Using the SHRP2 Products for Advancing TSM&O Within Maryland

NASTO Annual Meeting

June 8, 2015

Gregory I Slater, Director,
Office of Planning and Preliminary Engineering
Maryland State Highway Administration

Presentation Overview

- Background - Maryland and TSM&O
- Getting to the next “level” – TSM&O “capability maturity”
- Action item implementation
- Related SHRP2 and other initiatives

About Maryland SHA

- Maryland is home to 6 million people with lots of geographic and socio-economic diversity
- SHA operates and maintains the numbered, non-toll routes in - 17,000 lane-miles and 2,576 bridges
- SHA roadways serve 65% of state VMT and 85% of truck VMT

Focus on Operations?

- Maryland transportation system in the Baltimore-Washington region is one of the **most congested** in the nation.
- Limited opportunities for system expansion –must focus on **system efficiency and reliability**.
- Users have tolerance to congestion to some degree, **variability of travel time is more burdensome**.
- SHA sees this as a great opportunity to **ensure reliable travel experience for people and goods** .
- Well-established operational framework, but **great opportunity to take it to the next level**.

Maryland Motivation for SHRP2 Product Implementation

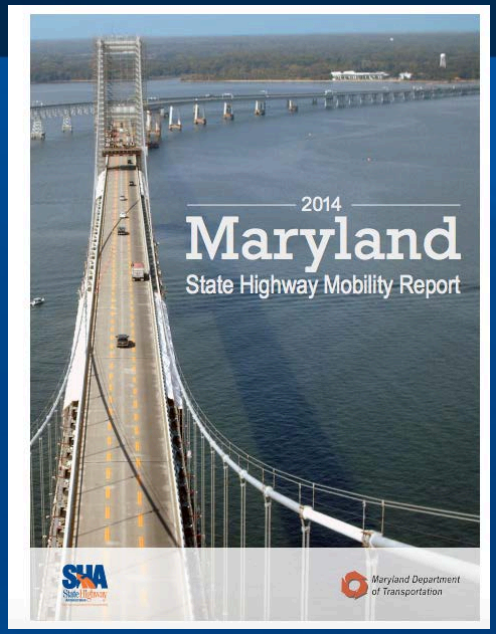
- Performance Management and Data driven decision-making at all levels
- Performance based Planning and Programming
- Increased focus on Operations and mainstreaming TSM&O
- System Efficiency and Reliability are key drivers
- Freight movement and economic impacts of transportation investments
- Communicating Performance

Maryland Motivation for SHRP2 Product Implementation

- Maryland SHA is a recipient of FHWA SHRP2 Implementation Assistance in four projects
  - Organizing for Reliability (L06)
  - Behavior based Freight Models (C20)
  - Advanced Travel Analysis Tools (C10)
  - Reliability Data and Analysis Tools (L38)
- SHA received a total of $1.6 Million in Implementation Assistance for above projects.

Interrelated TSM&O "driving forces"

- 2014 annual mobility report
- Mobility/economy dashboard
- Reliability Roadmap
- Analysis, modeling and simulation tools



- Built around a theme of:

What's happening?

