RWM Peer Exchange – Salt Lake City, UT

Integrated Modeling for Road Condition Prediction (IMRCP)

Phase III Update

June 25,2019

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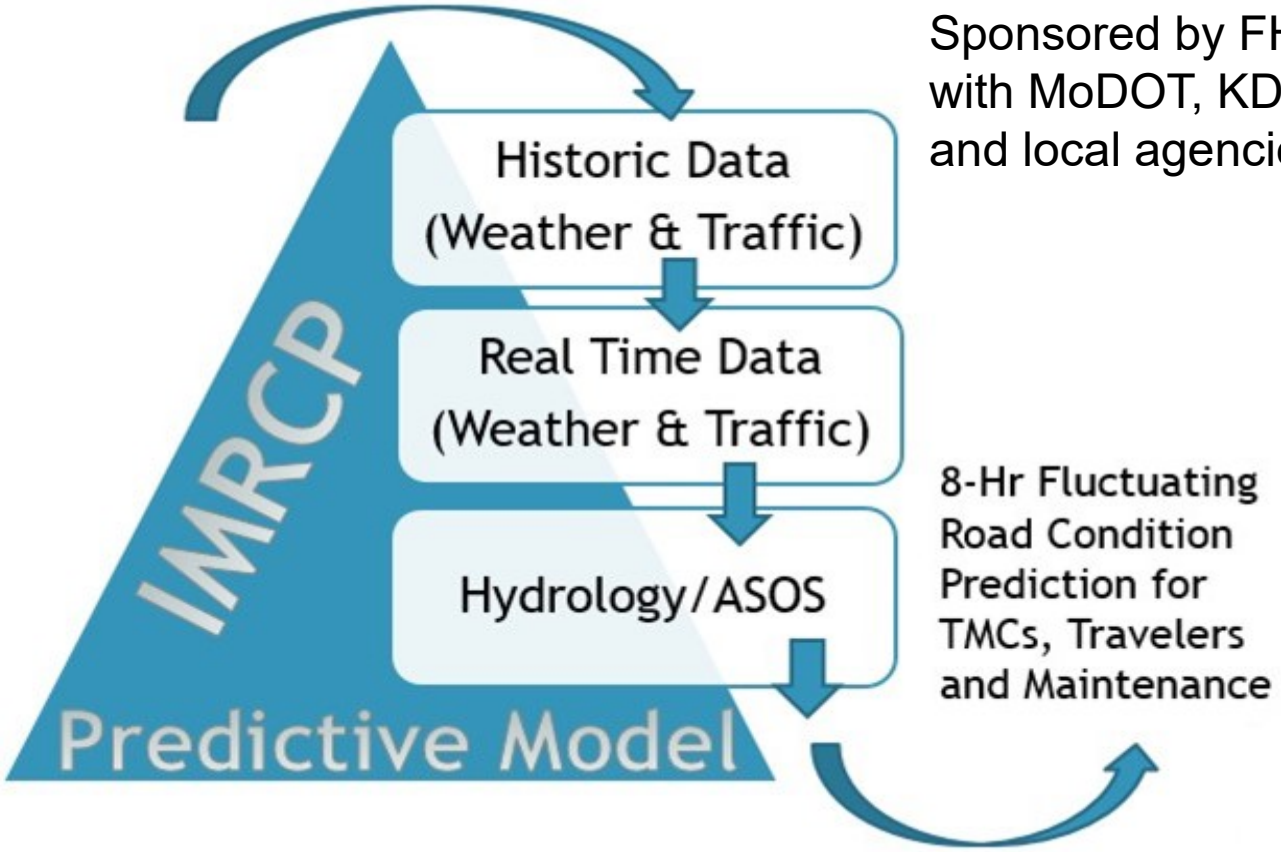
IMRCP: An Integrated Predictive System

So…What is it?



