5th International Transportation Systems Performance Measurement and Data Conference

Intermodal or Multimodal: It's About People and Freight – State of the Practice

Mobility Performance Management:

Maryland State Highway Administration's Performance-Based Approach for Improving Mobility, Reliability and Multi-modalism

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Maryland State Highway Administration

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

SHA Decision-making Framework

3

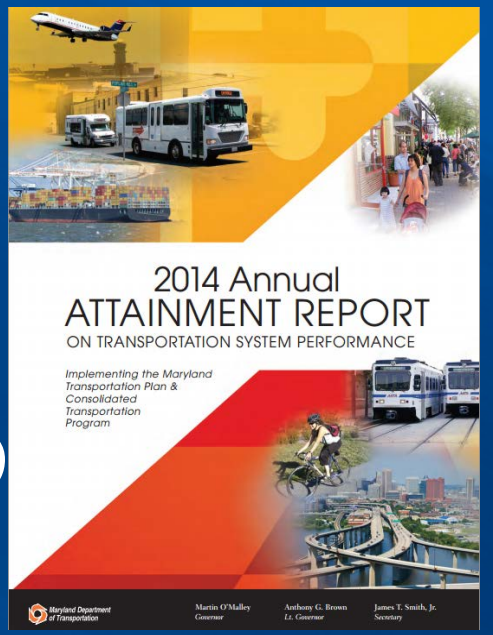
WHY?	HOW?	WHAT/ WHEN/ WHERE?
Goals/ Needs	**Process/ Program**	**Projects/ Outputs**
SAFETY	CSIS/ CSIL RSA/ PRSA Safety Corridors	Spot/ Corridor Level Safety Improvements Major/Mid-Major
MOBILITY	Annual Mobility Report MD Statewide Model Comp. Hwy. Corr. (CHC)	Major/Minor Projects Signals, Bike/ Peds ATDM, Incident Mgmt.
SYSTEM PRES.	Transportation Asset Management Systems (Pavement, Bridges, Signals)	Resurf, Bridge Repair/ Rehab., CC Adaptation, Signals, etc..
ENVIRONMENT	Green Infrastructure Carbon Neutral Corr.	SWM Facilities Reforestation TMDL Reductions

Outcome

Safe, well-maintained and reliable highway system for Maryland's communities, economy and environment

Key Drivers for Performance based Approach

- Support MDOT & Administration initiatives, policies and goals.
- Statutory Regulatory Requirements
  - *Managing for Results (MFR)/StateStat*
  - *MDOT Attainment Report*
  - *Government Performance and Results Act (GPRA)*
- Ensures agency accountability with reliable data and processes
- Target Setting and Outcome oriented approach



Performance Management at SHA

- Performance Management and Data driven decisions at all levels
- Increased focus on Operations
- System Efficiency & Reliability key
- Freight movement and Economy
- Communicating Performance

SHA Mobility/ Economy KPA

Various objectives, performance measures and strategies to achieve SHA Mobility goals

Key Areas

- *MOBILITY AND RELIABILITY*
- *INCIDENT MANAGEMENT AND TRAVELER INFORMATION SYSTEMS*
- *MULTIMODALISM/ SMART GROWTH*
- *FREIGHT*

