



# Mobility and Economy Dashboard

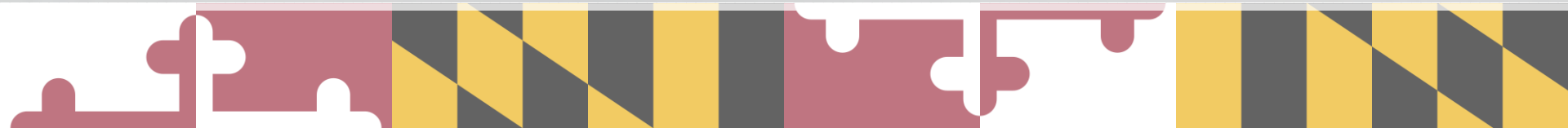
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Promoting Maryland SHA's Performance-Based Approach  
to Safety and Mobility Improvements



# Agenda

- Project Overview
  - Vision
  - Key Messages
- Application Features
- Demonstration
- System Architecture and Technologies
- Challenges and Way Ahead

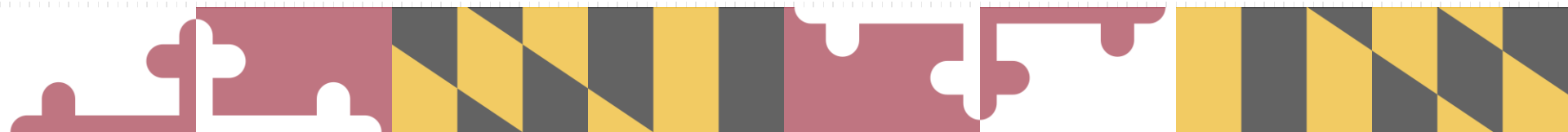


# Performance Based Planning



- Vision: Provide a world class highway system
- SHA Business Plan – Key Performance Areas:
  - Highway Safety
  - Mobility & Economy
  - System Preservation and Maintenance
  - Management of the Agency
  - Environmental Compliance and Stewardship
  - Customer Communications, Service and Satisfaction

***Mobility & Economy Goal: Support Maryland's economy and communities through enabling the reliable movement of people and goods***



# M&E Performance Measures



## Travel reliability objective:

- Achieve an annual user cost savings of at least \$1.1 billion as a result of congestion management.

## Performance measures:

- Annual user cost savings due to congestion management.
- Average incident duration.
- Percent of freeway lane-miles with average annual volumes at or above congested levels.
- Reduction in vehicle miles traveled through park and ride usage.
- Average weekday utilization of SHA-operated statewide park and ride facilities.

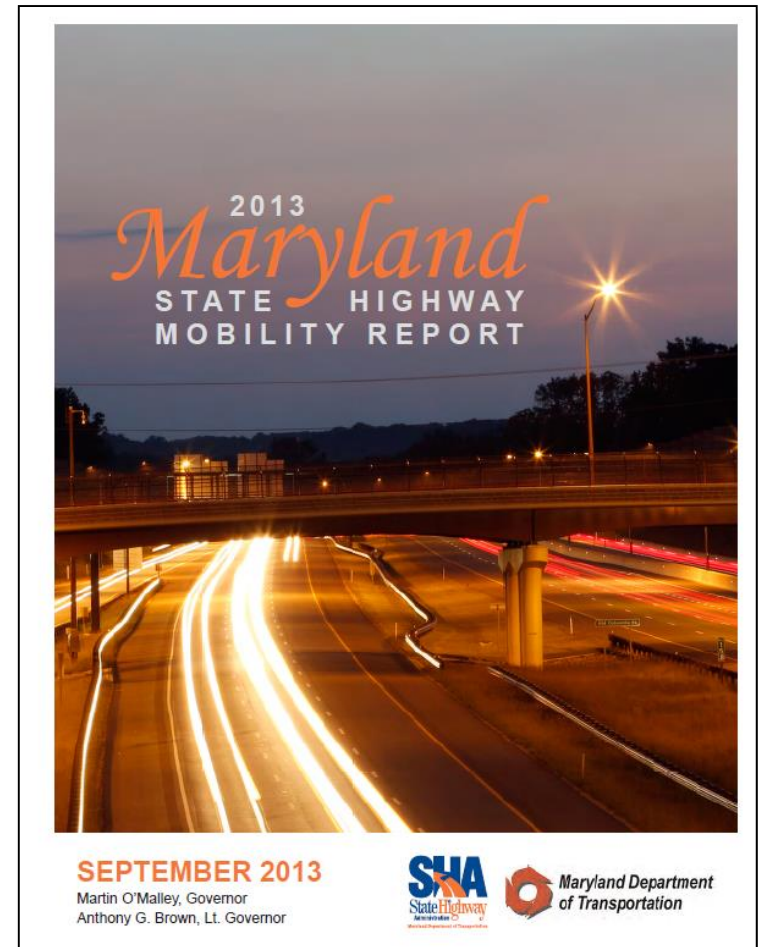


# Data Driven Approach



- **Mobility Report**

*[www.roads.maryland.gov/OPPEN/2013\\_Maryland\\_\\_Mobility.pdf](http://www.roads.maryland.gov/OPPEN/2013_Maryland__Mobility.pdf)*

