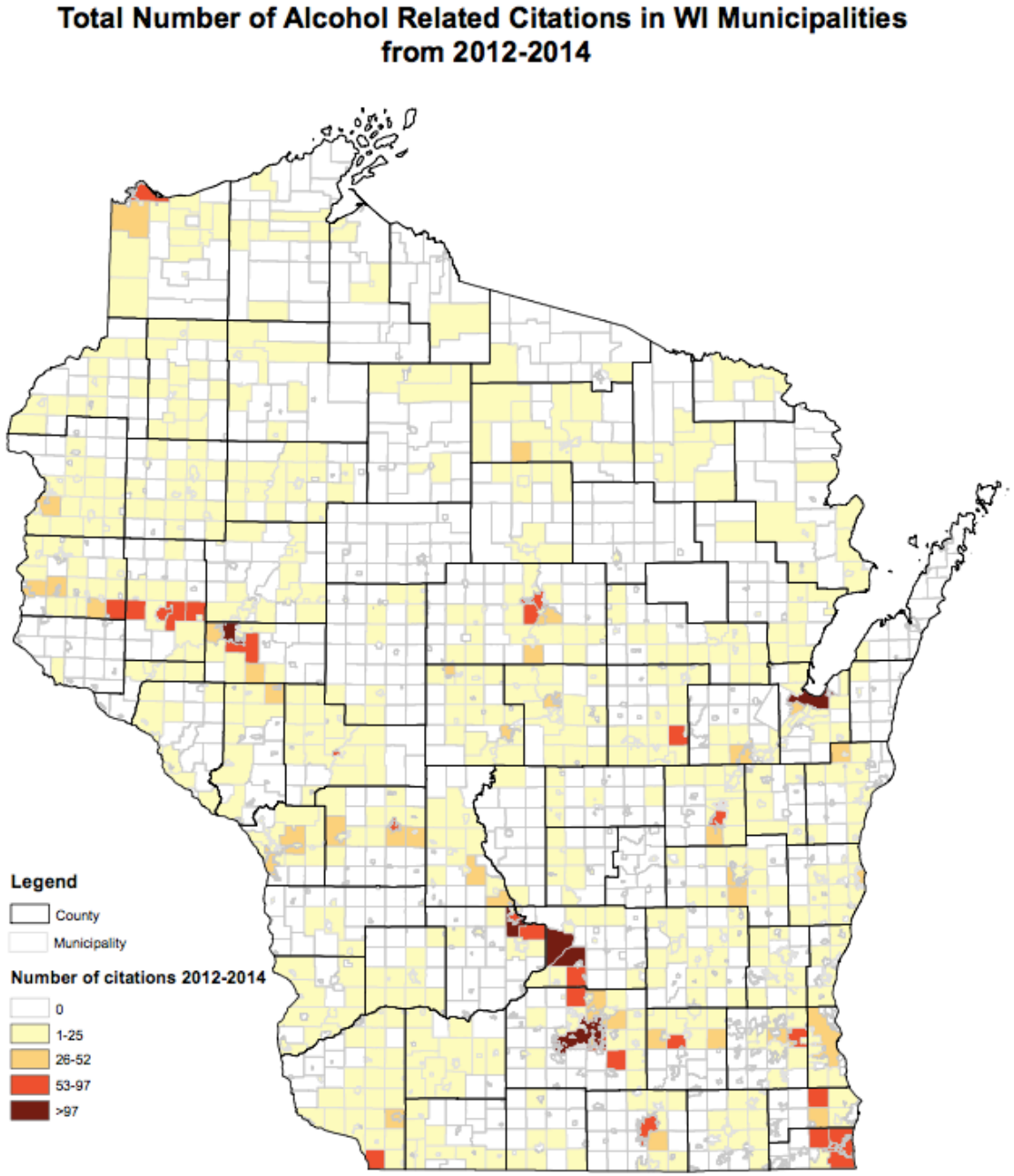
Crash Database

Community
Maps

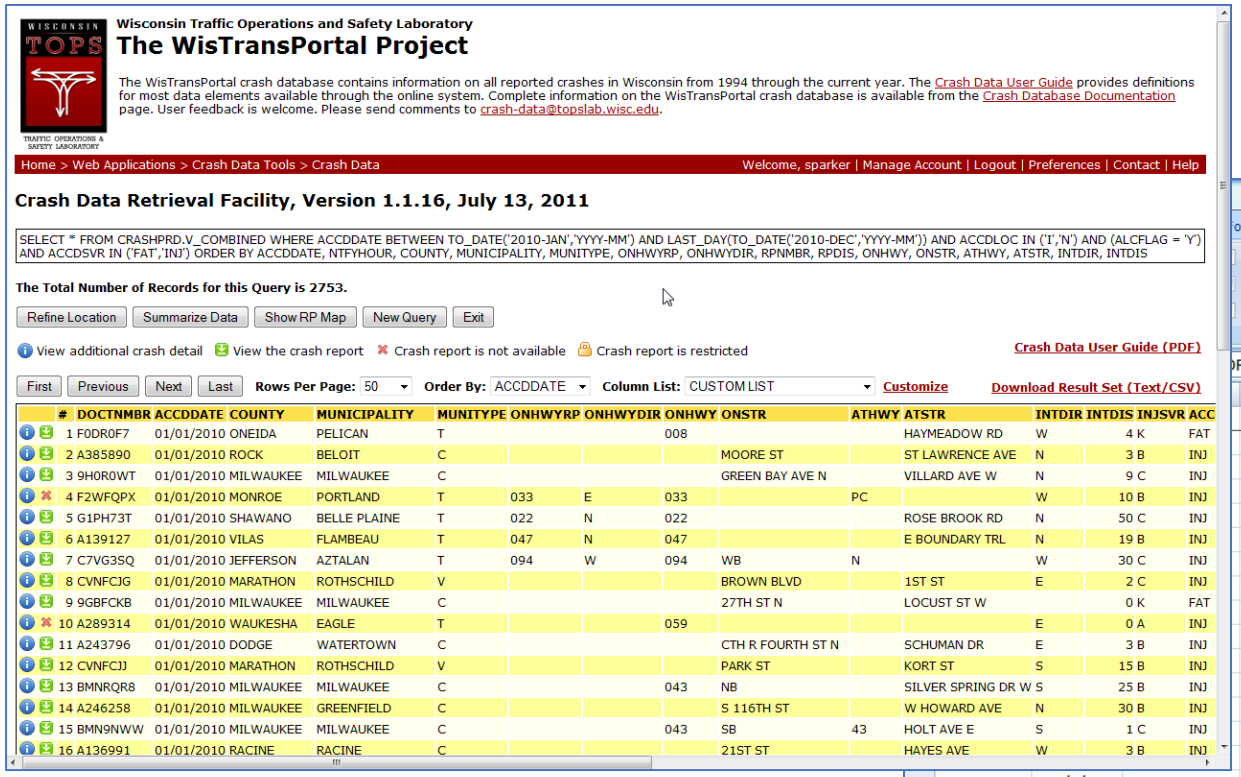
TraCS

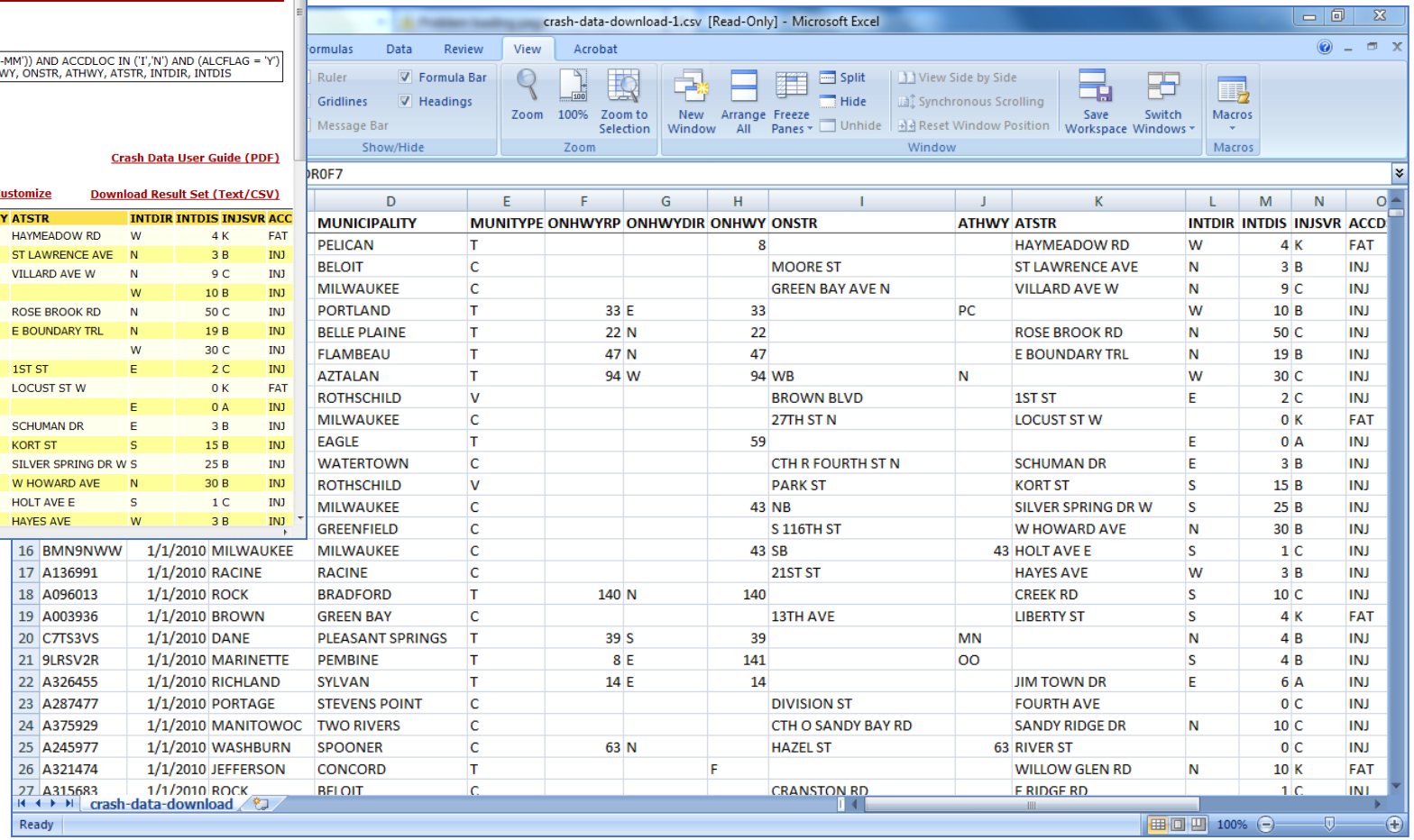
Traffic and Criminal Software

- Great way for individual Agencies to do analysis
- Collecting more data
  - Citizen Contact
  - Warnings
  - Citations

