



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

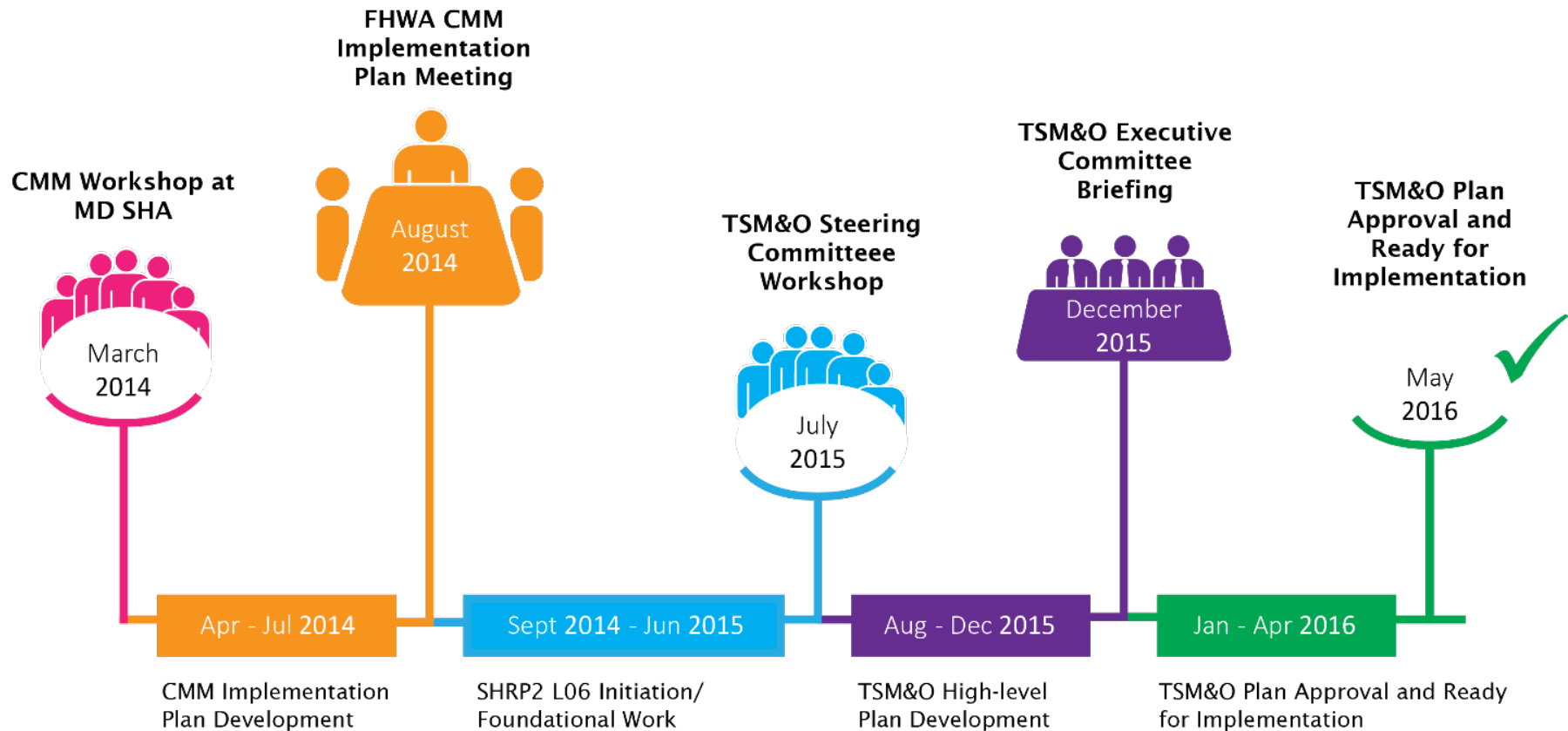
- Summarizes a business case for TSM&O
- Establishes mission, vision, goals, objectives and performance measures for TSM&O at MDOT SHA
- Identifies strategies and projects required to implement TSM&O
- Recommends resource needs to carry out plan



