THE EASTERN TRANSPORTATION COALITION
CONNECTING FOR SOLUTIONS

Hurricane Pilot Results Web Meeting: States' Experience with Real-time Connected Vehicle Data
Follow-up – February 2021

Thanks to those who participated in the Hurricane Pilot Results Web Meeting: States' Experience with Real-time Connected Vehicle Data on January 28, 2021. Please click on the links below for more information about the event or visit the TSMO section of the website (https://tetcoalition.org/projects/tsmo-events-webinars/) on the HOGs Webinars tab.

- Presentation with Audio
- Slides Only
- Question and Answer Summary

Presentation #1 – Goals and Objectives

Stan Young of the National Renewable Energy Laboratory provided the background of the Hurricane Pilot Proof of Concept (POC). The project team also included **Jaap van den Hoek (Wejo), Kaveh Farokhi Sadabadi and Zach Vander Laan (University of Maryland CATT), Peter Carnes (Traffax),** and **Eimar Boesjes and Wander Boesjes (Moonshadow Mobile).** The POC was created to assess if connected vehicle data (CVD) could be used to generate traffic volume estimates in near real-time. The specific application for this pilot was the monitoring of hurricane evacuation traffic. The project plan contains four main goals and objectives:

1. Confirm that real-time CVD can be delivered and visualized in real-time
2. Demonstrate that CV trips data can be processed and aggregate data displayed
3. Validate that meaningful, reasonably accurate traffic volume can be assessed
4. Show that mobility patterns of people change significantly in the event of a major storm

Presentation #2 – Overview of Connected Vehicle Data

First, **Jaap van den Hoek of Wejo** explained how CVD can be used to monitor and predict traffic volumes. Overall, CVD is faster, more in-depth, and provides a clearer trail of data as compared to mobile data. Wejo provided data for six states over the course of three months - Alabama, Florida, Georgia, North Carolina, Tennessee, and Virginia. The CVD was conflated to Open Street Maps, then used to develop volume estimates within the Moonshadow Live Traffic Data platform (DB4IOT), along with uplift factors. After this process, the data was available for the participating agencies to review/use. On average, the platform processed 50 gigabytes worth of data a day, including 2.5 billion waypoints with an average user map update frequency of 30 seconds (as shown below). By using the Moonshadow Live Traffic Data platform, the project team was able to demonstrate that real-time CVD can be delivered, visualized, and processed in real-time.