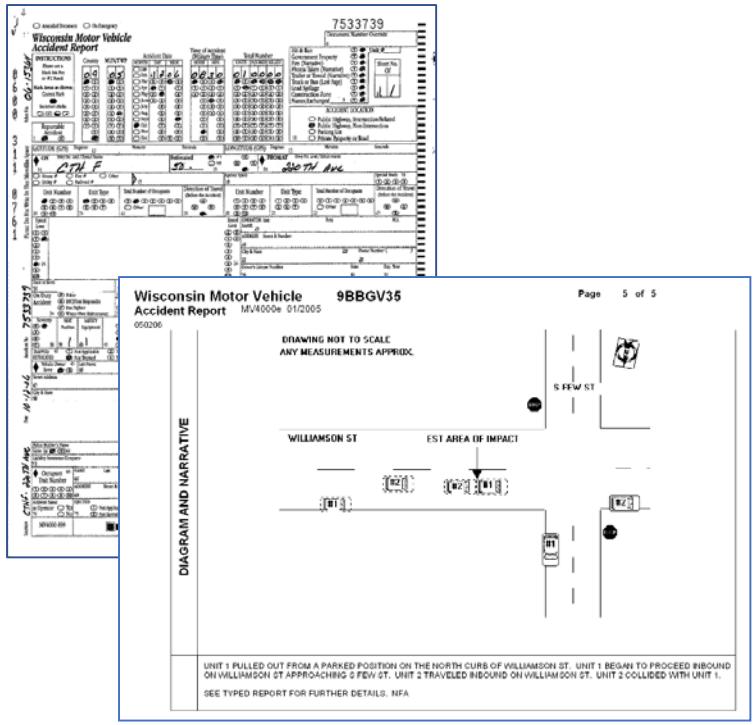


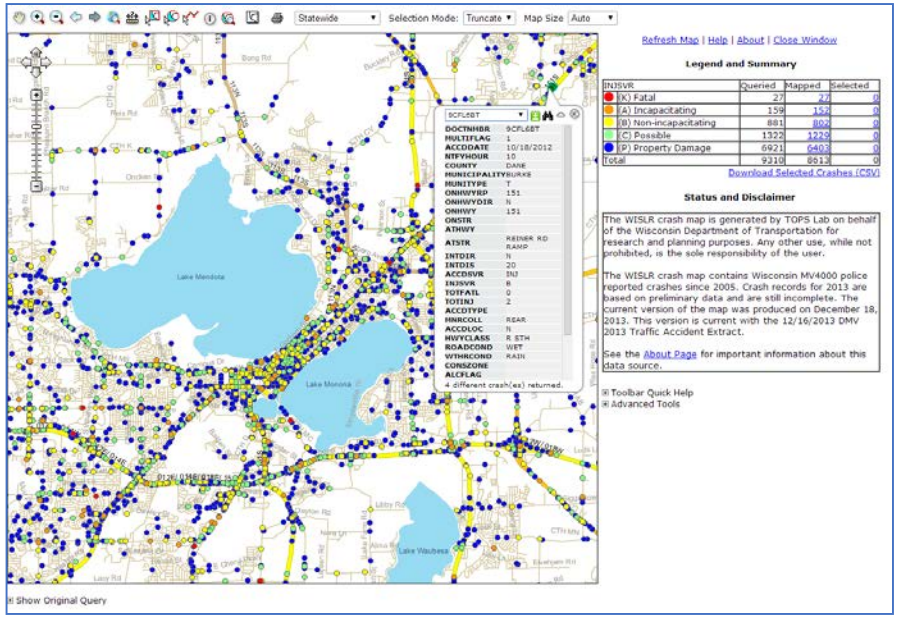
WisTransPortal





Wisconsin MV4000 Crash Data





Crash Reports (2008) and Statewide GIS Crash Map (2012)

Community Maps - Wisconsin County TSC Crash Mapping

This is a TEST crash map generated from preliminary police crash report data - it does not represent an official source of Wisconsin motor vehicle crashes. [More]

Search Input

Select the form below to filter the crash map based on high level crash attributes. Click Apply to apply your filters or Reset to go back to the default settings.

Fatality Injury (A) Injury (B) Injury (C) Property Damage

There are **300** of **320** total crashes displayed.

Apply Reset

Counties ?

ALL Center ?

Date Range ?

