Webinar & Audio Information

• The call-in phone number is: 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 xxxxxx 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
Welcome & Introductions

Matt Glasser, PE, Georgia DOT
User Group Co-chair
### Agenda

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Introductions

Greta Ryan
Richmond Regional Planning Organization (MPO)
Senior Planner

Mark Franz, PhD
UMD CATT Lab
Lead Transportation Analyst

Michael Pack
UMD CATT Lab
Director
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I-95 Corridor Coalition › RITIS - PDA Suite User Group
Coalition Update

Denise Markow, PE, I-95 Corridor Coalition
TSMO Director
Coalition Update

RECENT
✓ Webinar on Phase II: Ubiquitous Traffic Volume from Probe Data – November 13, 2019
✓ Waze Product Roadmap Working Group Meeting – November 14, 2019
✓ TDADS Congestion Pie Chart Web Meeting – November 21, 2019
✓ New England Exchange on Heavy Towing – December 4, 2019
✓ Emerging Technologies in Transportation Management Webinar – January 30, 2020

UPCOMING
✓ TSMO/CAV/Freight Strategic Planning Summit – March 18, 2020
✓ New Technologies providing Traveler Information Meeting – March 19, 2020
✓ Southern HOGs Exchange on Hurricane Evacuation & Plans – April 29-30, 2020
✓ RITIS-PDA Suite User Group Web Meeting – May 7, 2020
Optimal Traffic Monitoring – Newest Deliverable

Conventional Sensors
- Still needed and viable, and will be for the foreseeable future.
- Justified on critical portions of the roadway where ownership and direct control of the data stream trump the value proposition of probe data.
- Needed to continue to sample across a broad array of road classes and types as ground-truth sources for spot speed and counts.
- Data are owned by the agency and can be shared and used without being subject to licensing.

Commercial Probe Data
- Useful for any state DOT and sub-jurisdictions.
- High value proposition, scalability and usefulness for a variety of applications from planning to operations.
- Analytics options are robust and growing, and supported by a number of industry players.
- Key personnel within the DOT should be well-versed in its capabilities and limitations.
- Useful Applications: Travel Time on Signs, Signal Performance Studies, Smart Work Zones

Re-identification Data
- Bluetooth and WiFi
- Should be viewed as travel time sensors (as opposed to speed sensors). Such data is needed for travel time or O-D studies.
- Re-identification is typically used as ground truth for validating accuracy of sources of travel time data (such as commercial probe data).
- Useful Applications: Travel Time on Signs, Signal Performance Studies, Origin-Destination Studies, Smart Work Zones

HRCD (High-Resolution Controller Data)
- HRCD and the corresponding Automated Traffic Signal Performance Measures (ATSPMs) are in the domain of traffic signal engineers.
- Signal upgrades should include consideration for acquisition and processing of HRCD and ATSPMs.
- Useful Applications: Signal Performance Studies (ATSPMs)

Emerging, Leading Edge Technologies

Trajectory Data
- Waypoint data every 1 second
- OD studies, arterial analysis, freight studies
- Market-ready by 2021

Estimated Volumes from Probe Data
- AADTs, turning movements, vehicle/hour
- I-95CC Validation
- Market-ready by 2021
VPP III – Coming Summer 2021

VPP III

- Current VPP expires in 2022 – Coalition goal is to have VPPIII operational by July 1, 2021
- Consisting of Data and Ancillary Products
- Validation Analyses
- Data Sharing and Use Agreements

VPP III Next Steps

Step 1: Initial Vendor Meetings have been conducted
Step 2: Technical Requirements are under review
Step 3: Outreach to states to staff the Steering Committee
Integrating RITIS PDA Suite analytics into Esri's ArcGIS Platform

Greta Ryan

Senior Planner, Richmond Regional Transportation Planning Organization (MPO)
Advances in the Congestion Management Process

- INRIX data 2010
- RITIS Probe Data Analytics 2014
- ArcGIS StoryMap 2019
INRIX data 2010

- Large dataset difficult to work with in MS Access and Excel
- Analyzed one month of data because of the file size
- Calculated average AM and PM Travel Time Index
2011 CMP Examples
RITIS PDA Suite 2014

Analysis

• Trend Maps
• Performance Summaries
• Bottleneck Rankings

Metrics

• Travel Time Index
• Speed
• Congestion
## Additional Calculations

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2016 CMP Examples

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Richmond Regional Transportation Planning Organization
Esri’s ArcGIS StoryMaps are

- An easy to use web-based sharing application
- Template based, no programming required
- Accepted for use by PlanRVA staff
CMP StoryMap

FY20 Congestion Management Process
Findings and Next Steps

• People like interacting with the online maps

• The RRTPPO policy board is asking questions about congestion and further analysis using the PDA suite

• There is interest in using INRIX XD data in future analysis to uncover hidden congestion

• StoryMaps have released new features which will be incorporated into the next CMP
Questions

Greta Ryan
Senior Planner
gryan@PlanRVA.org

link to the CMP StoryMap
FY20 Congestion Management Process
In the spotlight...

