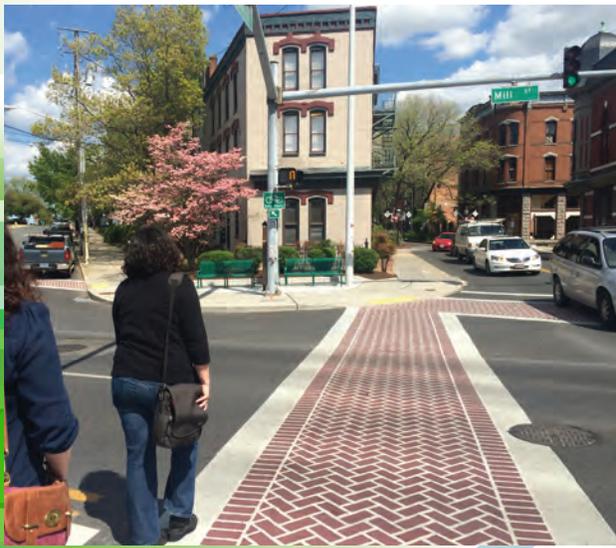


# 2016 Annual ATTAINMENT REPORT

On Transportation System Performance



**Maryland Department  
of Transportation**

*Implementing the  
Maryland Transportation Plan &  
Consolidated Transportation Program*

**Larry Hogan  
Governor**

**Boyd K. Rutherford  
Lt. Governor**

**Pete K. Rahn  
Secretary**



**Larry Hogan**

*Governor*

Having an effective transportation system is critical to the overall success of Maryland's economy, and our administration will continue to focus on delivering a safe and reliable network that is more accessible to all Marylanders. By providing effective solutions which improve our roads, bridges, transit systems, airports and ports, we can reduce commute times, relieve congestion and improve operating efficiencies.

Earlier this year, we were able to deliver on a promise and provide nearly \$2 billion in funding for our highways and bridges across the state. This investment will not only move long-awaited highway projects into construction, so that Maryland families and businesses will benefit from safer, smoother roads, but it will also address every single structurally deficient bridge in the state. In Baltimore specifically, we announced an interconnected transit system, known as BaltimoreLink, which will redesign the entire local and express bus systems, providing a more reliable and timely transit experience and better connections to jobs. We were also proud to roll back toll rates for the first time in 50 years, saving Marylanders more than a quarter-billion dollars over the next five years. Finally, BWI Thurgood Marshall Airport has recently set all-time records for passenger traffic, and continues to be a major gateway for new airline service. By continuing the progress we have started and supporting new transit initiatives, we will help connect more people in more places with better, faster transportation systems that meet the demands of the 21st century.

Our dedication to an improved and efficient transportation system will help us attract, retain and expand business opportunities, creating more jobs and resulting in better lives for all Marylanders. The Maryland Department of Transportation plays a significant role in ensuring that Maryland remains "Open for Business!"



**Pete K. Rahn**

*Secretary*

I am pleased to present the 2016 Annual Attainment Report on Transportation System Performance. Each year, the Maryland Department of Transportation assesses and reports on its performance relative to the strategic goals and objectives outlined in the Maryland Transportation Plan.

As a past Chairman of the American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Performance Management, I greatly value the importance of performance management. By regularly evaluating our organizational performance, we can improve our understanding of how well we are meeting our customers' needs and where we can better target our strategies and investment decisions to continuously improve our transportation system throughout the state.

This past year, under Governor Hogan's leadership, we have taken several significant steps towards improving our entire transportation network through the use of practical design, innovative project delivery, strategic costs savings and targeted investments. We are vigilant in developing new ways to implement cost effective transportation services which provide better and faster transportation solutions for those who live, work and travel in Maryland.

For example, safety on Maryland's roadways has seen significant improvement this past year, with the lowest number of traffic fatalities since 1948. We have aggressively focused on reducing the number of structurally deficient bridges through vigorous statewide inspection and repair efforts. Our combination of employing the latest technologies in our operational strategies, as well as prudent investments in our transportation systems, allows Maryland's residents, businesses and visitors to travel more safely and efficiently through our state. BWI Thurgood Marshall Airport and the Helen Delich Bentley Port of Baltimore continue to set passenger, freight and commercial rail traffic records as we facilitate the creation of more jobs, further support economic development and connect Maryland to global markets. Our dedication to expanding economic opportunities by creating jobs and connecting communities, while preserving our environmental resources, guides us toward a brighter future for Maryland.

The FY 2016–2021 Consolidated Transportation Program outlines the goals, objectives and priorities of the Hogan-Rutherford Administration and reinforces our commitment to invest in our highways, interchanges and bridge projects throughout the state. Our program also supports rural transit and innovative urban transit projects.

I invite you to explore the 2016 Attainment Report. In our continued commitment to customer service, we welcome your feedback and ideas. The Maryland Department of Transportation continues to build, maintain and provide a broad network of transportation services which focus on safety, economic development, community revitalization and environmental stewardship.

