



STATE HIGHWAY  
ADMINISTRATION



## MDOT SHA OTMO Updates

→ **TIMBR Committee Meeting** ←

June 1, 2022

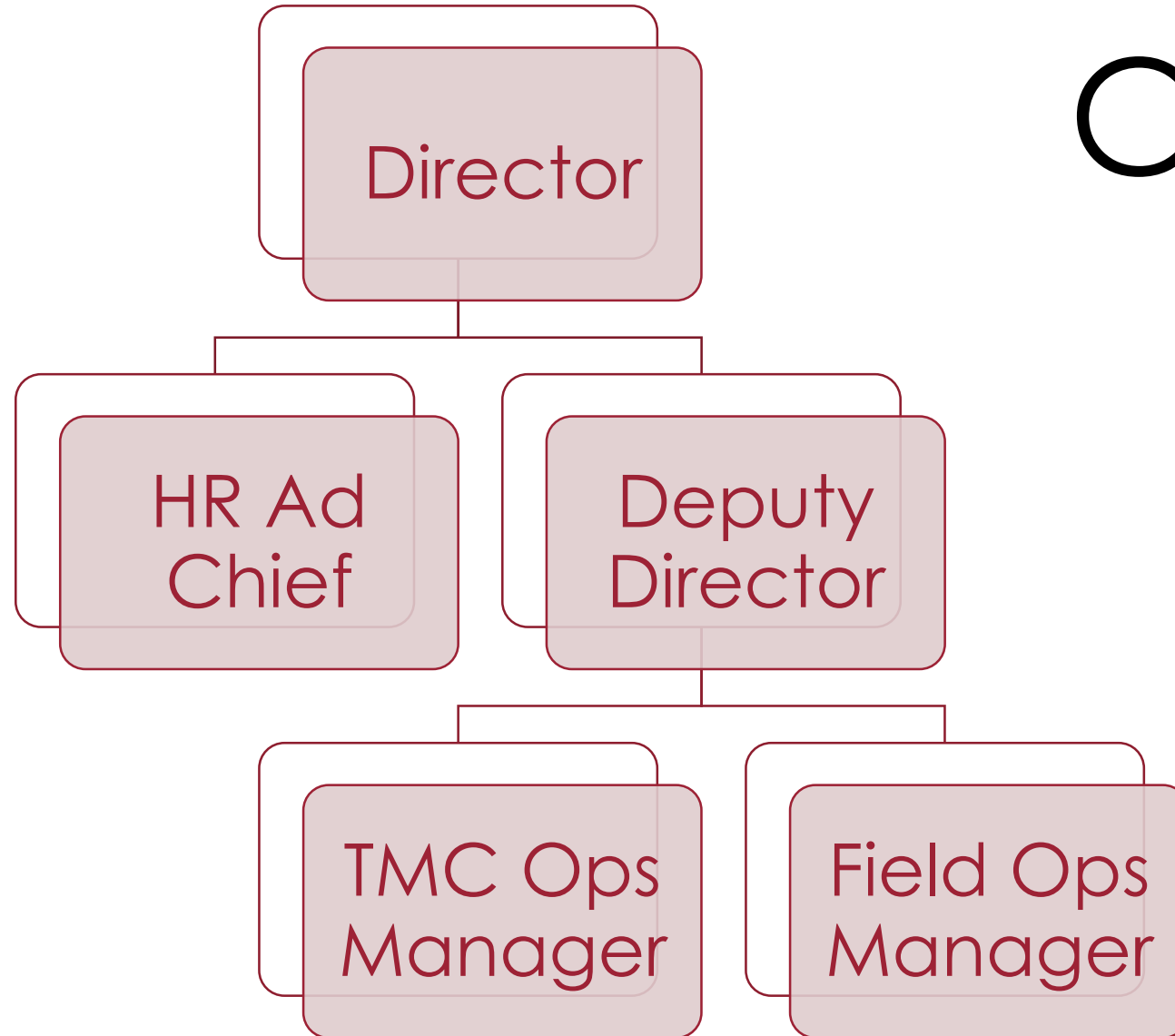
# → Why OTMO?

- Traveler Information
  - MD 511/CHART Website
  - Dynamic Message Signs
- Traffic Monitoring
  - CCTV
  - Probe Vehicle Data
- Emergency Operations
- Traffic Incident Management
  - Emergency Response Technicians (CHART)
  - Regional Traffic Operation Centers
- **Traffic Management**
  - Signal Timing Adjustment
  - TSMO Systems



