

5th International Transportation Systems Performance Measurement and Data Conference

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Office of Planning and Preliminary Engineering
Maryland State Highway Administration

Today's Presentation

- SHA performance based planning program
- Dashboards to tell the story
- Live demo

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

Outcome

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

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

Dashboards

- Tell a story
- Increase transparency
- Increase accountability
- Showcase SHA's performance-based approach
 - More efficient investments



Mobility & Economy Dashboard

- Increase transparency
- Showcase SHA Performance Based Approach
- Focus on Policies, Programs and Projects
- Address Recurring and Non-recurring Congestion
- Web-based Solution
 - Reports annual key mobility performance indicators
 - Reports mitigation strategies
 - Interactive charts, maps and corridor level impact analysis

2014 Mobility Report

Early 2015 Release

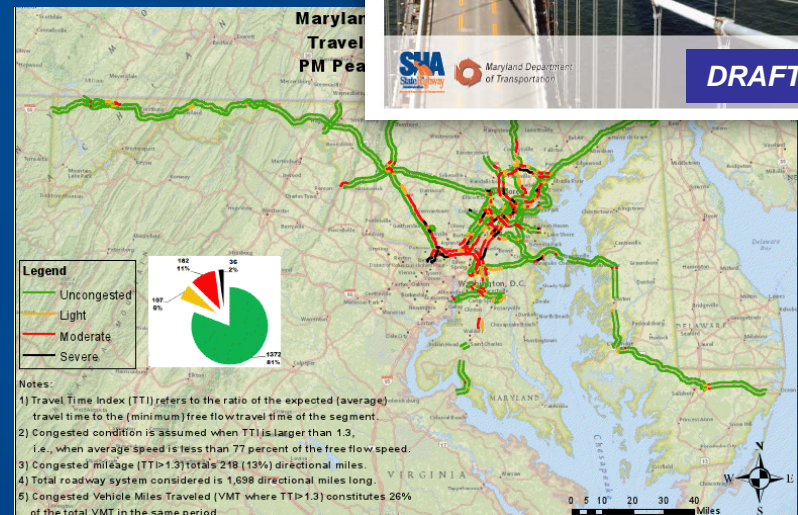
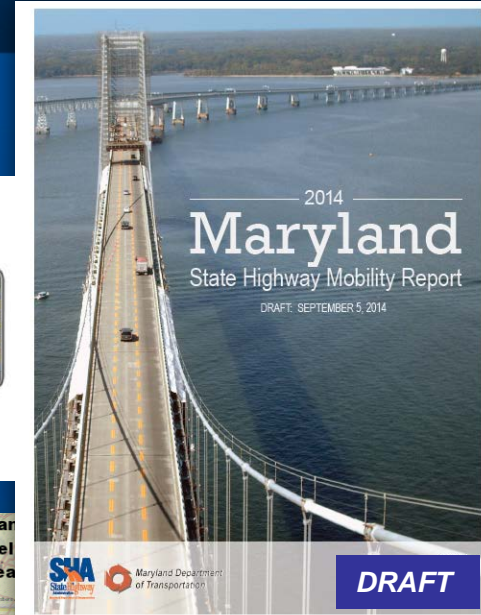
Various objectives, performance measures and strategies to achieve SHA Mobility goals

