Maryland State Highway Administration and Transportation Management – Where are We Heading?

- A Brief Overview of the CHART Program
- Transportation System Management and Operations
  - Bringing Freeway Incident Management and Traffic Management Together
  - Performance Measures
  - Managing Information
The Coordinated Highways Action Response Team is an application of Intelligent Transportation Systems by SHA to support Transportation Systems Management and Operations.

**CHART Focus Areas**

- Incident Management
- Traffic and Roadway Monitoring
- Traveler Information
- Severe Weather and Emergency Operations
- Traffic Management
Clicking on an Incident brings up the details
TSM&O | SHRP2 Project “Implementation Assistance for improving TSM&O”

• Project kick-off October 2013
• Workshop March 19, 2014 - “Capability Maturity Model”
• Organizational Dimensions
  o Business processes
  o Systems and technology
  o Performance measurement
  o Culture
  o Organization and staffing
  o Collaboration
Bringing Freeway Incident Management and Traffic Management Together

- Adaptive Signal Control Systems
- Arterial Cameras
- Mobile Cameras
- Integration CHART ATMS and Traffic Signal Systems
Improved Signal Communications and Adaptive Control

- SHA is piloting Centracs Adaptive, and Econolite product, at US 1/MD 175
- The proposed system is based on the federally developed ACS-Lite algorithms
- The pilot is part of a larger effort to improve communications and monitoring at signals. The ATMS is being tested with T1 and Cellular connection
- The test corridor needs vehicle detection upgrades in order to implement the adaptive capabilities
- Plan to move forward in 2015 and identify additional corridors for upgrades
Arterial Cameras

100 Locations

On Diversion Routes

Near Patrol Routes

Higher Accident Frequencies

Higher Traffic Volumes

Associated with Potential Evacuations
3 Cars Involved
Incident @ I-70 EAST AT EXIT 54 MD
85 S. EAST ST [Collision, Personal Injury]

County: Frederick County
Op Center: TOC7
Direction: East
Created: Sep 22 2014 10:11AM
Source: State Police B
Lanes Closed:
1 Of 2 East Shoulder Closed
2 Of 2 East Right OffRamps Closed
Participants:
CHART Unit 9700, CHART Unit 9705, CHART Unit 9704, Fireboard, State Police

Zoom to


X: 364736.646   Y: 192558.979
Video Image Sharing - MVIEV
Integration CHART ATMS and Traffic Signal Systems
Performance Measures

- CHART Performance Evaluation
- SHA Mobility Report – Travel Time Reliability
- Evaluating new TSM&O Strategies
- Effectiveness of Traveler Information Services
CHART Performance Evaluation

- Since 1990, CHART has provided over 500,000 assists

- In the same period, CHART has responded to over 250,000 incidents

- In 2012, CHART responded over 45,000 times saving approximately $960 Million in delay and fuel costs
Mobility – Travel Time Reliability

Maryland Freeway/Expressway Congestion Map
AM Peak Hour (8AM-9AM)

Legend
- Uncongested (TTI < 1.15)
- Light (TTI 1.15 - 1.3)
- High (TTI 1.3 - 2.0)
- Severe (TTI > 2.0)

Notes:
- Based on Travel Time Index (TTI), the ratio of the average travel time to the free flow travel time of the segment.
- For example, a TTI of 1.5 means that a trip that takes 10 minutes in uncongested conditions will take 15 minutes in average peak hour traffic.

AM Peak:
- 8% of the freeway/expressway system is unreliable
- 1% of the VMT on the freeway/expressway system occurs in unreliable conditions

Ean, HERE, DeLorme, MapperMedia, © OpenStreetMap contributors, and the GIS user community

2013
Managing Information

• SOC Reconfiguration
• Operations Reorganization
• Decision Support/Expert Systems
• New Data – Connected Vehicles
SOC Reconfiguration

- Reduce Distances and Interference
- Improve Flow and Define Functional Areas
- Increase information interfaces
- Improve Environment
What permanent cameras, message signs and radio stations are nearby? Within 3 miles? Within 5 miles?
Who should be looking at the video from the scene?

What messages should be on the message signs?
### Which groups of responders and managers should be notified? What should they be told?

#### Notification

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<th>Recipients</th>
<th>Status</th>
<th>Message</th>
<th>Actions</th>
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New Data – Connected Vehicles

CTS Pooled Fund Study, University of Virginia - Dec. 23, 2013
Coordinated Highways Action Response Team