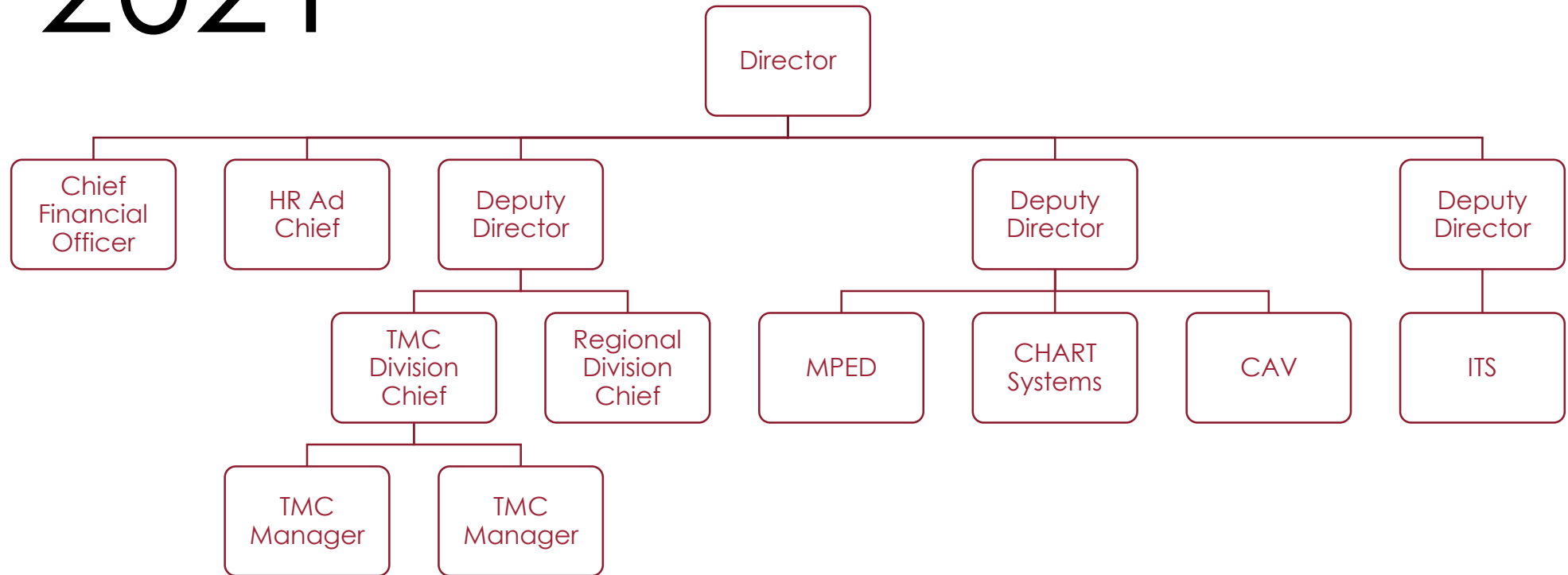
# The Need...CHART to OTMO

# CY 2004



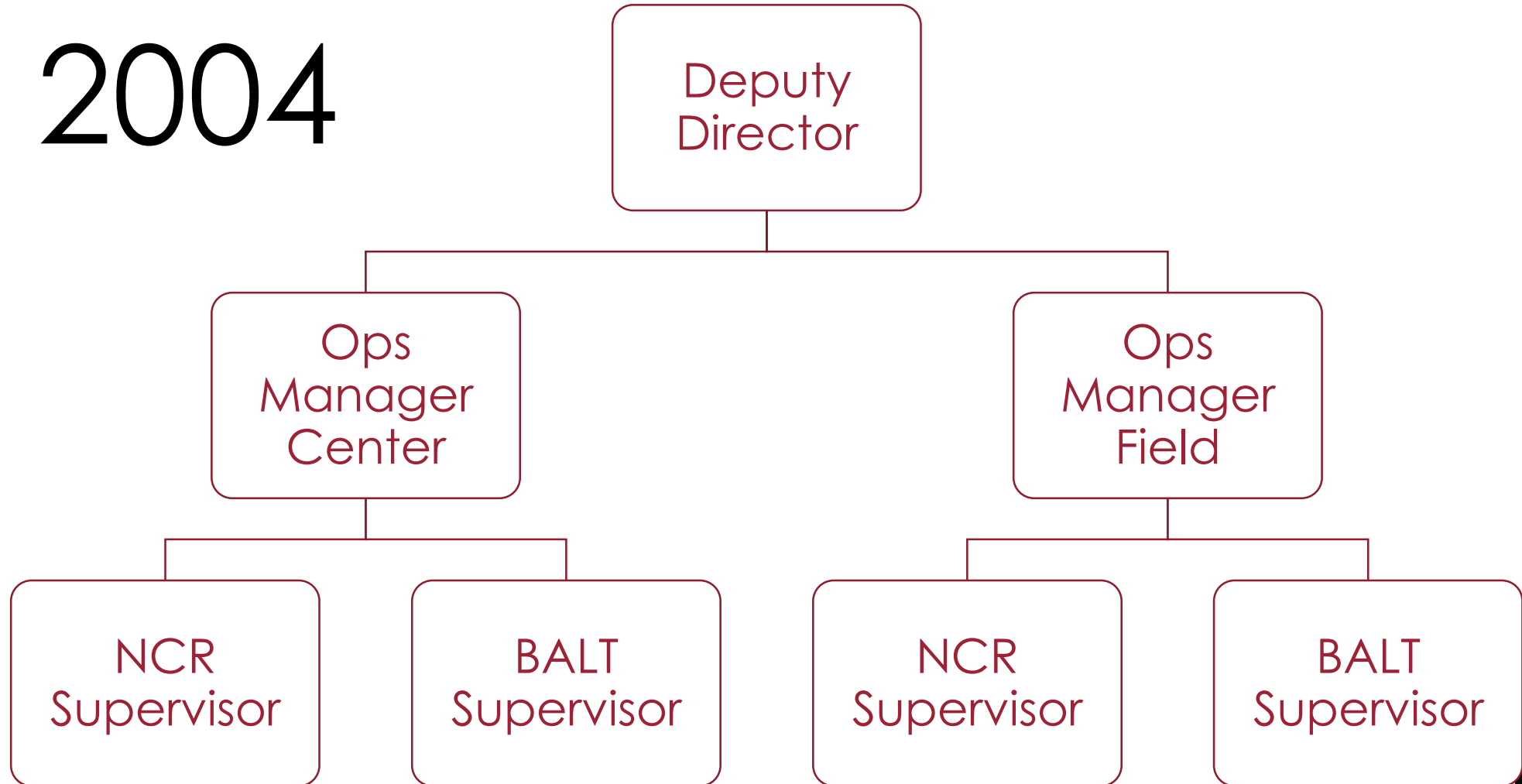
# The Need...CHART to OTMO

## CY 2021



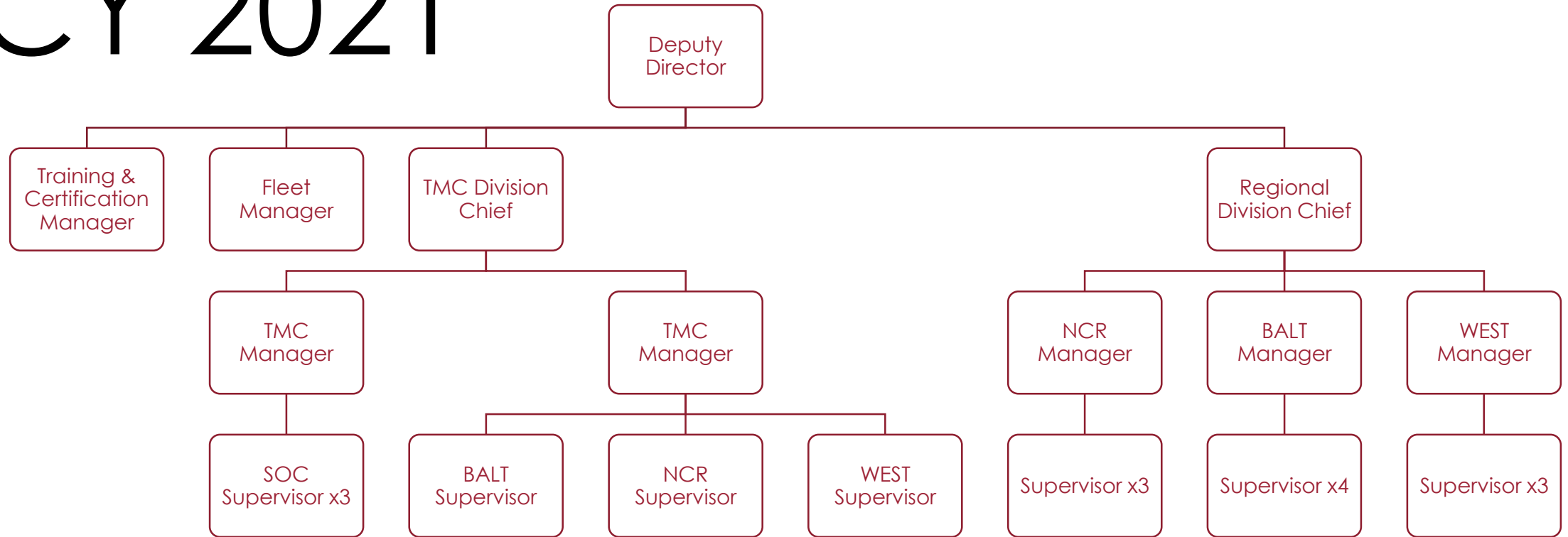
# The Need...CHART to OTMO

## CY 2004



# The Need...CHART to OTMO

## CY 2021



# → The Need...CHART to OTMO ←

	<u>1995</u>	<u>2021</u>
DMS	<30	Over 300
CCTV	<50	Access to over 900
Full-Time CHART Patrols	4	54
CHART Regions	2	4
CHART Patrol Hours	16 x 5	24x7
TSMO Systems	0	1 active (I-270) 1 in-progress (I-695)
Real-Time Signal Operations	No	Yes



