FHWA/MDOT/MixonHill/UMTRI

Weather Response Traffic Information System (WxTINFO)

Federal Highway Administration (FHWA)

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WxTINFO

- Purpose: WxTINFO Project is to design a system that brings together near-time environmental/weather-related data collected from both fixed and mobile data sources

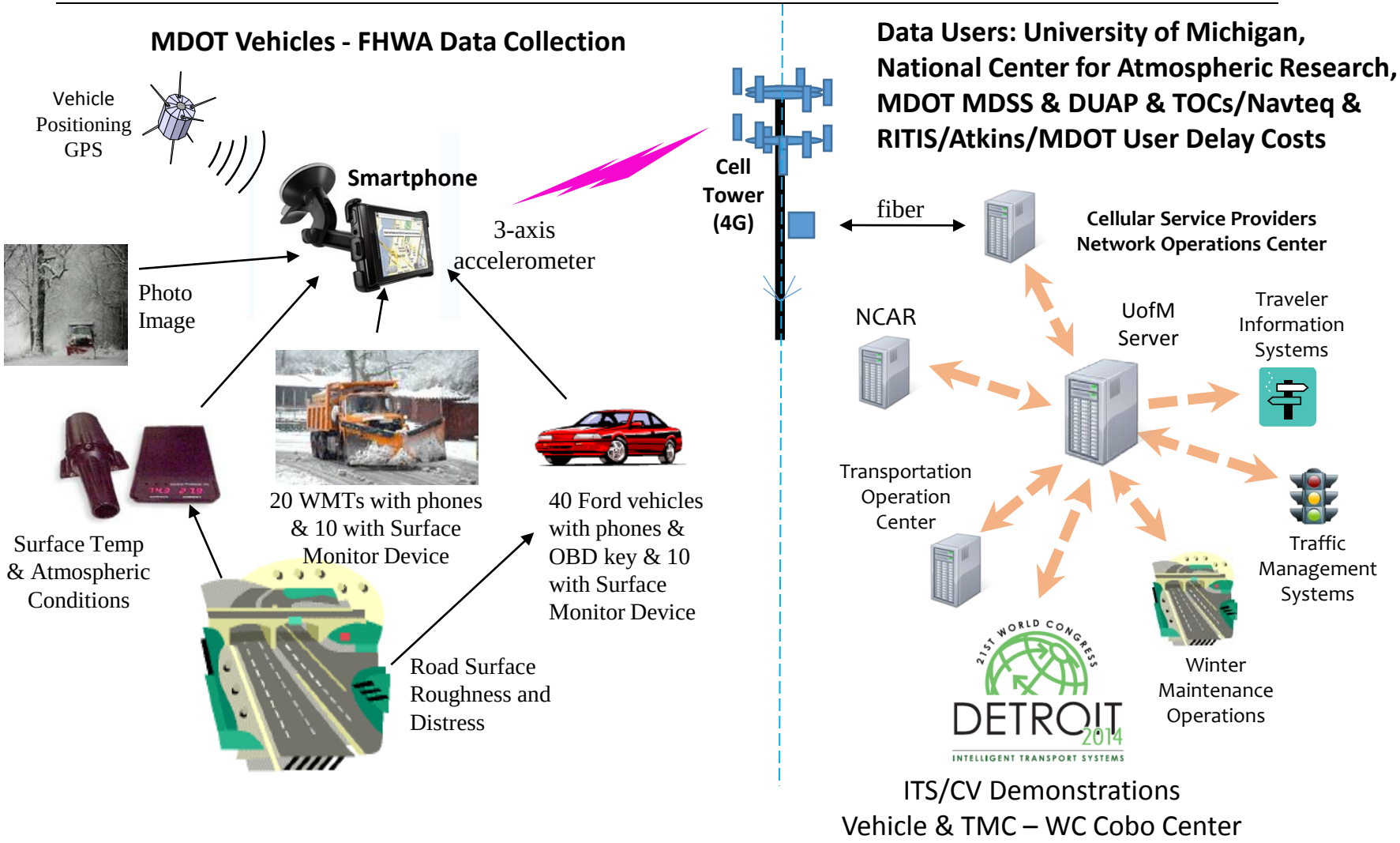
➢ Fixed
  - ❖Road Weather Information System (RWIS) Stations
  - ❖National Weather Service (NWS) Stations
  - ❖NWS Radar
  - ❖NWS Warnings (text)