MD Annual State Highway Mobility Report

Maryland State Highway Annual Mobility Report

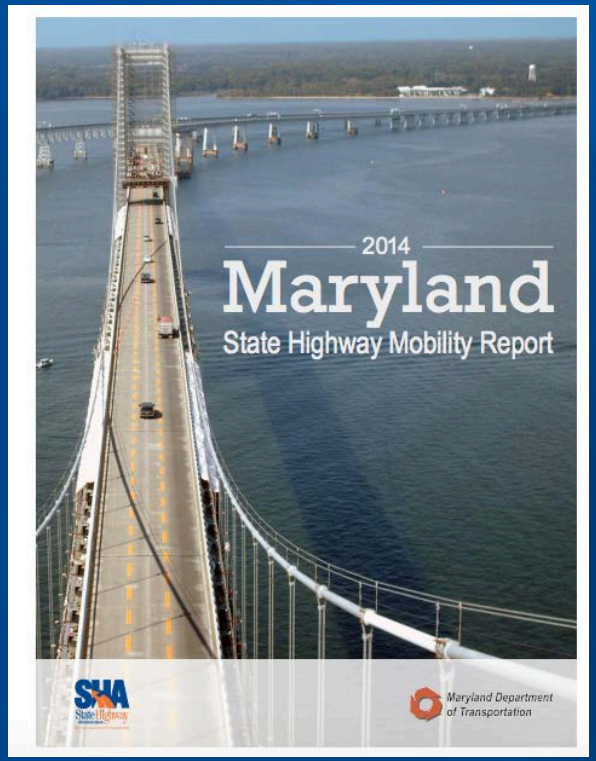
Background

- Developed to document key initiatives at SHA as it relates to Mobility KPA
- Started in 2012…in the third year of publication
- Exemplifies SHA data and performance based decision-making framework
- Built around a theme of:

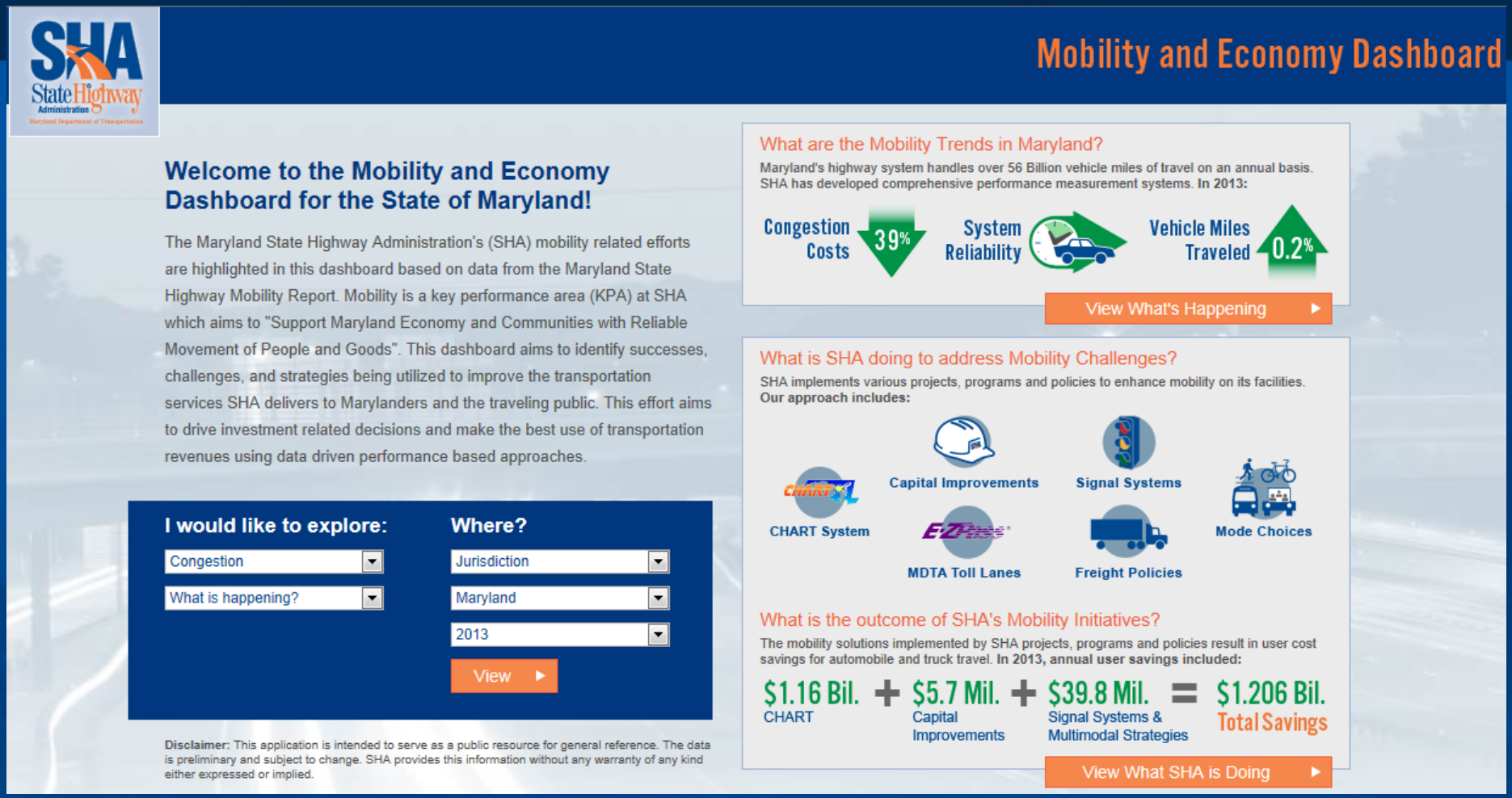
What's happening?