# Entrance





# Entrance



# LOBBY



- New seating / waiting area
- Monitors for situation awareness can display CCTV Video, PC images, or cable TV
  - Configurable by Operators

# MAIN CONFERENCE ROOM AREA



- Includes 80" and 65" Displays
  - Video conference capability
  - Can display CCTV, PC, or cable TV
- Operations view seating area includes integrated power outlets for portable computing devices

# ADDITIONAL OFFICE SPACE

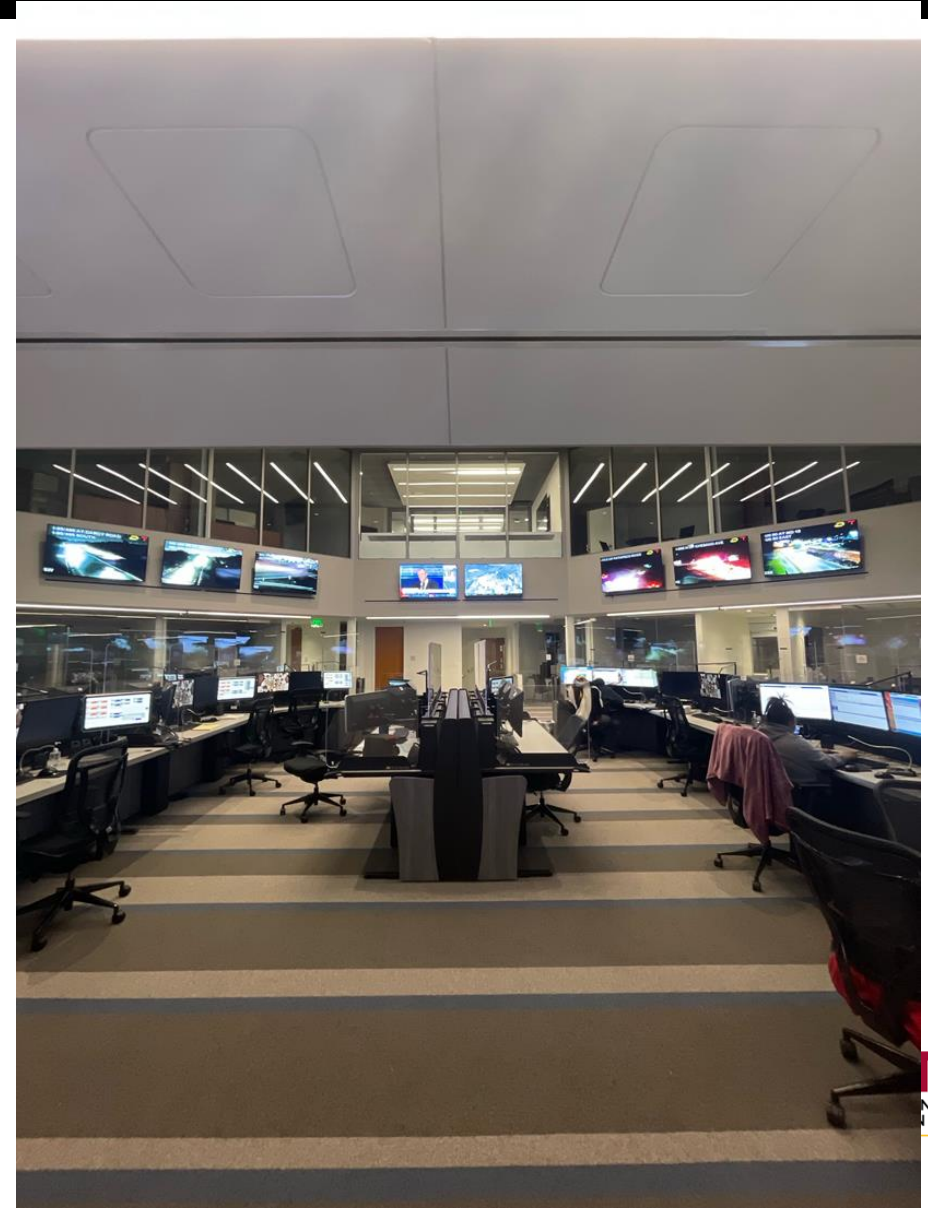


- New office space
- A second conference room
- “Touchdown space”

