Rapid After Action Reviews with Integrated Data

2018 ITS Rural – ITS AZ

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Agenda

• What is CATT Lab?
• After Action Review: I-70 Crash
• After Action Review: Woodrow Wilson Bridge Crash
RITIS overview

1. Consolidate lots of data
2. then fuse & disseminate
3. to multiple apps for your use

RITIS Fusion & DSS

Regional Integrated Transportation Information System process
Many “Look Back” Tools Available

Safety Analysis

Congestion Analysis

Weather Analysis

Trend Analysis & MAP-21 Reporting
We get a LOT of data from agencies, but...

- Data is only useful when it is
  - easily accessible,
  - usable, and
  - understandable

To managers, planners, operations, and ITS applications...
I-70 fatality incident

> Background...

- Occurred on October 29, 2016 at around 4:30 AM
- Located on I-70 West, past Exit 80 - MD 32 Sykesville Rd
- A car hit a deer, then a tractor trailer hit the car, and jack-knifed, resulting in one fatality
- All lanes were closed in the WB direction for over 7 hrs
- It took about 11 hrs to fully clear the incident and reopen all lanes
I-70 fatality incident

Several RITIS / PDA tools were used to conduct impact analysis and provide visual content as part of an After Action Review...
I-70 fatality incident

- Incident Timeline...
  - Used to review responder response times, lane & event clearance times, and Operator notes.
  - Timeline graphics are inserted in to AARs
  - “Heat Map” is used to see trends in incident activity

**EQT**
EQT analyzes your ATMS event data for insight into event impacts on your roadway system, through auto-created tables, charts and maps.

**Timeline**
Displays how an incident is being managed by showing the relationships between responder notifications & arrival times, lane status, traffic queues, clearance times, communication logs, CCTV, and DMS.
Lane Status, Sign Messages, Speeds

- Lane Status
- Sign Messages
- Speed Readings
Events from MDOT CHART that started between September 1, 2016 and October 31, 2016
I-70 fatality incident

- Region Explorer...
  - Used to determine the choke points of traffic during the incident, and future detour points
  - Helps improve Quick Clearance practices by honing in on the effects on tertiary roadways

An interactive traffic conditions app that can be used to explore the impacts of bottlenecks and incidents along a road, in real-time, or previous point in time.
Bottleneck Locations at 12:00 PM on 10.29.2016
I-70 fatality incident

> Trend Map...

- Used it to determine the significance of the delay over the time of the incident’s duration
- Using it as a case to promote Quick Clearance practices

An animated congestion and event conditions map that dynamically displays changes over time.
I-70 fatality incident

> Congestion Scan...

- Used to view historical extent of the queue
- Queue graphics are inserted into AARs for emphasis
Comparing Oct. 29th to the prior Saturday
I-70 fatality incident

- User Delay Cost...
  - The tool we use more heavily
  - Helps put things into dollars and cents, to prove the value of our TSM&O program
  - Crucial to our program’s funding is to prove the benefit of Quick Clearance practices
  - By analyzing the cost of a long-duration incident, we can better make the case for additional or improved resources

Example: for this incident, we were able to make the case that the State Police need an adjustment to how it manages its tow list (i.e.; a company should be able to prove that it has the necessary equipment for heavy duty operations)
What’s the User Delay Cost on the following roads

Assuming an Average Value of time of:
$16.79 per hour (Passenger Vehicles)
$86.81 per hour (Commercial Vehicles)

(NOTE: User Delay is calculated any time speeds fall below free-flow)
User delay on I-70 and nearby arterials

Normal Saturday = $6k - $7k

Oct. 29th Saturday = ~$77k
Worse than Friday the day before!
I-70 fatality incident

› Takeaways...

- **Now I get it**
  - Tools provide quick access to data and show the benefits of quick clearance practices and the value of TSM&O Programs

- **It is all about justification**
  - Gives ammunition for requests for funding, positions, and equipment

- **It is not a perception, it’s a reality**
  - Tools provide data-backed conclusions for After-Action Reports
  - Assists with making cases to external (and internal) partners about improving current practices
  - Over time, we can analyze trends along individual corridors
Woodrow Wilson Bridge “Snooper Truck” Incident

• Date: Wednesday June 20, 2018
• Time of Crash: 10:45am
• Incident Duration: 12 hours
WWB “Snooper Truck" Crash Response Timeline
Woodrow Wilson Bridge Crash Impacts

Showing event impact

- The Probe Data Analytics Suite was used to produce tables and visualizations showing the impact of the crash on the bridge:

  - Trend Map
  - User Delay Cost Analysis
Woodrow Wilson Bridge “Snooper” Crash Impacts
Woodrow Wilson Bridge “Snooper” Crash AAR Report


Generated via Probe Data Analytics Suite Using INRIX speed data

<table>
<thead>
<tr>
<th>Date</th>
<th>Vehicle Hours of Delay</th>
<th>Total Cost ($)</th>
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<tr>
<td>Wed, May 9</td>
<td>31,809</td>
<td>$960,564</td>
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<tr>
<td>Wed, May 16</td>
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<td>Wed, May 23</td>
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<td>Wed, May 30</td>
<td>20,922</td>
<td>$631,794</td>
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<tr>
<td>Wed, June 6</td>
<td>33,479</td>
<td>$1,010,999</td>
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<td>Wed, June 13</td>
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<td>$1,359,735</td>
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<td>Wed, June 27</td>
<td>30,916</td>
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</tbody>
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For Additional Information, contact:

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