



MARYLAND TRANSPORTATION SYSTEMS MANAGEMENT & OPERATIONS

**2019 NOCoE Operations and
Maintenance Peer Exchange**

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MDOT SHA

WHAT IS TSMO?

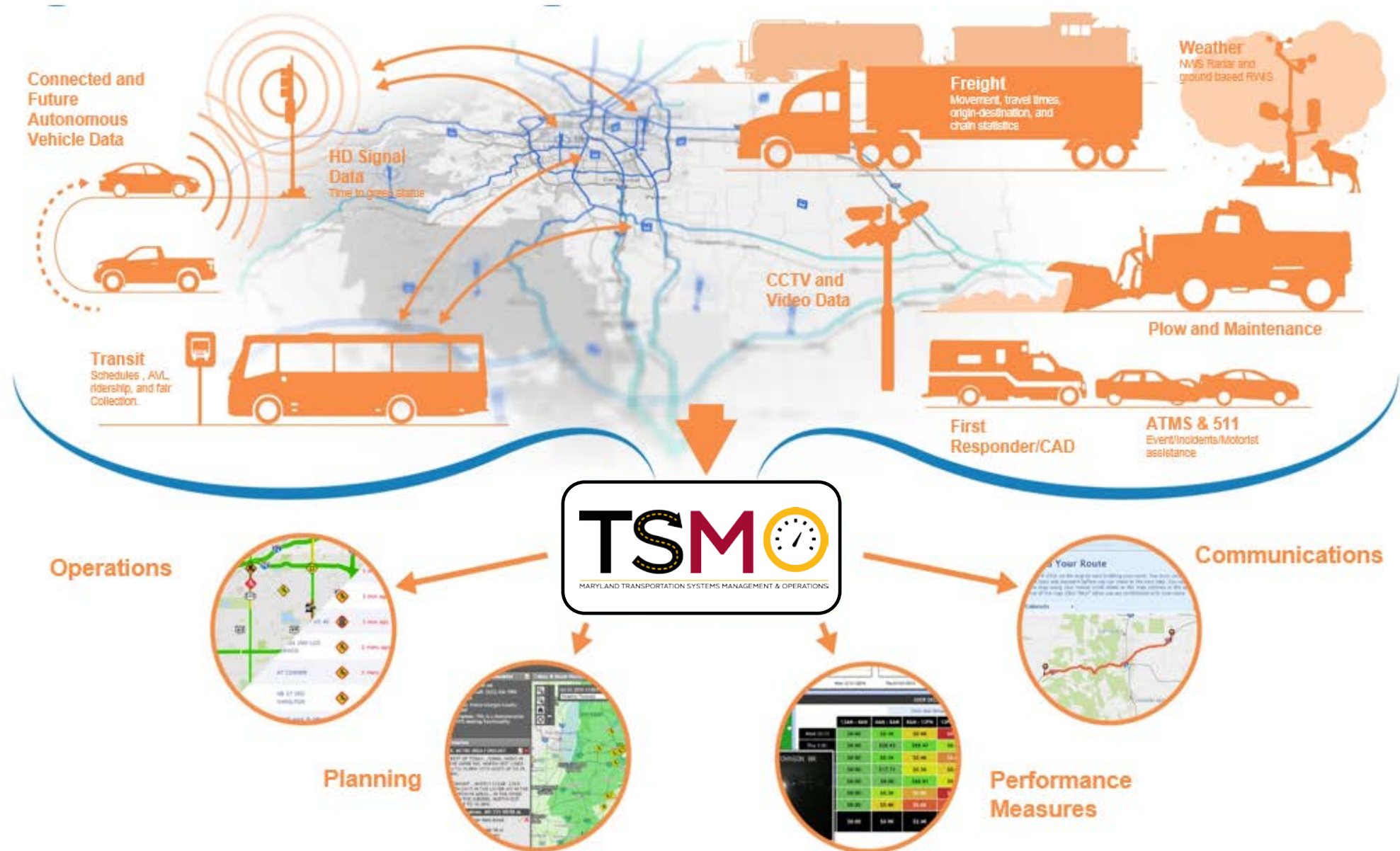
MDOT SHA TSMO Definition:

"An integrated approach to programmatic optimization of planning, engineering, operations, and maintenance in implementing new and existing multi-modal systems, services, and projects to preserve capacity and improve the security, safety, and reliability of our transportation system."