# OPERATIONS FLOOR



# OPERATIONS FLOOR

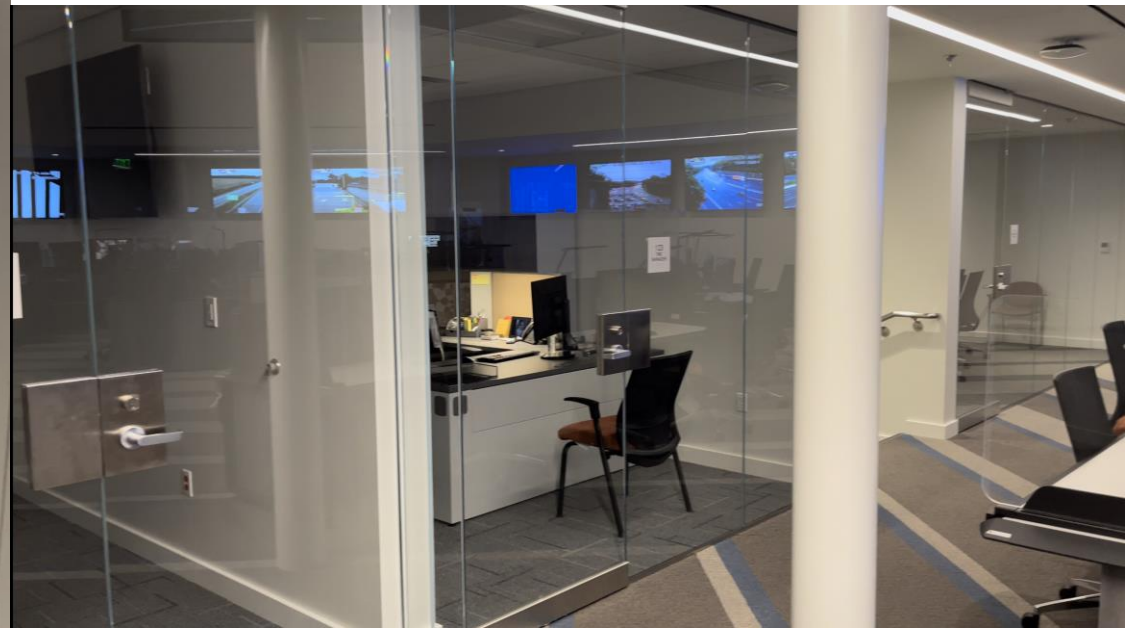


# "OPERATIONS FOOTBALL" CONCEPT



- Goal to orient operators more to each other and their workstation than the video wall
- Groups supervisors with their teams
- Nature of design insulates core operations from the activity occurring outside

# OPERATIONS FLOOR SITUATION ROOM





# CCTV

## CHART Patrol Cameras

- Full Pan – Tilt – Zoom camera controlled by central software at SOC/TOCs



# CHART Patrols

## National Capital Region:

- In service 24/7/365
- I-495, I-95, I-270, US 50, MD 295

## Baltimore Region:

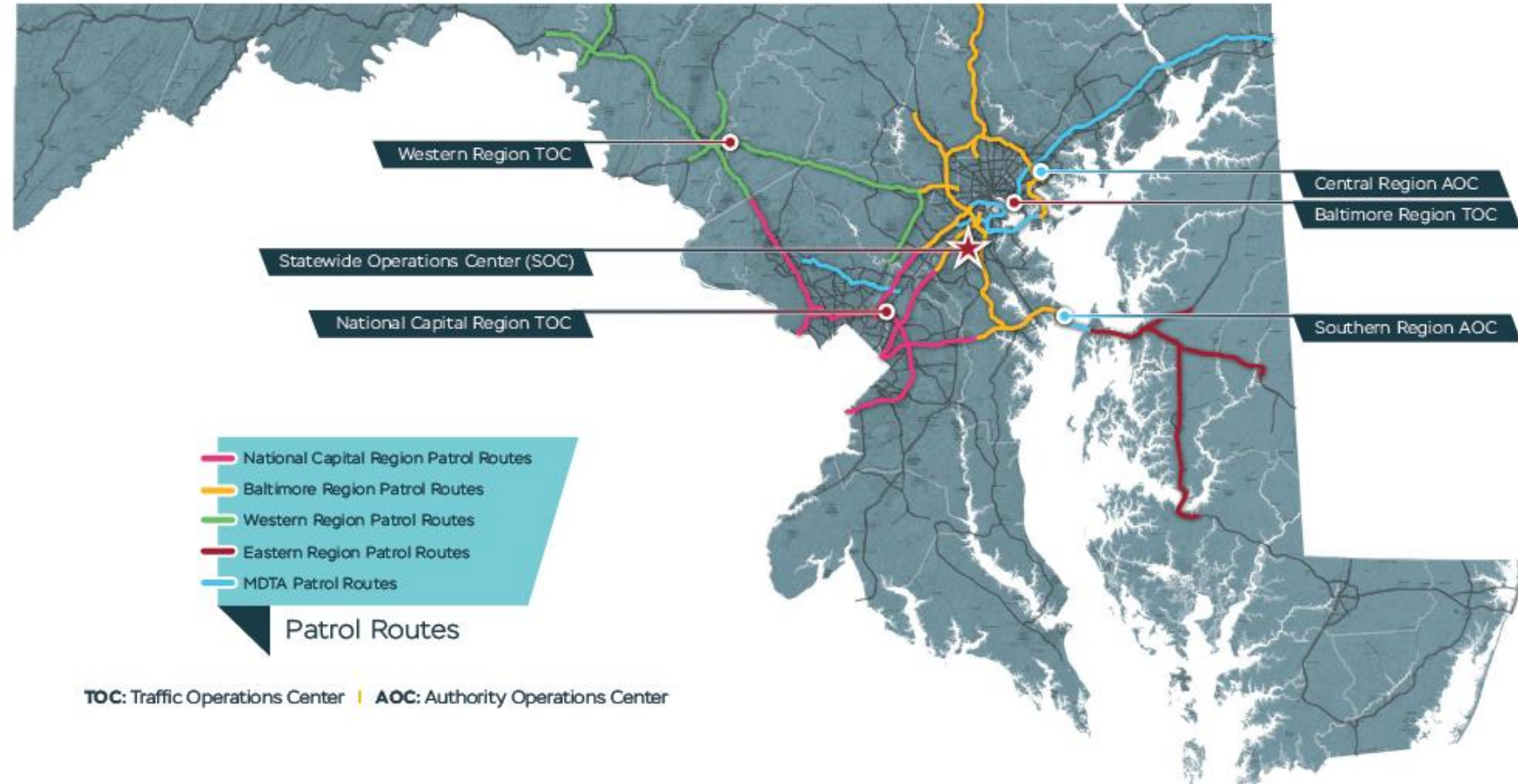
- In service 24/7/365
- I-695, I-83, I-70, I-795, I-97, MD 295