Sponsored by FHWA, working with MoDOT, KDOT, KC Scout and local agencies

8-Hr Fluctuating Road Condition Prediction for TMCs, Travelers and Maintenance

IMRCP Development

Current Phase

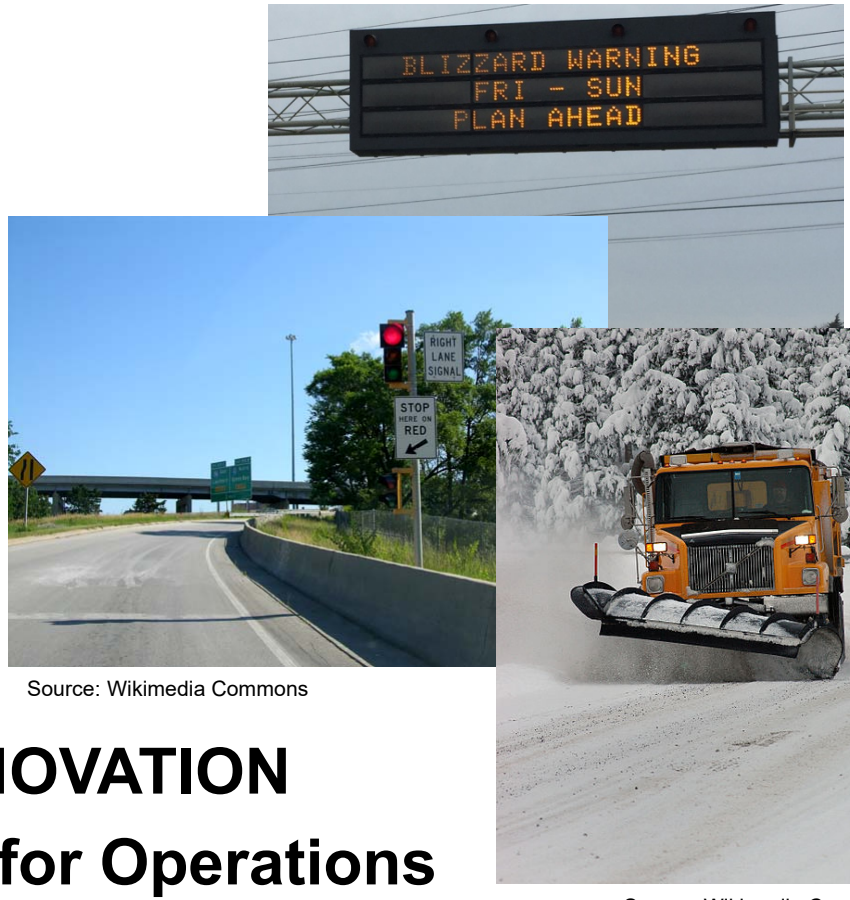
IMRCP-3:
Model Enhancement
Operations Focus