Maryland Department of Transportation Customer Service email:  
[mdotcustomerservice@mdot.state.md.us](mailto:mdotcustomerservice@mdot.state.md.us)

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## How to Read This Document

This Report contains information about the Maryland Transportation System and its performance. It provides facts about the Department of Transportation and its programs, policies and investment strategies designed to address the goals of the long range Maryland Transportation Plan (MTP). This document is broken into the following sections:

- Information about the Maryland Transportation System and the Department's structure, as well as a summary of performance and list of performance measures by goal can be found in the beginning of this Report.
- Performance graphics and data as well as discussions on performance and improvement strategies for each of the Department's six goals is the heart of this document in the middle of this Report.
- Information on funding, investment, mobility and summary information on freight and specific modes of travel can be found in back of this Report, prior to a Glossy and list of all of the transportation performance measures tracked in this Report.

## Maryland Transportation Business Units

### ACRONYM

### BUSINESS UNIT

**TSO** *The Secretary's Office*

**MAA** *Maryland Aviation Administration*

**MPA** *Maryland Port Administration*

**MTA** *Maryland Transit Administration*

**MDTA** *Maryland Transportation Authority*

**MVA** *Motor Vehicle Administration*

**SHA** *State Highway Administration*

**The State of Maryland also supports:**

**WMATA** *Washington Metropolitan Area Transit Authority*

# Introduction

## Guiding Maryland's Transportation System

Maryland's residents, visitors and businesses depend on a balanced, reliable, safe, efficient and affordable transportation system. Efficiently managing the State's transportation system requires tracking where the Maryland Department of Transportation (MDOT) invests its time and financial resources - and measuring the results of those investments.

The performance of Maryland's transportation system is reported through the Annual Attainment Report on Transportation System Performance (AR), that is published annually along with the Maryland Transportation Plan (MTP), the State's transportation long range policy and planning document, and the Consolidated Transportation Program (CTP), the State's six-year budget for transportation projects, as the State Report on Transportation. For more information on the FY 2016–FY 2021 CTP, please visit [www.CTP.maryland.gov](http://www.CTP.maryland.gov).

Progress toward achieving our goals and objectives is assessed through the use of performance measures, corresponding to each of the six goals of the MTP. Past performance, future strategies and performance data is organized in six goal chapters, one for each of our long-range goals.

## MTP Goals

**Economic Prosperity** – Support a healthy and competitive Maryland economy.

**Safety & Security** – Enhance the safety of transportation system users and develop a transportation system that is resilient to natural or man-made hazards.

**System Preservation** – Preserve and maintain the State's existing transportation infrastructure and assets.

**Quality of Service** – Maintain and enhance the quality of service experienced by users of Maryland's transportation system.

**Environmental Stewardship** – Ensure that the delivery of the State's transportation infrastructure program conserves and enhances Maryland's natural, historic and cultural resources.

**Community Vitality** – Provide options for the movement of people and goods that support communities and quality of life.

To view the MDOT AR Dashboard and previous MDOT Attainment Reports online, please visit [www.mdot.maryland.gov/AR](http://www.mdot.maryland.gov/AR).

The MTP establishes MDOT's vision, mission and goals for a 20-year time horizon. It is updated every five years in partnership with state agencies, local jurisdictions and stakeholder groups.

Established concurrent with the MTP, MDOT's Bicycle and Pedestrian Master Plan (2014) lays out a 20-year vision to support cycling and walking as modes of transportation in Maryland. To view the Bicycle and Pedestrian Master Plan, please visit <http://www.mdot.maryland.gov/bikewalkplan>.

## ONE MDOT — Integrating Multimodal Transportation

Maryland's transportation business units operate as ONE MDOT, working together to deliver safe and efficient transportation solutions and services. Statewide transportation policy, planning and programming are coordinated throughout MDOT, which includes The Secretary's Office (TSO), as well as the following:

- **Maryland Aviation Administration (MAA)** operates Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall) and Martin State Airport, a general aviation/reliever airport northeast of Baltimore;
- **Maryland Port Administration (MPA)** promotes the Port of Baltimore as a leading east coast hub for cargo and cruise activity;
- **Maryland Transit Administration (MTA)** provides Local Bus, Light Rail, Metro Rail, Paratransit services and regional services through commuter rail (MARC) and Commuter Bus, as well as grant funding and technical assistance to all of Maryland's counties Locally-Operated Transit Systems (LOTS);
- **Motor Vehicle Administration (MVA)** serves as the gateway to Maryland's transportation infrastructure, providing a host of services for drivers and vehicles, including registration, licensing and highway safety initiatives; and
- **State Highway Administration (SHA)** manages the State's highway system, which includes 17,117 lane miles of roads and 2,565 bridges.
- The MDOT Secretary also serves as Chairman of the **Maryland Transportation Authority (MDTA)**, which owns, operates and maintains the State's eight toll facilities.
- MDOT is also a funding partner of the regional **Washington Metropolitan Area Transit Authority (WMATA)**, and coordinates with WMATA and the Washington Suburban Transit Commission (Montgomery and Prince George's Counties) to provide planning and oversight of transit and paratransit service in the region.