## Western Region:

- In service M-F= 5a-9p;  
S, S = 9a-9p
- I-70, I-270, US 15/340, I-81

## Eastern Region:

- In service M-F, 5a-9p\*
- Weekends May-Sept
- US 50, US 301, MD 404



TOC: Traffic Operations Center | AOC: Authority Operations Center

# CHART Patrols

## Three types of Response Vehicles

- Tow Trucks
- Customer Response Vehicle (CRV)
- Heavy-Duty Utility w “hide-away stinger”

## Certified Emergency Vehicles with MVA

### Equipped with:

- Push Bumpers
- Arrow board or message board
- Cones
- Chainsaw & Blower
- Jump Box / Gas Cans / Jack



# MSP Partnership

## Move It Law

-MD Law to move vehicles out of the travel portion if drivable and no injuries

## “Clear the Road” Policy

-MSP and MDOT SHA have agreed on a policy for rapid removal of vehicles from travel lanes

## Dedicated MSP Liaison

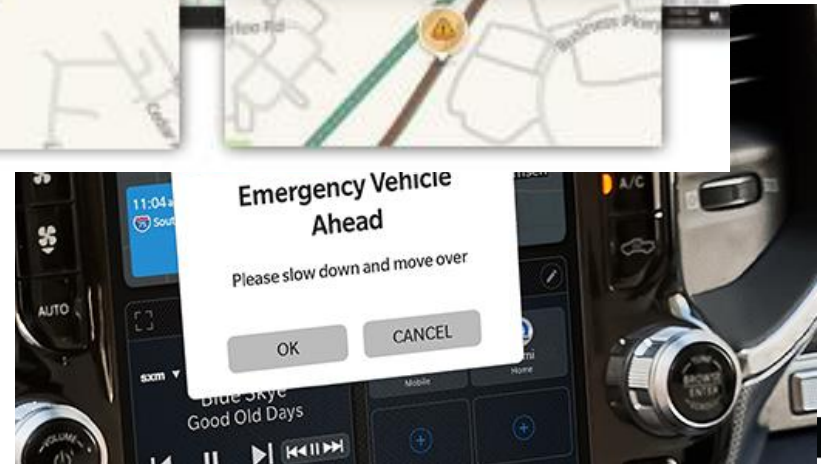
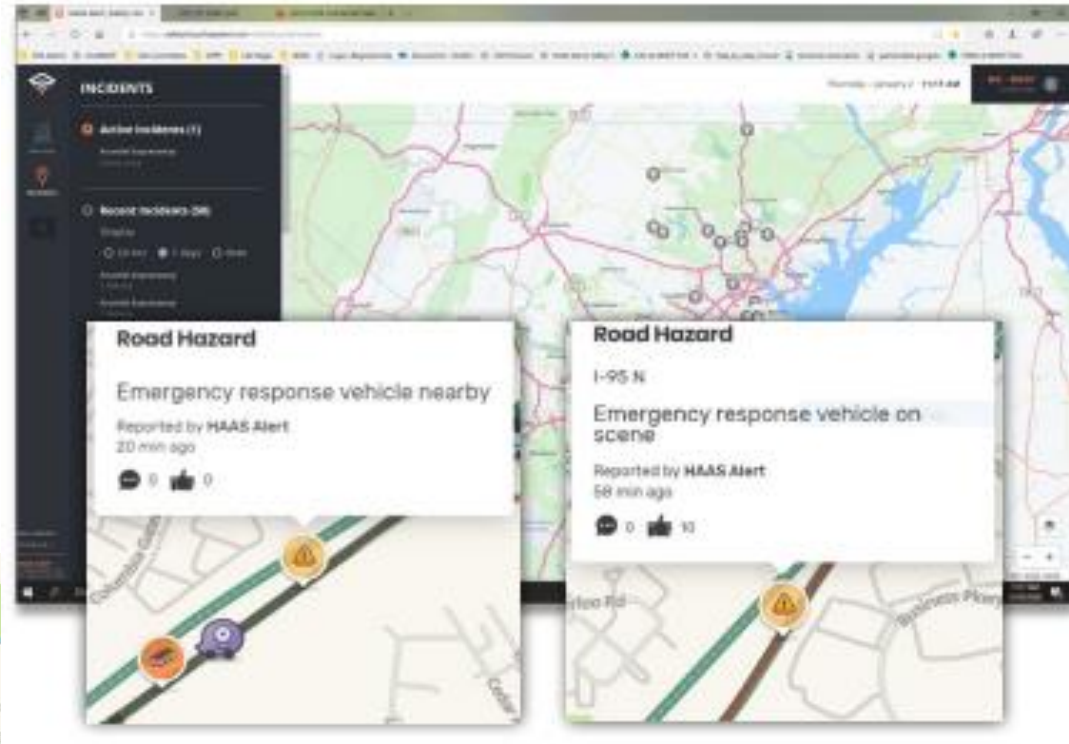
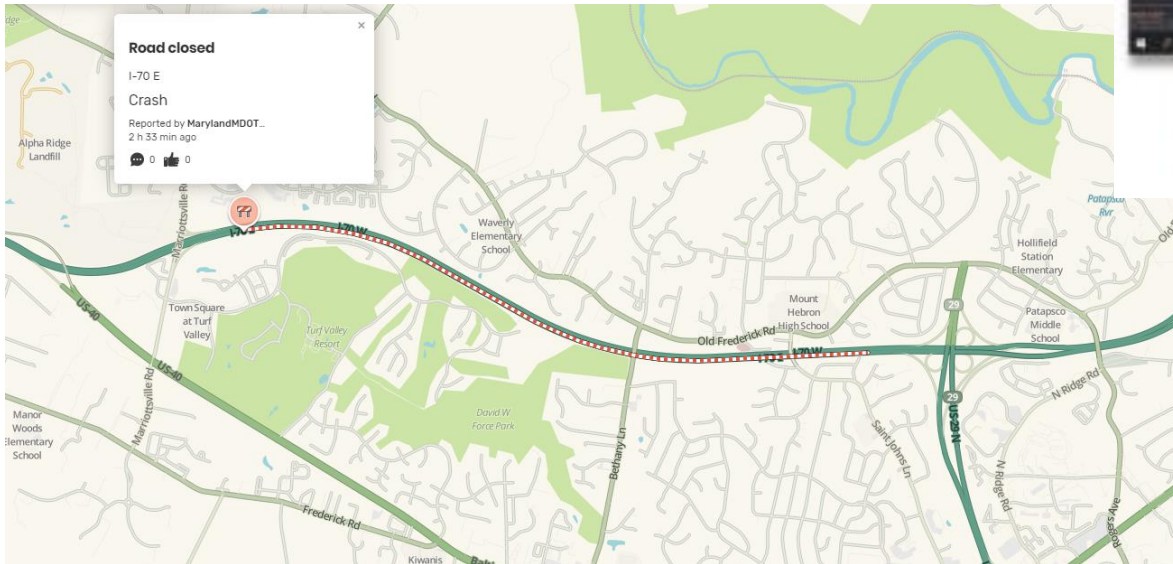
## Dedicated MSP Traffic Incident Management Unit