➢ Mobile
  - ❖Integrated Mobile Observations (IMO) Project Fleet
  - ❖Safety Pilot Model Deployment Project Fleet

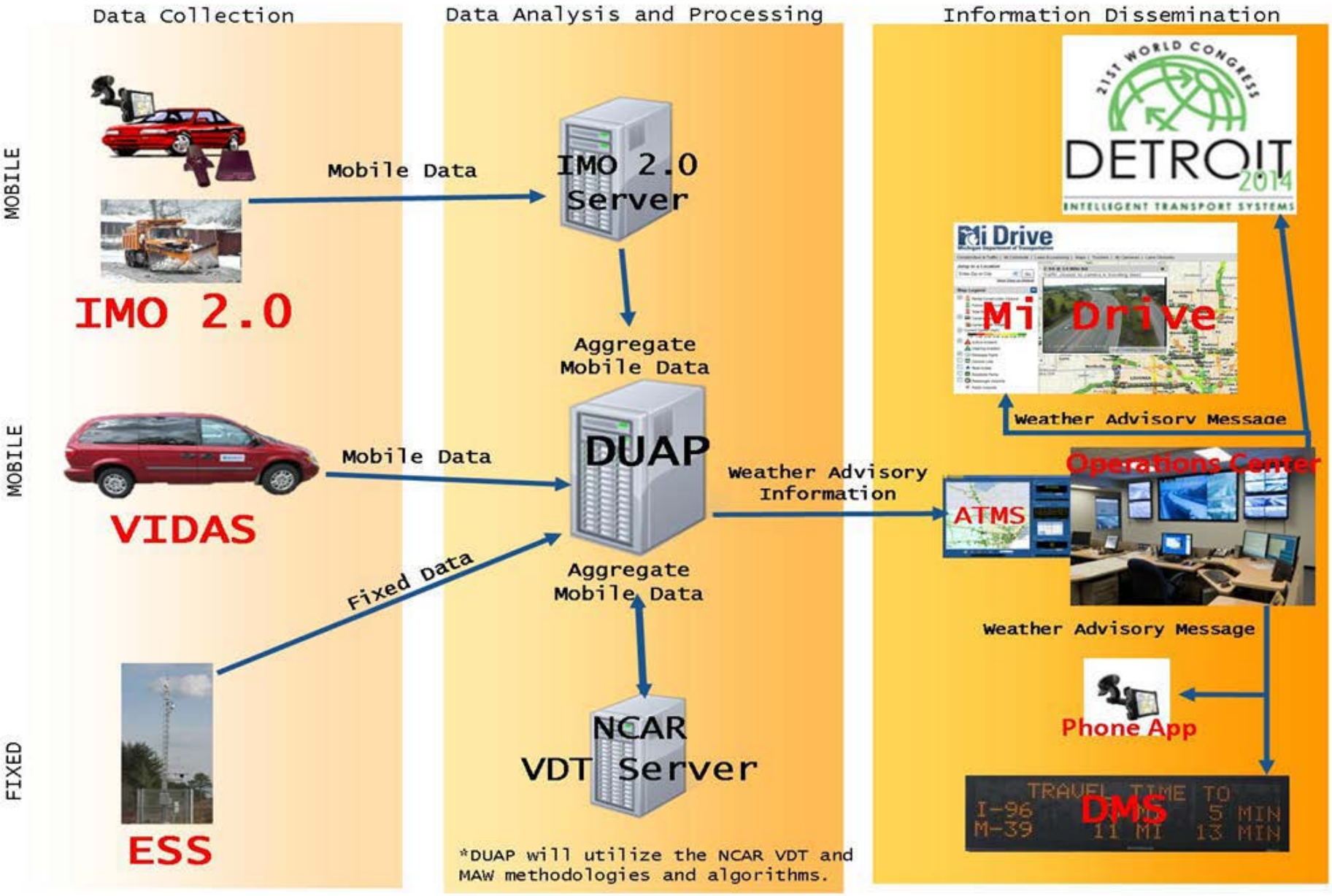
- Initially, the information will be made available to the traveling public via MDOT's ATMS to roadside dynamic message signs (DMS) and the MI Drive website

