Webinar & Audio Information

• The call-in phone number is: 1-xxx-xxx-xxxx & enter xxxxxxx# at the prompt

• Participants will be in “Listen Only” mode throughout the webinar

• Please press *0 to speak to an operator for questions regarding audio

• Please call Wayne Gibson at xxx-xxx-xxxx for difficulties with the web or audio application

• This webinar will be recorded

• Presentations will be posted to the I-95 Corridor Coalition website. Participants will receive a link to the presentations after they are posted.
Asking Questions

• Please pose your questions using the **chat box**

• Questions will be monitored then answered by the speakers either at the end of the presentation or at the end of the webinar

Type your question in the box, then click here
### Participating Agencies

<table>
<thead>
<tr>
<th>Agency</th>
<th>Agency</th>
<th>Location</th>
<th>Commission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arcadis</td>
<td>Florida DOT (HDR)</td>
<td>Montgomery County, MD</td>
<td>Richmond Regional Planning District</td>
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<tr>
<td>Atlanta Regional Commission, GA</td>
<td>Florida Turnpike Enterprise (AECOM)</td>
<td>MWCOG</td>
<td>Rockingham Planning Commission, NH</td>
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<td>A&amp;P Consulting Engineers</td>
<td>Georgia DOT</td>
<td>Naugatuck Valley COG, CT</td>
<td>SJTPO</td>
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<td>Baltimore Metropolitan Council, MD</td>
<td>I-95 Corridor Coalition</td>
<td>New Jersey DOT</td>
<td>South Carolina DOT</td>
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<tr>
<td>Cambridge Systematics</td>
<td>INRIX</td>
<td>New York City DOT</td>
<td>Southwestern Pennsylvania Commission</td>
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<tr>
<td>City of Atlanta, GA</td>
<td>Iteris</td>
<td>New York State DOT</td>
<td>Tennessee DOT</td>
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<tr>
<td>Collier County, FL</td>
<td>Manatee County</td>
<td>New York State Thruway Authority</td>
<td>TRANSCOM</td>
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<td>Central Shenandoah Planning District Commission, VA</td>
<td>Manatee County Public Works Dept</td>
<td>NJTPA</td>
<td>UMD CATT Lab</td>
</tr>
<tr>
<td>DAD N ASSOCIATES LLC</td>
<td>Maricopa Association of Governments, AZ</td>
<td>North Carolina DOT (VHB)</td>
<td>University of South Florida/CUTR</td>
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<tr>
<td>Durham-Chapel Hill-Carrboro MPO, NC</td>
<td>Maryland DOT- SHA</td>
<td>Northern Virginia Transportation Authority</td>
<td>University of Virginia</td>
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<tr>
<td>Dover/Kent County MPO, DE</td>
<td>Maryland Transportation Authority &amp; Police</td>
<td>NREL</td>
<td>Virginia DOT</td>
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<td>DVRPC</td>
<td>Massachusetts DOT</td>
<td>Pennsylvania DOT (Gannett Fleming)</td>
<td>Wayne State University</td>
</tr>
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<td>FHWA</td>
<td>MetroPlan Orlando, FL</td>
<td>Prince George’s County Office of Emergency Management, MD</td>
<td>Rhode Island DOT</td>
</tr>
<tr>
<td>Florida International University</td>
<td>Missouri DOT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Welcome