# Traffic Management From the TMC

From the TMC and Other Technology:

- Real-Time input into Waze for major closures
- R2V Alerting
- Dynamic signal timing adjustments



# Monitoring with Crowdsourced Data

**WAZE-O-METER**

Hold on to your hats, traffic is **free flowing!**

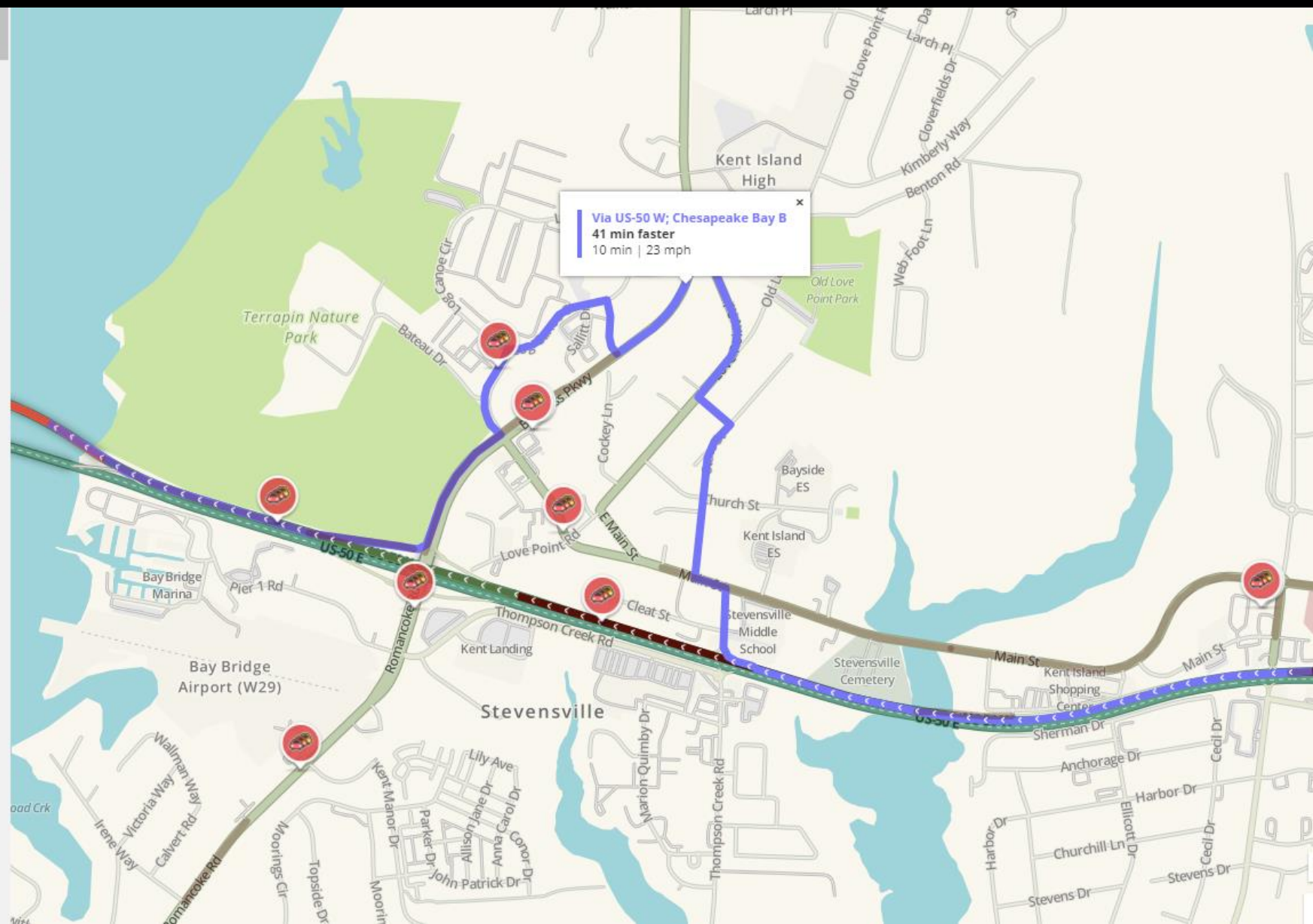
100%

**UNUSUAL TRAFFIC**

There are no irregular traffic events at the moment

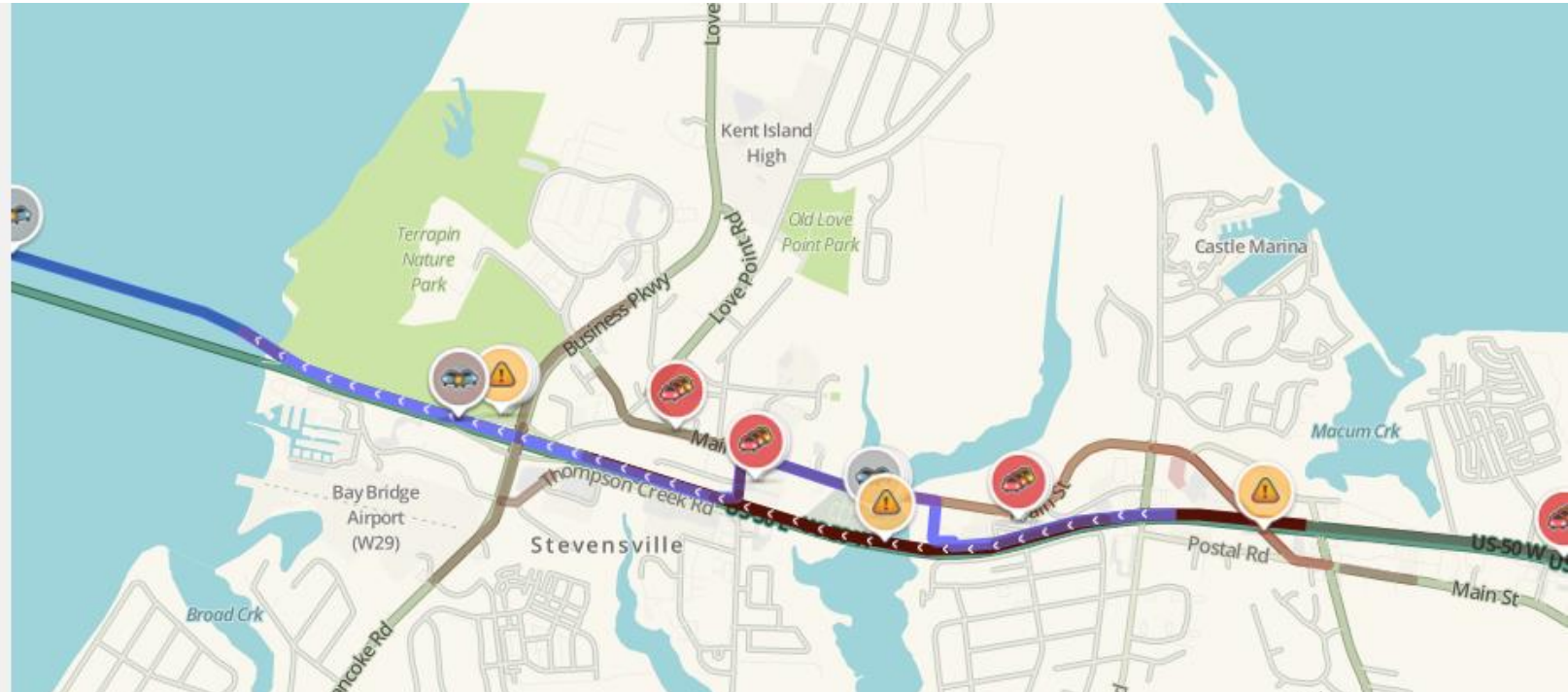
**WATCHLIST**

US 50 Castle Marina to Bay Bridge	48 min longer than usual
US-50 W to Chesapeake Bay Bridge	51 min   3 mph 2 min   62 mph
2.65 miles	
Chester to Exit 39A: Castle Marina Rd to MD-18	<b>Bumper to bumper</b> as usual
0.04 miles	54 sec   3 mph 2 sec   69 mph
Exit 39A: Castle Marina Rd to MD-18 to Stevensville	<b>Free flow</b> as usual
0.76 miles	41 sec   67 mph 41 sec   67 mph
Stevensville to Exit 37: MD-8 / Romancoke / Stevensville	47 min longer than usual
0.85 miles	47 min   1 mph 47 sec   65 mph
Exit 37: MD-8 /	<b>Free flow</b> as usual



# Monitoring with Crowdsourced Data

WATCHLIST		
<p>US 50 Castle Marina to Bay Bridge</p> <p>US-50 W to Chesapeake Bay Bridge</p> <p>2.65 miles</p>	<p><b>1 h 28 min</b> longer than usual</p> <p>1 h 30 min   2 mph 2 min   65 mph</p>	<p>major accident US-50 W</p>
<p>Chester to to US-50 W / US-301 S / Annapolis</p> <p>1.65 miles</p>	<p><b>1 h 28 min</b> longer than usual</p> <p>1 h 29 min   1 mph 1 min   67 mph</p>	<p>US-50 W</p>
