Maryland Transportation Systems Management and Operations

TSM&O Program Plan Roundtable

FHWA/ National Operations Center of Excellence

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Maryland DOT-State Highway Administration

Agenda

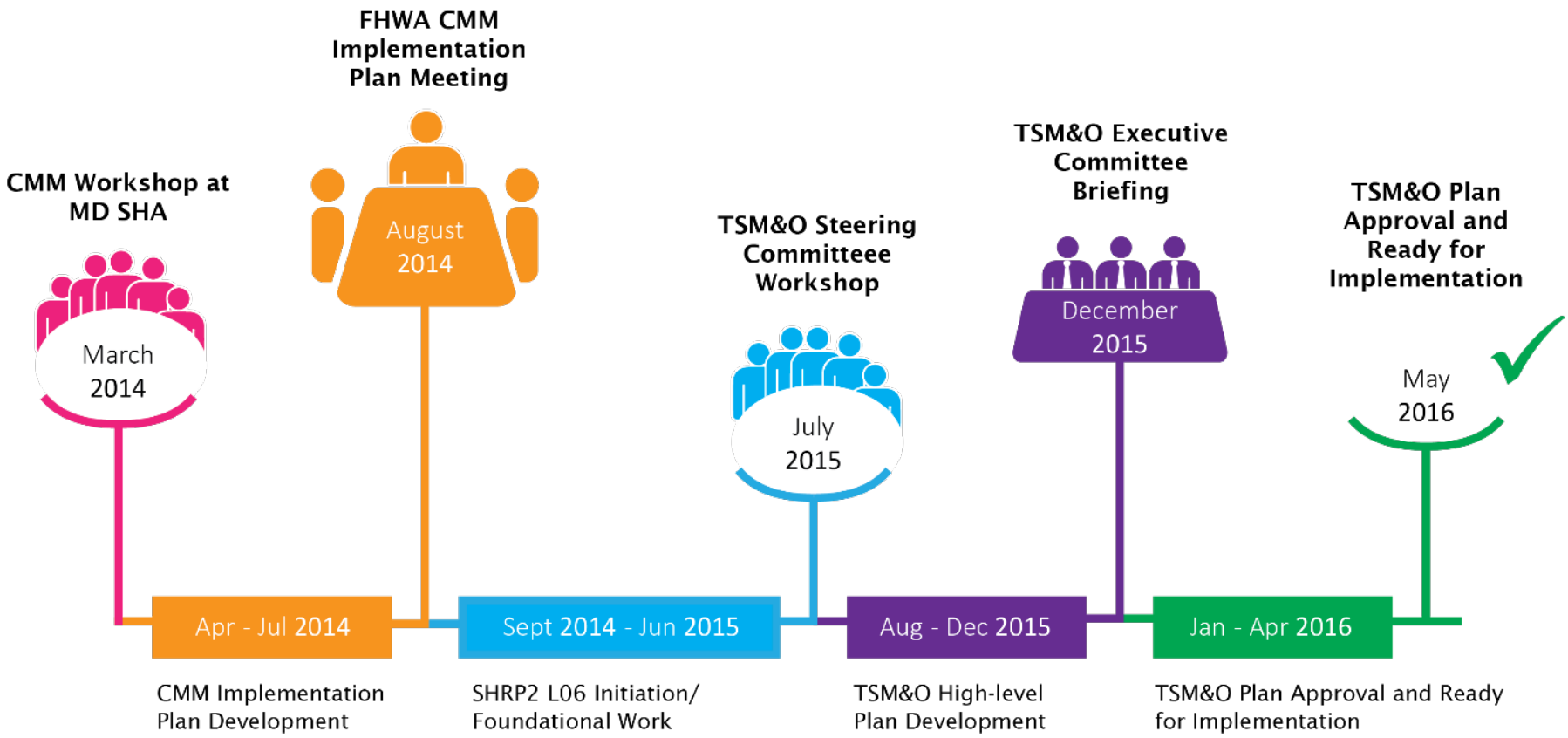
- Introductions/Background
- Overview of TSM&O Strategic Plan
- Prioritization of Strategies
- Org Set-up, Stakeholders,
- Communications & Outreach
- Next Steps