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

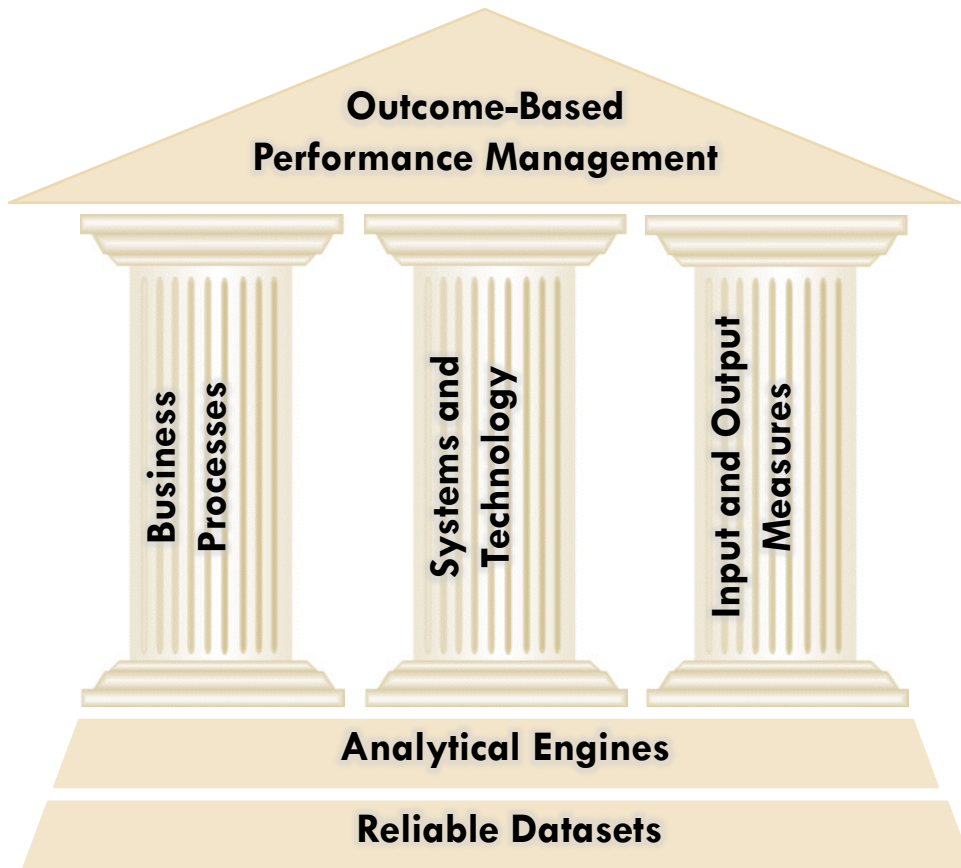
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Strong Foundations for TSM&O