Or put another way:

"The intent of TSMO is to effectively manage and operate existing facilities and systems to maximize their full service potential. TSMO strategies aim to optimize capacity that is limited by recurring and non-recurring congestion."

THE ROAD AHEAD IN A CONNECTED/ AUTOMATED FUTURE



TSMO PROGRAM 2.0

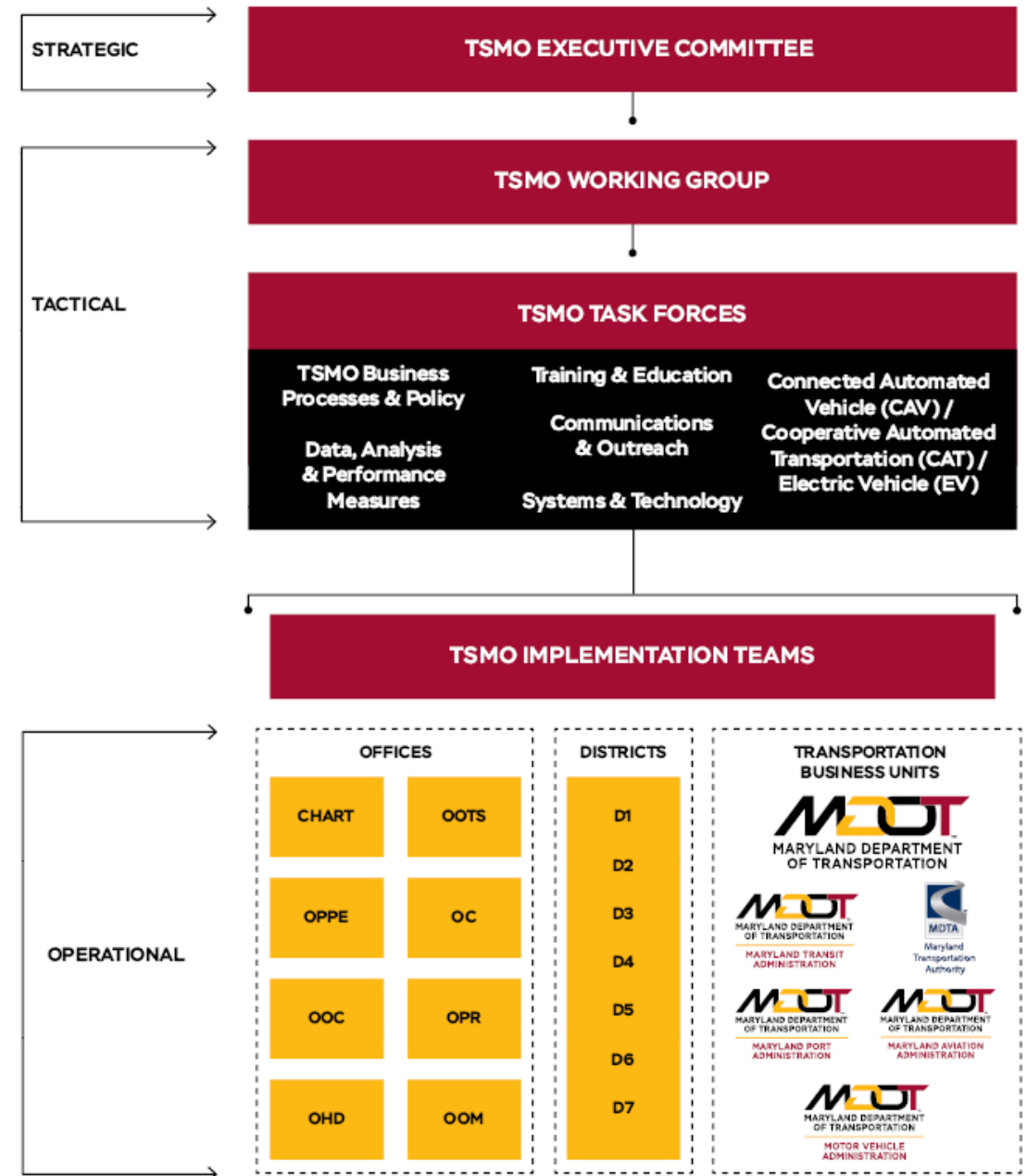
- TSMO Program Guided by TSMO Strategic Plan (update to be released soon)
- TSMO Program Development Started in 2014 with FHWA Sponsored Workshop
- First TSMO Strategic Plan Approved in August 2016
- Many 2016 Strategic Plan Action Item Accomplishments
- Rapidly Evolving Environment Necessitated Development of New TSMO Strategic Plan