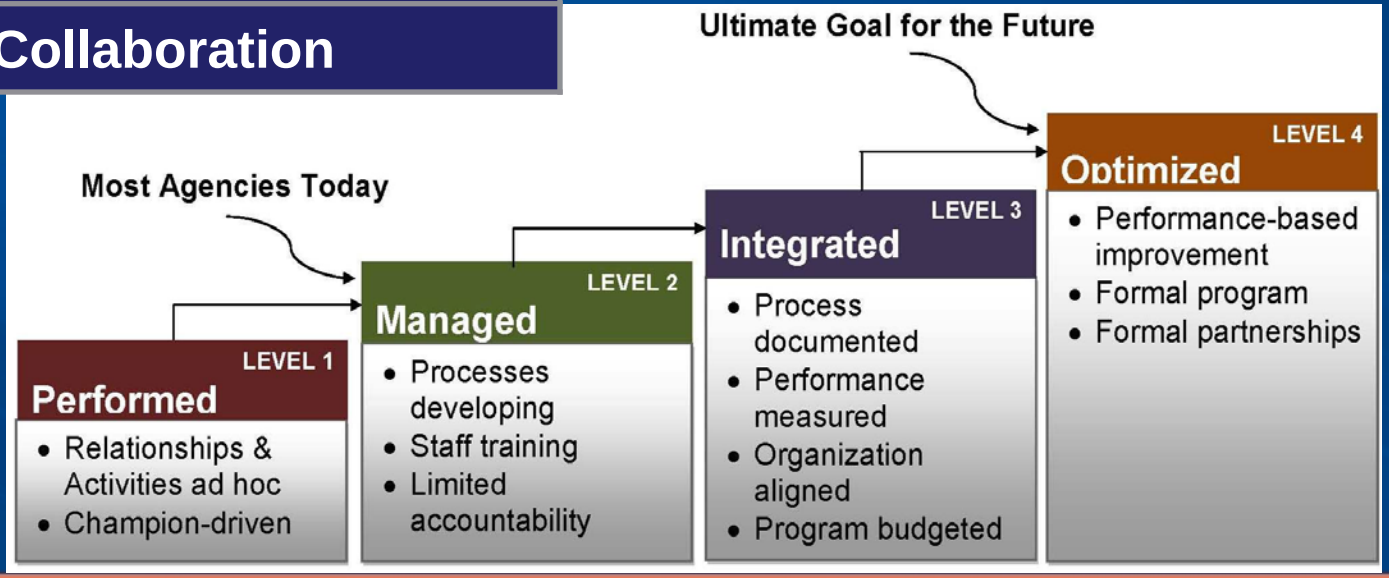
What is SHA doing?

What is the outcome?

Critical Dimensions for Improved Operations

- Business Processes
- Systems & Technology
- Performance
- Culture
- Organization / Staffing
- Collaboration

- All (6) dimensions are Essential and Interrelated
- Requires executive support and leadership
- Objective is continuous improvement of operations and reliability



Capability Maturity Evaluation

SHA senior management identified:

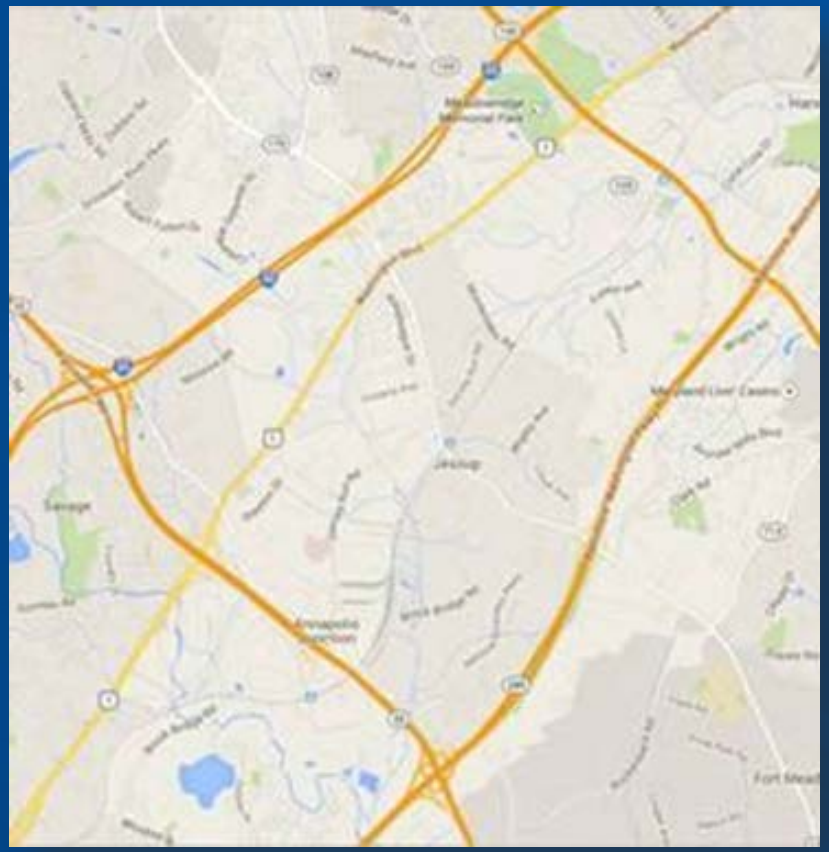
- Strengths, weaknesses, and strategies to move to the next levels
- Current levels of capability regarding key processes, organization, staff, and collaboration issues
- Potential strategies/actions to improve regional TSM&O efforts