IMRCP-2:
Model Deployment
Kansas City Study Area

IMRCP-1:
Tech Survey
ConOps, Architecture

Benefits and Applications

Source: Wikimedia Commons



Source: Wikimedia Commons

TRUE TSMO INNOVATION

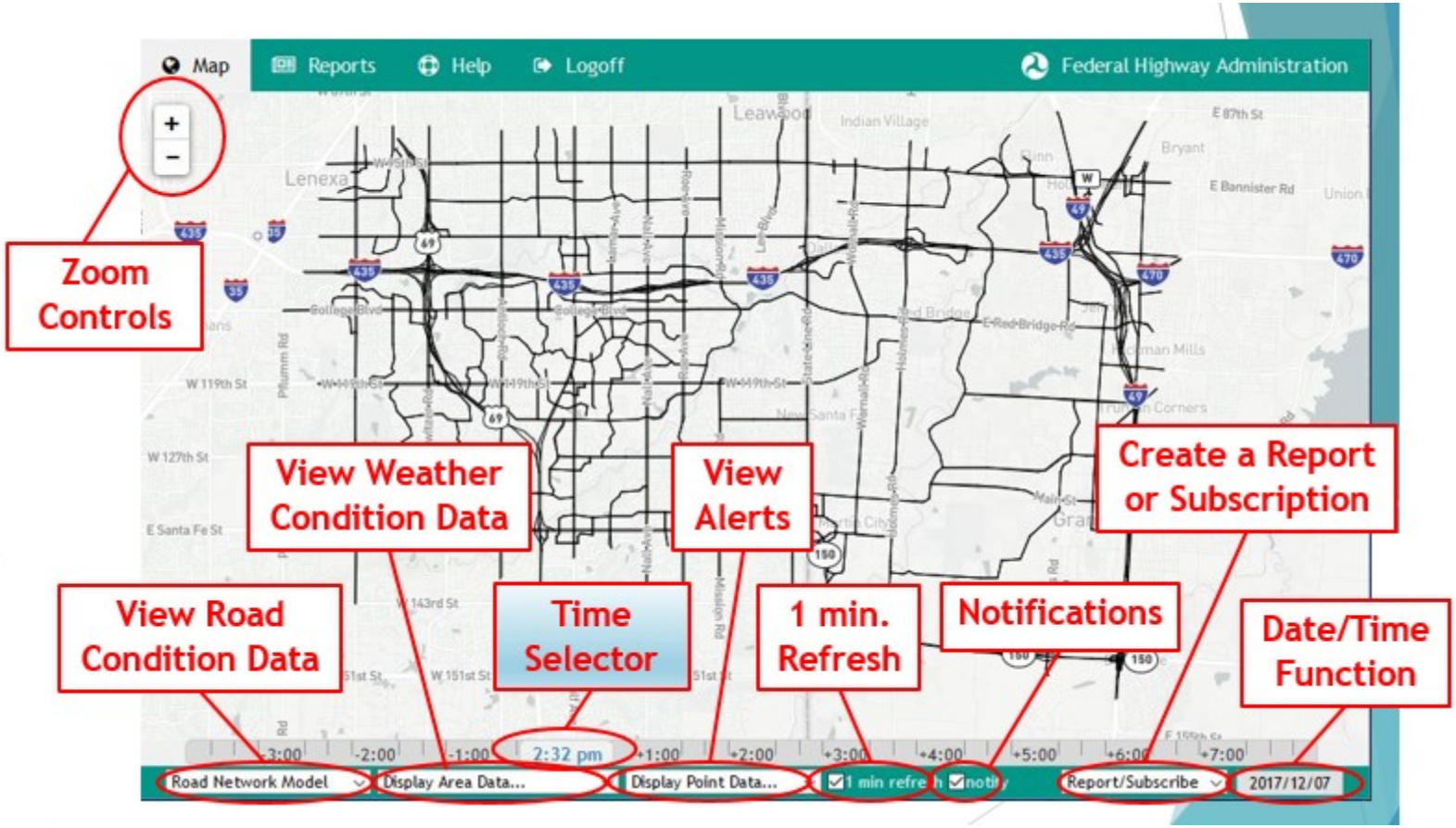
“Time Travel” tool for Operations

Source: Wikimedia Commons

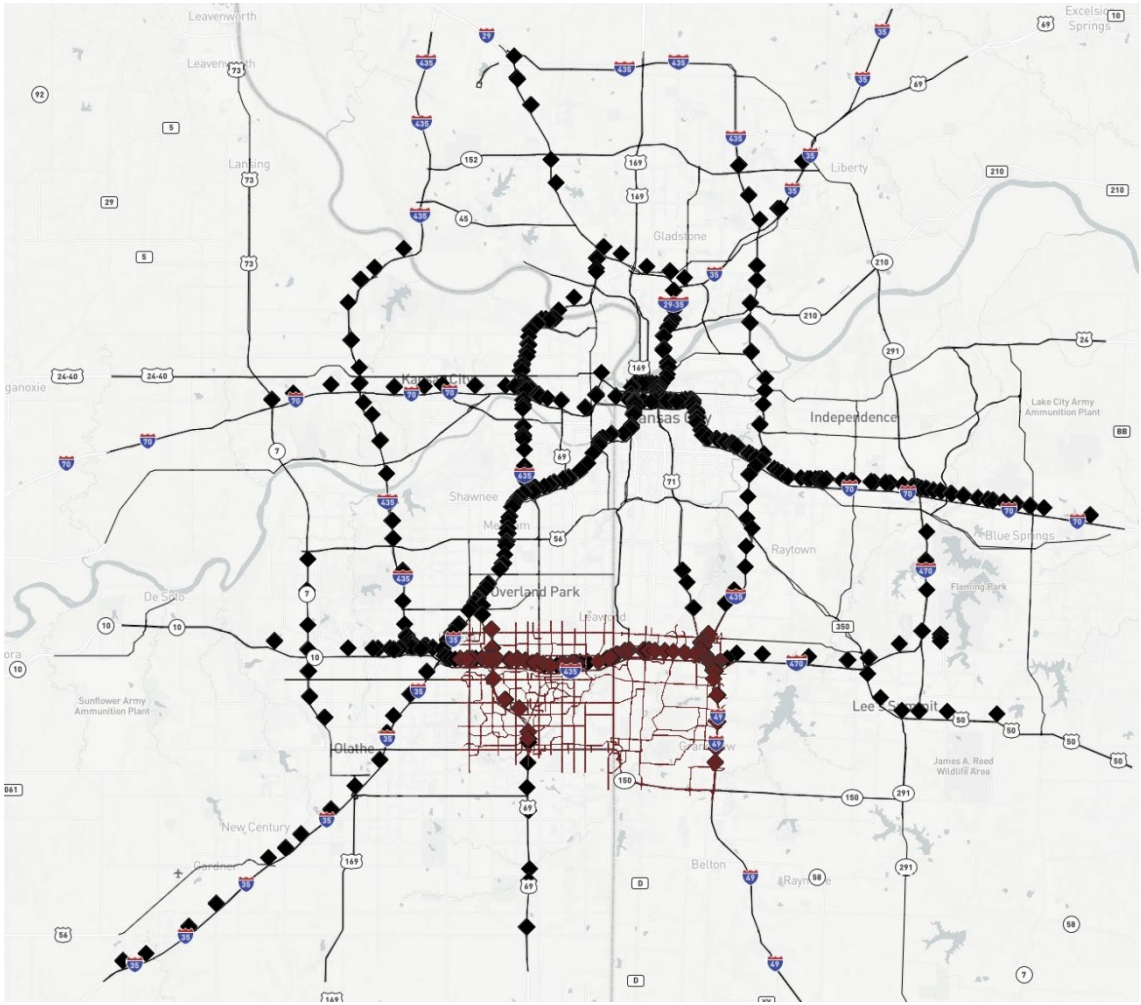
IMRCP User Interface

- The IMRCP system uses a web-based interface
  - Time-variable map
  - Notifications
  - Reports
- Administrators send user names, passwords and instructions to authorized users