Introduction

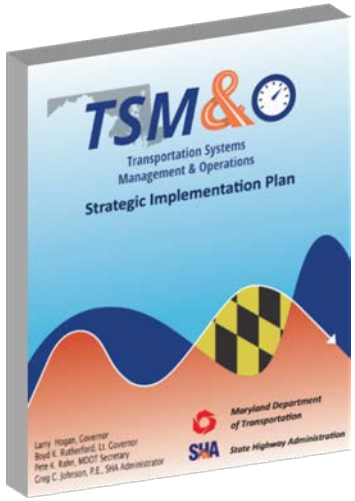
The Maryland TSM&O Strategic Implementation Plan

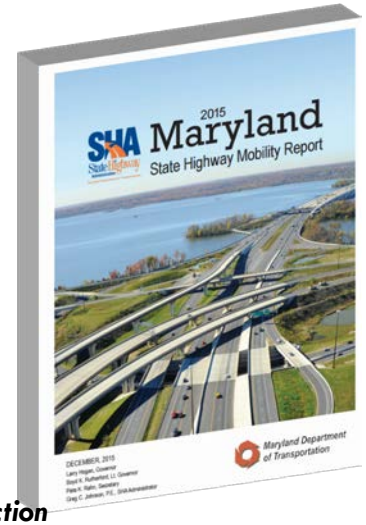
- Summarizes a business case for TSM&O
- Establishes mission, vision, goals, objectives and performance measures for TSM&O within MDOT/SHA
- Identifies strategies and projects required to implement TSM&O
- Recommends resource needs to carry out plan