Begin Year/Month: 2017 JAN

End Year/Month: 2017 DEC

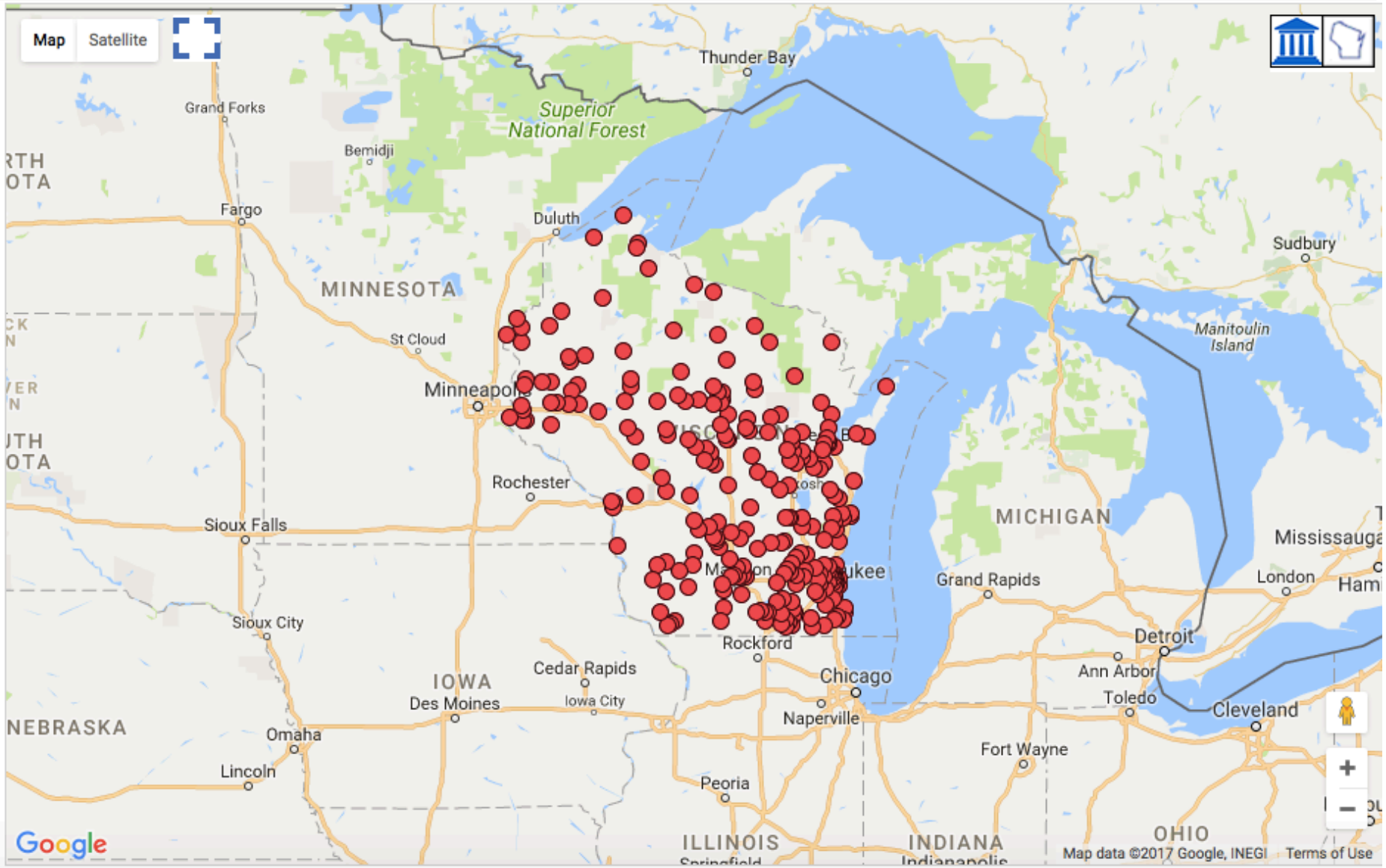
Crash Severity ?