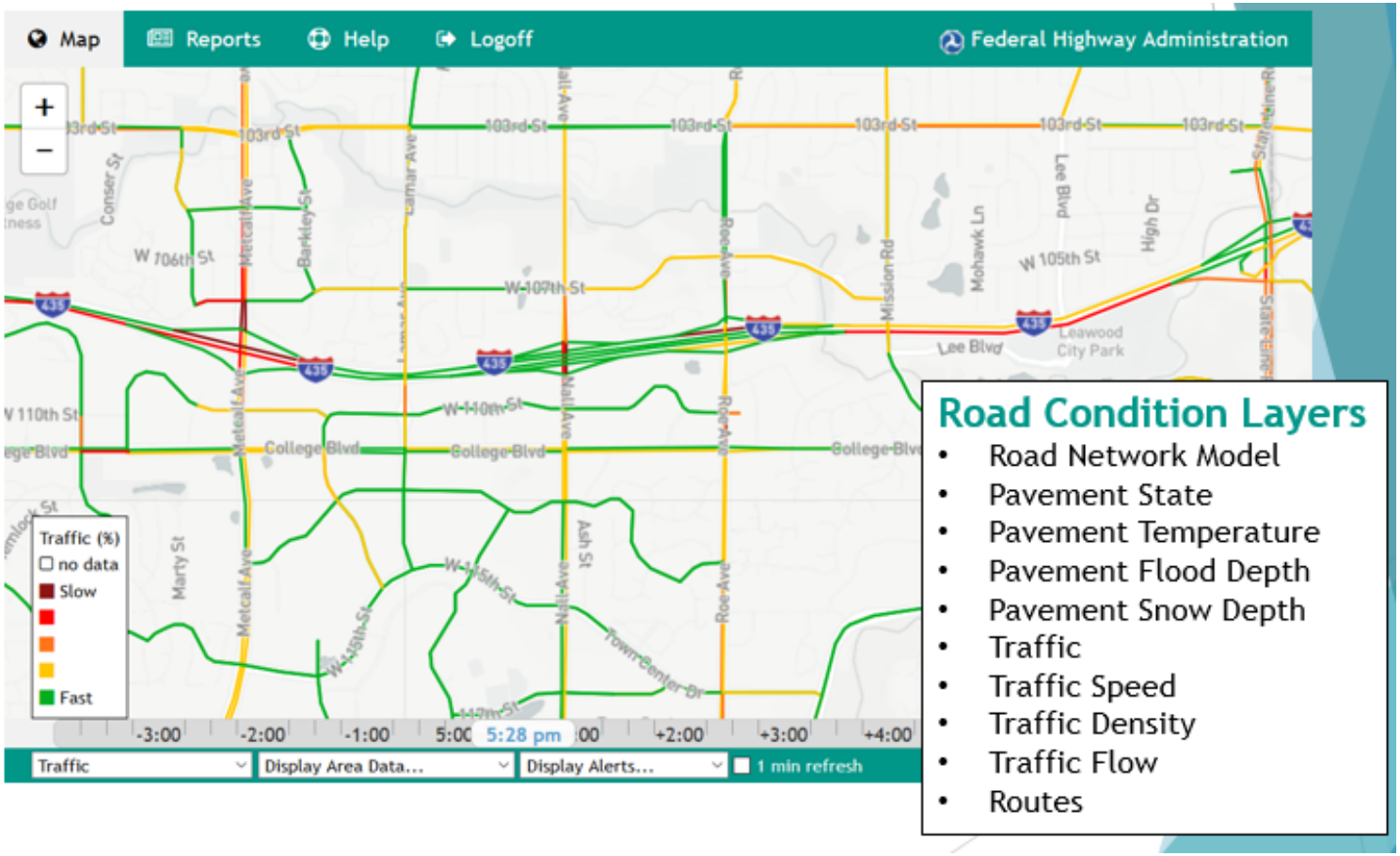
Simplicity of the Map Interface with "*Time Travel*" Slider Bar