- Weather-related data is consumed within WxTINFO and the overall DUAP system

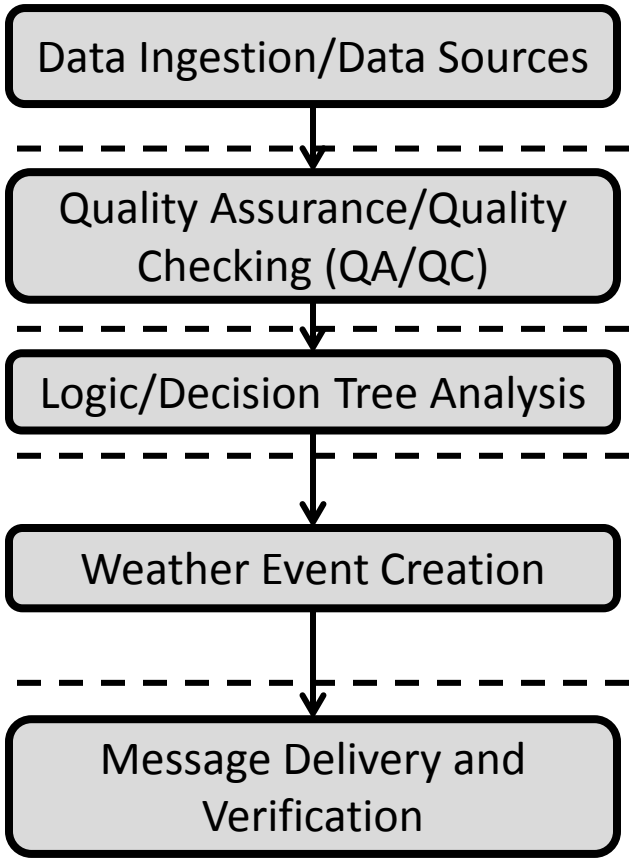
FHWA/MDOT Integrated Mobile Observations (IMO) Architecture
Weather Response Traffic Information (WxTINFO) Data Collection



FHWA/MDOT WxTINFO



Process Overview



1. Data will be leveraged from multiple fixed and mobile sources to provide a broader picture of weather conditions
2. Processes and algorithms to perform quality checking and data analysis are executed to ensure validity and accuracy
3. Logic/decision tree analysis is executed to uncover pertinent weather information
4. Weather conditions resulting from the decision trees, along with other relevant fields are automatically generated into a file
5. File is ready for pickup by ATMS, message is verified and posted to the appropriate DMS and Mi Drive

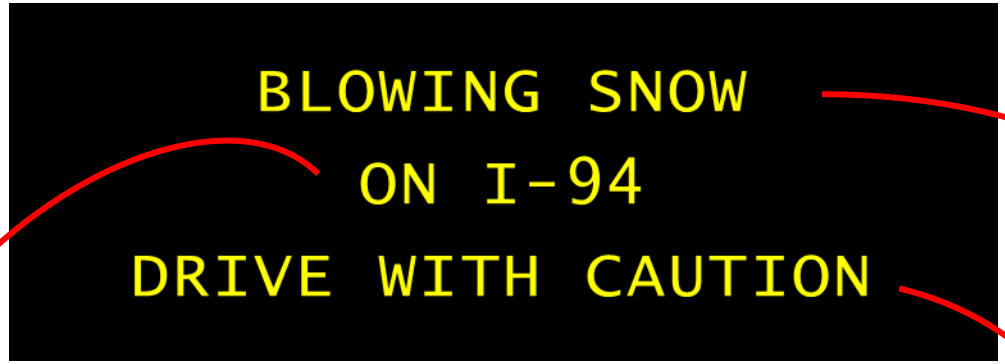
DMS Example – Formed from Decision Tree Logic