What is SHA doing?

What is the outcome?



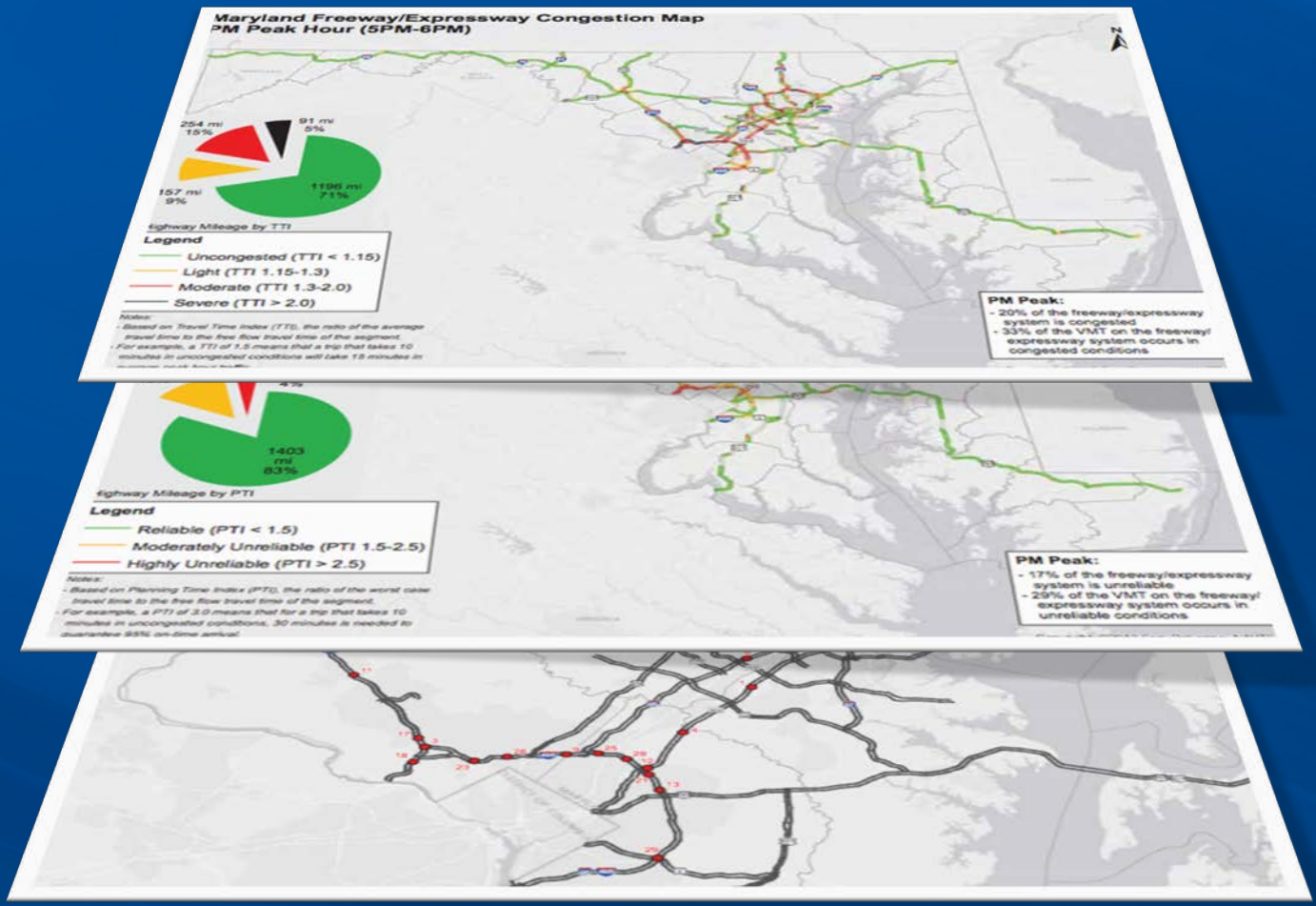
Mobility Trends – What is Happening?