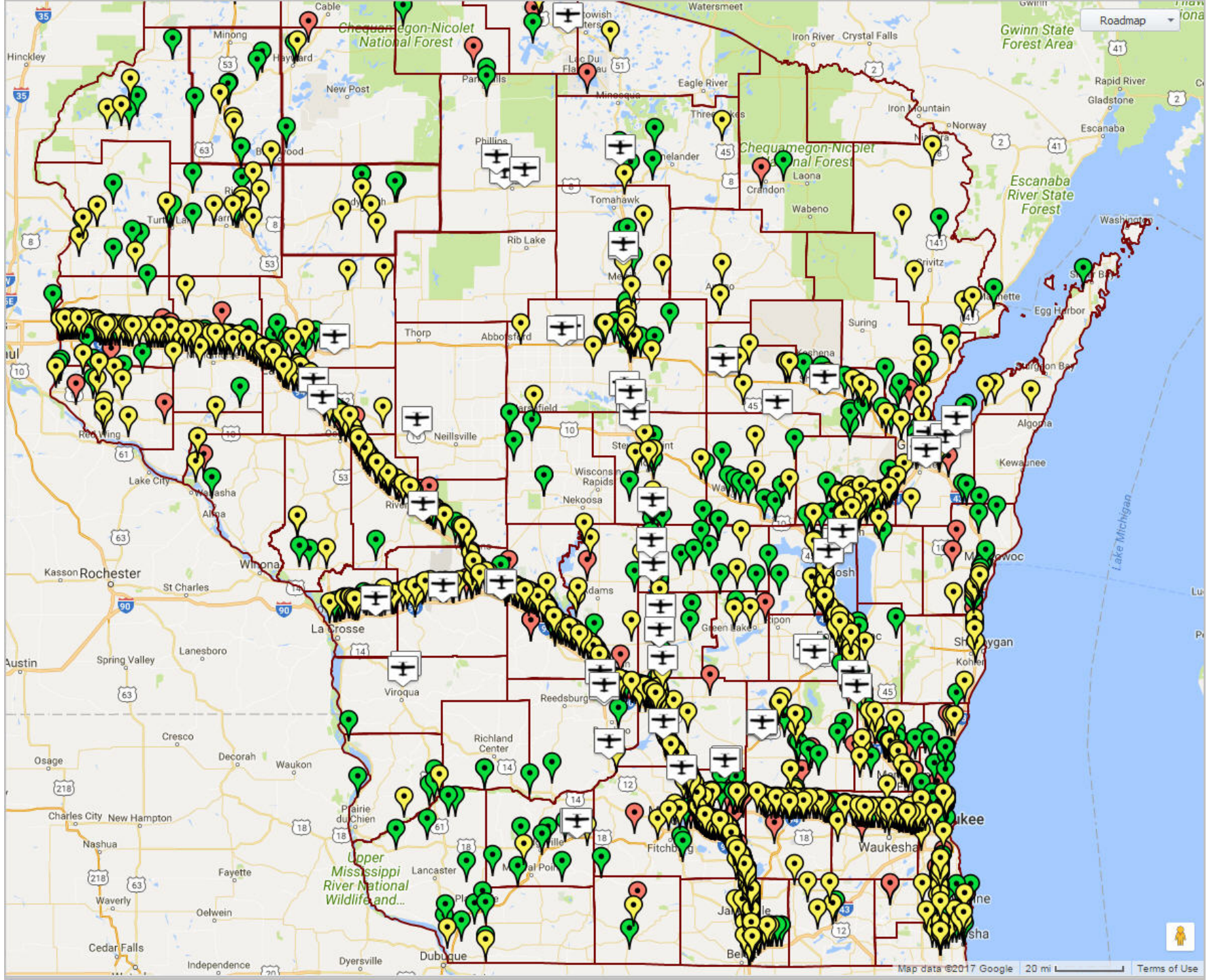
Clear Selected

- [x] (K) Fatality
- [ ] (A) Suspected Major Injury
- [ ] (B) Suspected Minor Injury
- [ ] (C) Possible Injury
- [ ] (O) No Apparent Injury

Crash Flags ?