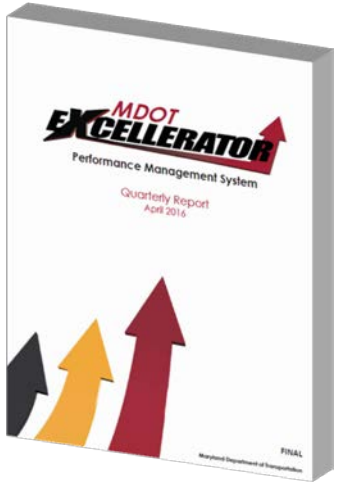
Leading up to this plan

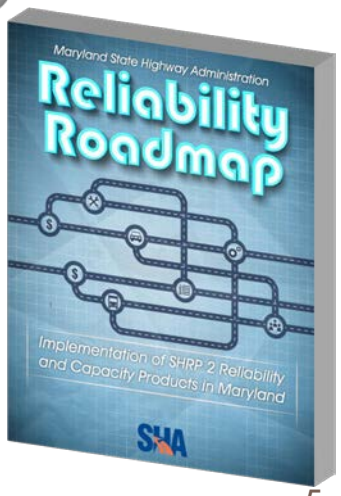


Strong Foundations for TSM&O

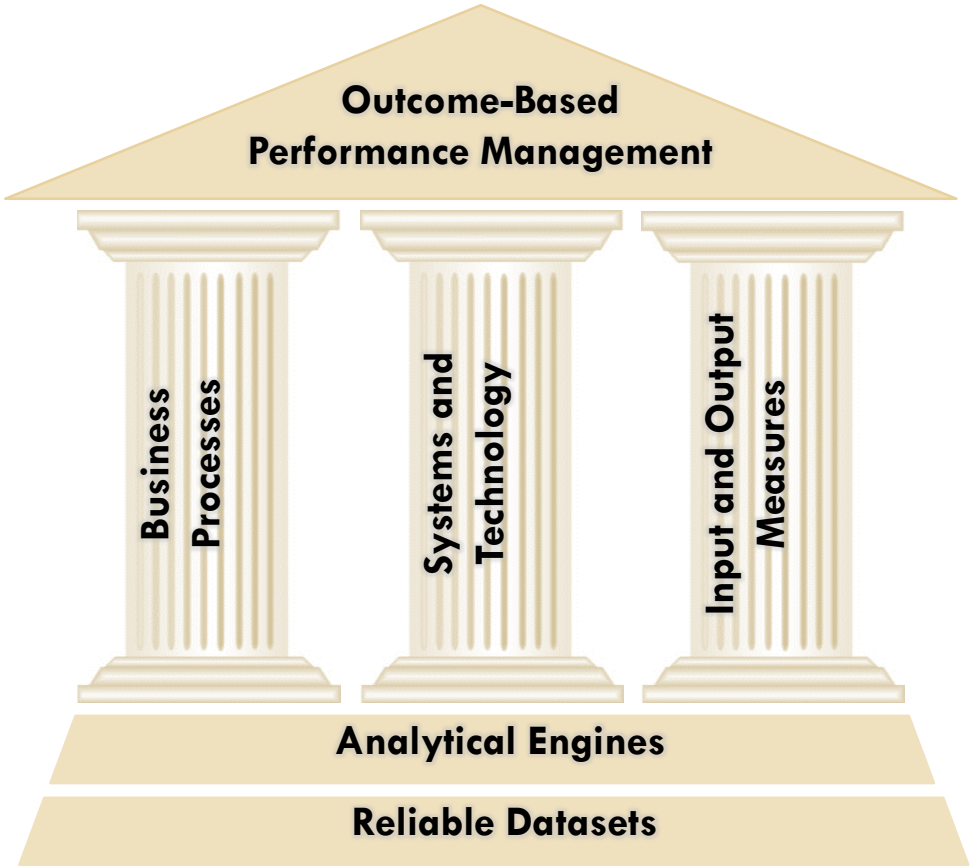






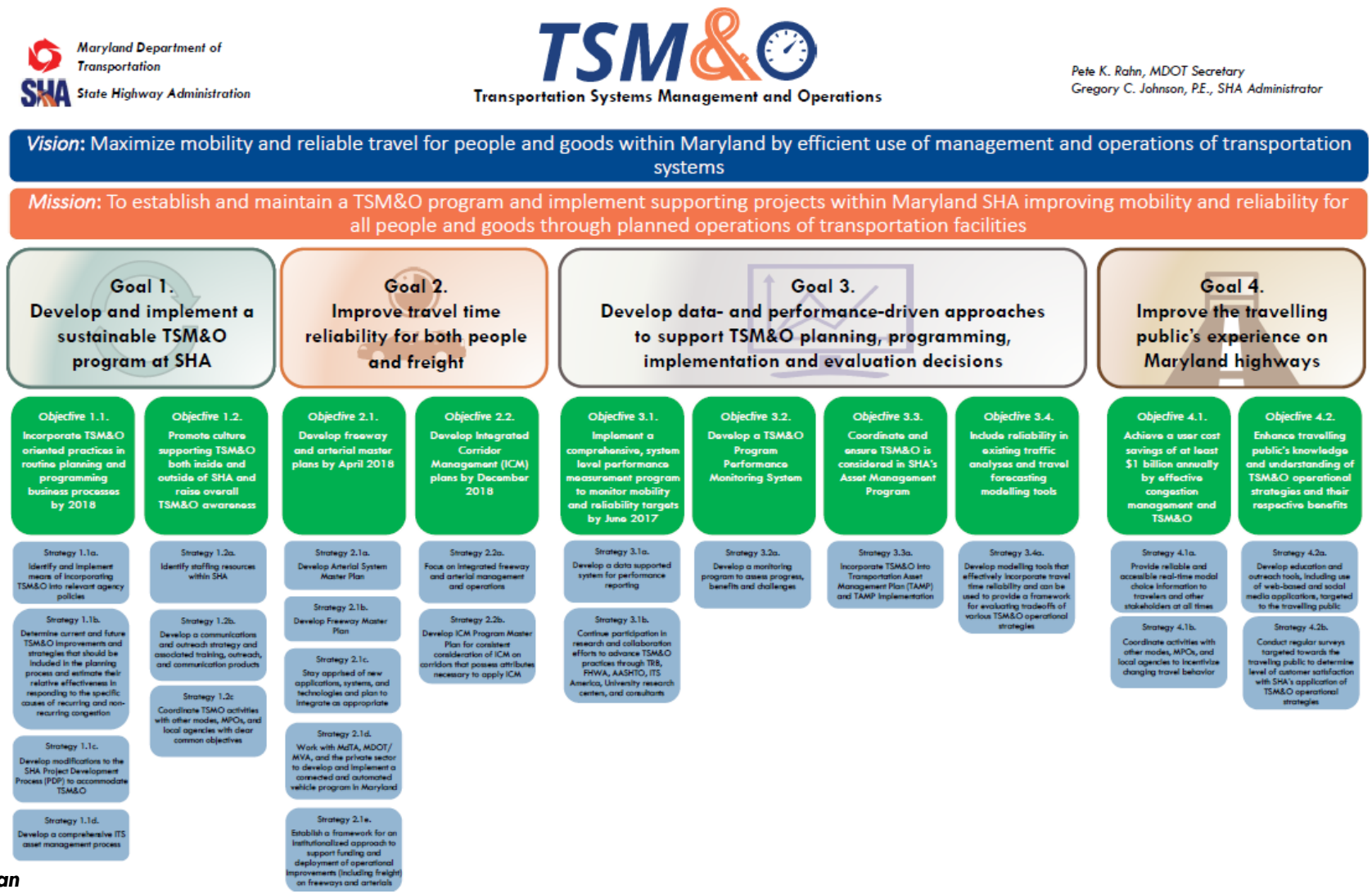


MDOT SHA TSM&O Plan



*An **integrated approach to programmatic optimization of planning, 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.*