- Web-based Solution
- Increase Transparency
- Performance Based Approach

Mobility/Reliability Performance Management

GOOD DATA DRIVING DECISIONS…



Improving Reliability

CAUSES OF UNRELIABILITY

Inclement Weather

Fluctuations in Demand

Crashes

Work Zones

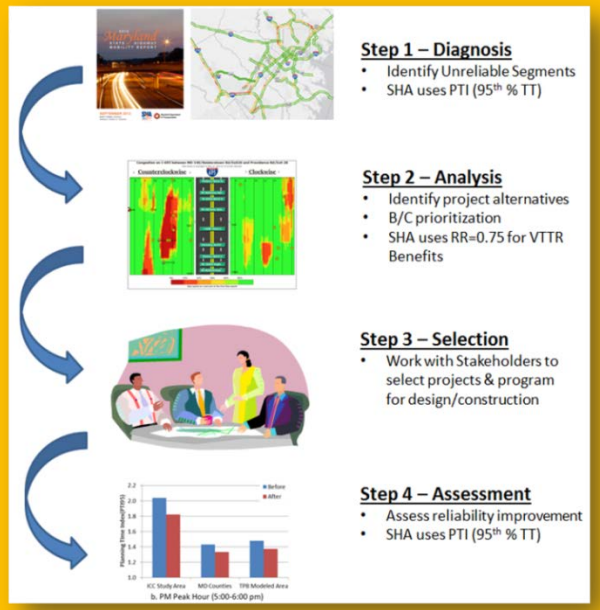
Poorly Timed Traffic Signals

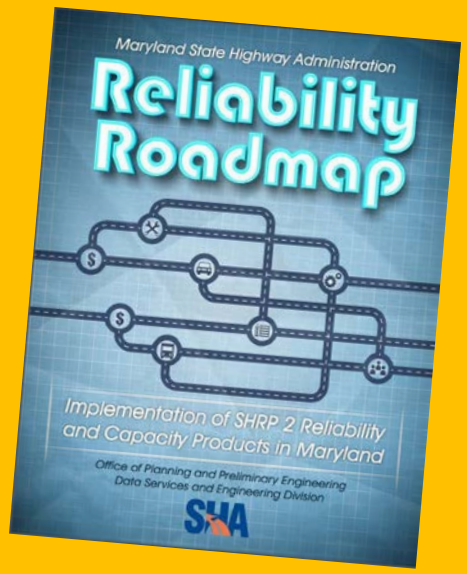
SHAs FOUR-STEP APPROACH

SHA developed a Reliability Roadmap in Summer 2014

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

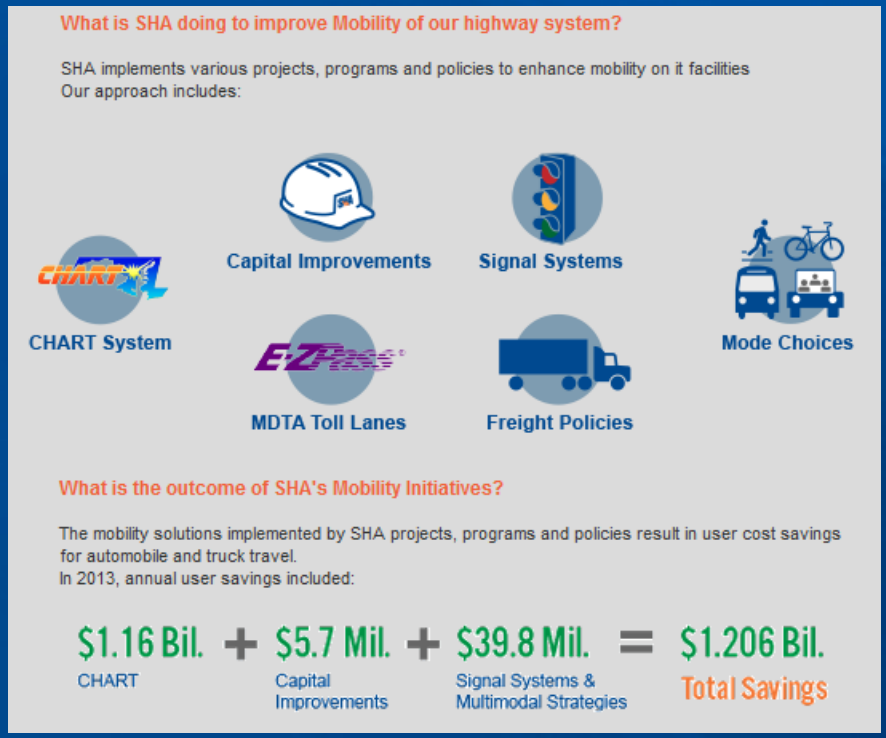
SHRP2 Projects will be used to execute Roadmap task activities.