MDOT SHA TSM&O Plan

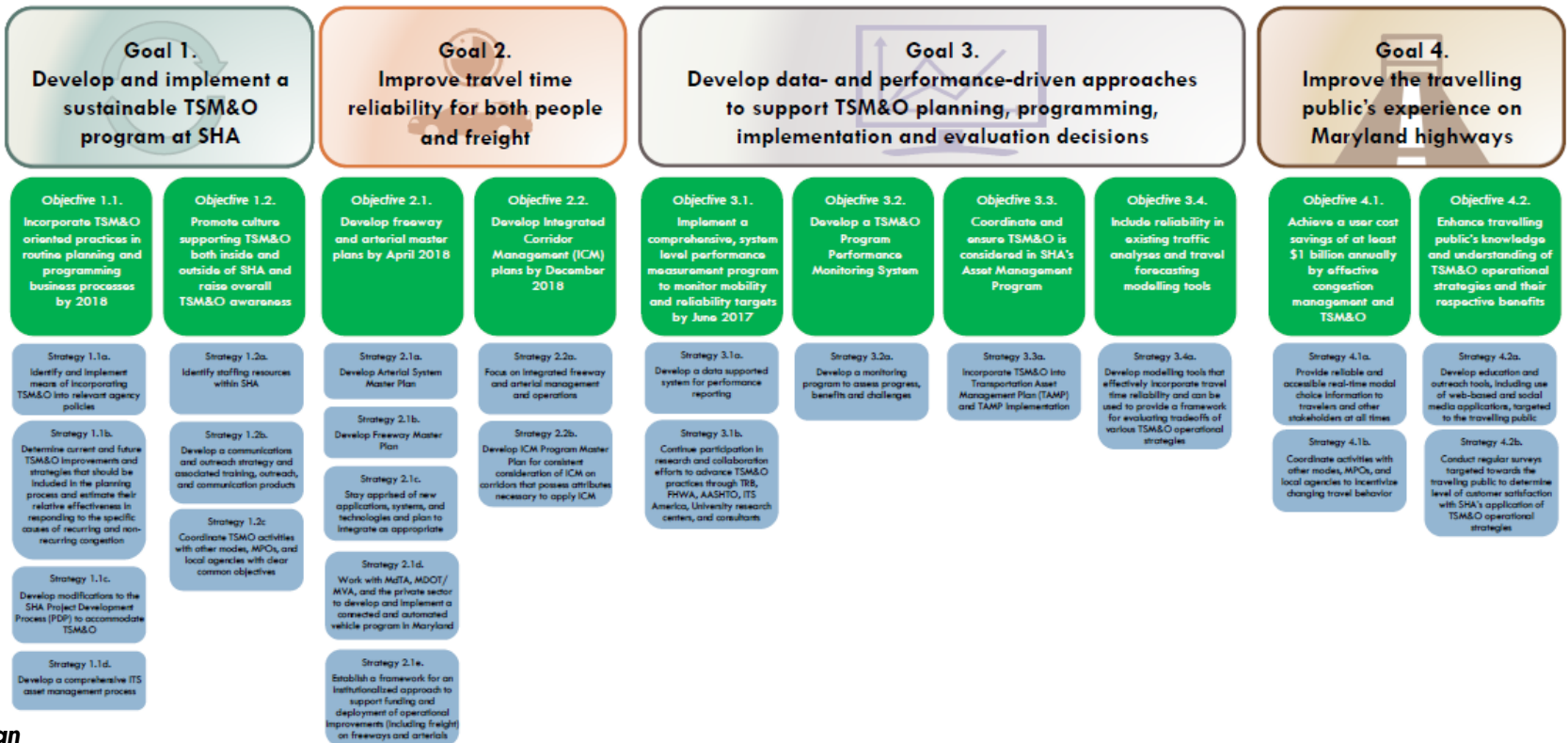


An integrated approach to programmatic optimization of planning, operations, and maintenance in implementing new and existing multi-modal systems, services, and projects to preserve capacity and improve the security, safety, and reliability of our transportation system.

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



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



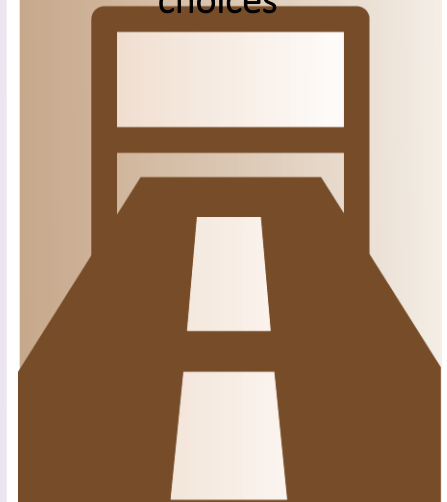
GOAL 2. Improve travel time reliability for both people and freight on both arterials and freeways



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

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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