Key Areas

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

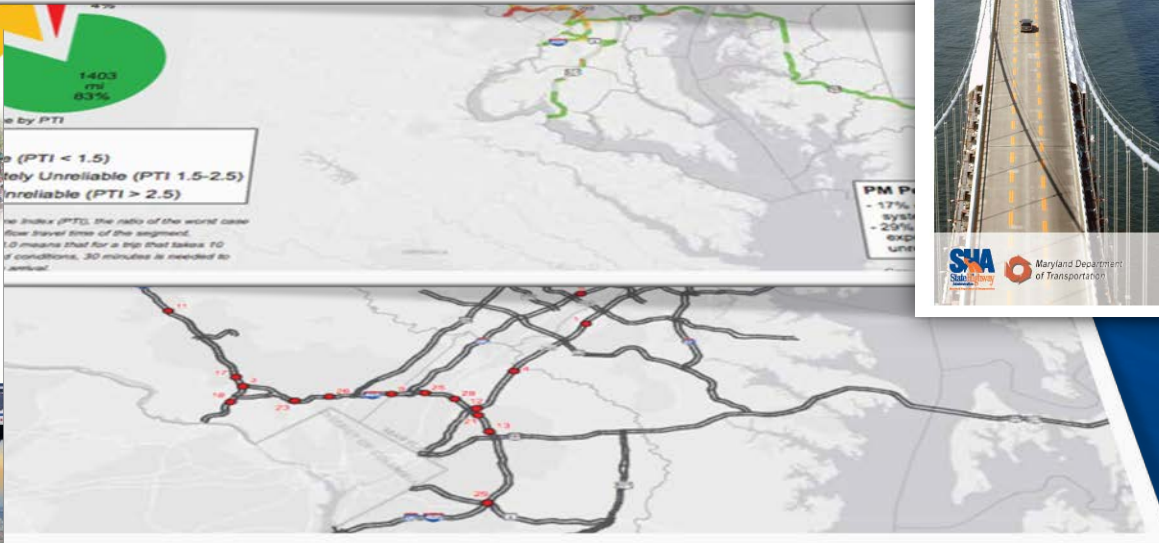
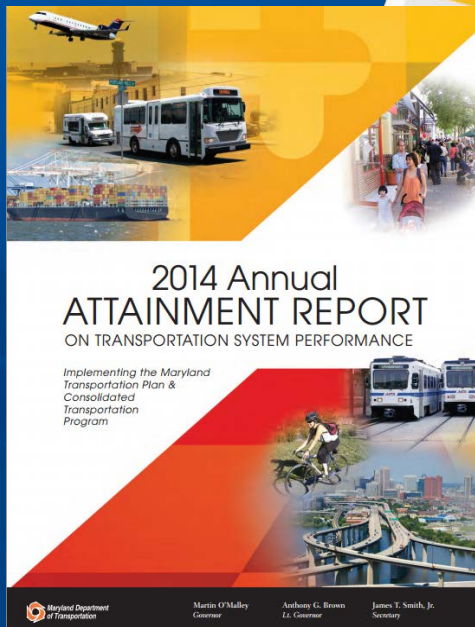
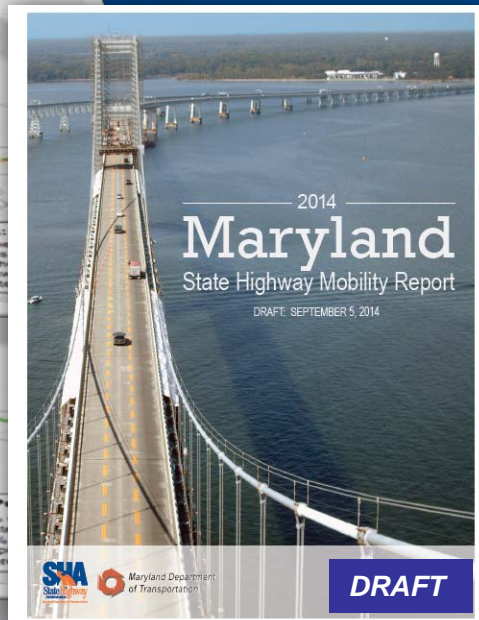
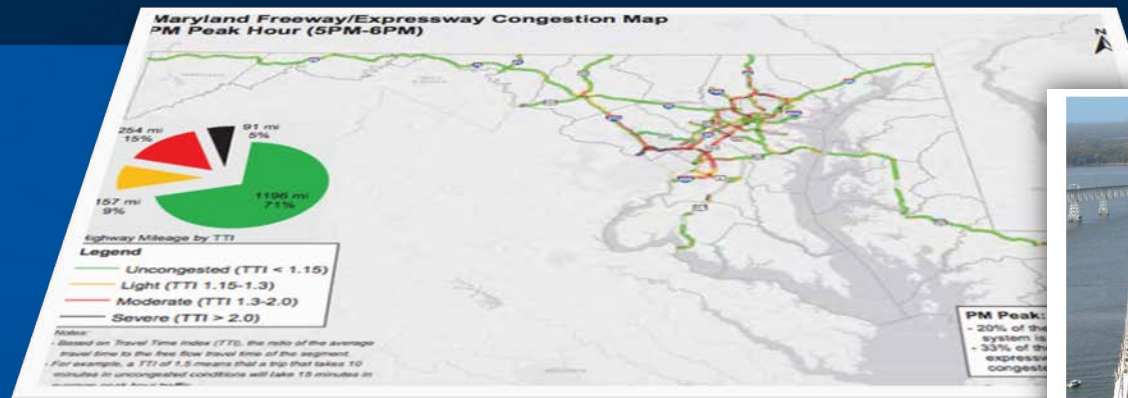
MD Annual State Highway Mobility Report Summarizes

- The Annual State Highway System Performance
- Effects of SHA Policy/ Programs/ Projects
- Identifies Bottlenecks and Needs to Alleviate Congestion And Improve Mobility and Reliability



Mobility Dashboard

Performance Management



Performance Data to Drive Decision-Making

Mobility & Economy Dashboard

- What is Happening
- What SHA is doing
- What was the outcome
- What has changed over time

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 ▼

in 2012 ▼ for All Vehicles ▼

Where?

Statewide ▼

All Regions ▼

View ▶



Where is Congestion a problem?

Highway congestion occurs as a result of too many users trying to share common roadway segments at the same time. The impacts of a congested system are detrimental in several ways; from an individual user perspective to the commerce/economy and overall quality of life in the region.

View ▶



Where is Reliability a problem?

Reliability focuses on the variability of travel time and speeds on freeways / expressways, and serves as the primary measure of system stability. Reliability measures the impact of the non-recurring nature of congestion due to unforeseen circumstances – such as vehicles crashes and breakdowns, weather events, and special social events.

View ▶



Where is Network Volume highest?

General volume of traffic is measured by Vehicle Miles Traveled (VMT), and is defined as the number of vehicles times the distance that they traverse the network. VMT metrics establish the proper context by which the road network is being utilized by the general population for a specific point in time (typically annualized).