<p>Stevensville to Chesapeake Bay Bridge</p> <p>0.88 miles</p>	<p><b>Free flow</b> as usual</p> <p>51 sec   62 mph 51 sec   62 mph</p>	



# FITM Plans

Incident Type: Collision, Personal Injury    HAZMAT: NO  
 Incident Sub-Type:

Vehicle Count					
	Involved (Only)	Overturned	Lost Load	Jackknifed	TOTAL
Car	3	0			3
Tractor Trailer	0	1	0	0	1
<b>TOTAL</b>					<b>4</b>

TMDD Vehicle Count: 3 Cars, 1 Truck  
 Severity Score: 78 [Details](#)

Direction: East  
 Road Surface Condition: Dry  
 Nearby Wx Station: Location: I-70 West of US 29  
 (Intranet Map) [show sensors](#)

Road Configuration Description: 2 Traffic Lanes in each direction, with Shoulders, Right Off Ramp, and Median.

**FITM Plan Suggested**

This incident may qualify for signal intervention. Consider using an available FITM plan and notifying OOTS designee(s).

**Use FITM: I-70, EX 83 to EX 87, East/West**

[Dismiss](#)

**70 BETWEEN EXIT 83 & EXIT 87**  
**FITM PLAN**    Sheet 1 of 2

Crossovers:

- MM 81.5
- MM 83.5
- MM 84.5
- MM 85.5
- MM 87.8

Supplemental Resource Requirements:

1	2	1	0	0
1	2	1	0	0
2	4	2	0	0

Howard County  
**I-70**  
 Exit 83 to Exit 87

## Freeway Incident Traffic Management Plans (FITM)

- Pre-engineered detour plans with input from State and local stakeholders
- OTMO partners with SHA Shops for deployment
- Moving towards TMC Adjusting Signals



**Notification**    [Create Notification](#)    [Create Signal Notification](#)

No notifications are available for this traffic event.