Transportation Disruption and Disaster Statistics (TDADS) Project Update

Mark Franz

UMD CATT Lab, Lead Transportation Analyst
1. Overview of project motivation and objectives
2. Initial results for MD and CO
3. Results from multi-factor causes of disruption/congestion analysis
4. Next steps
Moving Past Old Assumptions “The Pie Chart”

- National statistic
- 14+ years old
- Largely modeled
- In a nutshell... outdated

![Pie Chart]

- Bottlenecks: 40%
- Incidents: 25%
- Work Zones: 10%
- Bad Weather: 15%
- Special Events: 5%
- Poor Signal Timing: 5%
Transportation Disruption & Disaster Statistics (TDADS) - Project Objectives

1. Upgrade the ancient “pie chart”
   ✓ Across entire U.S.
   ✓ Using the nation’s best data

2. Create interactive, easily-accessible tool in the hands of decision makers

3. Practitioner Steering Committee guide ALL work

4. Using entire National Highway System (NHS) from August 2018 – July 2019

“We need to build a new tool to determine causes of congestion”
# TDADS Data Sources and Terminology

<table>
<thead>
<tr>
<th>Recommended Terminology</th>
<th>Data Sources</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disruption</td>
<td>• 1-minute probe data</td>
<td>A sustained interruption in the flow of traffic that results in travel delay.</td>
</tr>
<tr>
<td>Recurrent Disruption</td>
<td>• 1-minute probe data</td>
<td>A predictable and regular pattern of interruption in traffic flow that results in travel delay.</td>
</tr>
<tr>
<td>Incidents</td>
<td>• DOT data&lt;br&gt;• FARS&lt;br&gt;• Waze (national archiving since August 2018)&lt;br&gt;• CAD</td>
<td>Interruption in traffic flow caused by an unplanned in-road or roadside obstruction that results in travel delay.</td>
</tr>
<tr>
<td>Weather</td>
<td>• NOAA Radar</td>
<td>Interruption in traffic flow caused by inclement weather conditions.</td>
</tr>
<tr>
<td>Work Zones</td>
<td>• State or Agency provided&lt;br&gt;• Waze</td>
<td>Interruption in traffic flow caused by a planned construction or maintenance project/activity.</td>
</tr>
<tr>
<td>Holiday Travel</td>
<td>• Holidays &amp; Travel Days</td>
<td>Interruption in traffic flow caused by a scheduled occasion.</td>
</tr>
<tr>
<td>Signals Timing</td>
<td>• DOT asset management records/maps&lt;br&gt;• OSM Traffic Signal Database</td>
<td>Interruption in traffic flow caused by improperly timed traffic signals.</td>
</tr>
<tr>
<td>Multiple Causes</td>
<td>• Multiple</td>
<td>Disruption/congestion event caused by more than 1 factor</td>
</tr>
<tr>
<td>Unclassified Disruption</td>
<td>• 1-minute probe data</td>
<td>Interruption in traffic flow with no discernable cause.</td>
</tr>
</tbody>
</table>
High Level Approach to Quantifying Disruptions

1. Detect Disruption
   - Is it Recurrent Disruption?
     - Yes: Is the Disruption Pattern Abnormal?
       - Yes: Spatial Correlation of Potential Causes of Disruption
         - Incidents
         - Weather
         - Work Zones
         - Special Events
         - Signal Timing
       - No: Determine Cause(s) of the Disruption
       - No: Account for Multiple Causes and Unknown Causes
     - No: Detect Disruption again

2. Spatial Correlation of Potential Causes of Disruption
   - Yes: Determine Cause(s) of the Disruption
   - No: Account for Multiple Causes and Unknown Causes

3. Determine Cause(s) of the Disruption
   - Yes: Account for Multiple Causes and Unknown Causes
   - No: Account for Multiple Causes and Unknown Causes

4. Account for Multiple Causes and Unknown Causes
   - Yes: Quantify User Hours of Delay for Disruption by Cause
   - No: Account for Multiple Causes and Unknown Causes
Preliminary Results: Maryland NHS – Aug 2018 – July 2019