View ▶

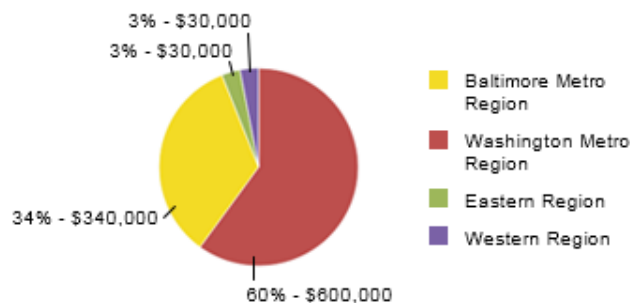
I would like to explore: Congestion in 2012 for All Vehicles Where? Statewide All Regions

[What's happening?](#)
[What is SHA doing?](#)
[What was the outcome?](#)
[What has changed over time?](#)
AM PEAK HR
PM PEAK HR
MIDDAY
CUSTOM

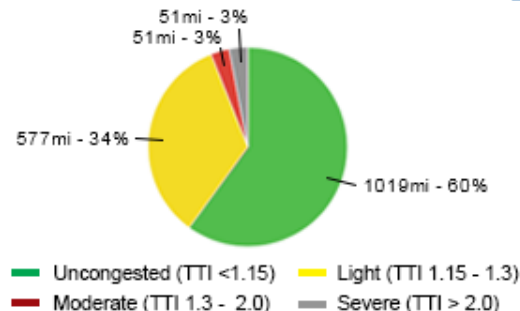
HOUR:



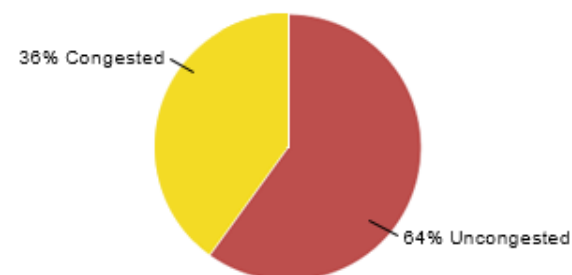
Percent of Congestion Cost by Region



% Highway Mileage by Congestion Category



% VMT in Congested Conditions

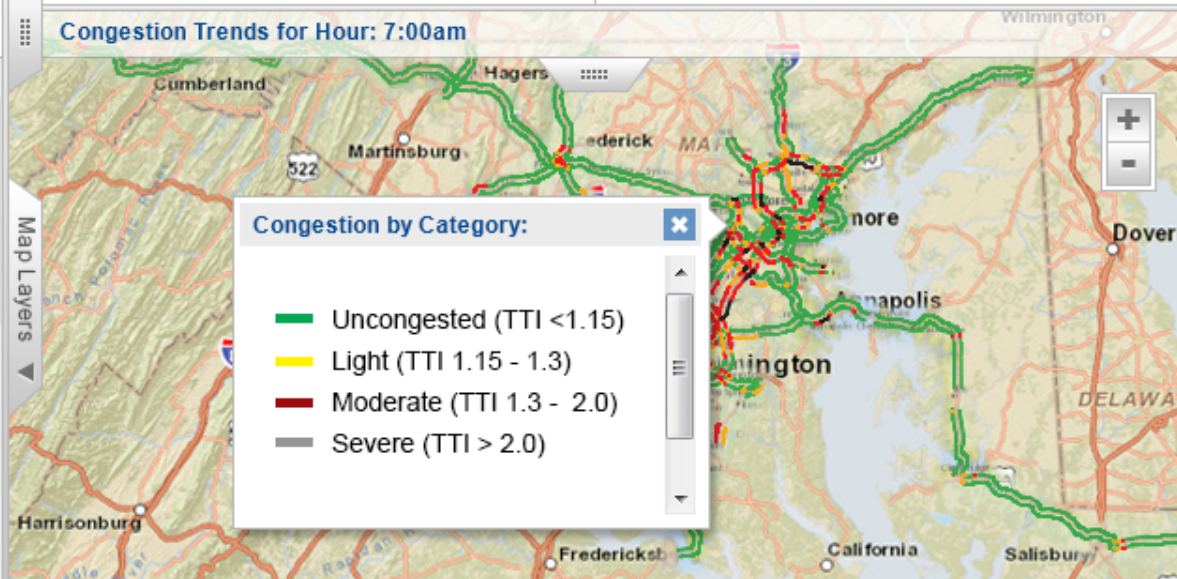

[Maryland > ...](#)

Where is Congestion a problem?

Highway congestion occurs as a result of too many users trying to share a common roadways segment at the same time. The issue is that travel demand is consistently on the rise while the infrastructure, in the form of roads and public transportation, has not been able to keep up with growth. This is further exacerbated by the non-recurring nature of the congestion due to crashes, vehicle breakdowns, special events, and weather events. The impacts of a congested system are detrimental in several ways; from an individual user perspective to the commerce/economy and overall quality of life in the region.

The Time Travel Index (TTI) depicts how much longer, on average, travel times are during congestion

Congestion Trends for Hour: 7:00am



I would like to explore: Congestion in 2012 for All Vehicles

Where? Statewide All Regions

What's happening? What is SHA doing? What was the outcome? What has changed over time?

AM PEAK HR PM PEAK HR MIDDAY CUSTOM

HOUR: 12 AM 6 AM 12 PM 6 PM 12 AM **7 AM**

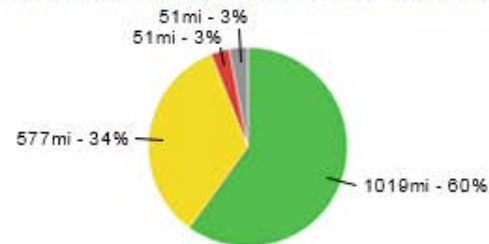
Congestion Category

- ☐ Congestion from 12-1am
- ☐ Congestion from 1-2am
- ☐ Congestion from 2-3am
- ☐ Congestion from 3-4am
- ☐ Congestion from 4-5am
- ☐ Congestion from 5-6am
- ☐ Congestion from 6-7am
- ☒ Congestion from 7-8am

- Uncongested (TTI <1.15)
- Light (TTI 1.15 - 1.3)
- Moderate (TTI 1.3 - 2.0)
- Severe (TTI > 2.0)