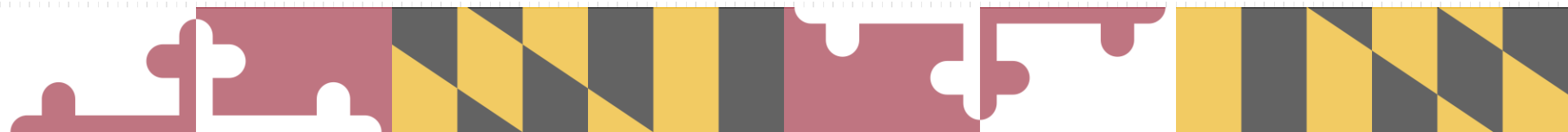


# Dashboard Goals

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- Increase transparency
- Increase accountability
- Showcase SHA's performance-based approach
  - Monitor system from year to year using performance measures
  - More effective investments
- Provide an integrated web-based solution
  - Report annual key mobility performance indicators
  - Report mitigation strategies
  - Interactive charts, maps, and corridor-level impact analysis



# Key Messages

## ■ What is Happening? (Trends)

### ■ Congestion

- Measured using **Travel Time Index (TTI)**
- Recurring congestion only

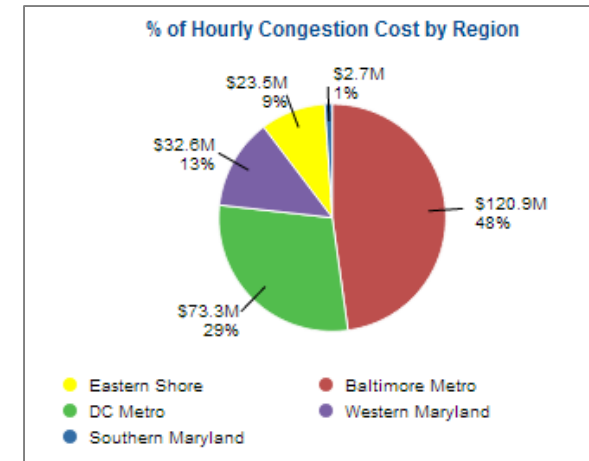
### ■ Reliability

- Measured using **Planning Time Index (PTI)**
- Variability of travel time

### ■ Traffic Volume

- Measured using **Average Vehicle Miles Traveled (AVMT)**
- Number of vehicles times the distance they're traversing the network

### ■ Freeways and expressways only



# Key Messages

## ■ What is SHA doing about it? (Mitigation)

### ■ Projects

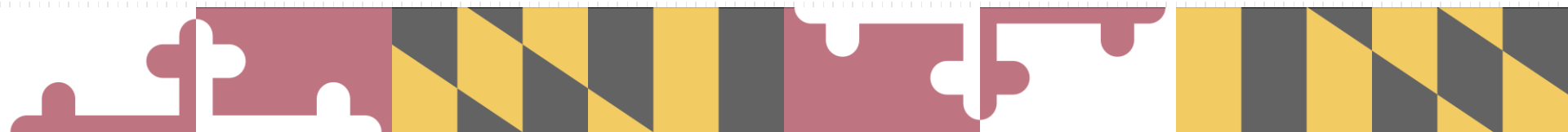
- Major and Minor Projects

### ■ Programs

- Signal retiming
- CHART/Incident Management
- Intelligent Transportation System/511

### ■ Policies

- Park N Ride
- HOV Users
- Reversible Lanes
- Bicycle
- Pedestrian
- Transit Oriented Development
- MDTA Toll Lanes