TSM&O Plan Structure



Vision: Maximize mobility and reliable travel for people and goods within Maryland by efficient use of management and operations of transportation systems

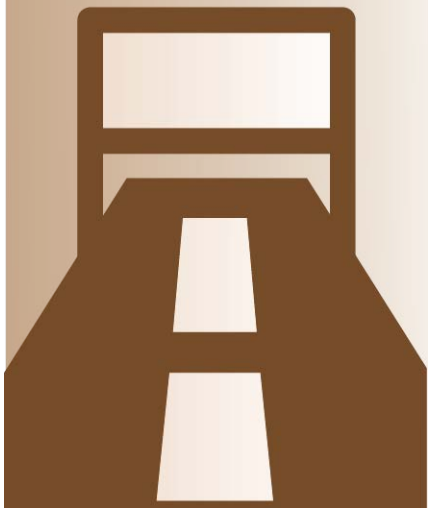
Mission: To establish and maintain a TSM&O program and implement supporting projects within Maryland SHA improving mobility and reliability for all people and goods through planned operations of transportation facilities

GOAL 1. Develop and implement a sustainable TSM&O program at SHA

GOAL 2. Improve travel time reliability for both people and freight on both arterials and freeways

GOAL 3. Develop data and performance driven approaches to support TSM&O planning, programming, implementation and evaluation decisions

GOAL 4. Improve the travelling public's experience on Maryland highways by enabling customers with information & choices



Strategy Implementation Template

TSM&O

Goal 1 - Develop and implement sustainable TSM&O program within SHA to implement TSM&O

Responsible offices

Office of Planning & Preliminary Engineering (OPPE) with support from Office of Traffic & Safety (OOTS), and Office of CHART

Resources needed

Staff hours, travel time reliability analysis tools, deterministic models, MD SHA managerial support

Timeline

1.1a.I. by Q 3 2016

1.1a.II. by Q 3 2016

1.1a.III. by Q 1 2017

1.1a.IV. by Q 2 2017

Dependencies

Strategies 1.2a. and 1.2b.

Existing plans supported by strategy

SHA Business Plan strategies 2.1.4, 2.1.5, 2.1.7

Maryland Transportation Plan – Quality of Service goal

MDOT Excellerator, Tangible Result # 2

Objective 1.1 - Incorporate TSM&O oriented practices in routine planning and programming business processes by 2018

Strategy 1.1a - Identify and implement means of incorporating TSM&O into relevant agency policies

Action items

- 1.1a.I. Evaluate the inclusion of reliability in MDOT mission, vision, and strategic plans.
- 1.1a.II. Develop a policy and procedure for TSM&O – Draft policy statement needs to address establishing TSM&O structure (office/functional area responsibilities). The procedure will include an institutional framework for TSM&O – including roles for steering and executive committees.
- 1.1a.III. Incorporate planning for operations in all processes within SHA - Maryland Transportation Plan 2035 and SHA Business Plan.
- 1.1a.IV. Identify methods for evaluating capacity vs. TSM&O options considering: service issues, network scale, time to implement, incremental improvement options capital operating and maintenance costs, cost-effectiveness related to relevant performance measures.

Deliverables

- 1a. Policy and Procedure to establish TSM&O structure for evaluating the benefits operational projects, side-by-side, with capacity projects.
- 1b. Inclusion of reliability in appropriate plans.
- 1c. Incorporation of TSM&O in SHA business processes.
- 1d. Report documenting quantitative improvements in travel times/speeds for Maryland based on identified TSM&O improvements. Comparison of existing eligible improvements to assess if mobility needs are met through new TSM&O projects.

Outcome

- TSM&O processes become institutionalized in the State Highway Administration.