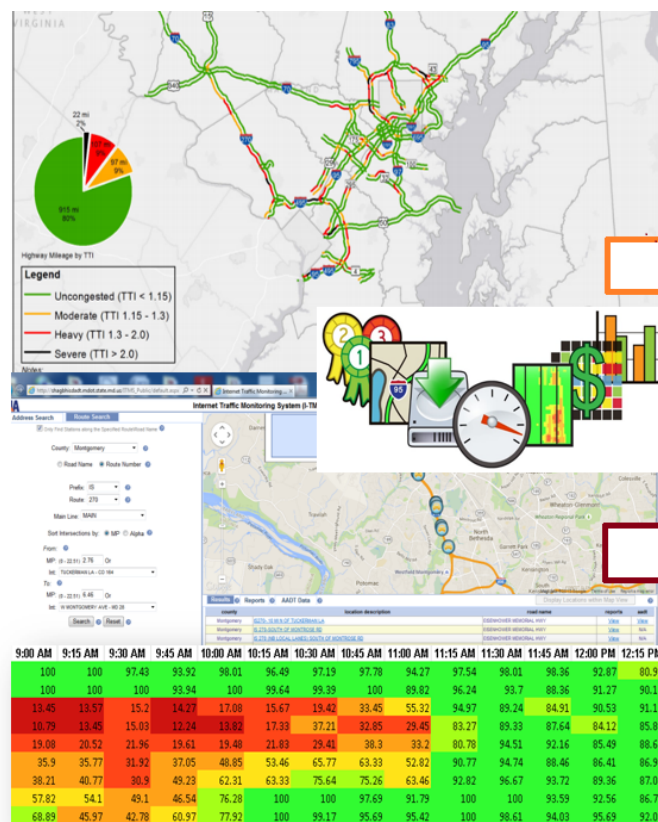
- TSM&O processes become institutionalized in the State Highway Administration.

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

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Travel Modeling and Traffic Analysis Applications

LEVEL I (Planning)
TRAVEL DEMAND MODELS
(MSTM, MPO Models)

LEVEL II (Planning and Operations)
MESOSCOPIC MODELS

LEVEL III (Operations)
TRAFFIC SIMULATION
MODELS

- Corridor Studies
- Long Range Planning
- Freight Movement
- System Performance
- Scenario Analysis

- ICM / ATM / ATDM
- Cumulative Impact Assessment
- Incident Management
- Work Zone / Special Events
- Emergency Response

- Site Analysis
 - ✓ accessibility / traffic impacts
 - ✓ mitigation plans assessment
- Design/Operations Projects
- Intersection/Roadway Operations