- [ ] Alcohol Flag
- [ ] Bike Flag




Roadmap
Chequamegon-Nicolet National Forest
Gwinn State Forest Area
Escanaba River State Forest
Upper Mississippi River National Wildlife and...
Lake Michigan
Rochester
La Crosse
Eau Claire
Wausau
Green Bay
Oshkosh
Sheboygan
Manitowoc
Waukesha
Milwaukee
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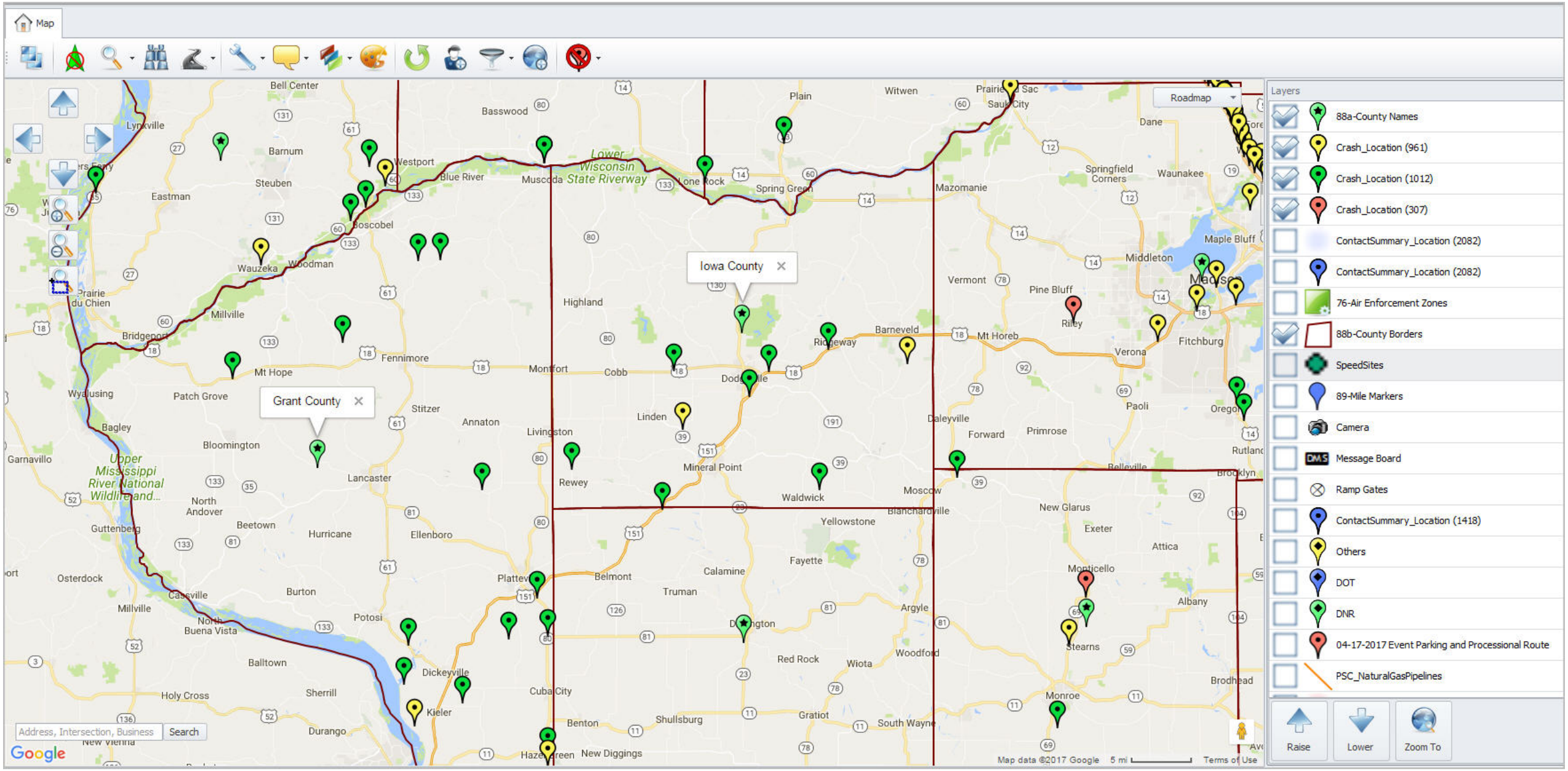
Map
Roadmap
Iowa County
Grant County
Lower Wisconsin State Riverway
Upper Mississippi River National Wildlife and...
Layers
88a-County Names
Crash_Location (961)
Crash_Location (1012)
Crash_Location (307)
ContactSummary_Location (2082)
ContactSummary_Location (2082)
76-Air Enforcement Zones
88b-County Borders
SpeedSites
89-Mile Markers
Camera
Message Board
Ramp Gates
ContactSummary_Location (1418)
Others
DOT
DNR
04-17-2017 Event Parking and Processional Route
PSC_NaturalGasPipelines
Raise
Lower
Zoom To
Address, Intersection, Business
Search
Google
Map data ©2017 Google
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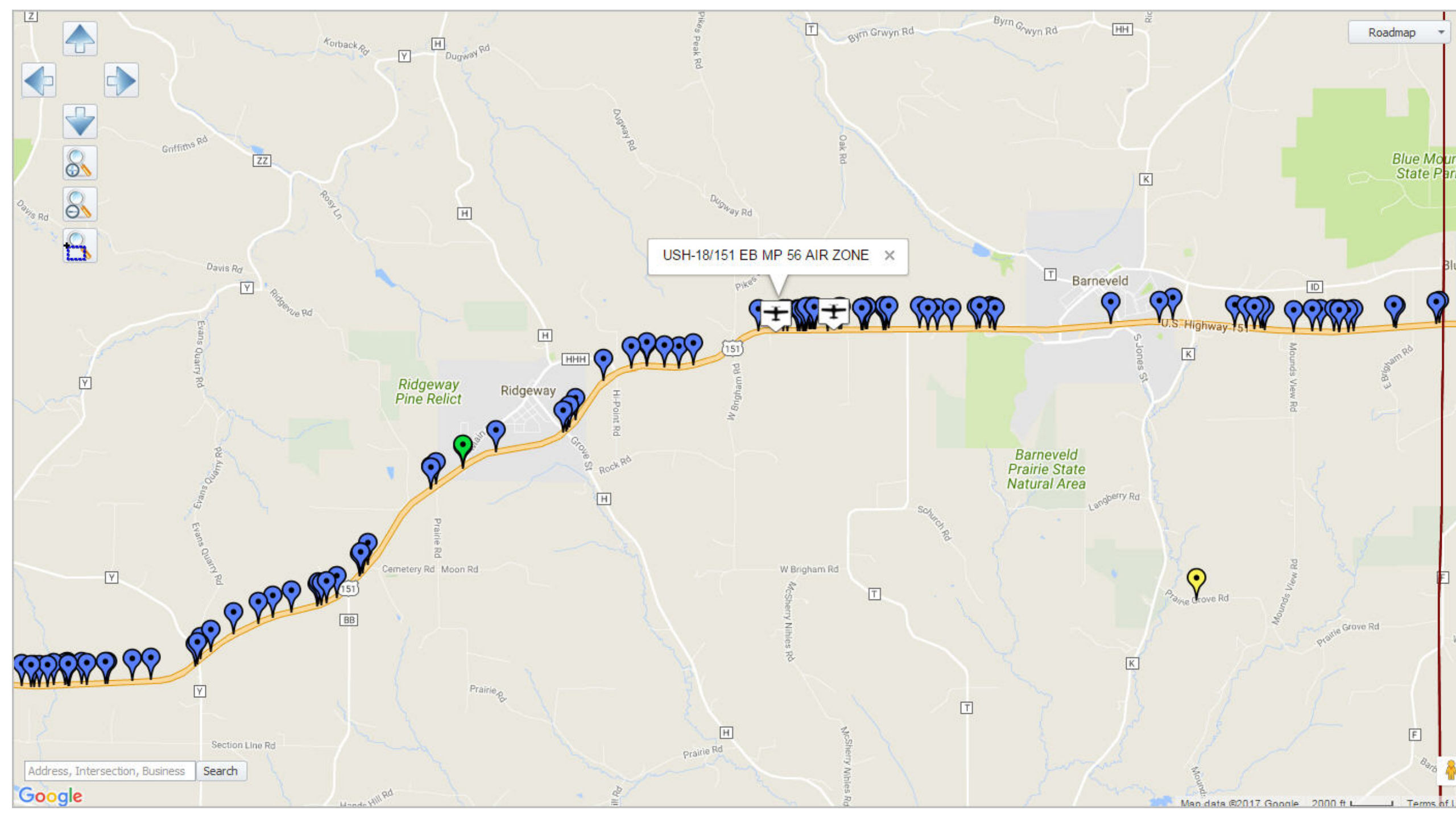
Terms of Use