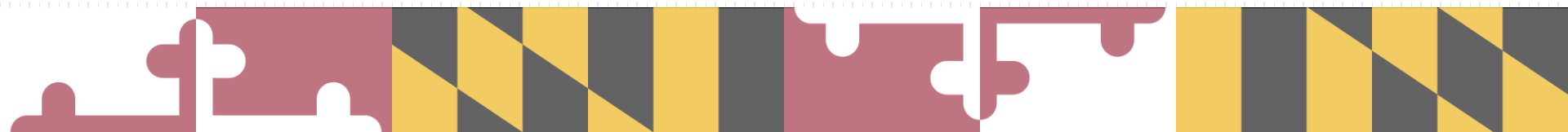




# Key Messages

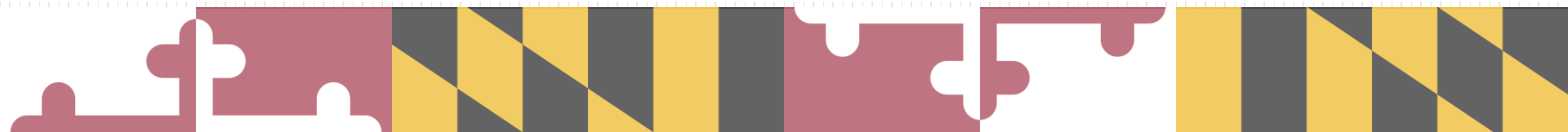
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- How things have changed over time  
(Past Trends)
  - Year to year comparisons
  - Is the highway system performance improving?
  - Is there an increase in travel demand?



# Application Features

- Review performance metrics
  - View data by year and by time of day
  - View aggregated and differentiated data
- Mapping
  - Quickly identify problem areas
  - Animate over 24 hour period
  - Overlay mitigation strategies with hotspots
- Perform different types of geographic analyses
  - By jurisdiction or corridor
- Provide data in chart format with metadata



# Demonstration



## Mobility and Economy Dashboard

### Welcome to the Mobility and Economy Dashboard for the State of Maryland!

The Maryland State Highway Administration's (SHA) mobility related efforts are highlighted in this dashboard based on data from the Maryland State Highway Mobility Report. Mobility is a key performance area (KPA) at SHA which aims to "Support Maryland Economy and Communities with Reliable Movement of People and Goods". This dashboard aims to identify successes, challenges, and strategies being utilized to improve the transportation services SHA delivers to Marylanders and the traveling public. This effort aims to drive investment related decisions and make the best use of transportation revenues using data driven performance based approaches.

#### I would like to explore:

Congestion

What is happening?

#### Where?

Jurisdiction

Maryland

2013

[View](#)

Disclaimer: This application is intended to serve as a public resource for general reference. The data is preliminary and subject to change. SHA provides this information without any warranty of any kind either expressed or implied.

#### What are the Mobility Trends in Maryland?

Maryland's highway system handles over 56 Billion vehicle miles of travel on an annual basis. SHA has developed comprehensive performance measurement systems. In 2013:



[View What's Happening](#)

#### What is SHA doing to address Mobility Challenges?

SHA implements various projects, programs and policies to enhance mobility on its facilities. Our approach includes:



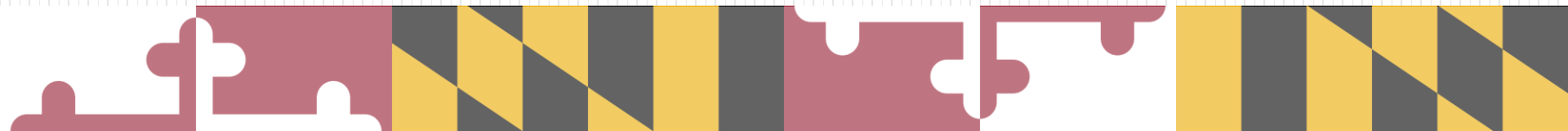
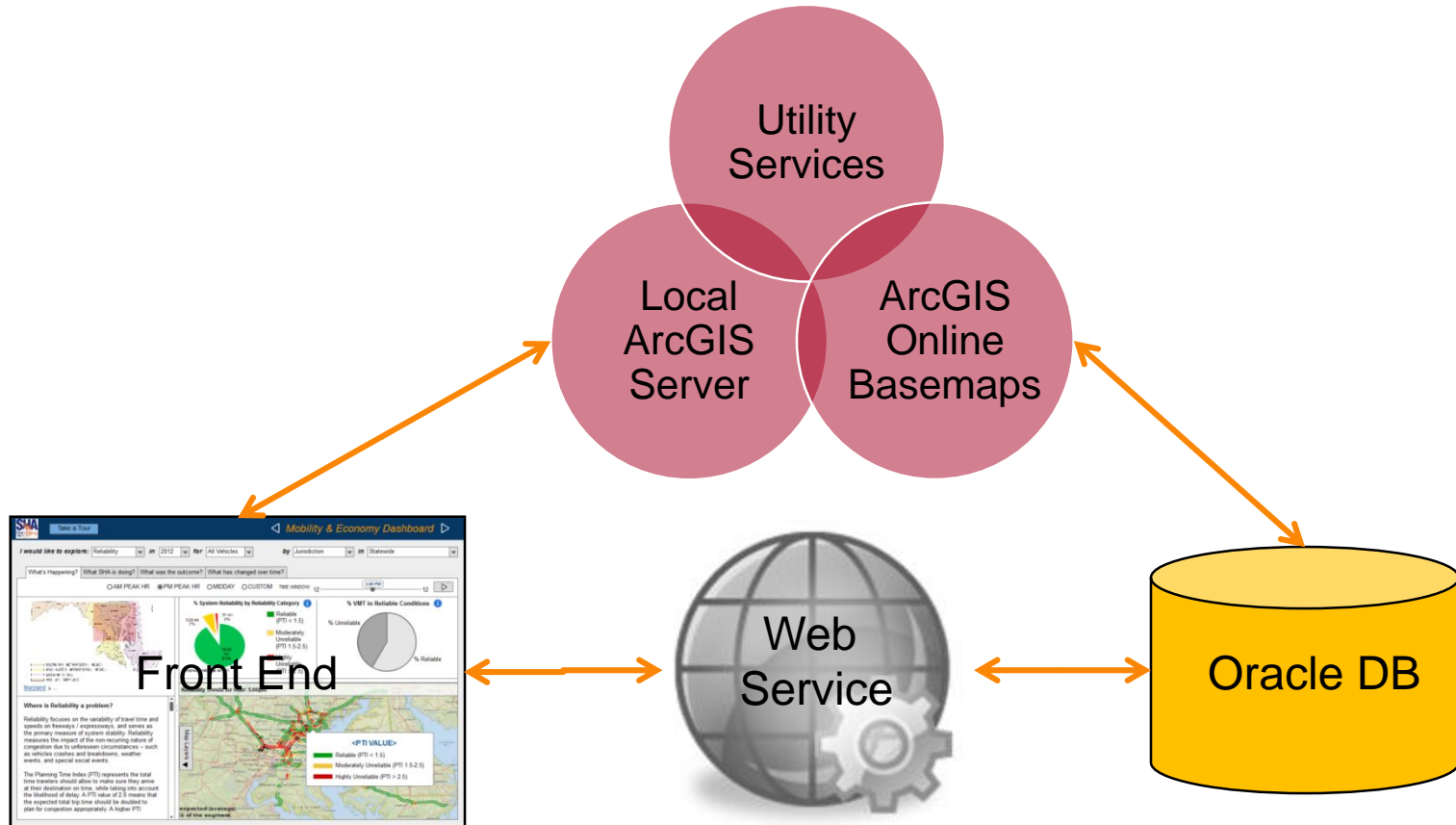
#### What is the outcome of SHA's Mobility Initiatives?