Business Processes (Planning and Programming)

- **Develop a SHA TSM&O strategic plan and detailed implementation plan**
- Develop modifications to standard SHA project processes
- Development process to accommodate TSM&O in planning and project development

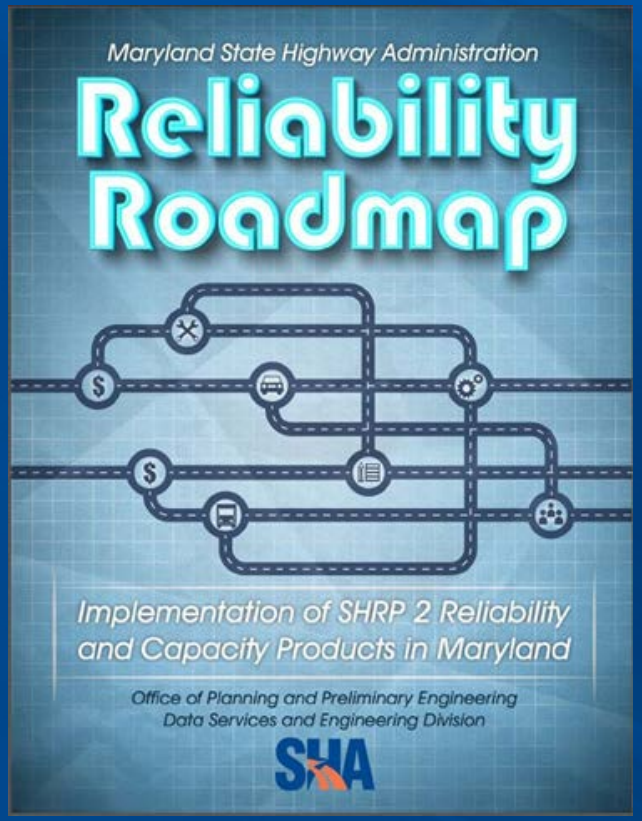
Systems and Technology

- Pilot implementation
- I-95 / MD 32 / MD 295 / MD 100
- ConOps to identify TSM&O strategies
  - Ramp metering
  - ATM
  - Short-term geometric improvements



Performance Measurement

- Develop TSM&O data business plan
- Develop and implement a travel time reliability monitoring program
- Develop modeling plan and tools for supporting TSM&O analysis
- Other related initiatives (e.g., WZPMA, Freight Fluidity)



Remaining Capability Dimensions and Actions

- **Culture**
  - Develop business case for TSM&O (part of TSM&O strategic plan)
- **Organization and Staffing**
  - Develop TSM&O program framework (part of TSM&O strategic plan)
- **Collaboration**
  - Enhanced reliability performance measure coordination between SHA, MPO's, and local agencies

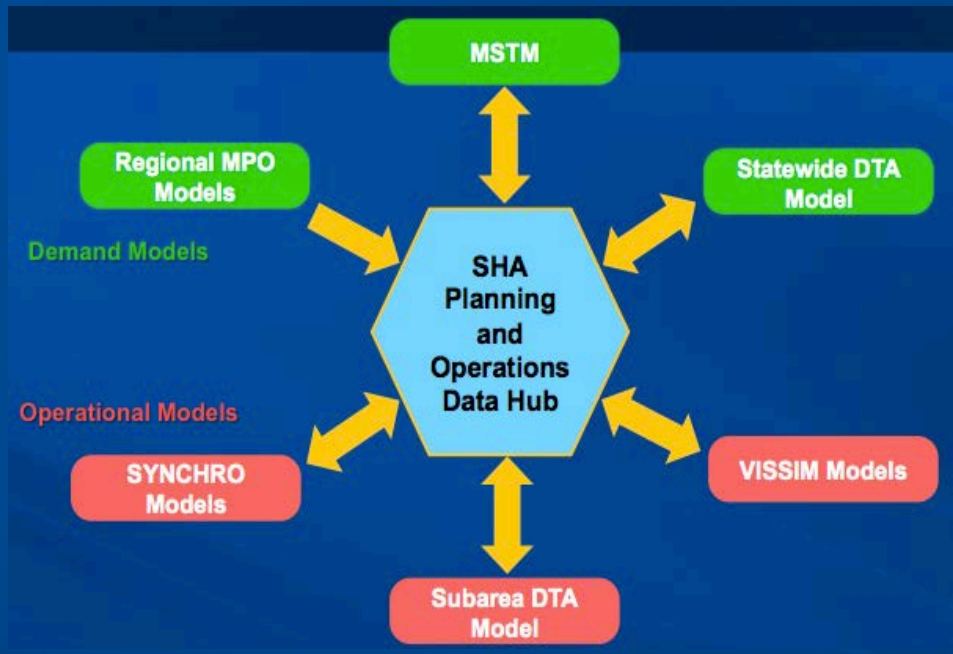
Related SHRP2 Projects
Advanced Travel Analysis Tools (C10)