USH-18/151 EB MP 56 AIR ZONE
Roadmap
Ridgeway
Pine Relict
Ridgeway
Barneveld
Barneveld
Prairie State
Natural Area
U.S. Highway 151
Blue Mound
State Park
Korback Rd
Dugway Rd
Griffiths Rd
Davis Rd
Ridgeview Rd
Rosy Ln
Evans Quarry Rd
Pikes Peak Rd
Byrn Grwyn Rd
Oak Rd
W Brigham Rd
Hi-Point Rd
Grove St
Rock Rd
Prairie Rd
Cemetery Rd
Moon Rd
Section Line Rd
Hands Hill Rd
Schurch Rd
Langberry Rd
McSherry Nibbles Rd
S Jones St
Mounds View Rd
E Brigham Rd
Prairie Grove Rd
Address, Intersection, Business
Search
Google
Map data ©2017 Google
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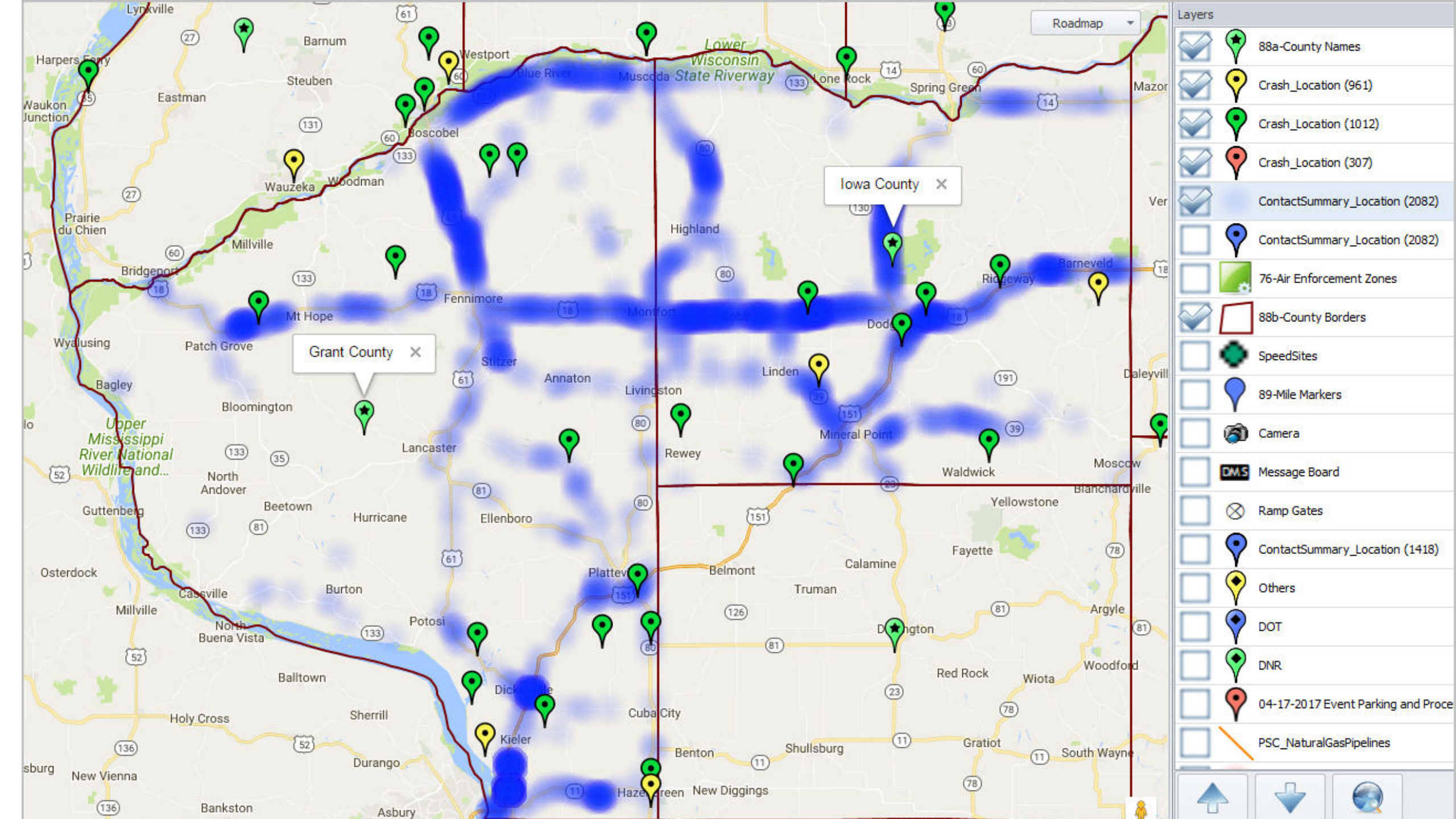
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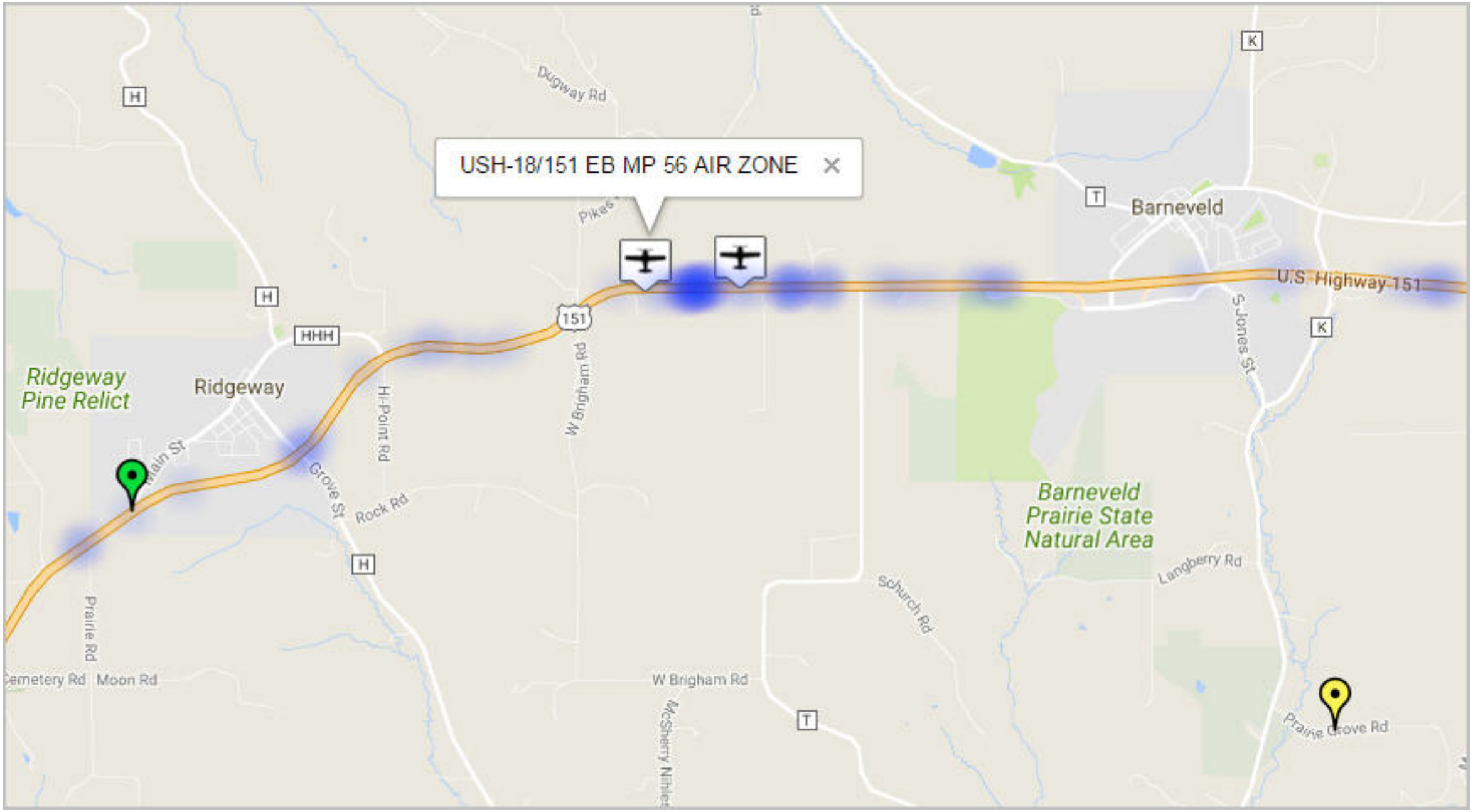
Others
DOT
DNR
04-17-2017 Event Parking and Proce
PSC_NaturalGasPipelines
Iowa County
Grant County
Lower Wisconsin State Riverway
Upper Mississippi River National Wildlife and...
Lynxville
Harpers Ferry
Waukon Junction
Barnum
Steuben
Eastman
Westport
Blue River
Muscoda
Lone Rock
Spring Green
Mazor
Boscobel
Wauzeka
Woodman
Prairie du Chien
Millville
Bridgeport
Highland
Barneveld
Ridgeway
Fennimore
Mt Hope
Patch Grove
Wyalusing
Bagley
Bloomington
Stitzer
Annaton
Livingston
Linden
Mineral Point
Waldwick
Daleyvill
Rewey
Lancaster
North Andover
Beetown
Hurricane
Ellenboro
Guttenberg
Osterdock