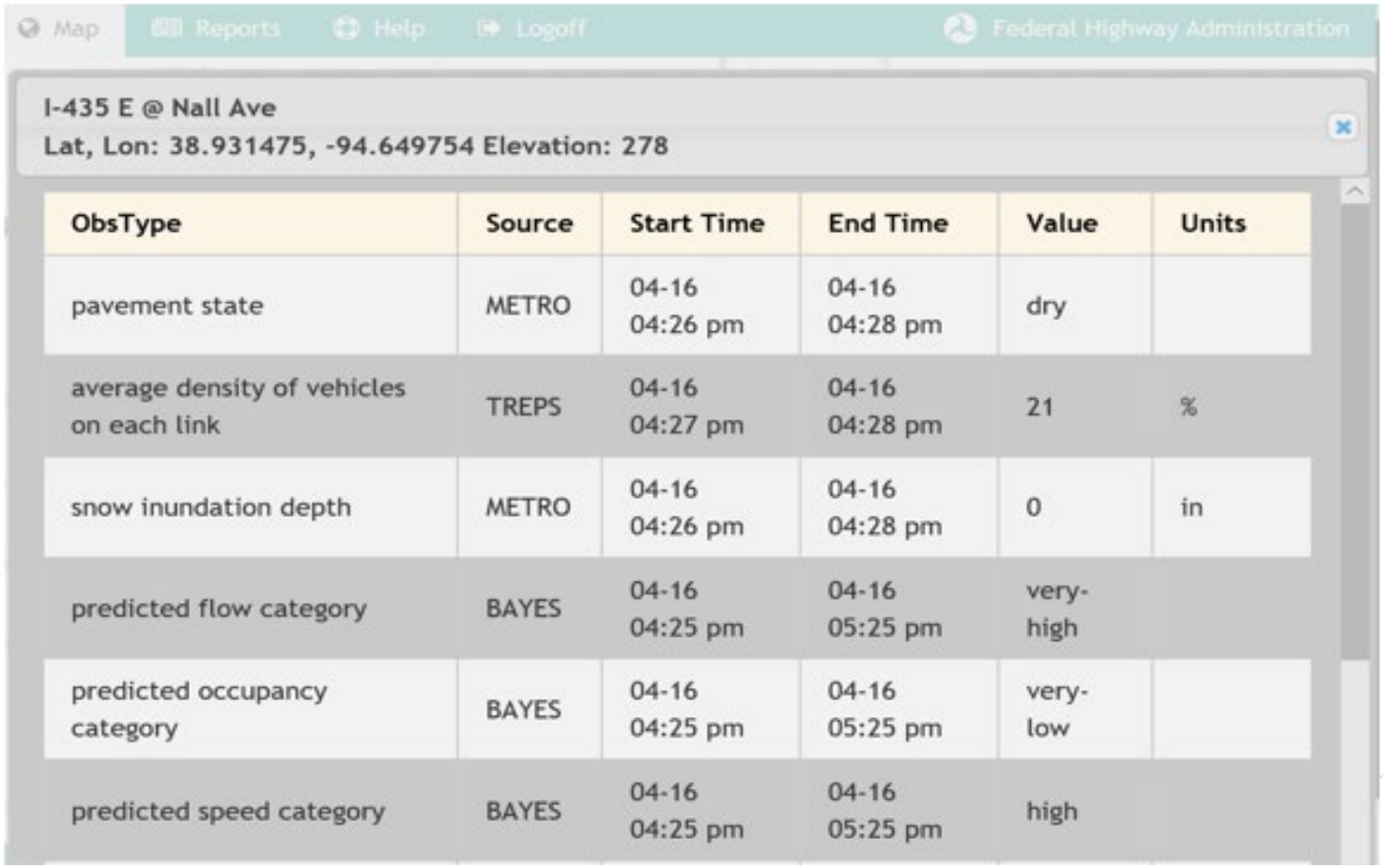
Expanded IMRCP Study Area for Phase III



Viewing Road Condition Data

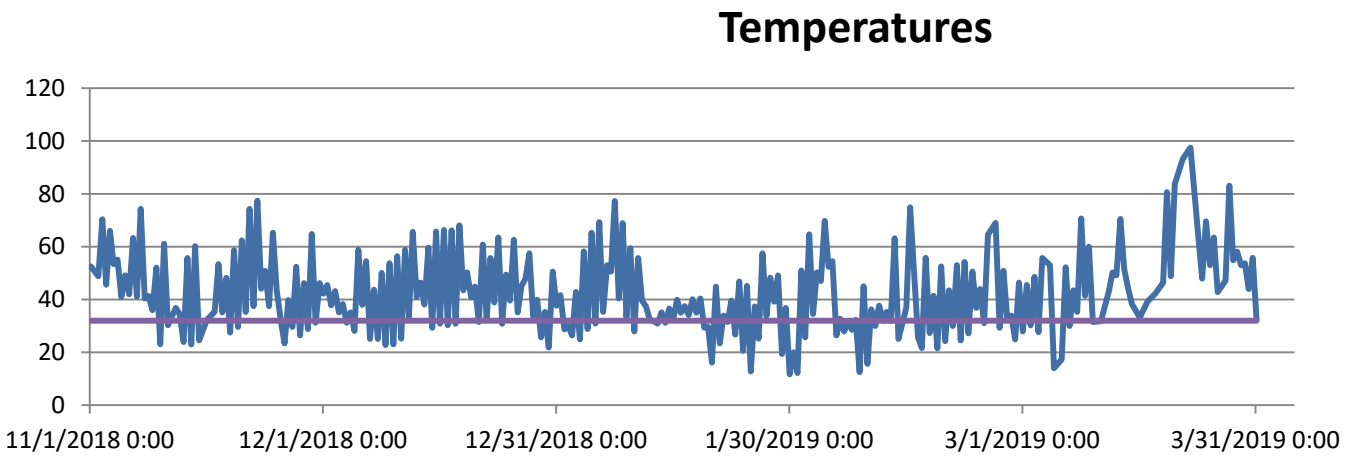


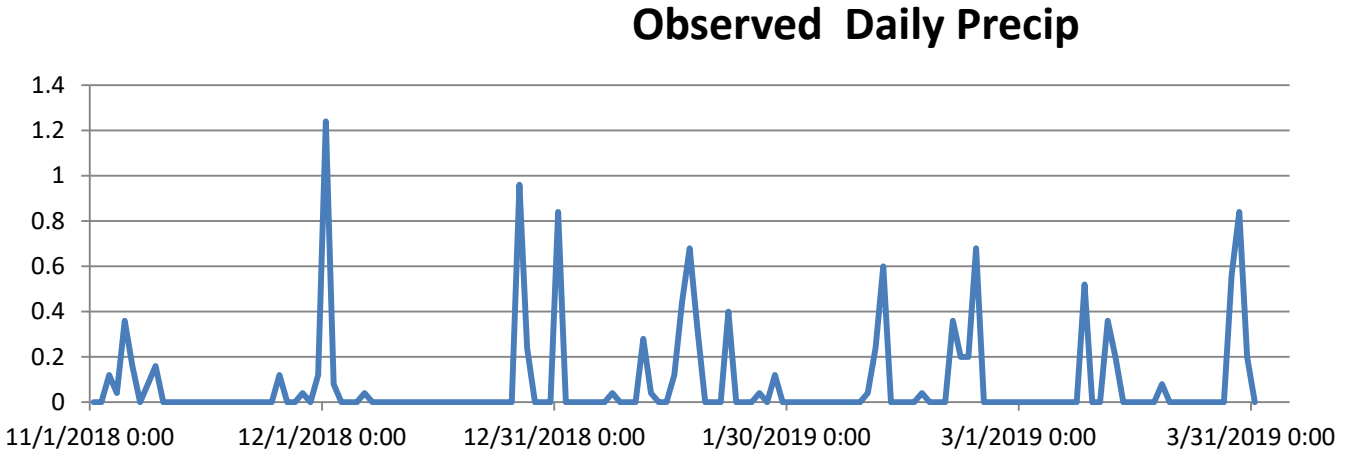
Viewing Road Condition Specifics



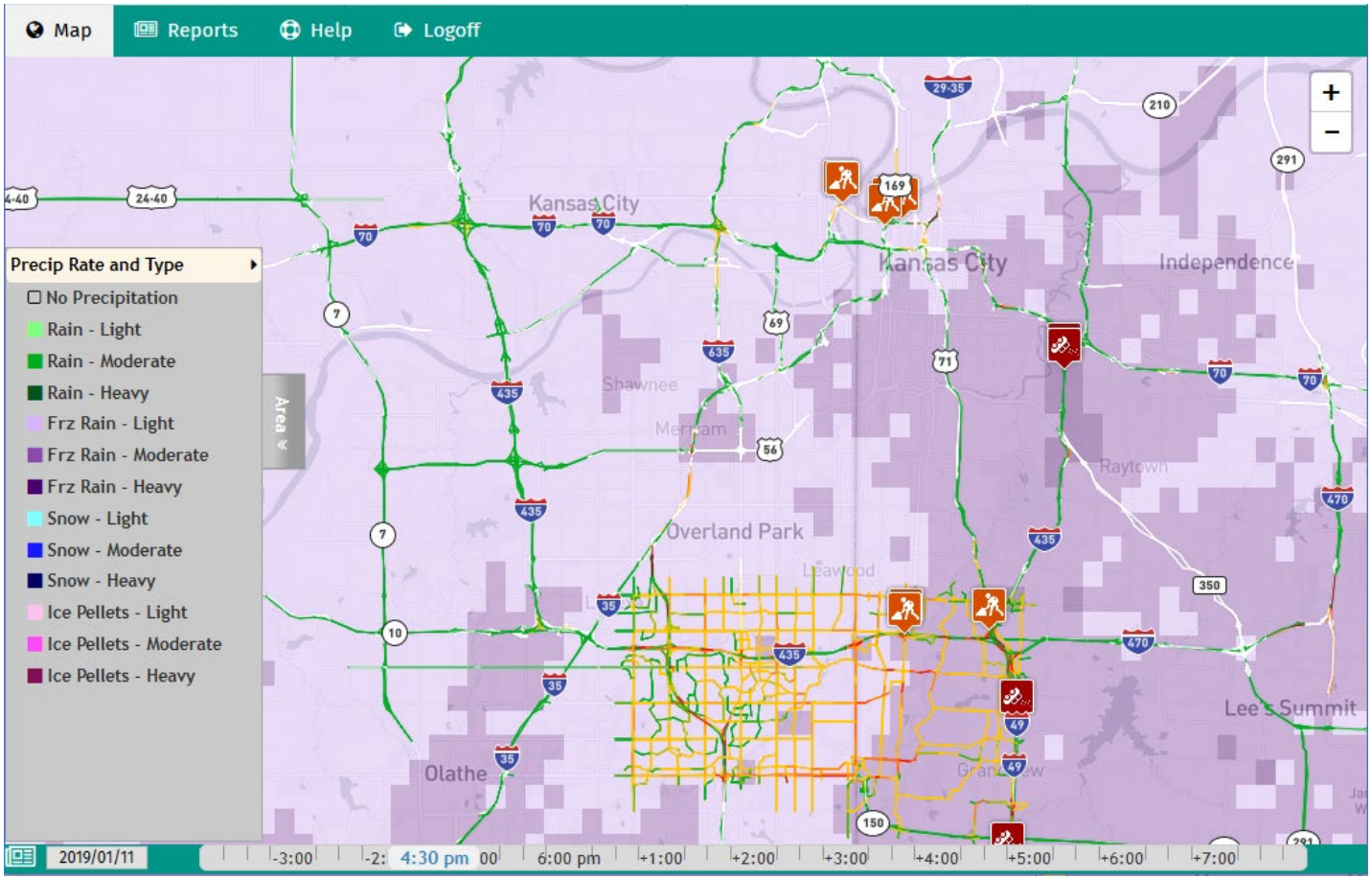
ObsType	Source	Start Time	End Time	Value	Units
pavement state	METRO	04-16 04:26 pm	04-16 04:28 pm	dry	
average density of vehicles on each link	TREPS	04-16 04:27 pm	04-16 04:28 pm	21	%
snow inundation depth	METRO	04-16 04:26 pm	04-16 04:28 pm	0	in
predicted flow category	BAYES	04-16 04:25 pm	04-16 05:25 pm	very-high	
predicted occupancy category	BAYES	04-16 04:25 pm	04-16 05:25 pm	very-low	
predicted speed category	BAYES	04-16 04:25 pm	04-16 05:25 pm	high	