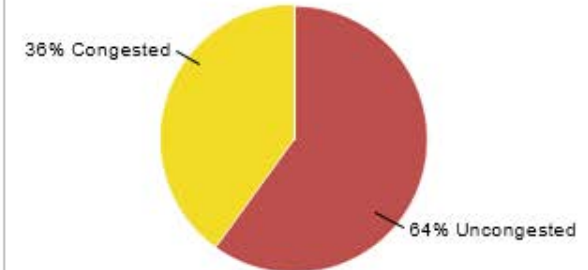
- ☐ Congestion from 8-9am
- ☐ Congestion from 9-10am
- ☐ Congestion from 10-11am
- ☐ Congestion from 11am-12pm
- ☐ Congestion from 12-1pm
- ☐ Congestion from 1-2pm
- ☐ Congestion from 2-3pm
- ☐ Congestion from 3-4pm

% Highway Mileage by Congestion Category

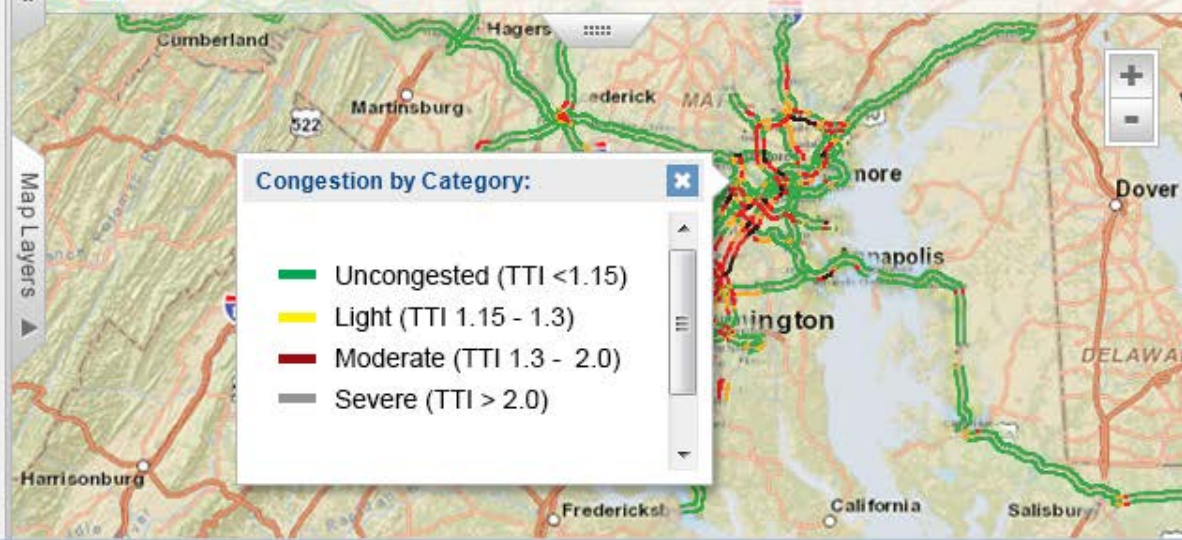


■ Uncongested (TTI <1.15)
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 ■ Moderate (TTI 1.3 - 2.0)
 ■ Severe (TTI > 2.0)

% VMT in Congested Conditions



Congestion Trends for Hour: 7:00am



I would like to explore: **Congestion** in **2012** for **All Vehicles** Where? **Statewide** **All Regions**

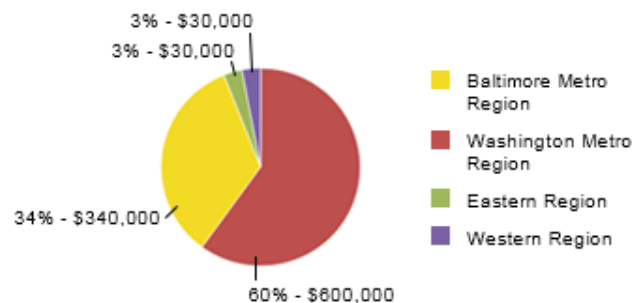
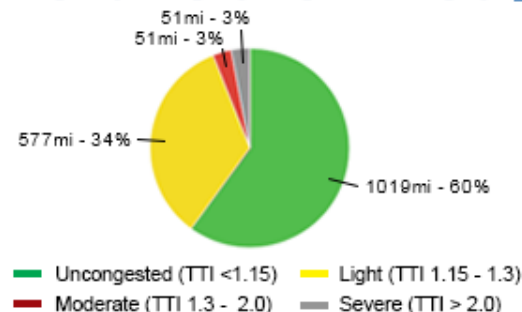
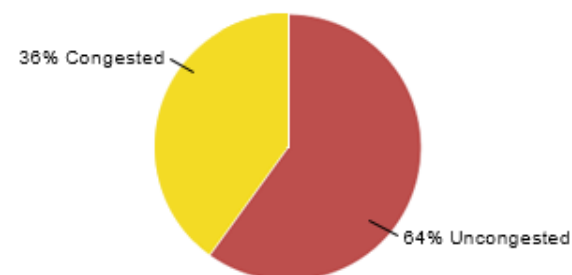
[What's happening?](#)
[What is SHA doing?](#)
[What was the outcome?](#)
[What has changed over time?](#)
AM PEAK HR