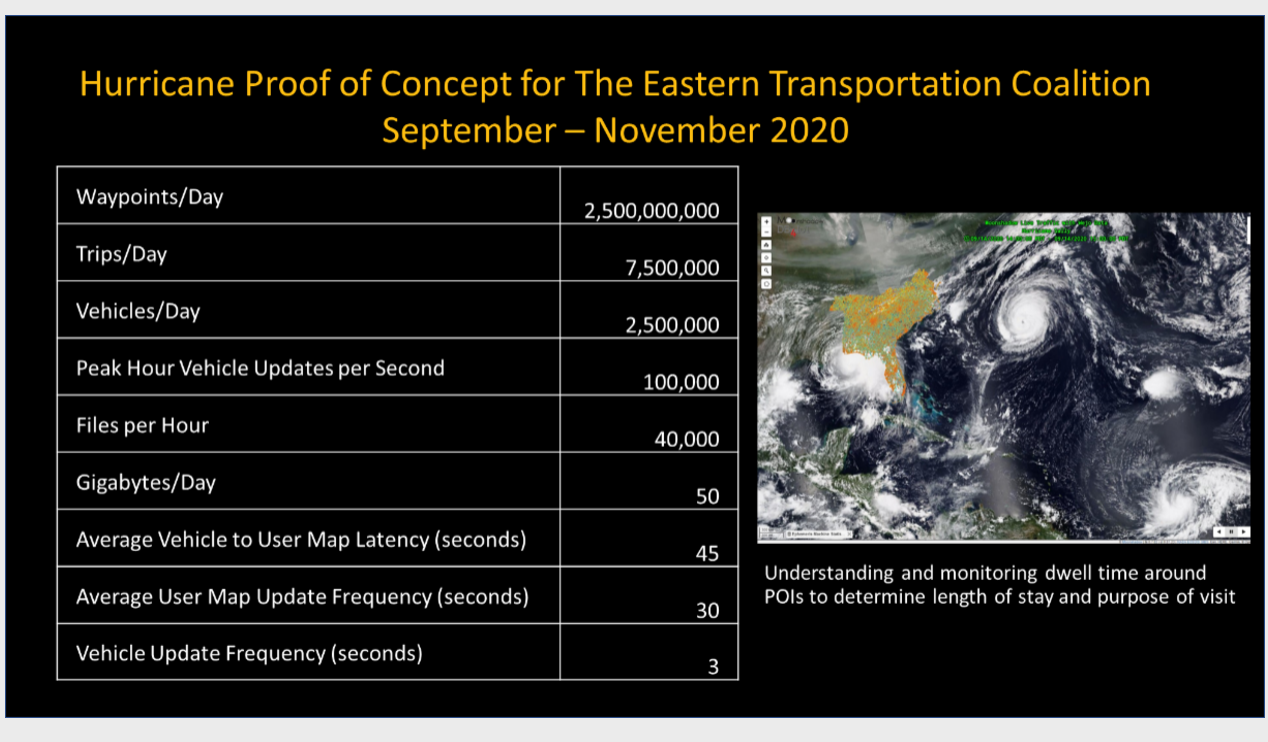
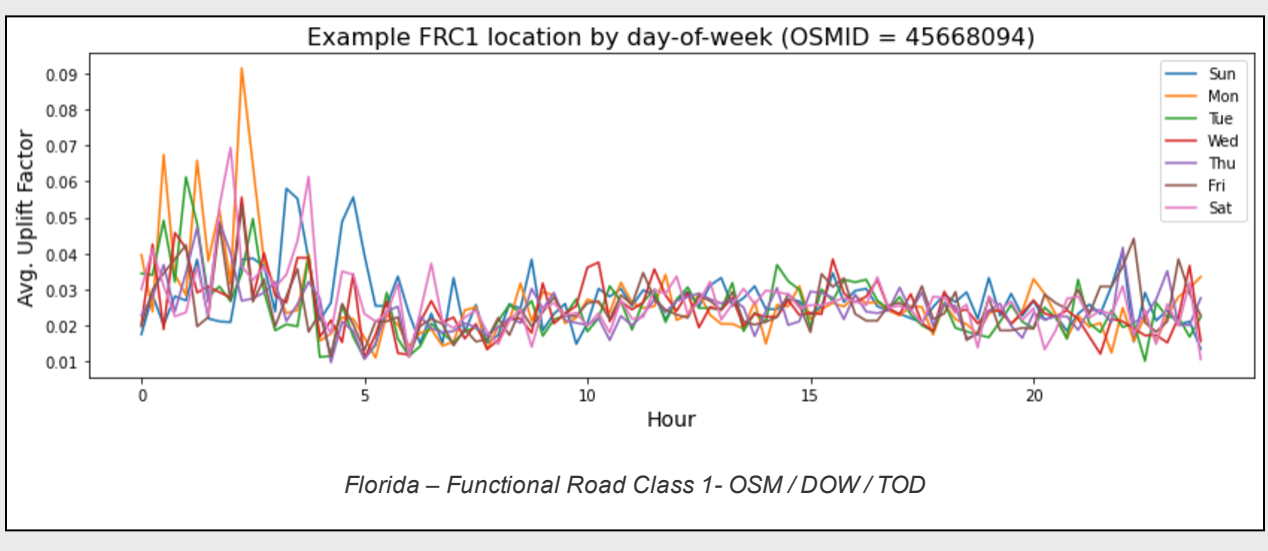


Table of Key Performance Indicators for Moonshadow Mobile Data Traffic Platform and a map of connected data.