The basic DMS message can be determined using the following structure (PLA)[1]

- Problem
  - Provides information about the situation for the driver
- Location
  - Describes the location or the distance to the situation
- Action
  - A recommended response or action to the driver
- Can also show a 4th line*
  - Who is affected (i.e., all travelers, westbound traffic, etc.)

[1] Guidelines for Disseminating Road Weather Advisory & Control Information

*Not typically used by MDOT



KML Message (Problem)

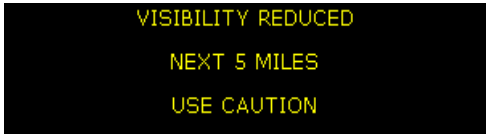
Area/route covered by polygon specified in KML file. Approved by MDOT/ATMS Operator. (Location)

KML Message (Action)

Potential Motorist Advisory Warning Messaging

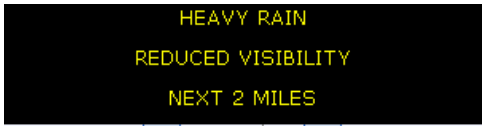
- Travel Times

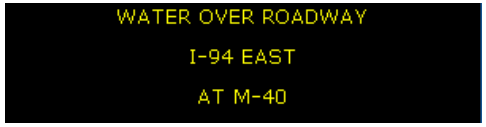
- Visibility reduced next 5 miles



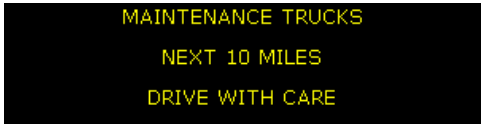
- Road icy next 3 miles

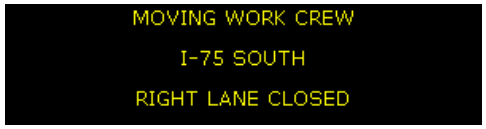
- Heavy rain reduced visibility next 2 miles



