I-95 Corridor Coalition (soon to be The Eastern Transportation Coalition):
Protecting Our Infrastructure Webinar: PA Turnpike's Tuscarora Tunnel Traffic Management System & Maryland's Weigh in Motion System Integration
May 28, 2020
Question and Answer Summary

Tuscarora Tunnel Traffic Management System:

Q: **Denise Markow (The Eastern Transportation Coalition):** Was there any special consideration that was needed for freight/large trucks?

A: Naomi Morris (Pennsylvania Turnpike Commission): It is an ongoing concern considering the changing environment to toll facilities without collectors. It is sometimes difficult to identify potential issues given this situation. However, each situation identified is handled with care and we have not had any issues yet. This is being heavily looked at for the next project.

As mentioned during the presentation, the Commission had experienced numerous strikes of signs mounted to the median barrier when the inside shoulder was less than 4'. These strikes were primarily by large trucks. The Commission changed their standards eliminating the use of signs mounted to the median barrier, therefore, the SwiftSigns needed to be removed from the project. Additional concerns were raised in regards to the crashworthiness of the gates and the new median barrier, however these were designed to MASH standards

Q: **Chester Osborne (Massachusetts DOT):** During construction time did you have any major unplanned events? Crashes, car fires, Disabled Motor Vehicle (DME)? How did you feel incident response went, if so? Thank you.

A: Naomi Morris (Pennsylvania Turnpike Commission): Across the board, our incident management team is phenomenal. The situations motorists encountered were not unique for them as they were used to it from the winter weather. Nothing that could be tied to the management system was identified. Extensive training with tow operators and responders was conducted including mass causality and triage training.

Q: **Derrick Herrmann (Pennsylvania DOT):** How was the decision on the gate spacing made?

A: Kevin Hunt (Gannett Fleming/PA Turnpike): Regarding the lights, the use of In-Roadway Warning Lights is approved in the MUTCD, however the PTC had a lot of coordination with FHWA to get approval for this type of use. Initially, a green arrow was desired for the direction of travel to match the overhead lane use signs instead of white, but this was not an approved color in the MUTCD.

Q: **Derrick Herrmann (Pennsylvania DOT):** Are the in-roadway pavement lights approved in the MUTCD? I've seen them for crosswalks or at signals, but not in a through lane before. Was this a hurdle? Thanks!

A: Kevin Hunt (Gannett Fleming/PA Turnpike): Regarding the lights, the PTC had a lot of coordination with FHWA to get approval to use them.

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Virtual Weigh Stations in Maryland:

Q: **Denise Markow (The Eastern Transportation Coalition):** To clarify, is the WIM module part of the RITIS platform; how does that work?

A: Nikola Ivanov (UMD CATT Lab/Maryland DOT-SHA/MdTA): The WIM module is part of the RITIS platform in that it is available through RITIS and it leverages RITIS infrastructure to ingest, store, manage, and disseminate relevant data. The RITIS platform accepts data available from the Cardinal Scale WIMReader and data acquisition/controller module, which is a proprietary software and hardware solution in the roadside WIM cabinet. This data is passed along to RITIS in the required data format. It allows permissions-based access. RITIS users can be assigned access to the VWS application. MdTA has this access now.

Q: **CP Zilliacus (MWCOG):** Any consideration given to integrating Diesel emissions checking as the trucks pass the virtual weigh stations?

A: Nikola Ivanov (UMD CATT Lab/Maryland DOT-SHA/MdTA): It is not currently integrated. They are looking to enhance the tool but, I am not sure if that is being considered. Diesel emissions checks would need to occur at highway speeds at a VWS location. We are not aware of any equipment to test diesel emissions at speed; as a result, an integrated solution is not available at this time. Law enforcement does have the capability to perform emissions checks on any commercial motor vehicle at roadside or at fixed scale facilities if required.

Q: **Denise Markow (The Eastern Transportation Coalition):** Based on the damage that these vehicles can cause to the roadway, has Maryland seen a change or improvement to the roadway condition?

A: Nikola Ivanov (UMD CATT Lab/Maryland DOT-SHA/MdTA): We have not done that specifically; however, through MAP-21 and FAST Act, there are some metrics associated with pavement condition. We may be able to identify changes through these metrics.

Q: **Denise Markow (The Eastern Transportation Coalition):** How is this tool different from a portable WIM?

A: Nikola Ivanov (UMD CATT Lab/Maryland DOT-SHA/MdTA): The Virtual WIM is not sufficient to issue a citation based on ASTM 1318-09 specifications for accuracy of type III WIM scales. The Virtual WIM can identify potential violators and then a set of certified portable scales are used by roving enforcement personnel to facilitate additional weight and safety inspections to issue a citation.

Q: **Ashar Ghulam (Maryland DOT-SHA)**: In terms of cost of deployment and manning the station, how much is the difference between a conventional and a virtual WIM? Thanks.

A: Nikola Ivanov (UMD CATT Lab/Maryland DOT-SHA/MdTA): There is a significant cost savings. It is easy to deploy this system across a state at various locations as it only uses a few in-road sensors and minimal construction of other infrastructure such as over height detector and camera/infrared illuminator poles, and a small roadside WIM cabinet for supporting infrastructure. In addition, the cost to transmit data to RITIS is low and you do not need personnel at the stations – it runs 24 hours/day, 7 days/week, all year. The operations and the maintenance costs are also low once the system is set-up. A fixed weigh station would incur a capital cost of several million dollars, including land acquisition, environmental clearances, construction, and personnel costs. A virtual weigh station (dual lane) can be completed at a cost of approximately $650,000 for a dual lane setup, and a recurring cost of approximately $50/month for the cell data subscription. It is typically built on state right-of-way. Annual maintenance, including preventative maintenance of the cabinet, cameras, other equipment, and sensor calibration every 6 months is required.

Q: **Clint Beck (FHWA)**: Is your system open source? Can it be deployed in another state or do they need to build their own from scratch?

A: Nikola Ivanov (UMD CATT Lab/Maryland DOT-SHA/MdTA): It is not open source; however, it can be deployed in another state and you are not starting from scratch. The amount of work depends on the format of the vendor data.