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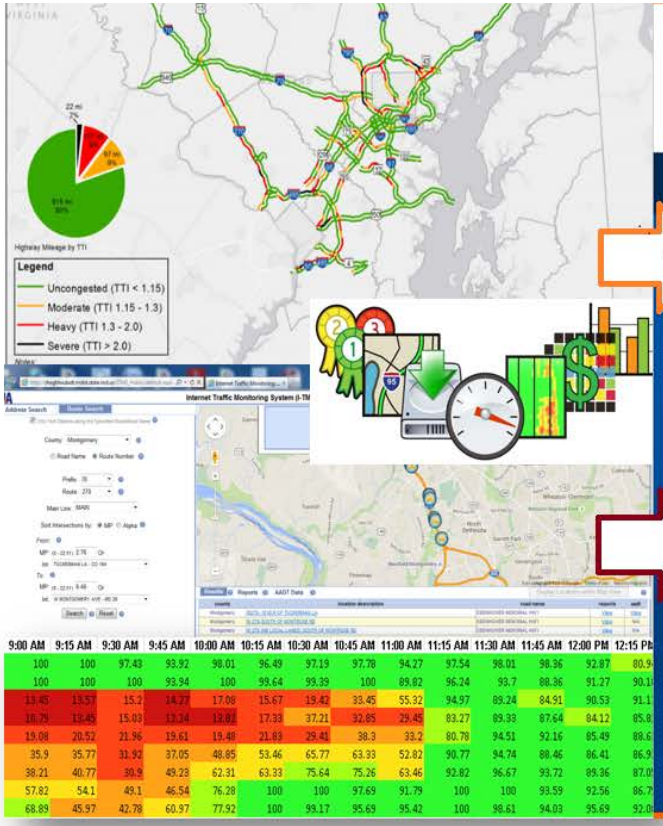
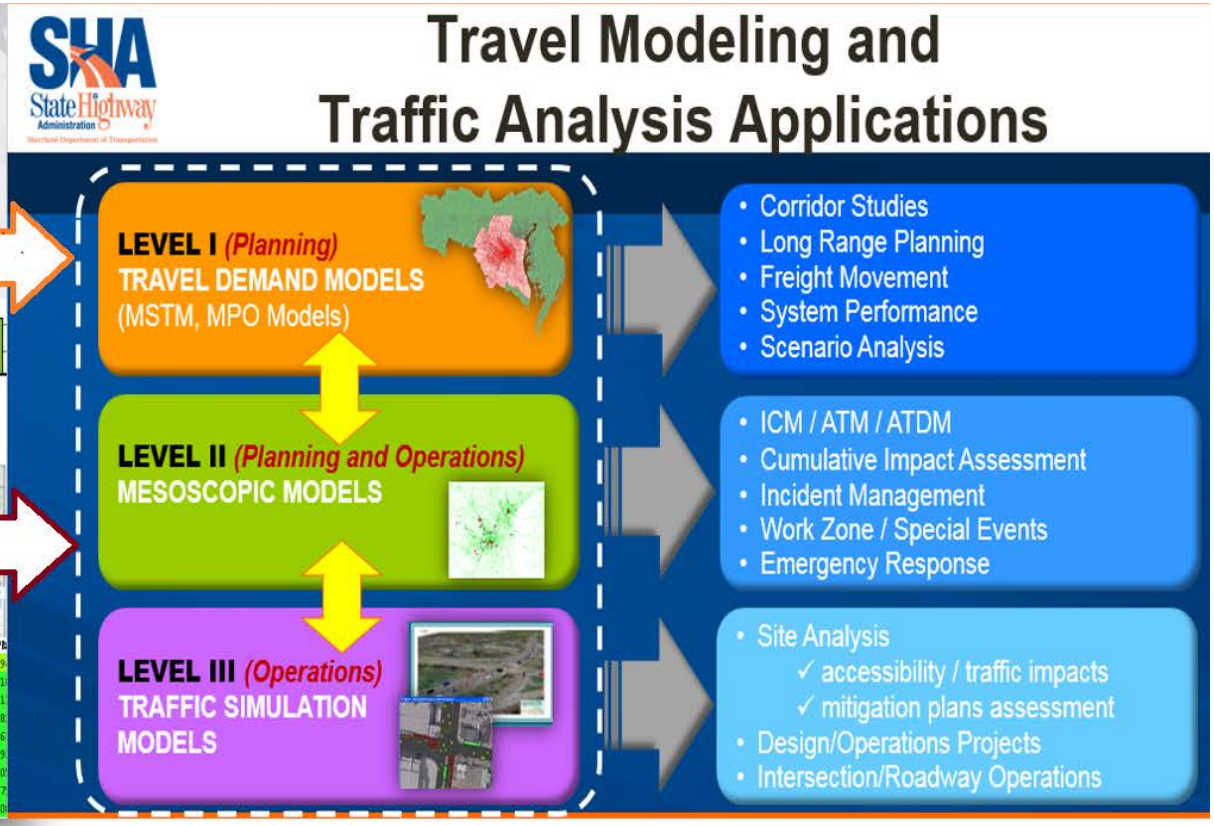
SHA