Winter 2018-19



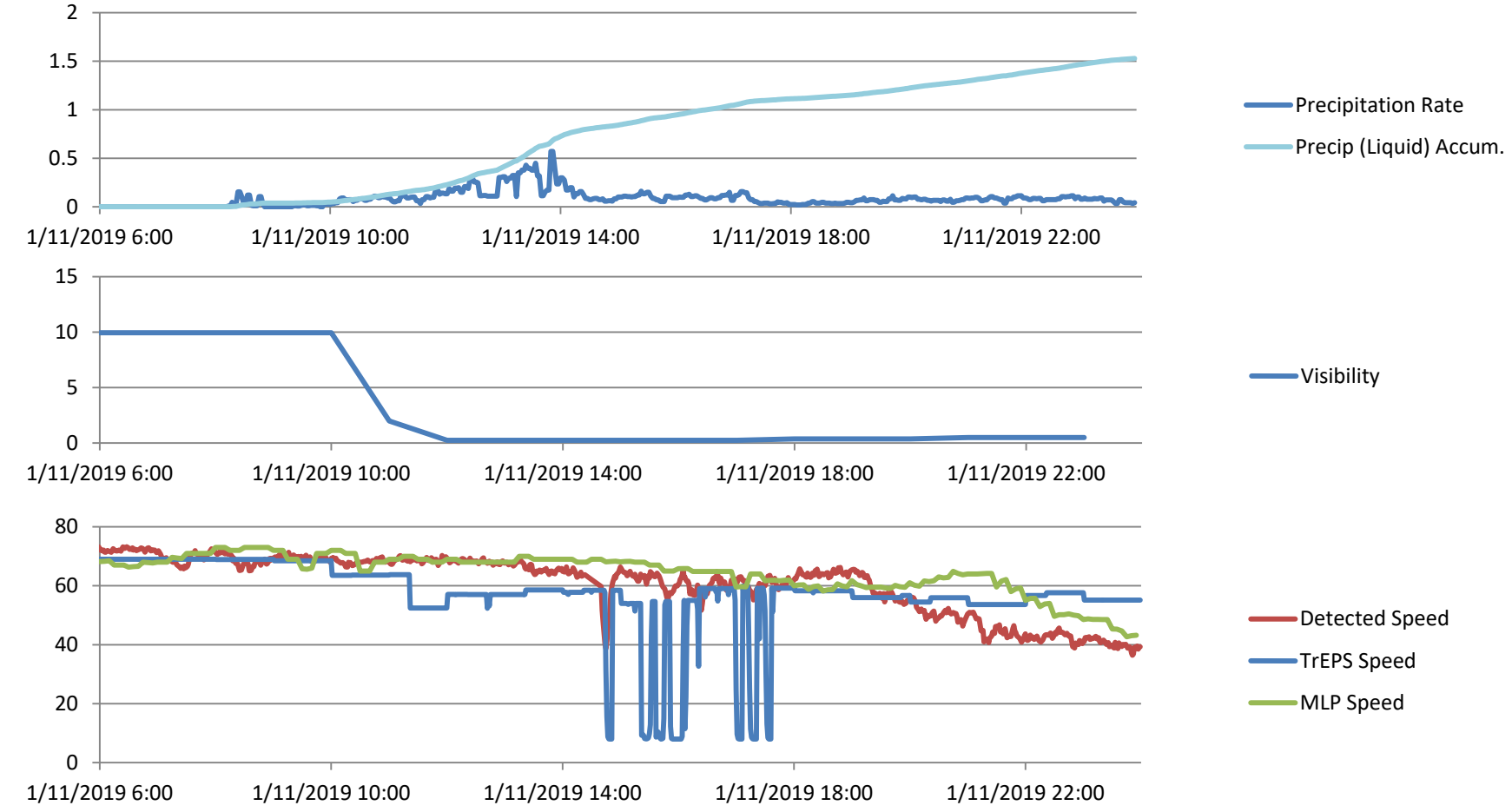


1/11/19, 4:30 p.m.