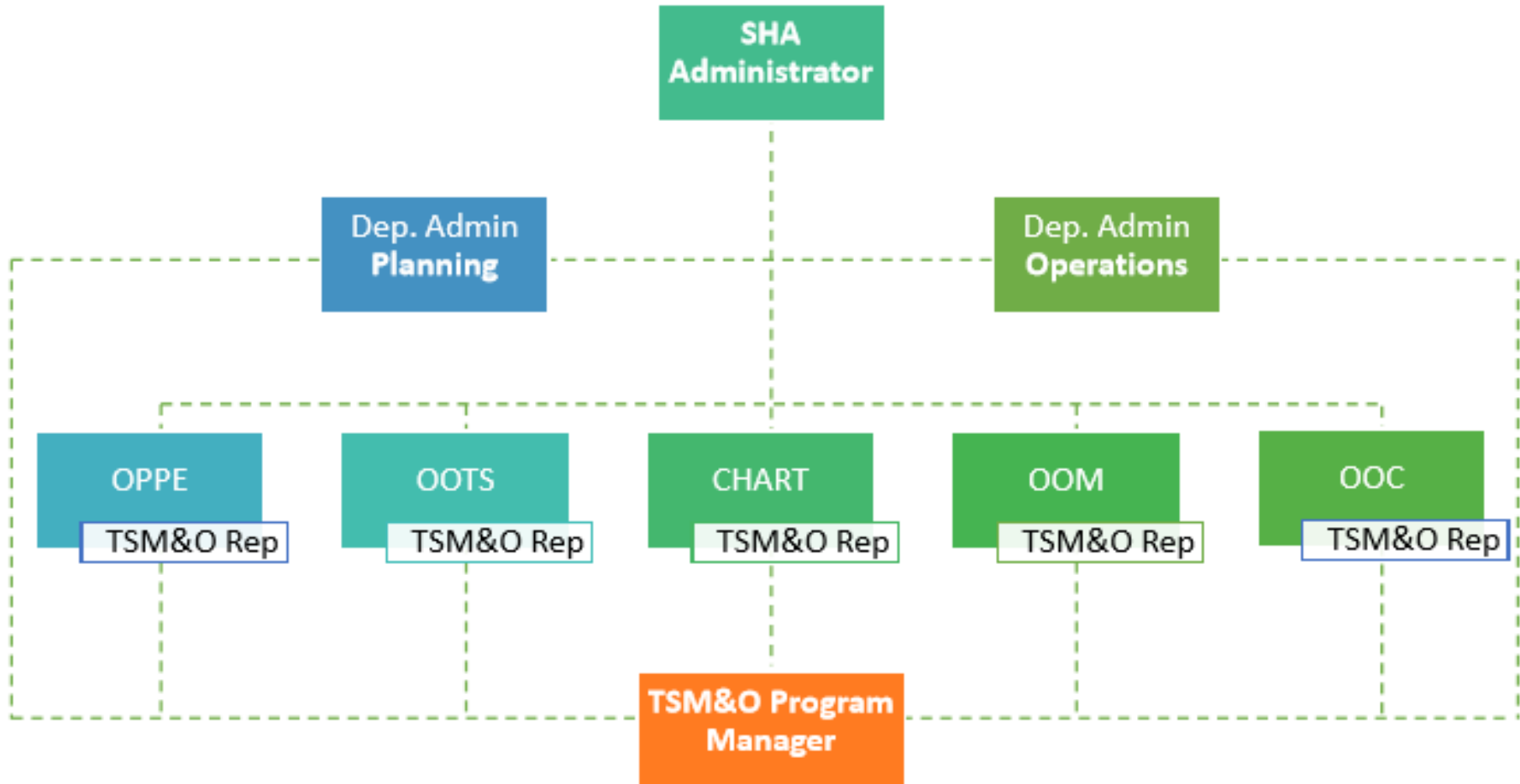
Priority Strategies and Actions

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- 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

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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**

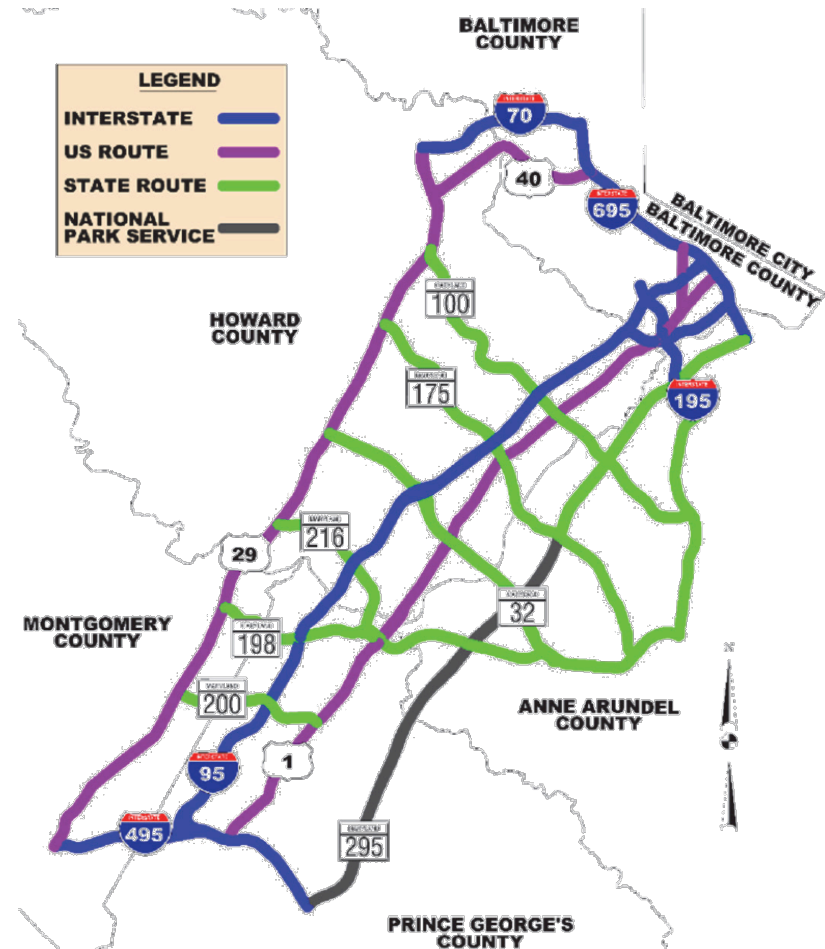
Special Events/ Work Zone Management/ Signal Systems Coordination