SHA will develop multi-resolution and time-dependent travel demand models for integrated ***planning and operations***

MITAMS
Maryland Integrated Travel Analysis Modeling System

KEY FEATURES

- Data Hub
- Multi-resolution network
- Statewide Model/ DTA
- Corridor/ Sub-area AgBM/ DTA
- ABM/ DTA Integration



Related SHRP2 Projects

Reliability Data and Analysis Tools (L38)

CAUSES OF UNRELIABILITY

Inclement Weather

Fluctuations in Demand

Crashes

Work Zones

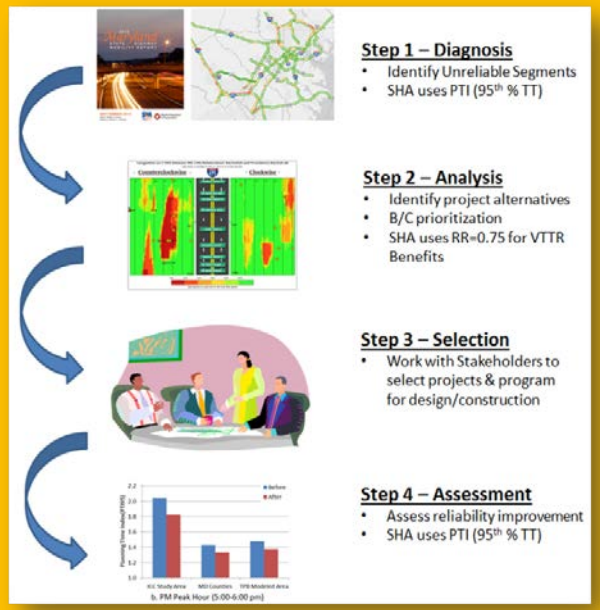
Poorly Timed Traffic Signals

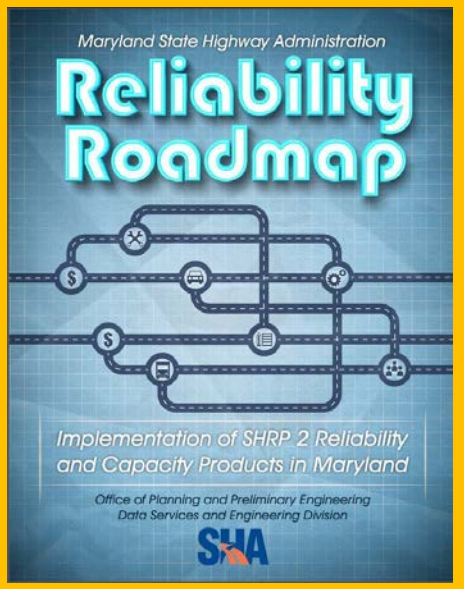
SHAs FOUR-STEP APPROACH

SHA developed a Reliability Roadmap in Summer 2014

Phased Approach to develop a comprehensive program that improves reliability of our system

SHRP2 Projects will be used to execute Roadmap task activities.





QUESTIONS?

Gregory I Slater, Director
Office of Planning and Preliminary Engineering
Maryland State Highway Administration
707 North Calvert Street, C411
Baltimore, Maryland 21202
410-545-0412
gslater@sha.state.md.us

MD SHA SHRP2 Products Implementation
Subrat Mahapatra, smahapatra@sha.state.md.us

FHWA:
Joe Gregory, joseph.gregory@dot.gov

AASHTO:
Gummada Murthy, gmurthy@aashto.org