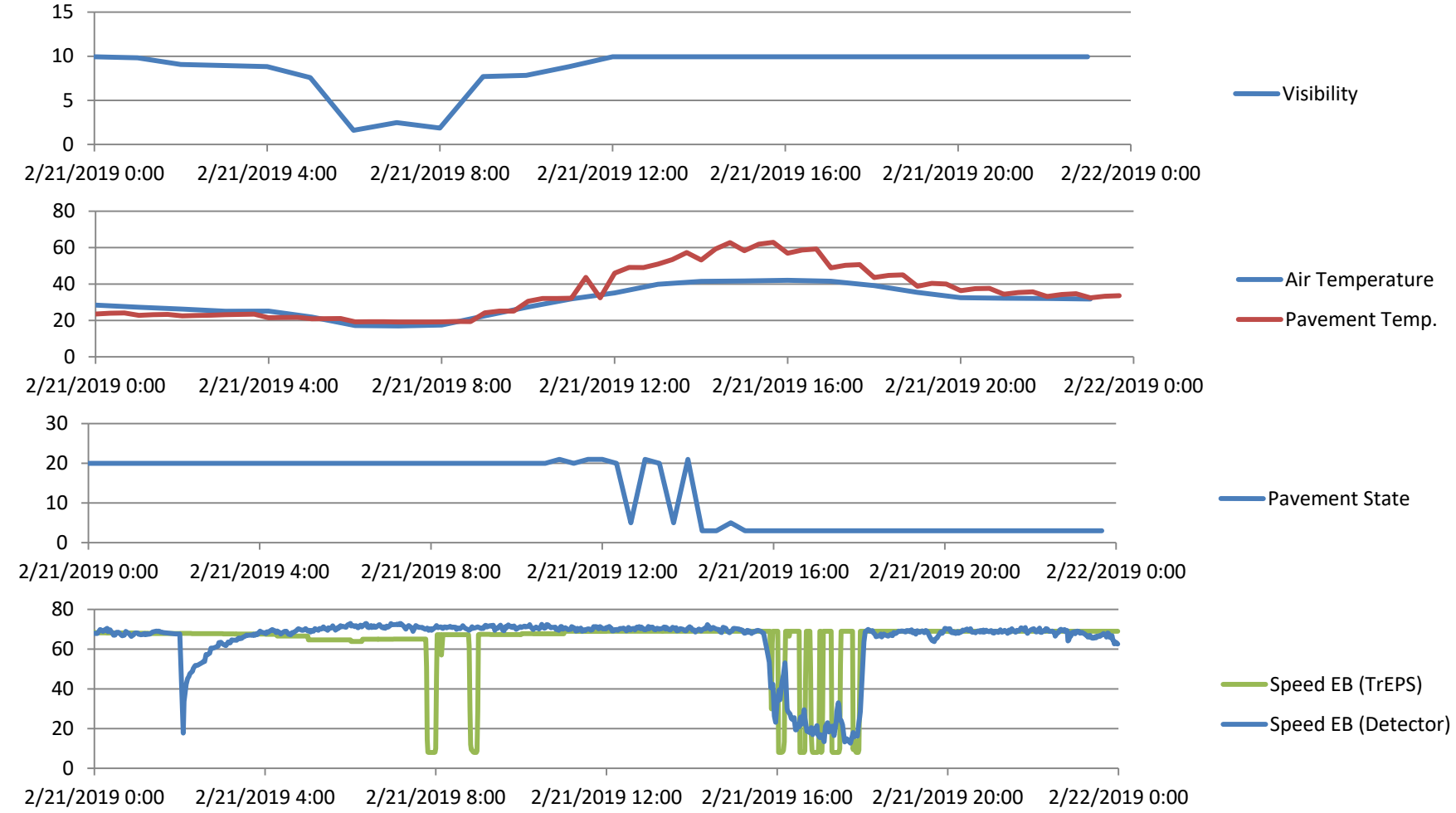

Map
Reports
Help
Logoff
Precip Rate and Type
No Precipitation
Rain - Light
Rain - Moderate
Rain - Heavy
Frz Rain - Light
Frz Rain - Moderate
Frz Rain - Heavy
Snow - Light
Snow - Moderate
Snow - Heavy
Ice Pellets - Light
Ice Pellets - Moderate
Ice Pellets - Heavy
Area
Kansas City
Kansas City
Independence
Shawnee
Merriam
Overland Park
Leawood
Raytown
Lee's Summit
Olathe
2019/01/11
-3:00
4:30 pm
6:00 pm
+1:00
+2:00
+3:00
+4:00
+5:00
+6:00
+7:00


ROAD
CLOSED

1/11/19, EB I-435 at Nall



2/21/19, EB I-435 at Nall



Real Time Road Condition

2/21/19 at 17:35 hrs

Stakeholder Event Schedule

Stakeholder Activity	Timeframe	Outcome
CWG IMRCP-3 Kick-off Meeting	Early July 2018	Describe accomplishments through Phase 2 and set up Phase 3
NOCoE webinar	August 2018	Increase awareness of opportunities and applications
CWG IMRCP Design Consultation Meeting	Late August 2018	Obtain guidance and feedback on system
Road Weather Management Stakeholder Meeting	September 2018	Increase awareness of opportunities and applications
CWG Pre-winter Operational Planning	January 2019	Plan for system use, performance measures, and reporting
CWG IMRCP Operational Experience Review 1	**Spring 2019**	**Review experience and solicit feedback for evaluation**
Broad stakeholder webinar	**Summer 2019**	**Increase awareness of capabilities and experience**
CWG Pre-winter Operational Planning	Nov-Dec 2019	Plan for system use, performance measures, and reporting
CWG IMRCP Operational Experience Review 2	Spring 2020	Review experience and solicit feedback for evaluation
Broad stakeholder webinar	Summer 2020	Increase awareness of IMRCP capabilities and experience
Final CWG Meeting	Summer 2020	Describe accomplishments, evaluation results, and final deliverables; solicit concepts for further deployment and next steps

Summary

- Integrated Modeling for Road Condition Prediction can extend operational awareness from the “now” to the “what next”
- The Kansas City deployment has demonstrated the flexibility and extensibility of the models and framework
- Operations throughout 2019-20 provide an opportunity for planning and evaluation of prediction-based operations and maintenance strategies