- 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 public.
- 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

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- 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

USDOT units
addressing
TSM&O

Business/
Economic Dev.
Organizations

Traveling Public
and
representative
advocacy
groups

Special Event
Venues

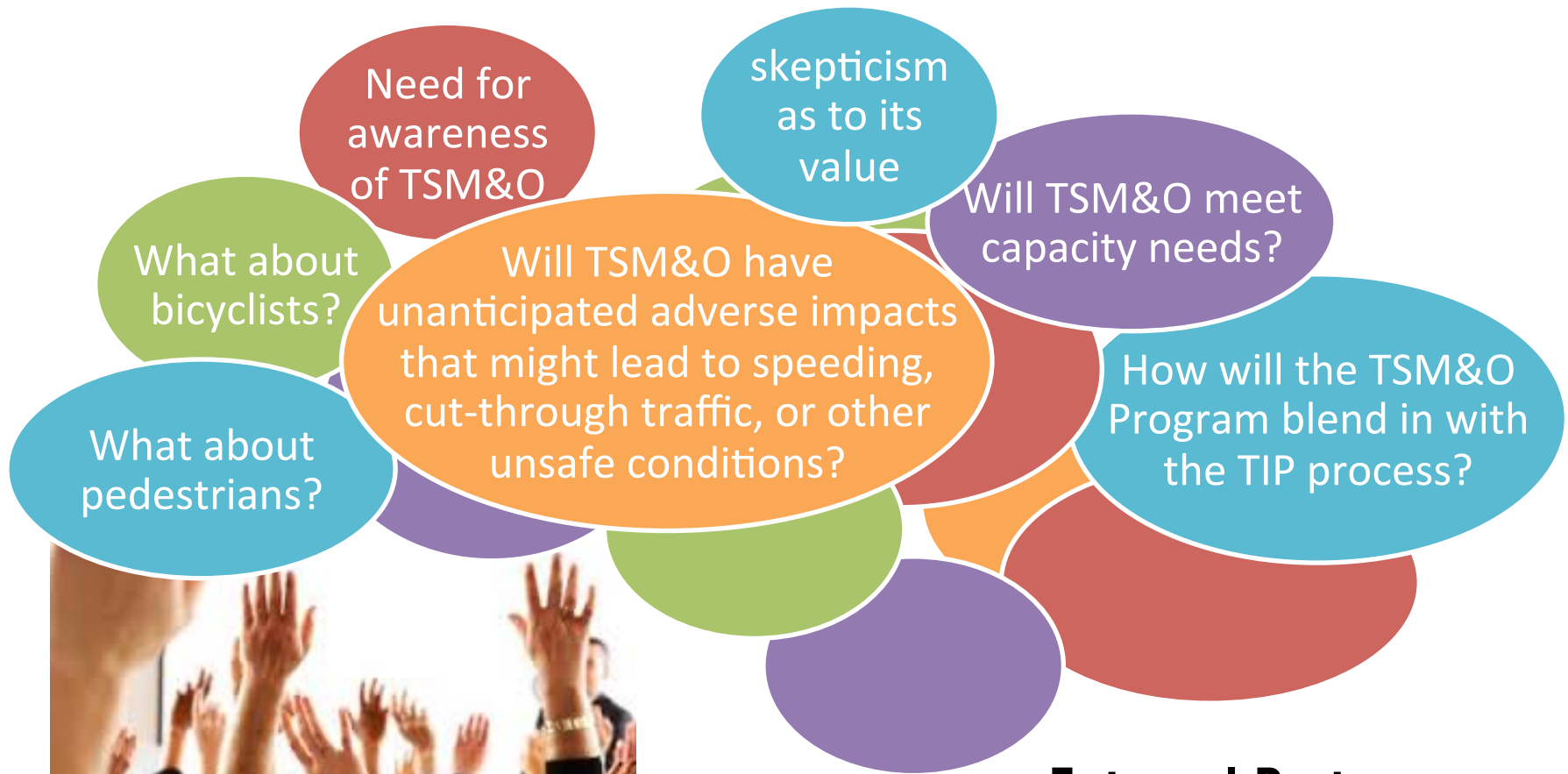