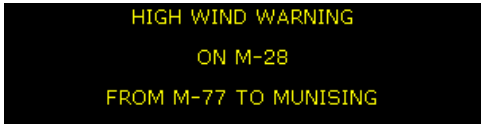


- Maintenance trucks next 10 miles – Drive with care

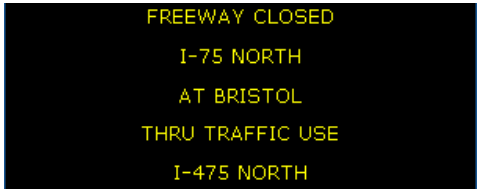




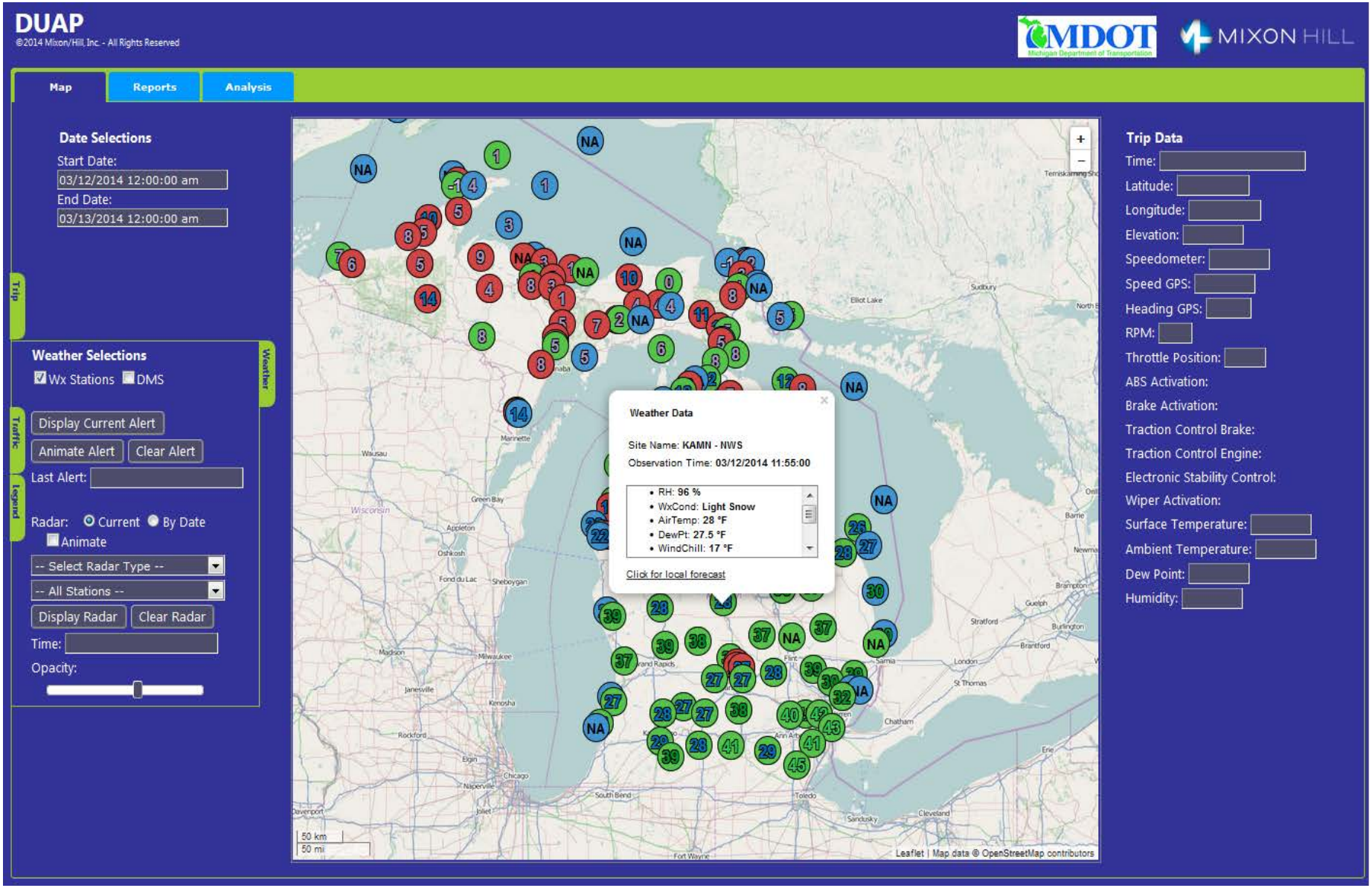
- High Wind Warning



- Road closed ahead – use alternate route



Wx-TINFO


DUAP
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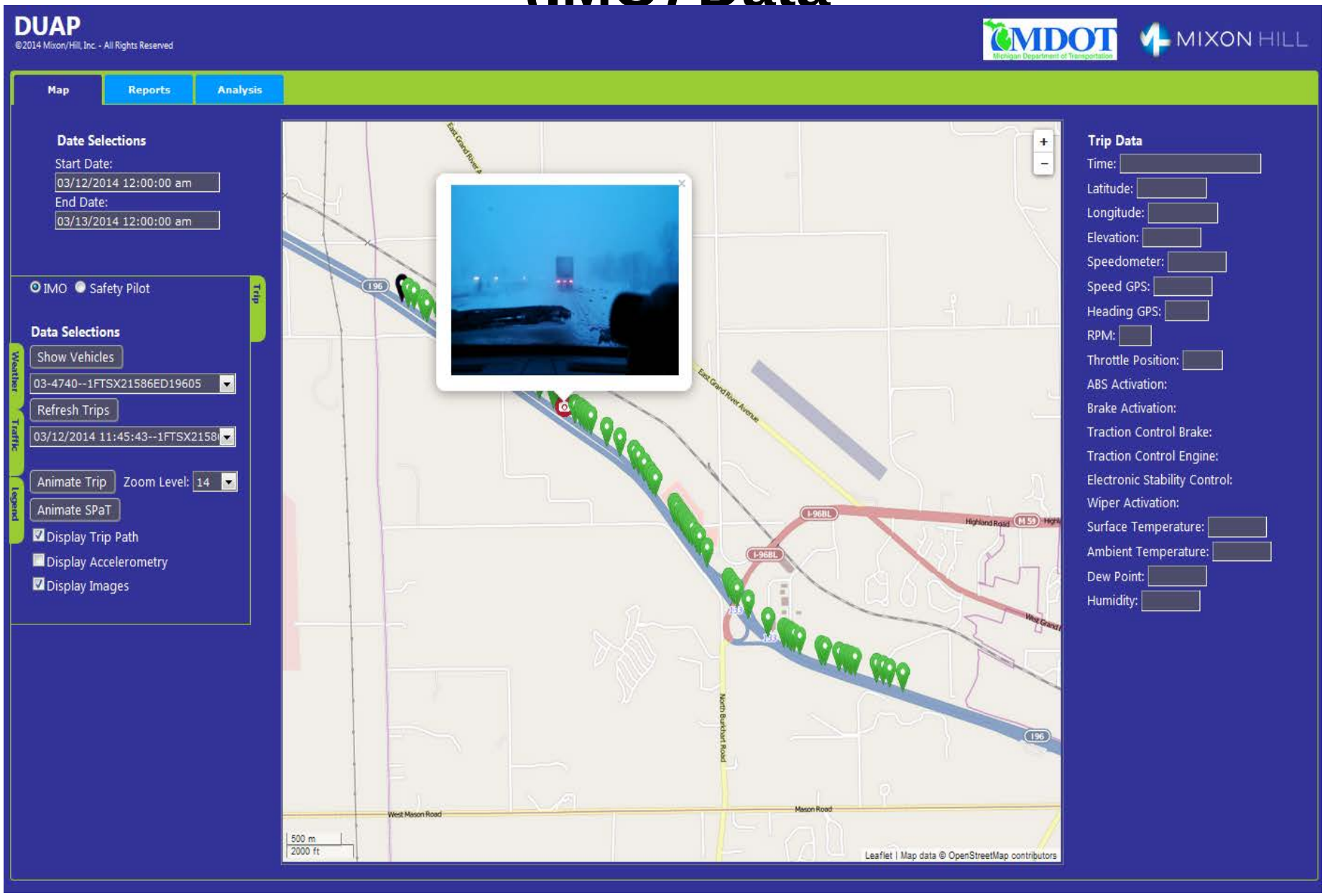
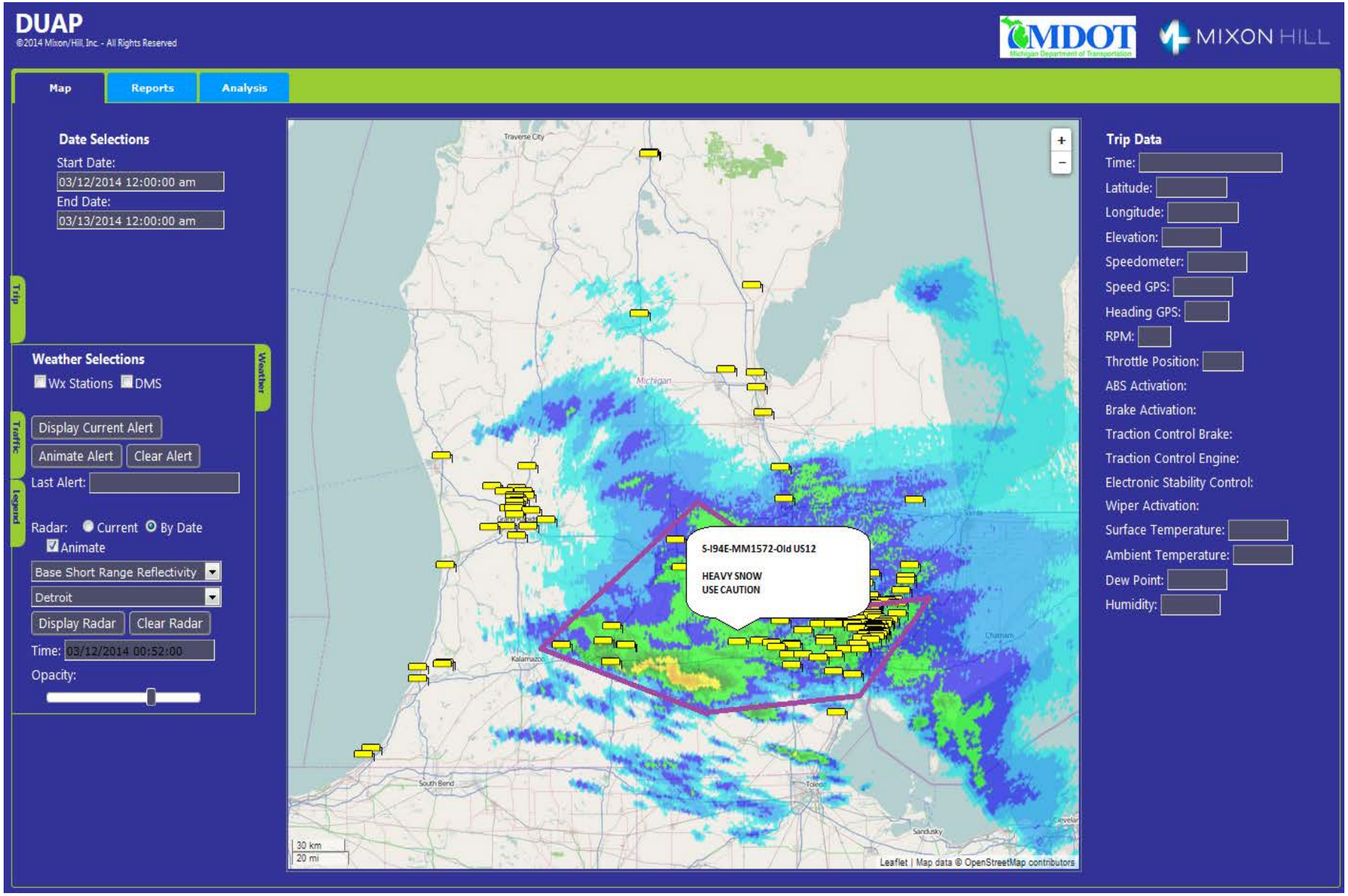
MDOT
Michigan Department of Transportation
MIXON HILL
Map
Reports
Analysis
Date Selections
Start Date:
03/12/2014 12:00:00 am
End Date:
03/13/2014 12:00:00 am
Trip
Weather Selections
Wx Stations
DMS
Weather
Traffic
Legend
Display Current Alert
Animate Alert
Clear Alert
Last Alert:
Radar:
Current
By Date
Animate
-- Select Radar Type --
-- All Stations --
Display Radar
Clear Radar
Time:
Opacity:
Weather Data
Site Name: KAMN - NWS
Observation Time: 03/12/2014 11:55:00
RH: 96 %
WxCond: Light Snow
AirTemp: 28 °F
DewPt: 27.5 °F
WindChill: 17 °F
Click for local forecast
50 km
50 mi
Leaflet | Map data © OpenStreetMap contributors
Trip Data
Time:
Latitude:
Longitude:
Elevation:
Speedometer:
Speed GPS:
Heading GPS:
RPM:
Throttle Position:
ABS Activation:
Brake Activation:
Traction Control Brake:
Traction Control Engine:
Electronic Stability Control:
Wiper Activation:
Surface Temperature:
Ambient Temperature:
Dew Point:
Humidity:

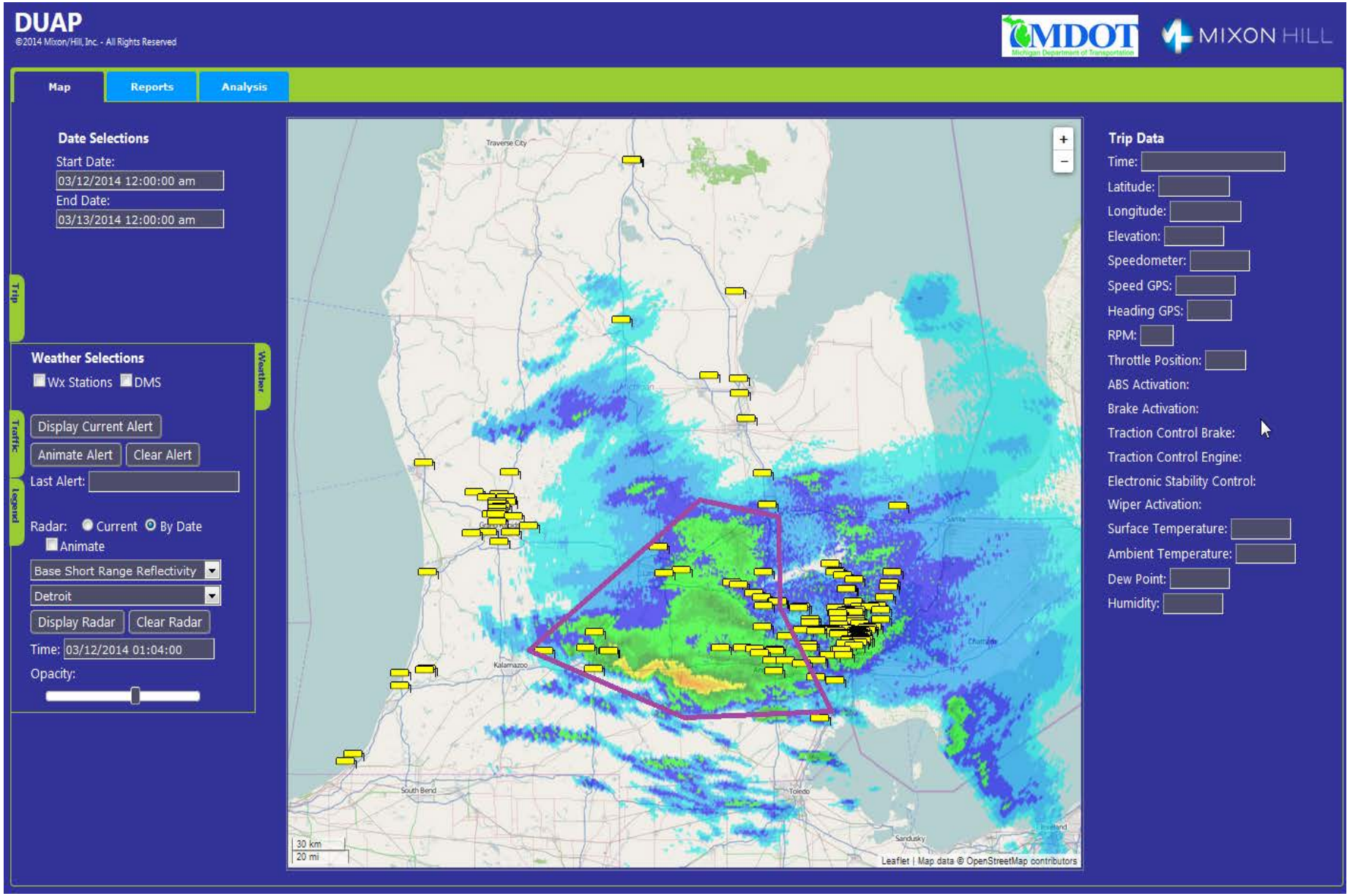
Integrated Mobile Observations (IMO) Data



Wx-TINFO Weather Event Message



Wx-TINFO Weather Event Message



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