The mobility solutions implemented by SHA projects, programs and policies result in user cost savings for automobile and truck travel. In 2013, annual user savings included:



[View What SHA is Doing](#)

# System Architecture



# Technologies Used

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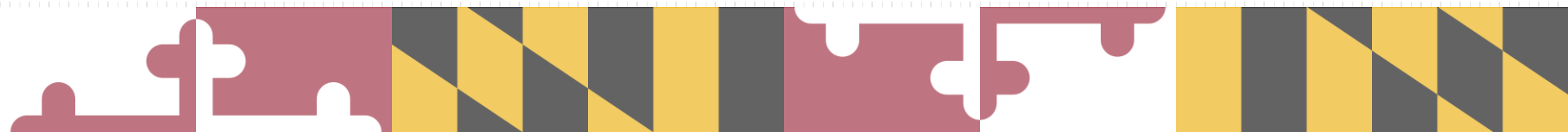


## ■ Back End

- Oracle
- Java
- .NET Web API

## ■ Front End

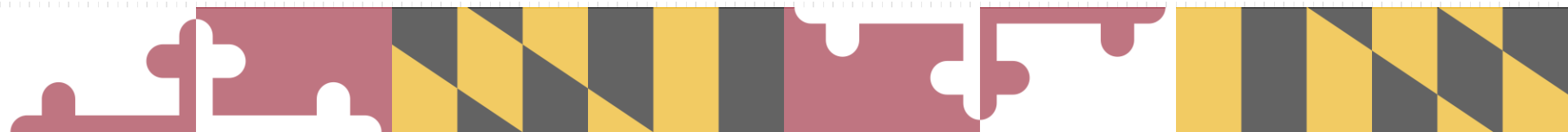
- Ember MVC JavaScript framework
- HTML 5
- JavaScript libraries (Ember MVC and jQuery)
- Esri ArcGIS Server API for JavaScript
- D3 - JavaScript rendering library for charting
- SCSS



# Challenges

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- TMC vs SHA's Linear Referencing System
  - INRIX data
  - SHA volume data
- Data Availability
  - Dashboard requires data by year and often by hour
  - Data owner/stakeholder buy-in
- ArcGIS Server 10.2 upgrade



# Way Ahead

- **Mobility & Economy Dashboard**
  - Release to public early 2015
- **Asset Management Dashboard**
  - Requirements validation and source data evaluation
  - Development, testing, and deployment
- **TMDL Dashboard**
  - Enhancements to the Bay Restoration Viewer
- **Map 21 Dashboard**
- **Safety Dashboard**

# Questions?



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