NEPA for TSM&O Projects

- SHA has developed a Freeway/ Arterial Congestion Management program that looks at low cost improvements for highly congested/ unreliable hotspots/ segments
- With Practical Design Policy, SHA identifies TSM&O Strategies/ Active Traffic Management (ATM) alternatives as mid term solutions
- TSM&O alternatives are either part of Build Alternatives or, an alternative by itself in ongoing project planning/ feasibility studies
- Ongoing projects on I-270 and I-95 provides opportunity to review NEPA aspects for TSM&O elements.

TSM&O Data/ Analytics

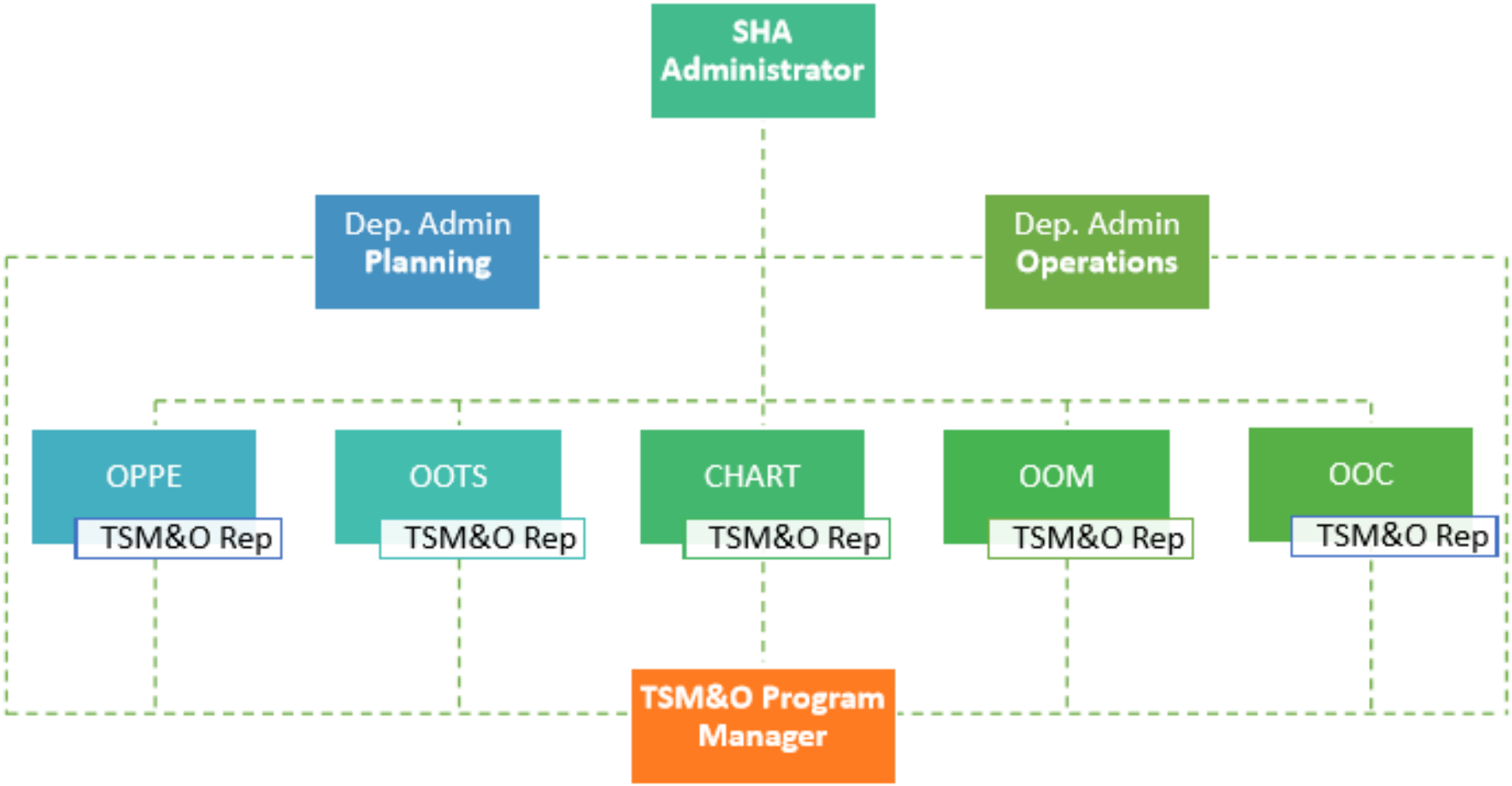




Priority Strategies and Actions

- 1.1c - Develop modifications to the SHA Project Development Process (PDP) to accommodate TSM&O
- 2.1a - Develop Arterial System Master Plan
- 2.1d - Work with MdTA, MDOT, and the private sector to develop and implement a connected/automated vehicle program in Maryland
- 2.1e - Establish a framework for an institutionalized approach to support funding and deployment of operational improvements on freeways and arterials
- 2.2a - Focus on integrated freeway and arterial management and operations

Organizational Setup



Internal & External Stakeholders/ Partners

SHA Executive Level: State Highway Administrator; Deputy Administrator/Chief Engineer for Planning, Engineering, Real Estate, and Environment; Deputy Administrator/Chief Engineer for Operations.

MVA Management: Administrator and Chair of MDOT Connected/Automated Vehicle Task Force.

Maryland Transit Administration: Core Operations; Operations Control Center; Maryland Rail Commuter (MARC) and Commuter Bus Operations; Office of Planning.

Maryland Transportation Authority (MdTA): Deputy Executive Director; Division of Operations.

Maryland Aviation Administration: Operations and Maintenance.

Maryland Port Administration: Operations.

- State, Regional, County, and Local
- USDOT units addressing TSM&O
- Business/ Economic Dev. Organizations
- Traveling Public and representative advocacy groups
- Special Event Venues
- Academic and Research Institutions
- Professional Organizations
- Partner Disciplines and Organizations
- National Weather Service

Some of the identified expected impacts and/or concerns of key external partners include

Need for awareness of TSM&O

skepticism as to its value

What about bicyclists?

Will TSM&O meet capacity needs?

Will TSM&O have unanticipated adverse impacts that might lead to speeding, cut-through traffic, or other unsafe conditions?

How will the TSM&O Program blend in with the TIP process?