What is SHA doing?
What is the OUTCOME?

- **Projects**
  - Major and Minor Projects
- **Programs**
  - Signal retiming
  - CHART/Incident Management
  - ITS/511
- **Policies**
  - Park N Ride
  - HOV Users
  - Reversible Lanes
  - Bicycle & Pedestrian
  - Transit Oriented Development
  - MDTA Toll Lanes

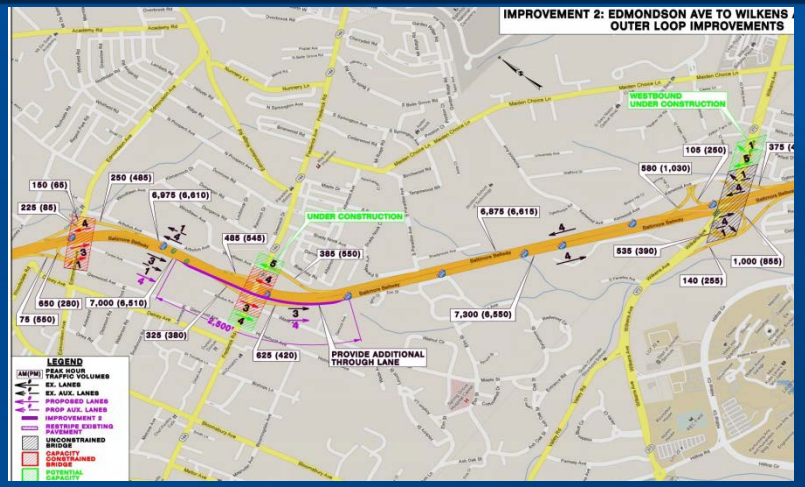


SHA Congestion Management Program

- Performance based approach to identify and implement high benefit-low cost projects on freeways and arterials
- Adopts a systemic data driven approach of
  - Diagnosis
  - Analysis
  - Selection
  - Implementation
  - Assessment

Freeway Congestion Management Program

- Identify Congestion Hotspots and Sources using vehicle probe speed and traffic counts
- Develop Traffic Simulation Models to evaluate Low Cost Short Term Improvements analyzed in a Benefit/Cost Context
- Projects carried forward thru' Design and Construction



Arterial Congestion Management Program

- Identify Congestion Hotspots and develop low cost improvements
- Concepts have overall system level positive impacts
- Concepts analyzed in a Benefit/ Cost and Life-Cycle Context
- Projects carried forward thru' Design and Construction

Safety Savings (millions)	Operational Savings (millions)	Benefit/Cost	Cost Estimate (millions)	ROW Impacts (Acres)
$ 0.6	$ 96.1	62.5	$ 1.5	0.04