<table>
<thead>
<tr>
<th>Session</th>
<th>Presenter/Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome / Introductions</td>
<td>Jesse Buerk, DVRPC &amp; User Group Co-chair</td>
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<td>Probe Validation Findings from 2018</td>
<td>Zach Vander Laan, UMD CATT</td>
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<tr>
<td>Dynamic Video Wall and RITIS for Improved Operational Awareness</td>
<td>Daniel Smith, Florida DOT</td>
</tr>
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<td>Using RITIS in Implementation of Arterial Performance Measures</td>
<td>Elio Espino&lt;br&gt;Florida DOT (A&amp;P Consulting Transportation Engineers)</td>
</tr>
<tr>
<td>Working Group Updates</td>
<td>Mark Franz, PhD, UMD CATT Laboratory</td>
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<tr>
<td>Update on the EDC 4 TIM Dashboards</td>
<td>Michael Pack, UMD CATT Laboratory</td>
</tr>
<tr>
<td>RITIS and PDA Suite Features – What’s New &amp; What’s Coming</td>
<td>Michael Pack, UMD CATT Laboratory</td>
</tr>
<tr>
<td>Agency Input Session – questions, comments.....</td>
<td>All</td>
</tr>
<tr>
<td>Wrap Up</td>
<td>Denise Markow, PE, I-95 Corridor Coalition</td>
</tr>
</tbody>
</table>
Introductions

Denise Markow, PE  
I-95 Corridor Coalition  
Director

Zach Vander Laan  
UMD CATT  
Faculty Research Assistant

Dan Smith, PMP  
Florida DOT  
ITS Operations Manager  
RTMC District 4

Elio Espino, PhD, PE  
Florida DOT  
(A&P Consulting  
Transportation Engineers)  
Senior Project Manager

Mark Franz, PhD  
UMD CATT Lab  
Lead Transportation Analyst

Michael Pack  
UMD CATT Lab  
Director
Coalition Update

Denise Markow, PE, I-95 Corridor Coalition
TSMO Director
Coalition Update – Recent & Upcoming Events

RECENT

✓ CAV Webinar: Member State Roadmaps & CMM – Nov 14, 2019
✓ Delaware Valley Highway Operations Peer Exchange – Practices in Heavy Towing – Nov 29, 2018
✓ Private Sector Origin-Destination Data TSMO Applications Webinar – Dec 6, 2018

UPCOMING

✓ I-95 CC Strategic Planning Sessions for Intermodal & TSMO (by invitation) – March 6, 2019
✓ Summit on Traveler Information Strategies during Emergency Operations – March 7, 2019
✓ UAS Programs - Agency Presentations from Massachusetts & Delaware – March 21, 2019
✓ Drone Peer Exchange (NE Highway Operations) - UAS – I have one . . . now what do I use it for? – April 11, 2019
In the spotlight...

Probe Validation Findings from 2018

Zach Vander Laan
UMD CATT
Faculty Research Assistant
Vehicle Probe Project (VPP):

➢ Provides I-95 Corridor Coalition members with reliable travel time and speed data across roadways without needing sensors
➢ The basis for travel time data in the PDA suite

Phase 1 (2008-2014)
• Single vendor: INRIX
• Data subject to regular validation by University of Maryland

Phase 2 (2014-present)
• “Traffic Probe data marketplace”
• 3 highly qualified vendors selected: HERE, INRIX, TomTom
• Member agencies can select vendor that best meets needs
• All vendors’ data regularly validated by University of Maryland

Coverage statistics
• 7 states with full coverage (“all-in”), 1 with partial coverage
• Over 9k freeways miles, 79k arterial miles

“The use of the marketplace results in a savings of 55 - 62% per lane mile from free market pricing” depending on vendor.
Main idea

- Collect ground truth speed data and use it evaluate VPP speeds reported in PDA suite
- Produce regular data quality reports to document performance
  - VPPI: 40+ reports
  - VPPII: 18 reports

How are ground truth speeds obtained?