Academic and
Research
Institutions

Professional
Organizations

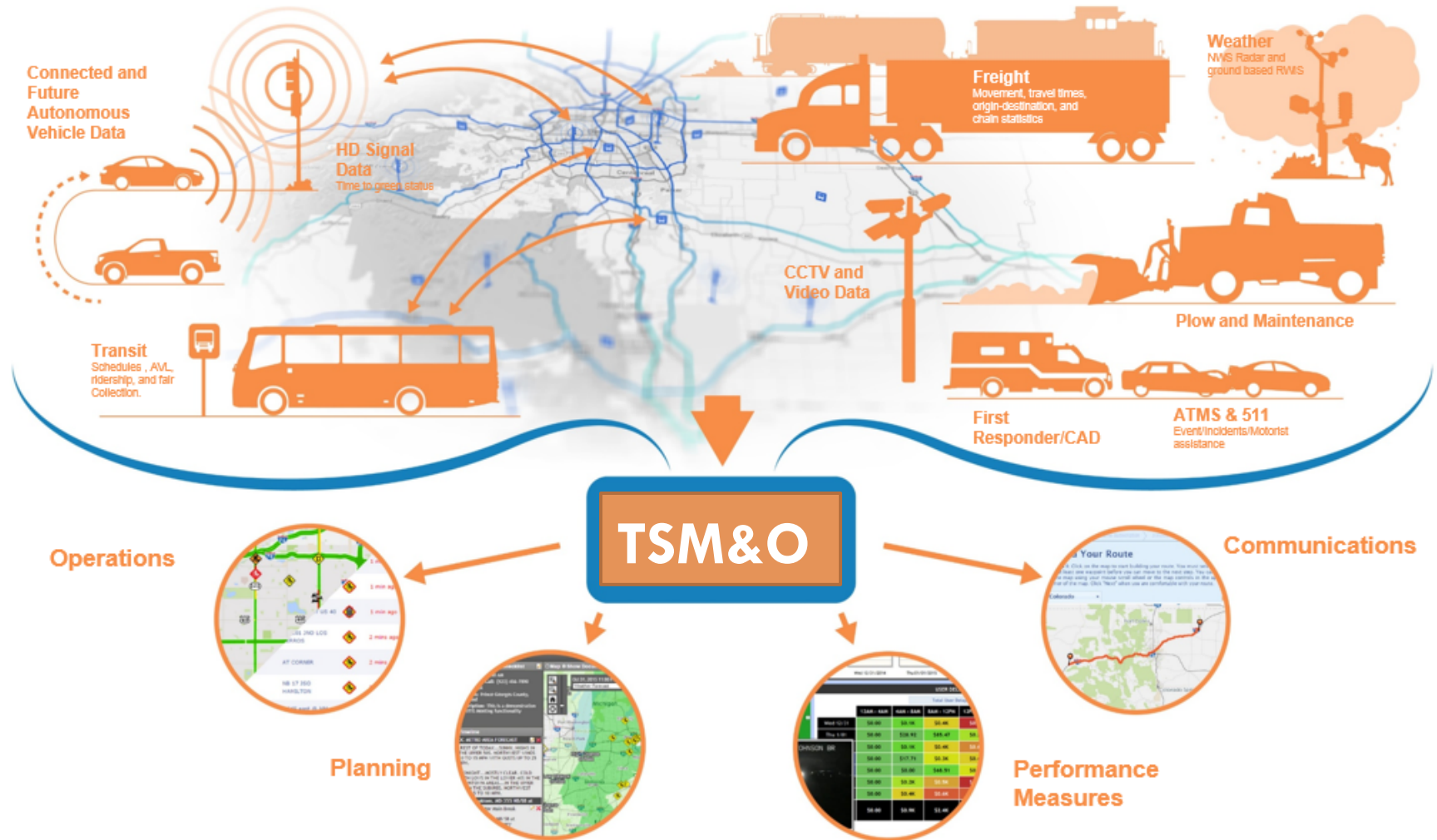
Partner
Disciplines and
Organizations

National
Weather Service

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



**External Partner
Communications and
Outreach Plan**



Contact Information

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<http://www.roads.maryland.gov>