TSMO ORGANIZATION STRUCTURE

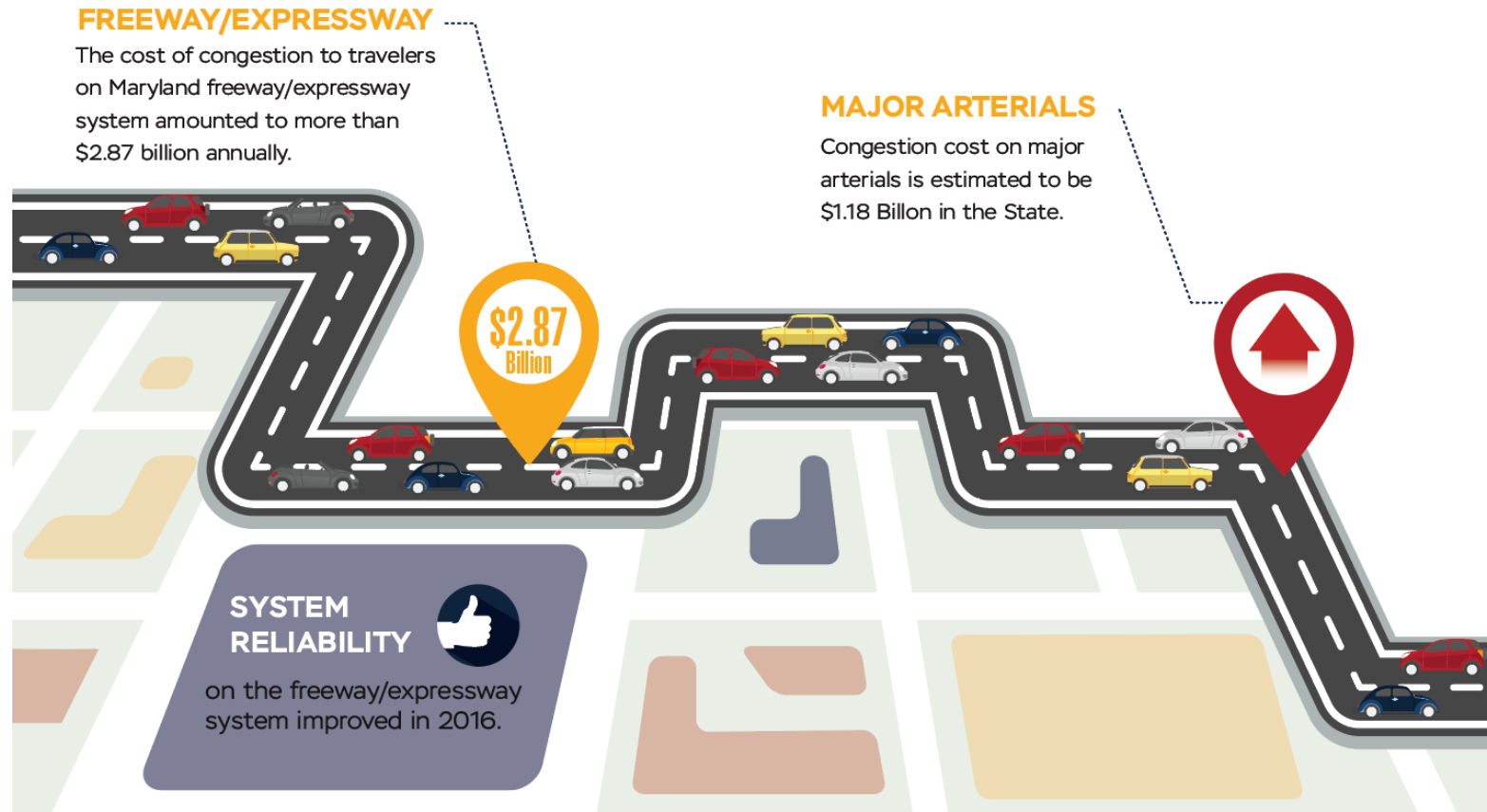
MDOT SHA leadership has created a TSMO Division within the Office of CHART and ITS Development to lead TSMO coordination and collaboration between MDOT SHA offices and outside agencies, and to ensure successful delivery of MDOT SHA TSMO Program.