- Deploy Bluetooth / Wi-Fi sensors along road segments
- Re-identify vehicles traveling along road at multiple locations to obtain travel time (speed) records
- Construct 95% confidence interval (CI) for ground truth speeds over 5-minute intervals
Major Steps in the Validation Process

1. **Select study area & get necessary approval**
2. **Deployment Planning**
   - TrafficCast sets out sensors & collects data
   - Data is sent to UMD for processing
   - Probe Vendors provide data to UMD
3. **Re-id Data Collection**
   - Re-id Data Processing
4. **Probe Data Processing**
5. **Report Production**
6. **UMD publishes the final report**

TrafficCast sets out sensors & collects data

Data is sent to UMD for processing

Probe Vendors provide data to UMD

UMD publishes the final report
- Bluetooth / Wi-Fi ground truth observations
- Vendor
- Ground truth mean and confidence interval

Error metrics computed by comparing ground truth to vendor data for each 5-min period

Vendor data captures slowdown event
2018 Validation Reports

<table>
<thead>
<tr>
<th>State</th>
<th>Route</th>
<th>Road Type</th>
<th>Comments</th>
<th>Report Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Georgia</td>
<td>I-75</td>
<td>Freeway</td>
<td></td>
<td>February</td>
</tr>
<tr>
<td>New Jersey</td>
<td>US 1/ US 9</td>
<td>Arterial</td>
<td></td>
<td>April</td>
</tr>
<tr>
<td>Maryland</td>
<td>US 40</td>
<td>Arterial</td>
<td>During signal re-timing</td>
<td>June</td>
</tr>
<tr>
<td>North Carolina</td>
<td>NC 55</td>
<td>Arterial</td>
<td>Parallel corridor analysis</td>
<td>September</td>
</tr>
</tbody>
</table>

- Focus on arterials (more challenging than freeways)
- Consistent, strong performance from all three vendors (INRIX, HERE, TomTom)
- Work with states to choose locations and times where data can serve multiple purposes – e.g. signal re-timing, parallel corridor study, freight routes, holiday travel

* Reports can be found under the Data Validation tab at [https://i95coalition.org/projects/vehicle-probe-project/](https://i95coalition.org/projects/vehicle-probe-project/)
### 2019 Planned Validation Reports

<table>
<thead>
<tr>
<th>State</th>
<th>Route</th>
<th>Road Type</th>
<th>Comments</th>
<th>Estimated Report Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Georgia</td>
<td>SR-21 / 80</td>
<td>Arterial</td>
<td>Important freight routes near port</td>
<td>February</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>US-22</td>
<td>Arterial</td>
<td>Holiday travel</td>
<td>April</td>
</tr>
<tr>
<td>New Jersey</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Arterial Report*</td>
<td>N/A</td>
<td>Arterial</td>
<td>N/A</td>
<td>TBD</td>
</tr>
</tbody>
</table>

- Continue to focus on arterials and work with states to find useful places to validate
- Work with vendors and states to streamline validation process
- **Arterial Validation Report***
Arterial Validation Report

Original Validation Report
• Published in 2015
• Investigated quality of INRIX probe data on arterials over a number of validations
  • AADT & Signal density “rules of thumb”

Updated Validation Report
• To be completed in 2019 instead of a standard validation
• Provide an update to the original report, tracking trends validation metrics
• Include results from additional two vendors (HERE and TomTom)

* Original arterial validation report can be found at:
Questions?

Denise Markow, I-95 Corridor Coalition
• (301) 789-9088
• dmarkow@i95coalition.org

Zach Vander Laan, University of Maryland CATT
• zvanderl@umd.edu
Dynamic Video Wall and RITIS for Improved Operational Awareness

Daniel A. Smith
FDOT
ITS Operations Manager
FDOT District 4 Fast Facts

- **Major cities:** Fort Lauderdale, Boca Raton, West Palm Beach, Fort Pierce, Hollywood
- 5,000 Square miles
- 3.6 million residents
- 52 million miles driven daily
Real Time Speed Profile

Rolling 1 minute average, updated every 20 seconds
Video Wall General Specifications

• Installed in 2016
• Barco software
• 44 Cubes
• 56’ wide, 12’ tall, 672sf
Real Time Performance Measures
Real Time Event Monitoring
Use of RITIS on the Video Wall
Video Wall Hurricane Mode
Internet Video Distribution

HDMI 16 Channel Encoder

Wowza Media Server

Internet

Video Distribution Clients
(MPO)

BARCO Video Distribution Server
Questions?