PM PEAK HR

MIDDAY

CUSTOM

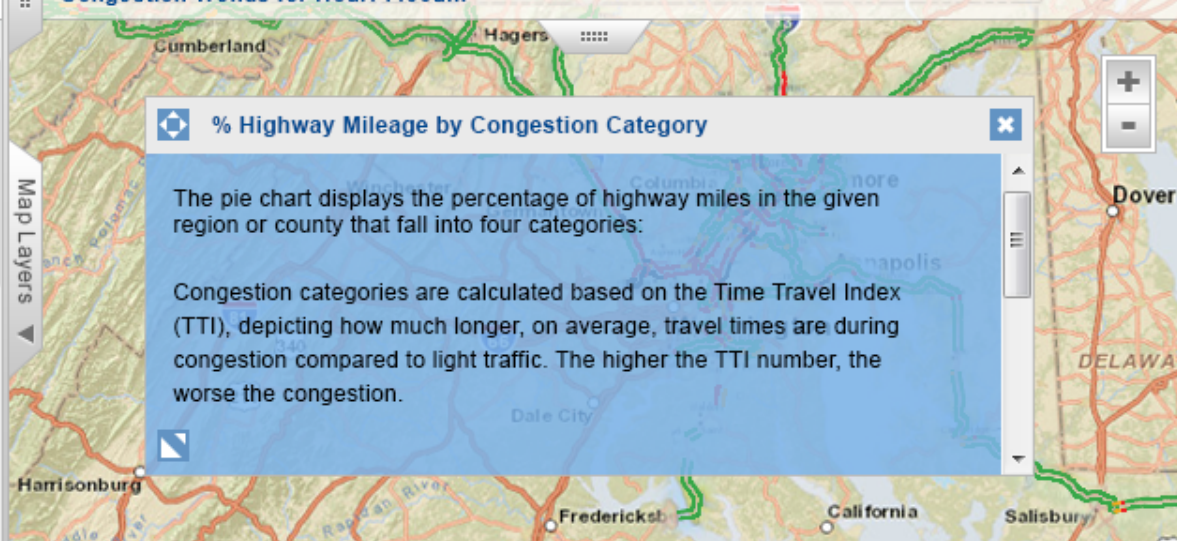
HOUR:


Percent of Congestion Cost by Region

% Highway Mileage by Congestion Category

% VMT in Congested Conditions

[Maryland > ...](#)

Where is Congestion a problem?

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The Time Travel Index (TTI) depicts how much longer, on average, travel times are during congestion

Congestion Trends for Hour: 7:00am




I would like to explore: Congestion in 2012 for All Vehicles

Where? In a County Baltimore County

[What's happening?](#)
[What is SHA doing?](#)
[What was the outcome?](#)
[What has changed over time?](#)

Mitigation

Show Me:



PROJECTS



PROGRAMS



POLICIES



[Maryland](#) > [Baltimore Metropolitan](#) > [Baltimore County](#)

What Projects exist to address these challenges?

Recurring congestion and unreliable planning times occur throughout the State from spot intersections to long sections of interstate highway. In order to address these challenges, Maryland SHA has conceived several projects.

SHA manages projects by two categories: Major & Minor. The location of each major and minor project that has been completed during the publication year is displayed on the map.

Major Projects Completed



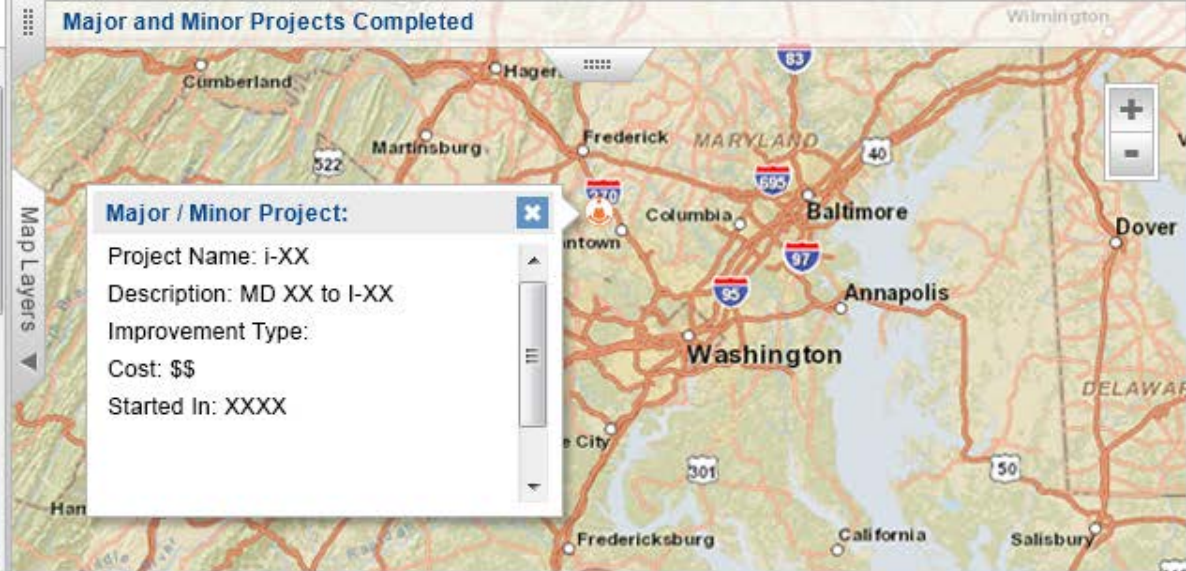
	LOCATION	DESCRIPTION	PROJECT COST
1	I-XX	MDXX to I-XX	\$\$
2	I-XX	MDXX to I-XX	\$\$
3	I-XX	MDXX to I-XX	\$\$
4	I-XX	MDXX to I-XX	\$\$
5	I-XX	MDXX to I-XX	\$\$

Minor Projects Completed



	LOCATION	DESCRIPTION	PROJECT COST
1	MDXX	MDXX to XXXX	\$\$
2	MDXX	MDXX to XXXX	\$\$
3	MDXX	MDXX to XXXX	\$\$
4	MDXX	MDXX to XXXX	\$\$
5	MDXX	MDXX to XXXX	\$\$

Major and Minor Projects Completed





I would like to explore: Congestion in 2012 for All Vehicles

Where? In a County Baltimore County

[What's happening?](#)
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Mitigation

Show Me:


[PROJECTS](#)

[PROGRAMS](#)

[POLICIES](#)


[Maryland](#) > [Baltimore Metropolitan](#) > Baltimore County

What Programs exist to address these challenges?