Cause of Disruption for MD NHS Bottlenecks by UDC

Total UDC: $1,337,061,674

Disruption Cause:
- Incidents: 10.5%
- Weather: 1.5%
- Work Zones: 0.7%
- Holiday Travel: 0.5%
- Signals: 19.2%
- Unclassified Disruption: 5.2%
- Multiple Causes: 29.1%
- Recurrent Disruption: 33.2%

I-95 Corridor Coalition › RITIS - PDA Suite User Group
Preliminary Results: Colorado NHS – Aug 2018 – July 2019

Cause of Disruption for CO NHS Bottlenecks by UDC

Total UDC: $773,357,898

Disruption Cause
- Incidents: $8,700,000 (8.7%)
- Weather: $220,000,000 (2.2%)
- Work Zones: $60,000,000 (0.6%)
- Holiday Travel: $10,000,000 (1.0%)
- Signals: $251,000,000 (25.1%)
- Unclassified Disruption: $23,600,000 (23.6%)
- Multiple Causes: $96,000,000 (9.6%)
- Recurrent Disruption: $293,000,000 (29.3%)
Comparison to the 2004 National Study

Note:
1. The 2004 categories in the chart above were renamed to match the categories in the MD and CO charts.
2. The MD and CO results include multiple causes and unclassified disruption, the 2004 study did not.
Identifying Top Multi-Factor Causes

Months to Analyze
- February (Winter)
- May (Spring)
- August (Summer)
- October (Fall)

Arizona
Colorado
Maryland
Virginia
Michigan
Ohio
Pennsylvania
Multi-Factor Causes Results

- **Goal:** Discover the top 4 multi-factor causes
- **7 states were analyzed**
- **Here are the number of times that the specific multi-factor combo was in the top 4 ranked combos across the 7 states**

<table>
<thead>
<tr>
<th>Cause Combinations</th>
<th>Occurrence in Top 4 for each state</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incident &amp; Weather</td>
<td>7 of 7</td>
</tr>
<tr>
<td>Signal &amp; Weather</td>
<td>6 of 7</td>
</tr>
<tr>
<td>Incident &amp; Workzone</td>
<td>5 of 7</td>
</tr>
<tr>
<td>Recurrent &amp; Incident</td>
<td>4 of 7</td>
</tr>
<tr>
<td>Signal &amp; Holiday Travel</td>
<td>3 of 7</td>
</tr>
<tr>
<td>Incident &amp; Workzone &amp; Weather</td>
<td>3 of 7</td>
</tr>
</tbody>
</table>
Next Steps

1. Finalize interface development
2. Acquire and analyze full data set
3. Ingest data into online interface
Poll Question #1 – Using the Data Tool

How would you envision your agency using this data tool? (check all that apply)

___ Congestion Management
___ Work Zone Management
___ Significant Event Planning
___ Traffic Studies
___ Other
What’s new & what’s coming

Michael Pack
UMD CATT Laboratory
Director
General Updates

• Improved weather tile rendering at high zoom levels

• Significant speed/responsiveness to public transit layer (bus AVL, routes, and stops)

• Selecting ROI allows for rectangle or circle with greater precision

• Added HERE Subsegment probe data on RITIS Map

• UI Redesign being implemented
Denser Road Network Displayed at Zoom Levels
UK is live
Static CCTV images now available in TrafficView
PDA Updates

• Updated GDOT Volumes (thank you!!!!)
Providing us your volume data is important!!!

As spatial coverage increases significantly, volume coverage is not being updated by all agencies.
New Clearance Time Widget

- Compares the clearance times of different event types between the current year and the past year(s).
- Up to three different visualizations can be selected:
  - Clearance time matrix
  - Distribution chart
  - Box and whisker charts
The 65th percentile travel time is 12.8 mins slower.
Signal Analytics Enhancements

- When reports include exactly two date ranges, the map shows the Delta in TTI.

- Legend allows you to select time-of-day range to display on the map
XD Road Search

- Added alternative road names to search index to it’s easier to narrow down road searches to specific intersections
LIVE DEMO
Work in Progress

• New Detector Tools (rolling out in phases this month)
• MANY new video tutorials
• New Templates
  • Work Zone Audits
  • After Action Reviews
  • Etc.
• RITIS Re-skinning and Modern UI
• Causes of Congestion (seen earlier)
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

Matt Glasser, PE, Georgia DOT

User Group Co-chair
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