**Signals**

FITM Plan	
<a href="#">I-70, EX 83 to EX 87, East/West</a>	<a href="#">View PDF</a> <a href="#">Remove from Event</a>

Current OOTS Designee - Name	Call Sign	Phone Numbers	Patrol Areas
Pecorino, John (SHA / OOTS / TOD / Signal Ops)	454	[REDACTED]	OPS Statewide

Signal Name	Owner	Maintainer	
<a href="#">MARRIOTTSDR RD @ I-70 WB OFF RAMP [Traffic Control Signal]</a>	SHA-Signal Operations	SHA-Signal Operations	<a href="#">Show on Map</a>
<a href="#">US 29 (29TH INF DIV) @ I 70 N RAMP (EXIT 25) [Traffic Control Signal]</a>	SHA-Signal Operations	SHA-Signal Operations	<a href="#">Show on Map</a>

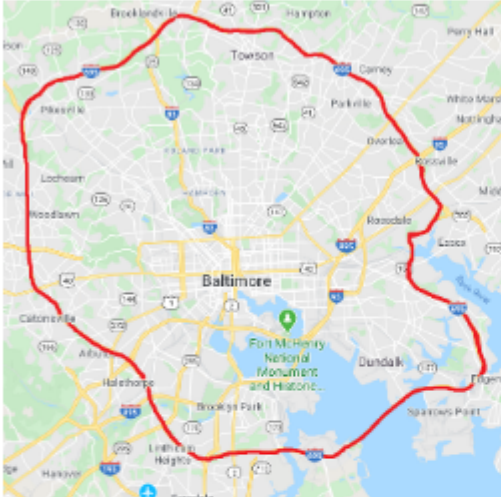
**Photos**    [Choose Files](#)    No file chosen    [Upload](#)

No photos are available for this event.



# Predictive Tools

Type   Involved Vehicles   Responder   Center   Pavement & Hazmat   Time   Location



Exits 12-20: West of Baltimore

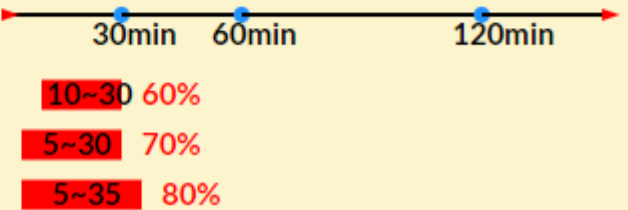
Outer Loop   Other Exits

Home   Back   Save   Queue Prediction

### Summary

1 Car 1 Truck involved  
First responder: POLICE  
1 CHART unit 1 POLICE unit are responding.  
TOC4  
Dry pavement condition  
Summer  
AM-peak  
Weekday

All information has been recorded.

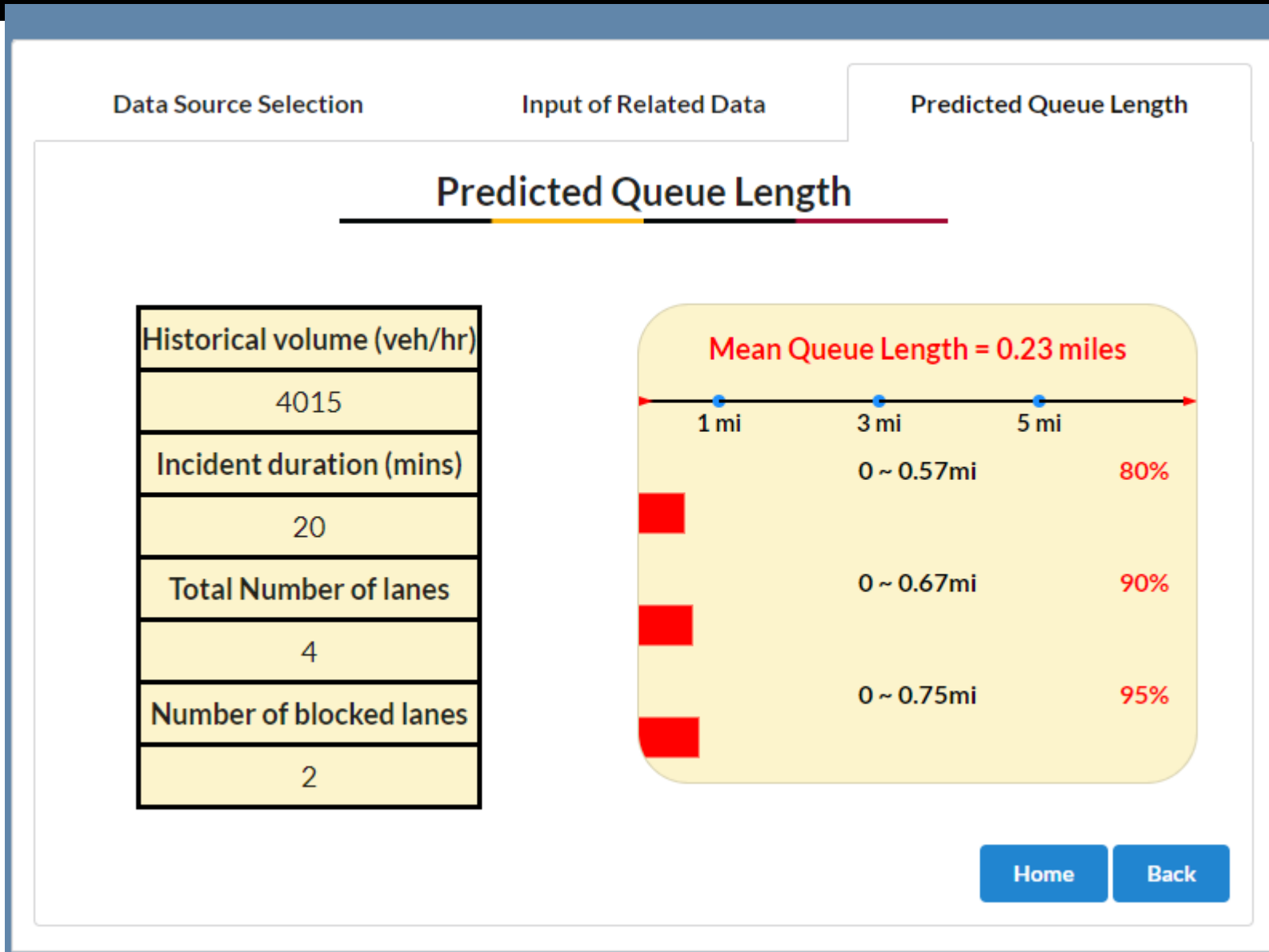


Average CT = 20 mins

## Duration Prediction

- Uses historical CHART ATMS data to calculate averages
- Separate tool that requires operator input

# Predictive Tools



## Queue Prediction

- Can use live detector data or historical data based on vehicle counts or speed
- Separate tool that requires operator input

# Upcoming Enhancements

- Expansion of Unmanned Aerial Systems (UAS) for accident investigations and possible deployment on CHART vehicles for situational awareness
- Enhanced FITM planning to include signal timing plans
- Enhanced CHART vehicle technology for quicker removal of debris
- IPAWS Alerting to trapped queue traffic during major roadway closures



QUESTIONS?

THANK YOU!

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