





Maryland Transportation Systems Management and Operations

Presentation to the BRTB Baltimore Metropolitan Council

February 28, 2017

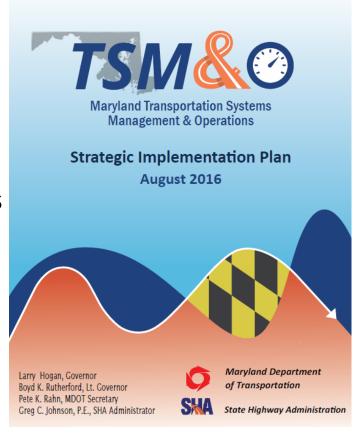
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Maryland DOT-State Highway Administration

Introduction



The Maryland TSM&O Strategic Implementation Plan

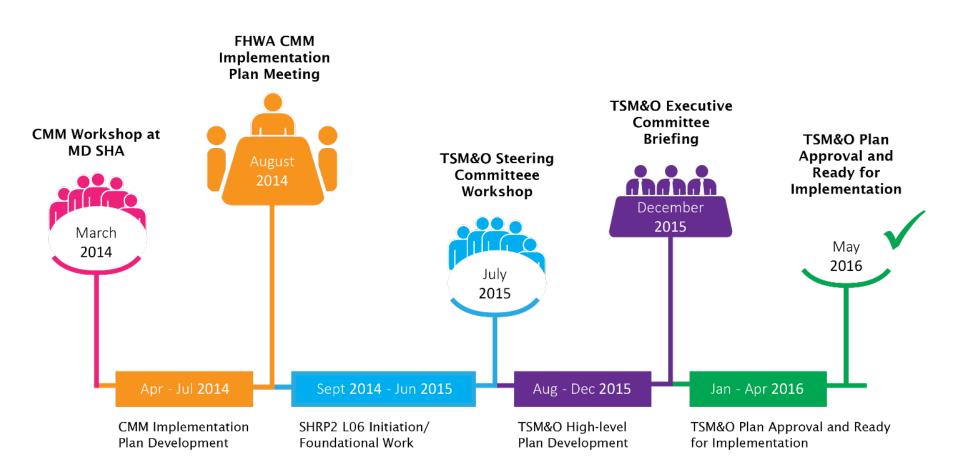
- Summarizes a business case for TSM&O
- Establishes mission, vision, goals,
 objectives and performance measures
 for TSM&O at MDOT SHA
- Identifies strategies and projects required to implement TSM&O
- Recommends resource needs to carry out plan



SHA RECOGNIZES THAT A SUCCESSFUL TSM&O PROGRAM HAS TO BE CROSS JURISDICTIONAL & MULTI-MODAL. LOCAL, REGIONAL & STATE PARTNERSHIPS IS CRITICAL...CURRENT TSM&O PLAN IS A STEP IN THAT DIRECTION...

Leading up to the TSM&O Plan





Strong Foundations for TSM&O

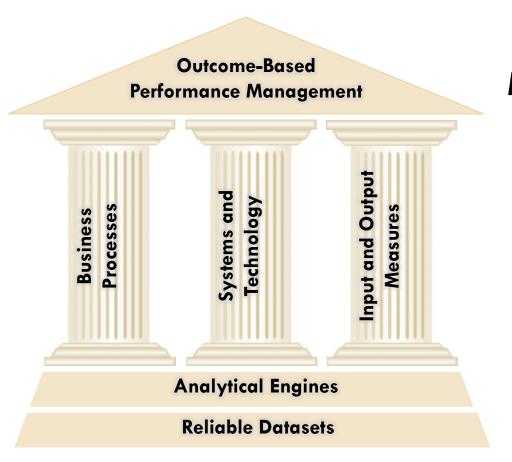




Introduction

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







Pete K. Rahn, MDOT Secretary Gregory C. Johnson, P.E., SHA Administrator

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

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

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 ISM&O into relevant agenc Objective 1.2.
Promoto culturo
supporting TSM&O
both inside and
outside of SHA and
raise overall
TSM&O awareness

Strategy 1.2a. Identify staffing resources within SHA

ith other modes, MPOs, an local agencies with dear common objectives

Strategy 1.1b.

Develop a communication and observed the strategy and strategies that should be included in the planning process and estimate field resolution and communication product presponding to the specific coaste of recurring and non-coate of recurring and

Strategy 1.1c.
Develop modifications to the SHA Project Development Process (PDP) to accommodate TSM&O

Strategy 1.1d. Vevelop a comprehensive ITS asset management process Objective 2.1.

Dovolop frooway and arterial master plans by April 2018

Strategy 2.1a.

Strategy 2.1b.

elop Freeway Master Plan

Strategy 2.1c.

Stay apprised of new

lcations, systems, and nologies and plan to 2018 Strategy 2.2a.

Objective 2.2.

Develop Integrated

Management (ICM)

plans by December

Develop Arterial System
Master Plan

Focus on Integrated freeway
and arterial management
and operations

Strategy 2.2b.