What about pedestrians?

External Partner Communications and Outreach Plan

Strategic Plan Implementation Near Term Priority Actions

- Developing an Integrated Freeway & Arterial Master Plan
- Developing a Performance Based Decision Support Approach along with Data & Analysis infrastructure
- Advance TSM&O policies, programs and projects thru' implementation pilot
- Streamline processes with ongoing initiatives such as practical design, CV/AV work etc.
- Continue internal and external TSM&O communication and outreach

Cyber-Security

- The CHART ATMS operates within the MDOT Enterprise Network
- The MDOT network is firewall protected, with quarantine servers and regularly updated security software to prevent direct access into the network
- To counter cyber attacks on individual devices or sub-systems, default passwords are always changed, and the system polls devices regularly to restore central server control
- After Action Reviews (AAR) are conducted for near-incursions (we never had a successful incursion into the system)
- Admittedly, these security measures are a result of architecture decisions made in developing the CHART system, but they could be advantages to incorporating cyber-security into our TSM&O planning.

Special Events – Lessons Learned

- Maryland regularly has special events; the Star Spangled Spectacular, Washington Metro maintenance surges, Casino openings, Inaugurations, Port of Baltimore "Fleet Week".
- The key to success is coordination with stakeholders.
- It's important to include local media as a stakeholder.
- Many of the tools we currently use, Dynamic Message Signs, web sites, media broadcasts, are quite successful in preparing the pubic.
- For major events CHART Prepares an "Operations Plan" which discusses the disposition of Transportation Management resources, and is distributed to all agencies involved.
- MDOT SHA is looking to prepare After Action Reports for more events, with the understanding that it takes additional resources to prepare these reports and conduct reviews.

Operations in Context of Active Work Management

- The Maryland DOT State Highway Administrator has asked SHA personnel to develop more active work zone management capabilities
- Maryland has implemented a statewide Lane Closure Permit (LCP) system, which enables SHA to manage lane closure permit applications, and then activates lane closures for management in real-time.
- SHA with UMD CATT help has developed work zone management tools and dashboards
- SHA is working on a Work Zone Prioritization tool thru' a FHWA SHRP2 implementation project