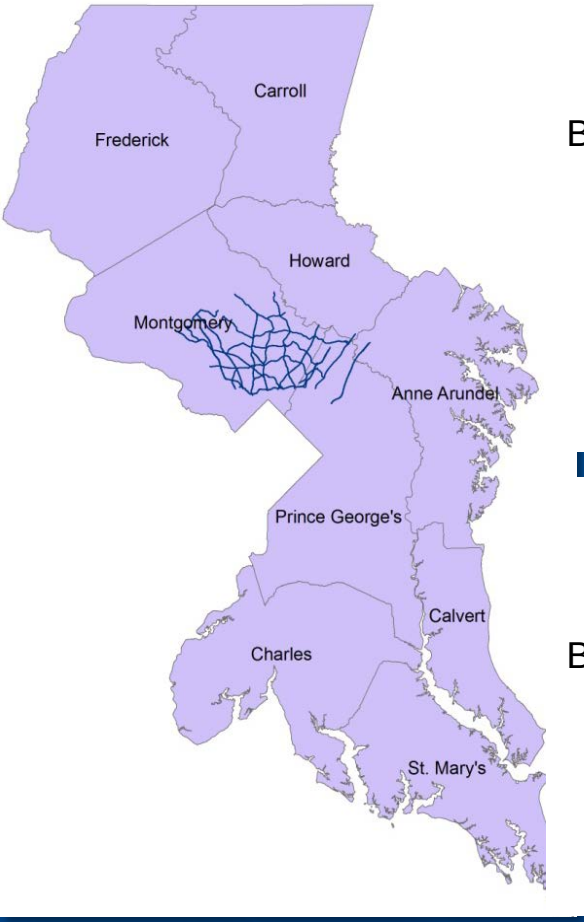
SHA 2014 Arterial Congestion Management Study identified 15 projects with a total cost of $40 Million and projected benefits of $900 Million over 20 years

Before/ After Studies

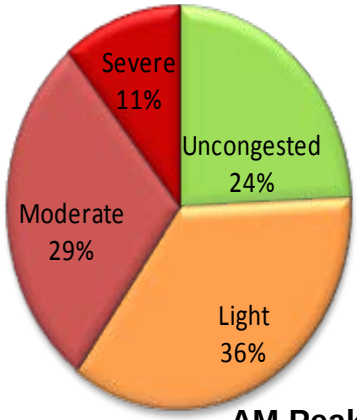
- Critical to understand the **OUTCOME** of the transportation investment
- Feeds into the SHA Business Plan performance metrics reporting

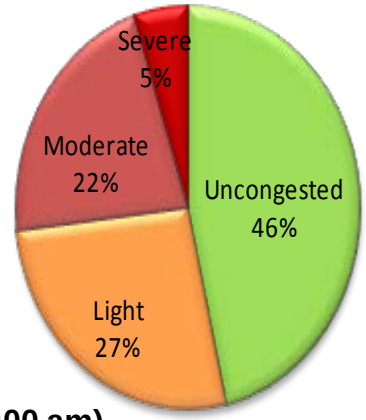
  e.g Congestion relief projects that opened to traffic in 2013 provided $5.7 Million/ year in user cost savings
- Provides insights to see what works and lessons learnt for future projects
- Data driven approach increases transparency and accountability

Before/ After Study Example
Inter County Connector



Before

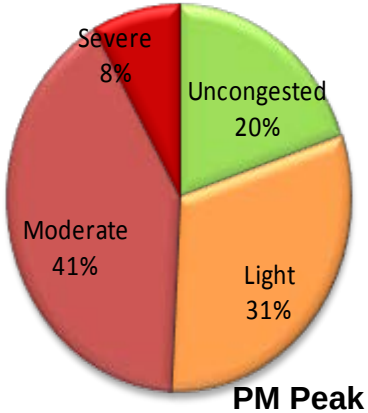


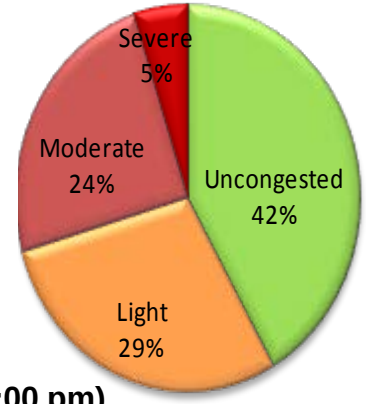


After

AM Peak Hour (8:00-9:00 am)

Before





After

PM Peak Hour (5:00-6:00 pm)

How has Mobility related efforts impacted decision-making?

- Great step demonstrating Performance based Planning and Data Driven Decision-making
- Helps senior management with funding decisions – *multiple low cost short term improvements on have been identified and implemented*
- Multiple Mid term/ Long term corridor studies have been re-evaluated and initiated
- Better prepared to account for Freight and Reliability
- Helps us communicate our performance and tell our side of the story

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