Daniel Smith
Florida DOT
Daniel.Smith@dot.state.fl.us
What type of information are you showing on your video wall?

(you may select more than one response)

___ CCTV
___ Signal Timing Systems
___ Speed Maps
___ Media
___ Other
___ I am not sure
___ Our agency does not have a video wall
In the spotlight...

USING RITIS IN IMPLEMENTATION OF ARTERIAL PERFORMANCE MEASURES

Elio Espino, P.E., PhD
Traffic Engineering and Transportation Planning Department Head
A&P Consulting Transportation Engineers
FDOT District IV & VI Consultant
BACKGROUND/PREVIOUS PROJECTS

• Began using RITIS in 2015
• First used for Districtwide Signal Re-timing Project
• Monitoring of Corridors for Travel Time Reliability (Buffer/Planning Time)
• Before/After Comparisons w/Development of Dashboards
• MOT Support/Detour Evaluations
ARTERIAL PERFORMANCE – SIGNAL RETIMING

• Evaluation of TOD Plans along a Signal Section
  • Before & After Comparison
    • Reduction in Travel Time
    • Reduction in Peak Period Duration

Time of Day Plan Before

Time of Day Plan After

Additional TOD plan to accommodate post peak recovery

10 minutes travel time Improvement NB
  • NEW TOD Plan
    Plan 4 (7:30-9:30AM)
    Plan 5 (9:30-11:00)
  • Offset Optimization
    SW 17th Ave  SW 22nd Ave
    SW 27th Ave  SW 40th SW
    SW 37th Ave
**ARTERIAL PERFORMANCE – SIGNAL RETIMING**

- Dashboards with congestion and speed heat maps
- Identification of Bottlenecks along arterial

---

**Active Monitoring**

**Florida Analytics Tools**

![Image](Image)

**Speed and Travel Time Table**

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Average Speed Current</th>
<th>Average Speed Historic</th>
<th>Current Travel Time</th>
<th>Historic Travel Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>US-1 Northbound between Ludlam Rd...</td>
<td>32 mph</td>
<td>30 mph</td>
<td>03 min</td>
<td>02 min</td>
</tr>
<tr>
<td>US-1 Southbound between 17th Ave ...</td>
<td>34 mph</td>
<td>31 mph</td>
<td>05 min</td>
<td>02 min</td>
</tr>
<tr>
<td>US-1 Northbound between SR-99/Rosemary St</td>
<td>34 mph</td>
<td>31 mph</td>
<td>05 min</td>
<td>02 min</td>
</tr>
<tr>
<td>US-1 Northbound between SR-959/Rey Dr ...</td>
<td>32 mph</td>
<td>30 mph</td>
<td>03 min</td>
<td>02 min</td>
</tr>
<tr>
<td>US-1 Northbound between Keyes Dr/1...</td>
<td>32 mph</td>
<td>30 mph</td>
<td>03 min</td>
<td>02 min</td>
</tr>
<tr>
<td>US-1 Northbound between SR-990/Killearn ...</td>
<td>34 mph</td>
<td>31 mph</td>
<td>05 min</td>
<td>02 min</td>
</tr>
<tr>
<td>US-1 Southbound between SR-992/Cooper ...</td>
<td>34 mph</td>
<td>31 mph</td>
<td>05 min</td>
<td>02 min</td>
</tr>
<tr>
<td>US-1 Northbound between Eureka Dr/...</td>
<td>32 mph</td>
<td>30 mph</td>
<td>03 min</td>
<td>02 min</td>
</tr>
</tbody>
</table>

---

**Speeds of less than 10 mph for over an hour in the post AM peak period**

**Speeds during same time period in after conditions ranged between 13 – 23 mph**
Congestion fell significantly on both, she said, adding that the flow-adjustable signals cut drive times regardless of whether school was in session or not.