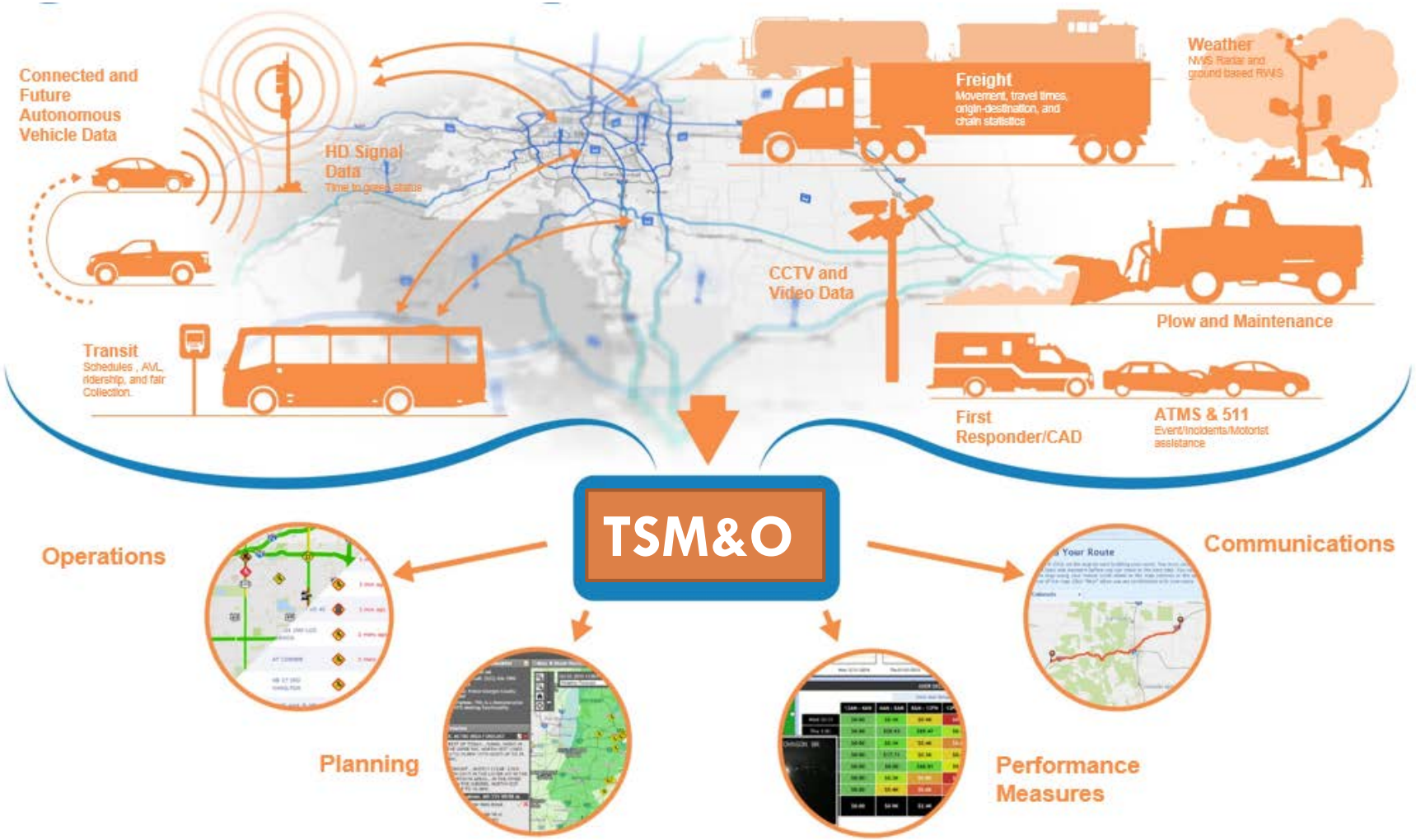
TSM&O and Maintenance

- In Maryland, the Traffic Management Center (the Statewide Operations Center) functions as the Emergency Operations Center, fully coordinating with Maintenance activities.
- The Traffic Management program develops and supports the management system, the Emergency Operations Reporting System (EORS), used by Maintenance personnel.
- Maintenance and Traffic Managers also use Automatic Vehicle Location and Vehicle Mounted Cameras to support fleet management.
- Close coordination is maintained, and personnel are primarily responsible within their respective disciplines.

Reliability Metrics

- Mobility Report Analyzes system performance by calculating the Planning Time Index for key roadways
- The CHART Traffic Incident Management program is reviewed for Number of Responses, Response Time, Clearance Time and Reduction in Delay
- Performance is report both to leadership and the public, through the Attainment Report and the Excelerator Program.

The Road Ahead …



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