DECISION PARADIGM



MARYLAND STATISTICS (c.,2017)

Congestion Trends

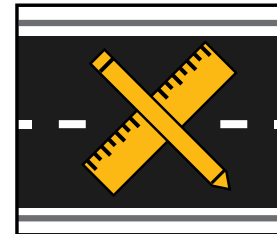
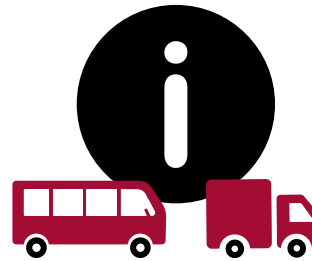
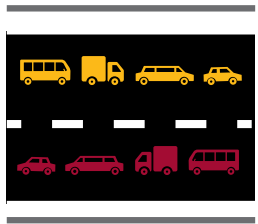


Accomplishments

$$\begin{array}{ccccccc} \$1500 \text{ Mil.} & + & \$50 \text{ Mil.} & + & \$29 \text{ Mil.} & + & \$55 \text{ Mil.} & = & \$1634 \text{ Mil.} \\ \text{CHART} & & \text{Capital} & & \text{Signal Systems \&} & & \text{Park and Ride} & & \text{TOTAL SAVINGS} \\ & & \text{Improvements} & & \text{Multimodal Strategies} & & \text{Program} & & \end{array}$$

TSMO STRATEGIES AND SOLUTIONS

- Work Zone Management
- Traffic Incident Management
- Service Patrols
- Special Event Management
- Road Weather Management
- Transit Management
- Freight Management
- Traffic Signal Coordination
- Traveler Information
- Ramp Management
- Managed Lanes
- Active Traffic Management
- Integrated Corridor Management



MDOT SHA AND TSMO STRATEGIES

TSMO Strategy: Traffic Incident Management

Office of CHART and ITS Development/Districts and Shops

- Statewide and regional operations centers
- 24-7 service patrols
- Statewide traffic incident management training
- Automated inclement weather messaging
- Lane closure permitting system
- Mobile video patrol
- Highway operations technicians
- CHART system software development and maintenance
- 511 Traveler Information System
- Freeway and arterial monitoring
- System infrastructure design, implementation, and maintenance



TSMO STRATEGIES AND MAINTENANCE OPERATIONS

TSMO Strategy: Traffic Incident Management

- Reducing the impact of crashes and traveler delay on Maryland roadways
- Coordination with shops for additional resources and support for FITM detours



TSMO STRATEGIES AND MAINTENANCE OPERATIONS

TSMO Strategy: Work Zone Management

- Reducing the impact of motorist delay resulting from maintenance activities such as:
 - Shoulder repair
 - Guardrail repair
 - Mowing operations
 - Line striping
 - RPM replacements
 - Emergency operations



MDOT SHA AND TSMO STRATEGIES

TSMO Strategy: Emergency Management
*Office of CHART & ITS Development/
Office of Maintenance/District Offices and Shops*

- Large-scale impacts
- Severe weather
- Homeland security
- Can happen anytime, often without warning
- Transportation operations are critical to effective response
- Impacts to transportation infrastructure?
- Coordination prior, during, & following an event
- Multi-agency planning and coordination a must
- Debris management
- Truck parking app during winter operations



TSMO STRATEGIES AND MAINTENANCE OPERATIONS

TSMO Strategy: Road Weather Management

- Reducing the impact of adverse weather conditions on travelers
 - Road Weather Information Systems (RWIS)
 - Snow Plow Tracking System
 - Prioritization of System Recovery during major events
 - Coordination with Utility companies on system restoration when affected
 - Emergency Operations Reporting System (EORS)
 - Traveler Information
 - Truck parking app



MDOT SHA AND TSMO STRATEGIES

TSMO Strategy: Planned Special Event Management *Office of CHART & ITS Development, Districts, Shops*

Effective event management requires intra and inter agency collaboration and coordination