Cassville
Burton
Millville
North Buena Vista
Potosi
Platteville
Belmont
Calamine
Truman
Fayette
Yellowstone
Moscow
Blanchardville
Argyle
Woodford
Red Rock
Wiota
Balltown
Holy Cross
Sherrill
Durango
Kieler
Cuba City
Benton
Shullsburg
Gratiot
South Wayne
New Vienna
Bankston
Asbury
New Diggings


USH-18/151 EB MP 56 AIR ZONE
Barneveld
U.S. Highway 151
Ridgeway
Ridgeway Pine Relict
Barneveld Prairie State Natural Area
Dugway Rd
W Brigham Rd
Hi-Point Rd
Grove St
Rock Rd
Main St
Prairie Rd
Cemetery Rd
Moon Rd
Schurch Rd
Langberry Rd
S Jones St
Prairie Grove Rd
151
H
HHH
K
T

State Patrol Resource Allocation

- Time Series Analysis
  - May have limitations for weather and other ‘random’ variables
- GIS Based Hotspots and Optimization Tools
  - Route Choice Analysis Toolkit (with over 40 variables)
    - Distance
    - Travel Time
    - Speed Statistics
    - Number of Intersections
    - Number of Stop signs/stop lights

- How to measure effectiveness?
  - Hours of staff
  - Contact summary
  - More warnings/citations
  - Crashes?
    - Balloon theory?
- Statistical Significance
- Validity of Model

- Building connections in the system
- Flag by causation not injury severity
- Elimination of some types
- Layer data elements
- Prototype

- Build analytics
- Reporting tools
- Evaluation tools

Any questions?