Presentation #3 - Accuracy of Real-Time Volume Data

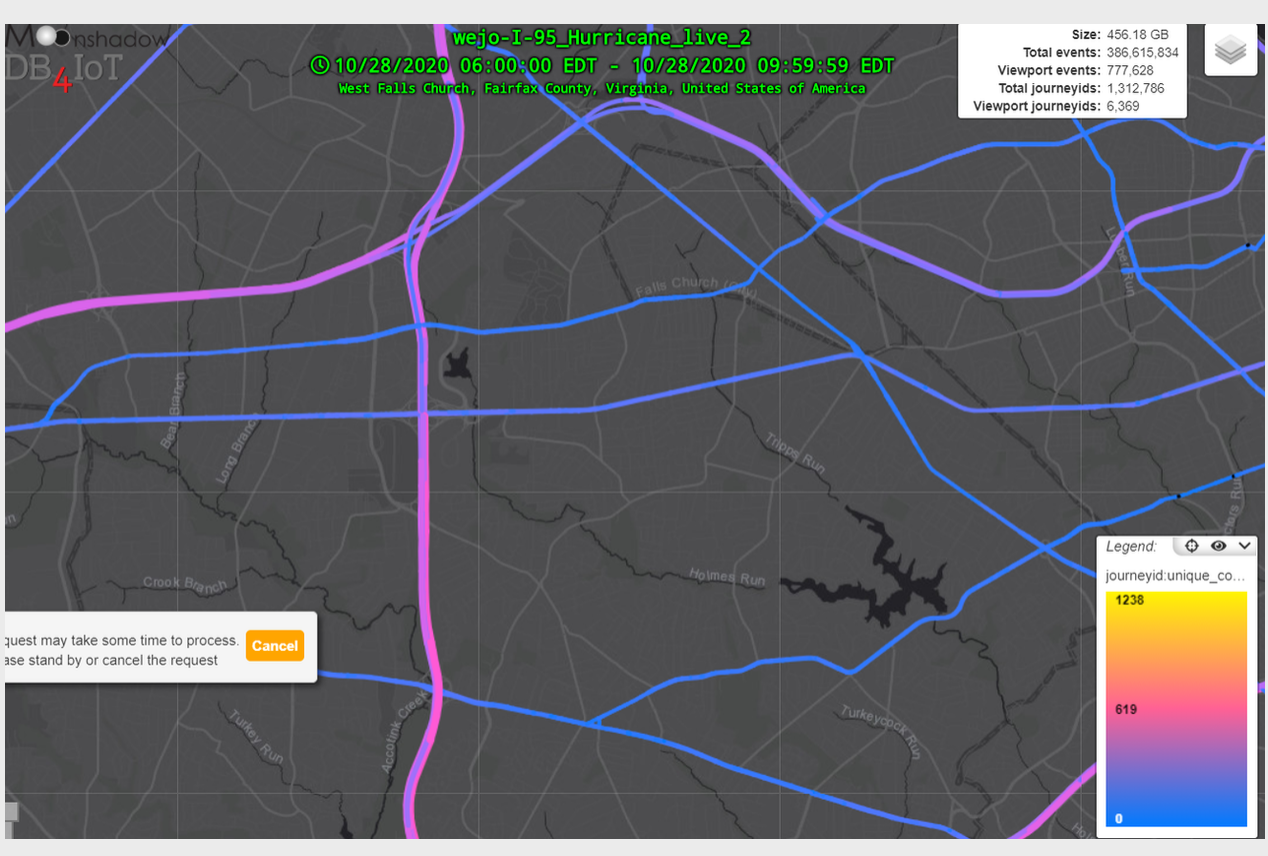
Kaveh Farokhi Sadabadi of the University of Maryland CATT reviewed the process of determining uplift factors for the CVD and the subsequent analysis to determine if CVD is consistent enough to provide meaningful volume in real-time. Some key factors that were considered as part of determining uplift factors included the type of road class, time of day, and day of the week. Kaveh provided an example of the visualized data (as shown below). Key considerations in this process include the size and velocity of data which will require efficient calibration, calculation, and conflation techniques. Despite the data processing challenges, **the current analysis indicates that reasonable accuracy for operations is feasible in real-time through connected vehicle data.**



Florida – Functional Road Class 1- OSM / DOW / TOD

Presentation #4 – State Feedback

Next, **Denise Markow of the Eastern Transportation Coalition** and **Simona Babiceanu of Virginia DOT** discussed feedback from Virginia DOT and Georgia DOT regarding the Moonshadow Live Traffic Data (DB4IOT) platform. To gather this feedback, **Wander Boesjes of Moonshadow Mobile** held training sessions for the DB4IOT platform, identified a group of test users, and collected feedback from them. Simona presented Virginia DOT-specific feedback, noting that the amount of data was impressive. The real-time aspect is valuable for traffic operation centers and weather event operations. Denise presented Georgia DOT's feedback, including that they appreciated seeing the number of events displayed, and noted that exporting data into a spreadsheet would be valuable. More comments from the pilot states can be found on slide 53 of the presentation.



At a high level of zoom, unique journey ID counts for both directions are visible in Virginia.

Presentation #5 -Takeaways

Finally, **Stan Young** reviewed the main takeaways and lessons from the Proof of Concept. He noted that managing CV data is challenging for the industry, but it has value. **Using CVD blazes a trail in visualizing real-time volume and Origin and Destination data, and will challenge traffic engineers and information technology specialists to work together to realize, but all evidence points toward a feasible path toward implementation.**

Upcoming Coalition Meetings

- Traveler Info Web Summit – April 1, 2021- more information coming soon!
- RITIS User Group Web Meeting – May 6, 2021

Follow the Coalition on YouTube and subscribe to be informed!

Recordings from many of the Coalition's webinars are available here - take a look!

Questions or Comments:
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