On Miami Gardens Drive between Northwest 67th and 87th avenues, travel times improved 5.3% when school was in and 8.4% when out.

Improvements were even greater along the other corridor, US 1 from Southwest 16th Avenue to Southwest 98th Street, where congestion decreased 11.5% in school hours and 7.8% at other times.

Transportation personnel got those totals using the Regional Integrated Transportation Information System, developed and run by the Center for Advanced Transportation Technology Laboratory at the University of Maryland.

In 2012, the Florida Department of Transportation contracted with the university to use that system, which it describes as “an automated data sharing, dissemination and archiving system.”

“We want to use [these findings] as a benchmark [and] couple that with field observations to determine if further refinements [are needed],” Ms. Bravo said. “We want to continue to improve it to maximize [its benefits].

**Arterial Performance – Maintenance of Traffic (MOT)**

- MOT Support & Work Zone Traffic Monitoring
  - TCP/MOT Review & Analysis
  - Temporary Signal Operation and Timing Development
  - Alternate Route/Detour Route Signal Timing Modification
  - MOT Monitoring – Videos and RITIS Data
**Arterial Performance – Maintenance of Traffic (MOT)**

- Temporary Signalization/ Coordination along Detour Route Identification & Evaluation
- Monitoring/ Impacts due to capacity reduction and lane shifts
- Support for Public Information Officer (PIO)/Citizen Complaints

*2017 vs 2018 Travel Times During Lane Shift: NB Direction along SW 117 Ave from SW 120 St to SW 104 St*

1st Full Week of MOT

Baseline
Looking Forward: Arterial Signal System Management

Arterial Performance Measures

- Evaluate performance of all system users and establishes user priorities
- Monitor and assess the effectiveness of a signal timing plan
- Assess and evaluate requests for signal timing changes
LOOKING FORWARD: ARTERIAL SEGMENTATION

- Proportion of turning vehicles
- Corridor directionality
- Peaking characteristics
- Lane usage
- Weekday and weekend characteristics
- Typical and atypical trends (i.e., incident, crash, construction, game, concert, shift change, convention)
- Origin-destinations.
LOOKING FORWARD: ARTERIAL PERFORMANCE MEASURES

Travel Time % Change / Weather Conditions

Incidents/Event Log, Construction Activity, Detection/Communication Failures, Complaints

Daily Dashboards

February 14, 2019
Looking Forward: Arterial Performance Measures

Performance Measure Reporting Dashboard: Corridor Signal System

Corridor Location, SR 5/US 1: Kendall Drive to Le Jeune Road, 3.9 miles in length and 18 Traffic Signals

Coordinated Section(s):
North Port/US 1

Section Tag:
5US 1: Kendall Drive to Le Jeune Road

Section Name:
US 1 - Miami Springs

Functional Classification:
Urban Freeway

City:
Miami Springs

Key Features:
22 Signals On Corridor, 4 Signals OffCorridor

Operational Objectives:
Vehicle Speed

Vehicle Speed:
Urban Freeway

Pedestrians/Bicyclists:
Safety

Vehicle Mobility:
Capacity Allocation

Vehicle Mobility:
Corridor Progression

Pedestrian/Bicyclists:
Safety & Mobility

Performance Measures:
Travel Time Through Corridor

Travel Time Reliability:
Travel Time Index & Planning Time Index

Travel Time Reliability:

- Northbound
- Southbound

Throughput Volumes:

- Vehicles Per Hour
- AM Peak: 6:00 am-10:00 am
- PM Peak: 4:00 pm-7:00 pm

Delay Cost Comparison:

Monitoring of SR 5/US 1

Delay Costs:
- $39,000

Change in Travel Time per TOD Plan Period

Travel Time Reliability Measures

Historical Travel Time Information, AM & PM Peak Period Weekdays

Northbound AM Peak, 6:30 am - 10:00 am

Travel Time Reliability

Travel Time Index

Before Condition, Feb: 2.11
After Condition, April: 1.53

Planning Time Index

Before Condition, Feb: 3.04
After Condition, April: 1.47

Travel Time Reliability Measures

Throughput Volumes

- AM Peak: 6:00 am-10:00 am
- PM Peak: 4:00 pm-7:00 pm

Delay Cost Comparison

Monitoring of SR 5/US 1

Delay Costs

- $39,000
LOOKING FORWARD: NEW APPLICATIONS

• Accessing more granular corridor & intersection level data allowing for specific signal to signal link segmentation

• Integrating signal data into RITIS for study corridors/networks

• Assessing specific movement/phase operational measures at signalized intersections

• Evaluation of Special Operations
  • Expressway/Arterial Interchanges & Ramp Terminals
  • DDI Interchanges
  • Transit Corridors/ TSP
THANK YOU

QUESTIONS?

ELIO R. ESPINO, PHD, P.E.

SR. PROJECT MANAGER, A&P CONSULTING TRANSPORTATION ENGINEERS

EEspino@APCTE.com
Thank You

Questions?

Elio R. Espino, PhD, P.E.
Sr. Project Manager, A&P Consulting Transportation Engineers

EEspino@APCTe.com
RITIS APPLICATIONS FOR

1) MDOT US-50 BEACH CONGESTION
2) WASHINGTON D.C. CITYWIDE SIGNAL OPTIMIZATION & SPECIAL EVENT PREDICTION, MITIGATION, & MONITORING

Sabra & Associates
Working Groups Updates

Mark Franz, PhD
UMD CATT Laboratory
Lead Transportation Analyst

mfranz1@umd.edu
Upcoming Working Groups Meetings

- O-D/Trajectory Analytics – February 13\textsuperscript{th}
- Signal Performance Measures – February 26\textsuperscript{th}
- Enhanced Work Zone Analytics – February 28\textsuperscript{th}

New groups starting soon!

- Transit Analytics Working Group
- TDADS (Transportation Disruption and Disaster Statistics) Steering Committee
What’s new & what’s coming

Michael Pack
UMD CATT Laboratory
Director
RITIS Recent Deployments

• Every Day Counts – Event Query Tool
• Update Radio Player Feeds with new API
  • Fixed a temporary bug in IE preventing radio feeds from playing
  • Send us any missing feeds
• CCTV player shows “static” images along-side streaming video in the video wall
• Updated CCTV Icons to denote which are static vs. which are streaming feeds
• Illinois Incident Data Integration
• Missouri Incident Data Integration
• Significant Trajectory (O-D) Analytics Improvements
Bug Fixes

• MAP-21 side-of-road color swap

• UDC saves preferred volume data provider from prior sessions

• Fixed a crash in Bottleneck Ranking when bottlenecks are found that do not have associated geometry data.

• Performance Summaries results will not show duplicate results for requests that contain more than one set of times of days.

• MP4s exported from Trend Map can now be played in a wider range of video players.

• UDC widgets automatically refresh at the beginning of each month.
Probe Data Analytics Recent Deployments

New Features
• INRIX XD (finer granularity in segment lengths)
  • in Congestion Scan
  • in Performance Summaries
  • in Performance Charts

• Two XD Signalized Arterial Analytics Tools Deployed
  • Corridor Ranking Tool
  • Travel Time Delta Ranking

• New Dashboard Widgets Deployed
  • User Delay Cost
  • Ranked Bottleneck Comparison

• Region Explorer Modernization & Enhancements (multiple)
• Major Updates to Bottleneck Ranking Algorithms
• NPMRDS multi-year conflation support
• Finer Temporal Granularity (multiple locations)
Multiple XD Enhancements

Performance Charts

Performance Charts are bar, line, plot, and candlestick charts representing aggregate conditions across stretches of road. The charts can be grouped by time period or by road directionality.