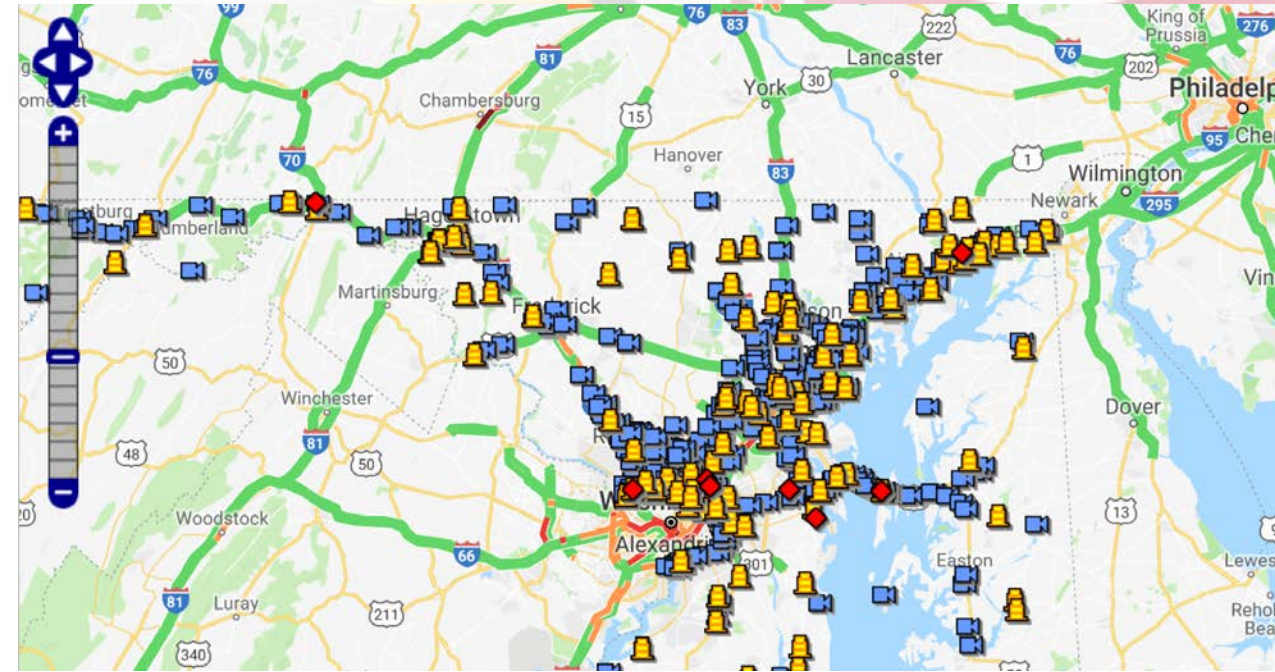
- Planning and protocols - coordination with districts, shops and outside agencies on the development of operational plans when required
- Day-of-event activities – coordination with districts/shops on operation plan
- Post-event activities – after action review with all stakeholders



MDOT SHA AND TSMO STRATEGIES

TSMO Strategy: Traveler Information *Office of CHART and ITS Development*

- 511 Web, CHART Web, Regional Integrated Transportation Information System (RITIS), Metropolitan Area Transportation Operations Coordination (MATOC)
- I-95 Corridor Coalition
- Dynamic message signs (DMS)
- Highway Advisory Radio
- Radio and television traffic reports
- Smart Phone app
- Social media tools
- Commercial traffic conditions and prediction services



MDOT SHA AND TSMO STRATEGIES

TSMO Strategy: Active Transportation and Demand Management

Various techniques in place or planned

Broad operational philosophy – an integrated approach for dynamically and pro-actively managing and influencing travel demand and traffic flow

Uses a combination of the real-time operational strategies:

- Those previously noted
- Managed Lanes (e.g. existing MDTA)
 - New P3 Initiative
- Active Traffic Management
 - Hard Shoulder Running during peak periods
 - Dynamic speed & lane control
 - Queue warning
- Park and Ride lots
- Integrated Corridor Management
 - I-95 Integrated Corridor ConOps



WHAT DOES TSMO MEAN TO MAINTENANCE
OPERATIONS (OOM/DISTRICTS/SHOPS)?



TSMO AND MAINTENANCE OPERATIONS– WILL ANYTHING CHANGE FOR ME?

- Maintenance and Operations may be asked to support MDOT SHA TSMO performance management activities through provision of data and performance tracking (e.g., measure Winter Operations, “Regain Time”)

GOAL 1



**BUSINESS PROCESSES
& COLLABORATION**

GOAL 2



SYSTEMS & TECHNOLOGY

GOAL 3



**DATA, ANALYSIS &
PERFORMANCE MANAGEMENT**

GOAL 4



**CUSTOMER EXPERIENCE
& ENGAGEMENT**

TSMO AND MAINTENANCE OPERATIONS – WILL ANYTHING CHANGE FOR ME?

- Maintenance activities such as maintaining pavement markings/stripping is becoming more critical with the advent of new vehicle safety systems and increasing levels of vehicle automation. ***The future of CAV is advancing rapidly!***