Nonrecurring congestion is estimated to account for 60% of all delays on Maryland roadways. Any effort to minimize incident clearance time significantly reduces user and agency costs in terms of travel delay, fuel consumption, and emissions reductions.

The SHA Coordinated Highways Action Response Team (CHART) program is a joint effort between the Maryland Department of Transportation (MDOT), Maryland State Police (MSP), and the Maryland Transportation Authority (MDTA). CHART seeks to improve real-time operations for Maryland's highway system through communication, system integration, and incident response & management.

Incident Management Programs



Signal Re-Timing



CHART / Incident Mgmt



ITS / 511:

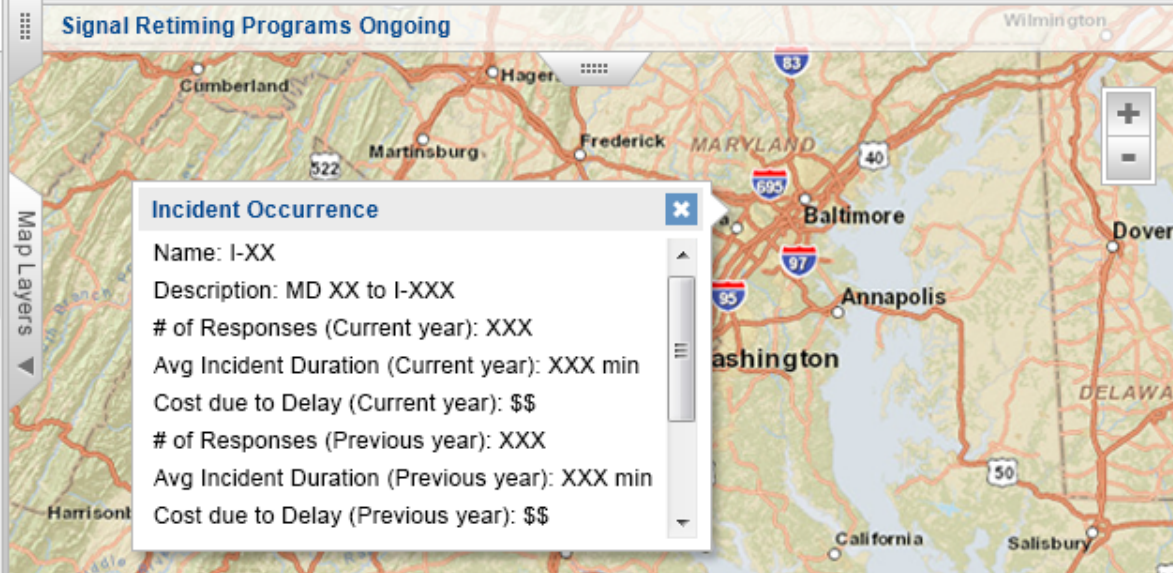
Incidents Occurring on Key Corridors

	CORRIDOR NAME	NUMBER OF SIGNALS RETIMED	RETIMING COST
1			
2			
3			
4			
5			



DATA COMING SOON

Signal Retiming Programs Ongoing



Incident Occurrence

Name: I-XX

Description: MD XX to I-XXX

of Responses (Current year): XXX

Avg Incident Duration (Current year): XXX min

Cost due to Delay (Current year): \$\$

of Responses (Previous year): XXX

Avg Incident Duration (Previous year): XXX min

Cost due to Delay (Previous year): \$\$

I would like to explore: Congestion in 2012 for All Vehicles Where? In a County Baltimore County

What's happening? What is SHA doing? What was the outcome? What has changed over time?

Mitigation

Show Me: PROJECTS PROGRAMS **POLICIES**



[Maryland](#) > [Baltimore Metropolitan](#) > [Baltimore County](#)

What Policies exist to address these challenges?

Effective methods for reducing vehicle trips on the roadway include providing transit service, high occupancy vehicle lanes, park and ride lots, and bicycle/pedestrian accommodations. Congestion and reliability are improved by providing modal choice, thus reducing the overall dependency on automobile travel. This yields additional benefits such as a reduction in air pollution, fuel savings, and reduced delay.