1. Select roads

XD segments from INRIX

Road Region Segment codes Map Saved

Search in Pennsylvania...

Your selected roads

- US-19 bearing north
  - Interchanges: 91
    - Entire
  - 194 miles of roadway selected (449 XD codes)
  - Segments from INRIX

Report a problem with this road
XD in Performance Charts & Summaries
XD in Congestion Scan

XD Segmentation

TMC Segmentation

I-81 South in PA
XD Travel Time Comparison Tool
XD Delta Ranking Tool

### Travel Time Delta Ranking

<table>
<thead>
<tr>
<th>Rank</th>
<th>Map</th>
<th>Corridor Description</th>
<th>Before: September 2018</th>
<th>After: December 2018</th>
<th>Median Before</th>
<th>Median After</th>
<th>Δ Median</th>
<th>IQR Before</th>
<th>IQR After</th>
<th>Δ IQR</th>
<th>Incidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>CENTRE AV/WWC: E. 30th Street and bumper Boulevard</td>
<td>East</td>
<td>5.1%</td>
<td>77.2%</td>
<td>130.4%</td>
<td>5.1</td>
<td>20.0%</td>
<td>27.0%</td>
<td>7.0%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>CENTRE AV/WWC: W. 30th Street and bumper Boulevard</td>
<td>East</td>
<td>5.1%</td>
<td>193.3%</td>
<td>193.2%</td>
<td>0.0</td>
<td>21.3%</td>
<td>24.0%</td>
<td>3.0%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>FORER AV/EAST: E. 30th Street and bumper Boulevard</td>
<td>West</td>
<td>3.9%</td>
<td>183.6%</td>
<td>144.1%</td>
<td>4.5</td>
<td>21.1%</td>
<td>33.0%</td>
<td>12.0%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>FORER AV/NORTH: E. 30th Street and bumper Boulevard</td>
<td>West</td>
<td>8.0%</td>
<td>146.4%</td>
<td>147.0%</td>
<td>0.6</td>
<td>15.3%</td>
<td>23.0%</td>
<td>7.0%</td>
<td></td>
</tr>
</tbody>
</table>

### Display Options

- **Trend Indicator**
  - Trending Better
  - Trending Worse
  - Mixed Results

### Map

- Interactive map showing travel time differences between before and after dates.

### Graph

- Line graph showing trend in travel time as a % of speed limit and IQR as a % of speed limit travel time.

- Key indicators for improving traffic flow and congestion management.
Bottleneck Ranking Algorithm & HW Improvements

- Road Ordering Methodology
- Handling of Missing Data (small gaps for TMC-loss)
- Handling of Missing Data (larger gaps)

### Raw data

<table>
<thead>
<tr>
<th>Time Interval</th>
<th>TMC-A</th>
<th>TMC-B</th>
<th>TMC-C</th>
<th>...</th>
<th>TMC-Z</th>
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### Processed data

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<th>TMC-C</th>
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Region Explorer Modernization
# New Dashboard Widgets

## Ranked Bottlenecks Comparison

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<th>2018</th>
<th>Current Month</th>
<th>Location</th>
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Using INRIX data Updated Jun 13, 2018
NPMRDS-HPMS Conflation Updates

- https://npmrds.ritis.org/analytics/shapefiles
- 2018 NPMRDS Network ⇔ 2016 HPMS/NHS
- 2017 NPMRDS Network ⇔ 2015 HPMS/NHS

NPMRDS Shapefiles

### NPMRDS INRIX Shapefiles
For use with NPMRDS INRIX data

<table>
<thead>
<tr>
<th>State</th>
<th>Conf. year</th>
<th>2017 (January 1, 2017 - December 31, 2017)</th>
<th>2018 (January 1, 2018 - present)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>Download (3.8MB)</td>
<td>Download (3.5MB)</td>
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</tr>
<tr>
<td>Alaska</td>
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<td>Download (1.7MB)</td>
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</tr>
<tr>
<td>Arizona</td>
<td>Download (2.3MB)</td>
<td>Download (2.2MB)</td>
<td></td>
</tr>
</tbody>
</table>
NPMRDS Conflation Updates

*New! The ability to switch between 2017 and 2018 conflations on the Massive Data Downloader*
NPMRDS Conflation Support Continued

Compare NPMRDS NHS roads from different conflations.