Develop ICM Program Master
Plan for consistent
consideration of ICM on
corridon that passess attributes
necessary to apply ICM

Objective 3.1.
Implement a
comprehensive, system
level performance
measurement program
to monitor mobility
and reliability targets
by June 2017

Strategy 3.1a.

Develop a data supported system for performance reporting

Strategy 3.1b.

Continue participation in research and collaboration efforts to advoice 15m8.0 practices through TRB, FHWA, AASHTO, ITS

America, University research

Objective 3.2.

Develop a TSM&O
Program
Proformance
Monitoring System

Objective 3.3.

Coordinate and
ensure TSM&O in
considered in SNA
axost Monagement

Strategy 3.3a.

Incorporate TSM&O Into Transportation Asset Management Plan (TAMP) and TAMP implementation

Strategy 3.2a.

Develop a monitoring rogram to assess progress, benefits and challenges

Coordinate and Indude reliability in existing traffic considered in SHA's Asset Management Program modelling tools

Strategy 3.4a.
Develop modelling tools that effectively incorporate travel time reliability and can be used to provide a framework for evaluating tradeoffs of various TSM&O operational strategles

Objective 3.4.

Objective 4.1. Objective 4.2.
Achieve a user cost Enhance travellin

Enhance travelling public's knowledge and understanding of TSM&O operational strategies and their respective benefits

Strategy 4.1a.

Provide reliable and accessible real-time modal choice information to travelers and other stakeholders at all times.

savings of at least

\$1 billion annually

by effective

congestion

management and TSM&O

Strategy 4.1b.

Coordinate activities with other modes, MPOs, and local agencies to incertivize changing travel behavior

Strategy 4.2a.

Develop education and outreach tools, including use of web-based and social media applications, tangetec to the travelling public

Strategy 4.2b.
Conduct regular surveys targeted towards the traveling public to determin level of automore satisfaction with SHA's application of TSM&O operational

Strategy 2.1d.

Work with MdTA, MDOT/
MVA, and the private sedor
to develop and implement a
connected and automated
vehicle program in Maryland

Strategy 2.1e.
Establish a framework for institutionalized approach support furding and deployment of operation provements (including free freeways and ortals).

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 &



Strategy Implementation Template









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.l. by Q 3 2016 1.1a.ll. by Q 3 2016 1.1a.lll. by Q 1 2017 1.1a.lV. 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.l. 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.