Providing park and ride lots is a method for reducing the number of trips to an urban area. This lowers the number of single occupant vehicles and increases the number of transit trips and carpools. There are 103 park and ride lots located in 20 counties throughout the State

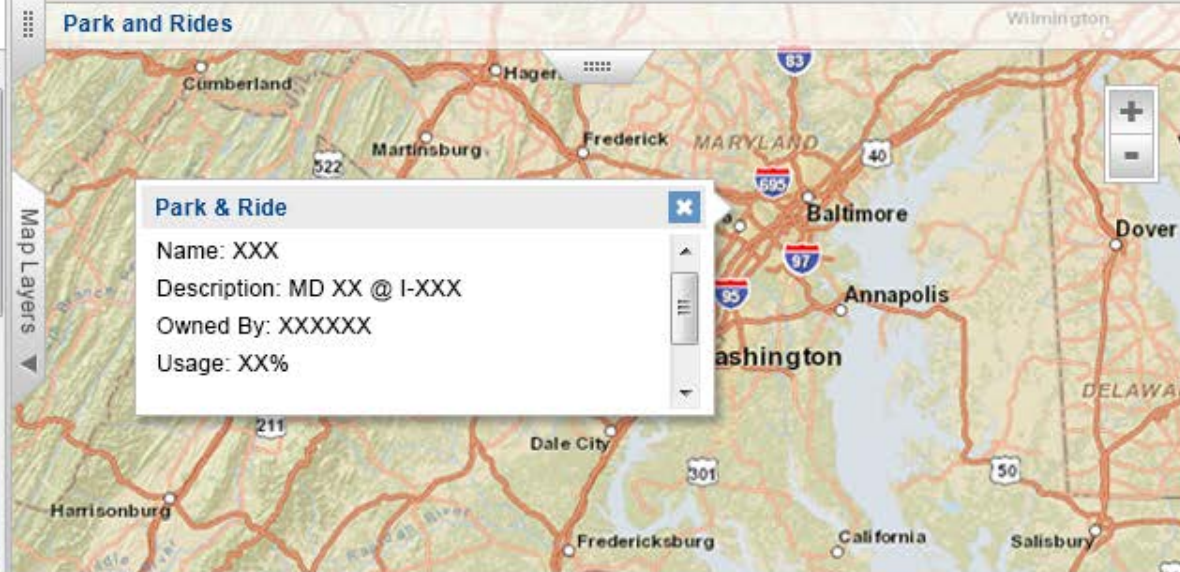
Multi-Modalism and Smart Growth Policies

- ☒ Park & Ride
- ☐ HOV Lanes
- ☐ Reversible Lanes
- ☐ Bicycle
- ☐ Pedestrian
- ☐ Transit Oriented Development
- ☐ MDTA Toll Lanes

Park & Rides

	LOCATION	# OF SPACES	ANNUAL USAGE (%)
1	I-XX @ MDXX	XXX	XX%
2	MDXX @ XXX	XXX	XX%
3	I-XX @ MDXX	XXX	XX%
4	MDXX @ XXX	XXX	XX%
5	I-XX @ MDXX	XXX	XX%

Park and Rides





Take a Tour

I would like to explore: Congestion in 2012 for All Vehicles

Where? In a County Baltimore County

What's happening?

What is SHA doing?

What was the outcome?

What has changed over time?

Historical Data

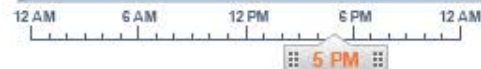
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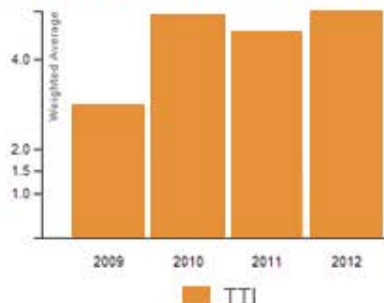
Maryland > Baltimore Metropolitan > Baltimore County

What has changed over time?

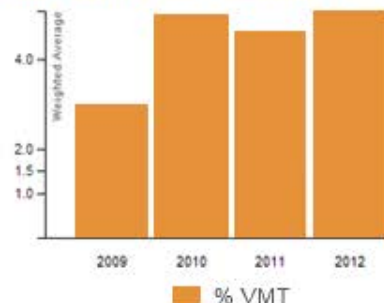
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Annual Average Travel Time Index by Year

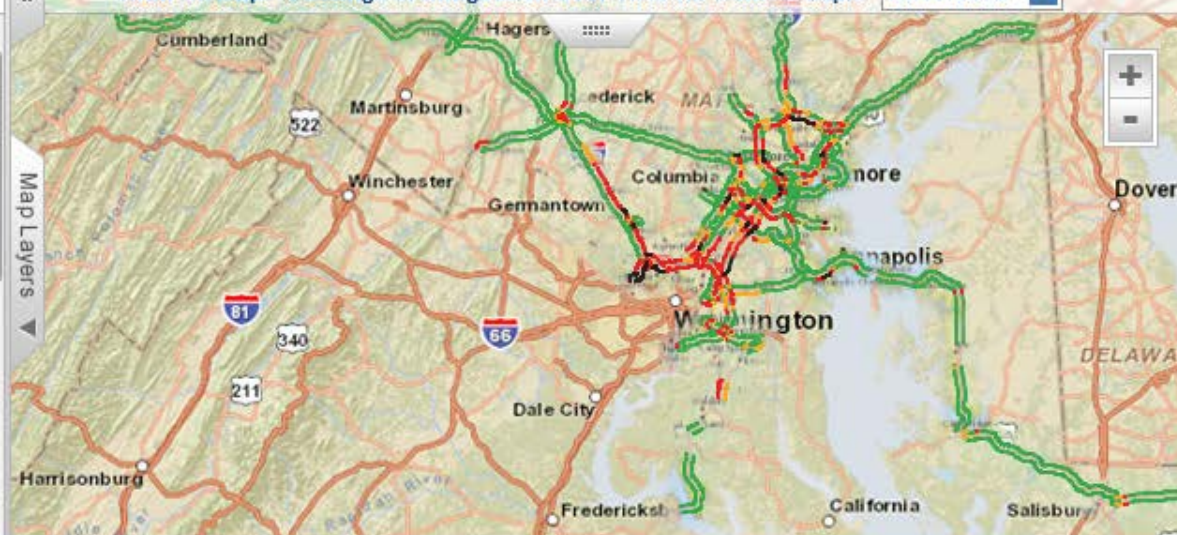


% VMT in Congested Conditions by Year



Show on Map: % Change in Congestion Over Time for Hour: 5:00pm

2011-2012




[Take a Tour](#)