Note: Let us know if you see any issues: npmrds@ritis.org.
NPMRDS Conflation Updates

See coverage percentages for 2017 and 2018.
In 2011, INRIX donated a national volume dataset to all Coalition probe data purchasing members. INRIX worked with Texas A&M to create this data set.

This was a one-time donation

Most agencies have been using this data set for User Delay Cost (UDC) calcs

Except for one or two agencies, most are NOT providing UMD with updated volumes every year.

Why does this matter?

- Volumes change over time
- TMCs are retired
- New TMCs are added

How big of a problem is this?
As spatial coverage increases significantly, volume coverage is not being updated by all agencies.
Important Update on Volume Data (slide 3)

• What can be done about this?

1. You can provide us your own volume (preferably annually) in the format described here: https://pda.ritis.org(suite/help/#udc-analysis/preferred-volume-format

2. You could have us replace old volume data with that from the NPMRDS/HPMS conflation exercise (though that won’t fix EVERY problem, and will only improve the NHS)

3. The Coalition is working with researchers UMD and NREL on a volume estimation project to produce higher quality volume estimation beyond that which conflation can produce. Doing this for your state would require funding and coordination as it is a data intensive effort.

4. You can work with your probe data provider to get new volumes (they will likely reach out to UMD or Texas A&M to get an updated volume set). This will cost money.
Work in Progress

• Additional EDC Work
• Bottleneck Ranking Modernization (Flash migration)
• Detector Analytics Modernization (Flash migration)
• Dashboard Widgets
  • Reliability
  • Incidents & Event Comparisons
• MAP-21 / NPMRDS Enhancements
New PM3 Analysis Options being Added

- Deep-dive Analytics users have been brainstorming new features/functionality including:
  - Mixing peak periods per UZA
  - Sub-UZA selections (useful for multi-state UZAs)
  - Built-in Sensitivity Analysis
  - Non-standard reports
  - MAP-21/PM3 reporting on non-NHS segments
  - Other reporting/visualization tools to aid in target setting and long-term planning
  - Etc…

NEW PM3 ANALYSIS OPTIONS

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  - Mixing peak periods per UZA
  - Sub-UZA selections (useful for multi-state UZAs)
  - Built-in Sensitivity Analysis
  - Non-standard reports
  - MAP-21/PM3 reporting on non-NHS segments
  - Other reporting/visualization tools to aid in target setting and long-term planning
  - Etc…
Your Input is Needed!

- All features and functionality are driven by state/mpo users.
- You are welcome to join any of our User Groups / Working Groups / Listening Sessions to brainstorm/define these new features and functionality.
- You can also type your comments to us today either in the chat box below, or with an email to support@ritis.org

“What’s on your mind?”

“We’re here to help!”
Agency Input Session

“What’s on your mind?”
Wrap Up

Denise Markow, PE, I-95 Corridor Coalition
TSMO Director
Visit the I-95 Corridor Coalition YouTube Channel
https://www.youtube.com/channel/UC4ySXvd1ht4KE4dR1Az7geA
Questions?

Please contact:

I-95 Corridor Coalition – Denise Markow 301.789.9088 or dmarkow@i95coalition.org

RITIS or PDA Suite – Michael Pack at PackML@umd.edu

RITIS Technical Support – support@ritis.org

PDA Suite Technical Support – pda-support@ritis.org

Logistics – Joanna Reagle 610.228.0760 or jreagle@kmjinc.com
Thank you!