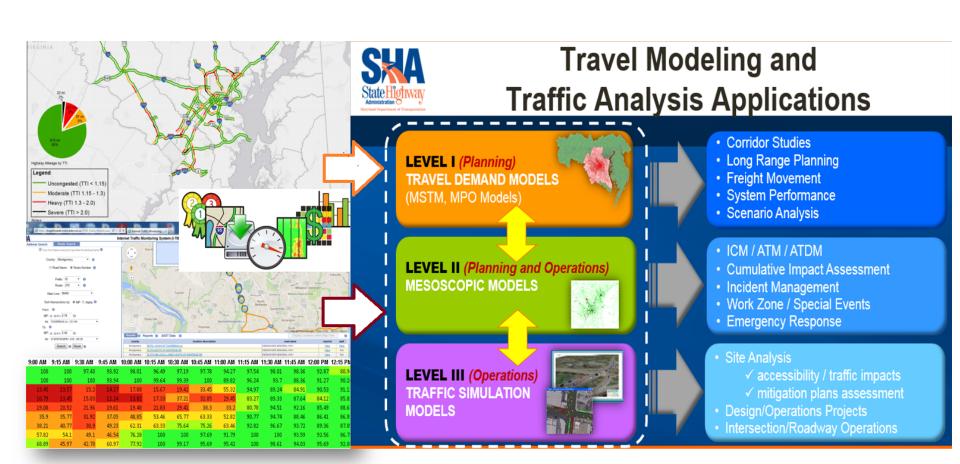


TSM&O Projects in CLRP/TIP/STIP

- 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





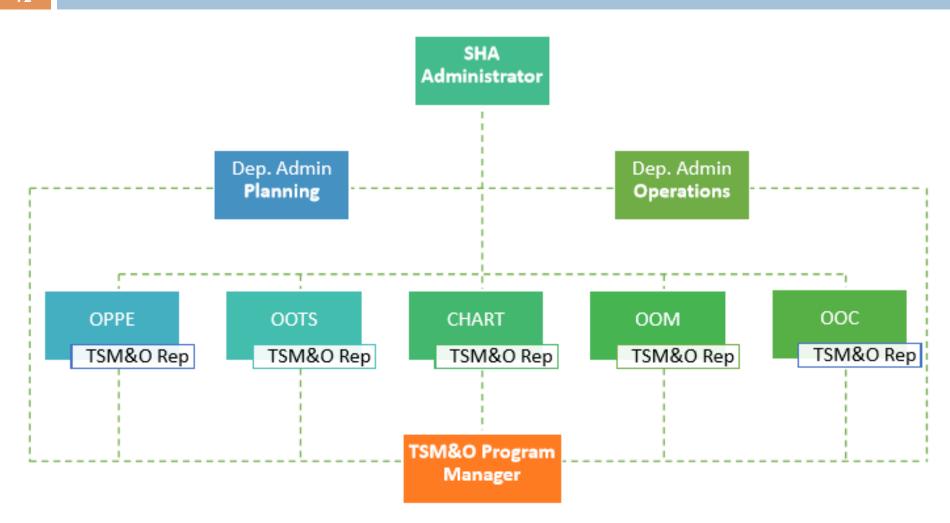
Priority Strategies and Actions



- 1.1c Develop modifications to the SHA Project Development Process (PDP) to accommodate TSM&O
- 2.1b, c Develop Arterial and Freeway 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





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

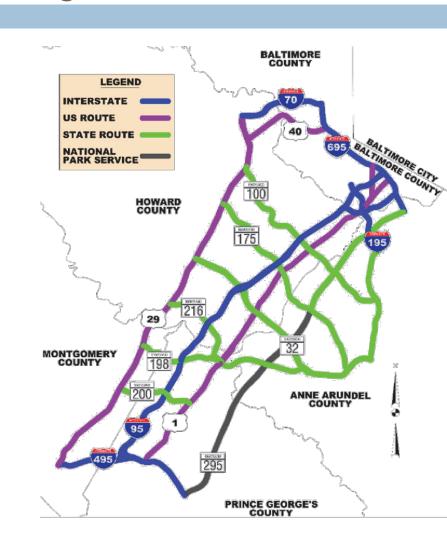
Special Events/ Work Zone Management/ Signal Systems Coordination



- Maryland regularly has special events; the Star Spangled Spectacular, Washington Metro maintenance surges, Inaugurations, Port of Baltimore "Fleet Week".
- The key to success is communication & coordination with stakeholders.
- Many of the tools we currently use, Dynamic Message Signs, web sites, media broadcasts, are quite successful in preparing the pubic.
- MD 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.
- Communication and Coordination for Signal System Operations identified as an effective TSM&O Strategy

TSM&O Implementation thru' I-95 Integrated Corridor Management Pilot

- Develop Concept of Operations (ConOps), ICM Analysis, Modeling and Simulation Plan, and ICM Deployment Approach Plan.
- Build a foundation for systematic ICM expansion throughout the Baltimore-Washington region and state
- Joint SHA/BMC project supported by UMD CATT



Internal & External Stakeholders/ Partners



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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

Traveling Public and representative advocacy groups

Professional Organizations

USDOT units addressing TSM&O

Special Event Venues

Partner
Disciplines and
Organizations

Business/ Economic Dev. Organizations

Academic and Research Institutions

National Weather Service

TSM&O Implementation

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



Need for awareness of TSM&O

skepticism as to its value

What about bicyclists?

What about

pedestrians?

Will TSM&O have that might lead to speeding, cut-through traffic, or other

unanticipated adverse impacts

unsafe conditions?

Will TSM&O meet capacity needs?

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

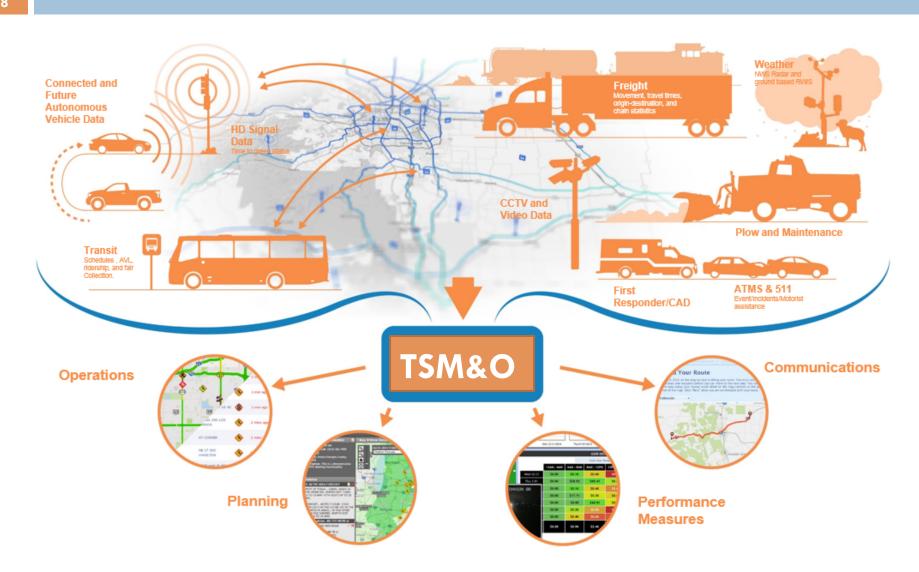


TSM&O Implementation

External Partner Communications and **Outreach Plan**

The Road Ahead ...





Contact Information



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