Mobility & Economy Dashboard

I would like to explore: Congestion in 2012 for All Vehicles

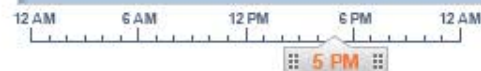
Where? Along a Key Corridor All Regions

[What's happening?](#)
[What is SHA doing?](#)
[What was the outcome?](#)
[What has changed over time?](#)

Historical Data

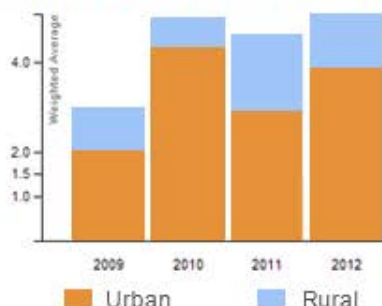
AM PEAK HR
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HOUR:

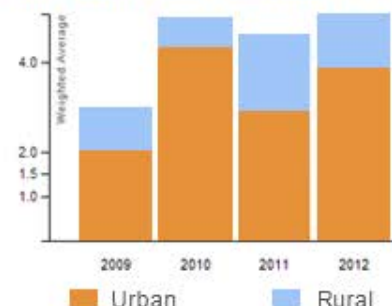

Filter By: All

	CORRIDOR NAME	DETAILS	TYPE
1	IS-695	LIMITS	ARTERIAL
2	IS-95	LIMITS	ARTERIAL
3	IS-83	LIMITS	ARTERIAL
4	IS-100	LIMITS	ARTERIAL
5	IS-70	LIMITS	ARTERIAL

Annual Average Travel Time Index by Year



% VMT in Congested Conditions by Year

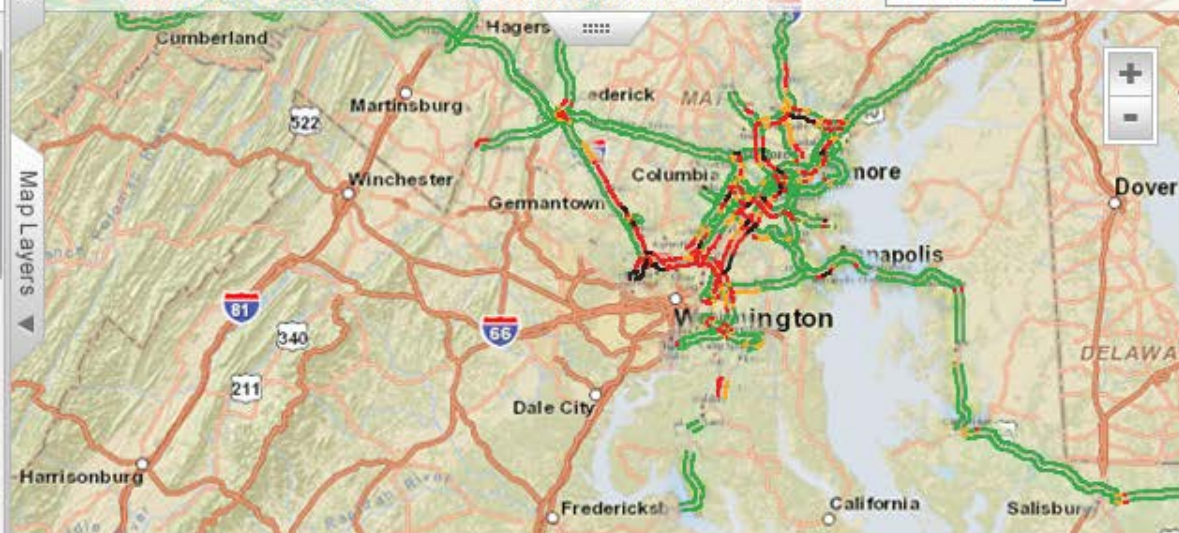


What has changed over time?

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Epsum factorial non deposit quid pro quo hic escorol. Olypian quarrels et gorilla congolium sic ad nauseum. Souvlaki ignitus carborundum e pluribus unum. Defacto lingo est igpay atinlay. Marquee selectus non provisio incongruous feline nolo contendre. Gratuitous octopus niacin, sodium glutamate

Show on Map: % Change in Congestion Over Time for Hour: 5:00pm

2011-2012


Do the right projects!

- To make the best decisions data must be integrated out of silos
- Focus on transparency
- Communicate
- Transportation Journalism

Project Planning



Get information on SHA's current planning efforts

- Explore the interactive map of project locations and information
- Attend public meetings via live web broadcasts
- View past meetings on-demand

[View the Planning Site](#)

Performance Based Planning



MAP-21
Efforts and initiatives that fall under the MAP-21 legislation.



Asset
Asset Data including roads, highway signs, and other features



Mobility
Initiatives improving congestion and reliability on MD roadways.



TMDL
Projects supporting water quality and the Clean Water Act.



Safety
Traffic safety programs aimed at protecting workers and the public.

Mobility 1st out of the gate

Mobility Dashboard

Contact Information

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