# Transportation System Highlights

## Travel by Land

- Maryland statewide transit ridership reached 285.3 million in Fiscal Year (FY) 2015, including 116 million on MTA local and commuter systems, 39.4 million on LOTS, and 129.8 million on the WMATA system in Maryland.
- In July 2015, Governor Hogan rolled back Maryland's toll rates from the Hatem Bridge to the I-95 Express Toll Lanes (I-95 ETL), saving Marylanders nearly a quarter billion dollars over the next five years.
- Addressing structurally deficient bridges and making bridge investments has been a primary focus in 2015, and structurally deficient bridges have been reduced to only 69 statewide. As of Calendar Year (CY) 2015, the number of structurally deficient SHA bridges is at its lowest level since tracking began.
- In FY 2015, the Coordinated Highways Action Response Team (CHART) incident management program handled 111,057 events, including incident responses, assistance with disabled vehicles, and traffic management operations for special and weather-related events. CHART uses on-the-road response, along with the latest technologies (closed circuit television (CCTV), dynamic message signs, weather pavement sensors and speed sensors), to keep travelers safe and traffic moving.
- MDTA continues to deliver high-priority system preservation projects, such as underwater repairs at the Hatem Bridge, multi-facility structural steel painting projects and cable rewinding and dehumidification on the Bay Bridge, study and design work on an eastbound Bay Bridge deck rehabilitation, concrete repairs to the interior of the Fort McHenry Tunnel, major pavement overlay on I-95 (John F. Kennedy Highway), and joint repairs and deck overlay of bridges south of the Fort McHenry Tunnel.
- In FY 2015, MVA processed over 11.1 million transactions, including eMVA (online) and walk-in transactions at MVA's branch office locations. MVA continues to reduce customer wait times through ASD methods including mail, kiosk, interactive voice response system and the Internet, concurrently with an increase in staffing levels.
- In FY 2015, there were just under 4.2 million licensed drivers and 5.0 million registered vehicles in Maryland. Almost 71% of Maryland's entire population possesses a driver's license.

## Travel by Air

- In the first half of 2015, international traffic at BWI Marshall increased by 30.2% (128,463 more international passengers) and total passengers increased by 4.2% (449,217 more passengers), reaffirming it as the busiest airport in the National Capital Region – with a FY 2015 total of 22,761,893 passengers.
- The BWI Marshall Fire and Rescue Department dispatched equipment for local emergencies off-airport grounds 885 times in FY 2015.

## Travel by Water

- MPA general cargo tonnage continued to set records in FY 2015, with a new record high of 9.7 million tons, up from 9.6 million tons in FY 2014. The Port's foreign cargo tonnage is projected to increase about 10%, from 29.5 million tons in CY 2014 to 32.5 million tons in CY 2015.
- The Port ranked #1 among U.S. ports and #10 in the world for container berth productivity in 2014 (Journal of Commerce).
- The Port currently handles more autos, farming and construction machinery than any other port in the United States.
- In CY 2015, 85 international cruises embarked and disembarked at the MPA Cruise Maryland terminal, a slight decrease from CY 2014 values.



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**MDOT would like to offer special thanks and recognition for provision of photos:**

Page 45, Toole Design Group, lower left.

*\* In the future, Bike and Pedestrian Attainment Report performance measures might include Attainment Report Advisory Committee (ARAC) approved updates and modifications that result from the Bike and Pedestrian Master Plan update.*



# Summary

Below are some of the performance results over the past year contained in this 2016 Report.

## Economic Prosperity

- The value of originating and terminating freight in Maryland in CY 2015 totaled over \$457 billion, an increase of \$11 billion over CY 2014. This includes 402 million tons of freight transported by air, rail, truck and water.
- In FY 2015, the Port handled 9.7 million tons of general cargo, a new record, increasing 1.5% since FY 2014. The Port saw increases in container tonnage (7.2%), but decreases in automobiles in FY 2015. Roll-on/Roll-off (RoRo) fell 5.9% at MPA terminals due to weakness in the overseas markets, though the Port remains the largest RoRo port in the U.S.
- Serving 77 nonstop markets in FY 2015 (up from 74 in FY 2014), BWI Marshall service now includes Alaska Airlines, WOW Air and Norwegian. Also in 2015, Southwest Airlines began service to three new international destinations from BWI Marshall: San Jose, Costa Rica; Liberia, Costa Rica; and San Jose del Cabo, Mexico.
- SHA's CHART incident management program saved motorists and commercial carriers nearly \$1.3 billion in user costs, and reduced delay on Maryland roadways by 36.3 million vehicle hours in CY 2014.

## Safety & Security

- From the previous year, Maryland's CY 2014 fatality rate dropped to 0.79 from 0.83 fatalities per 100 million miles of travel. This rate is 36% below the national rate. There were 23 fewer fatalities on Maryland roadways in 2014 compared to 2013 (about a 5% decrease from 466). On average, the number of traffic fatalities on Maryland roads is steadily declining each year, and is the lowest since 1948 when 401 highway deaths were reported. Since 2009, there has been a 33% reduction in serious injuries on Maryland roadways.
- Where appropriate, SHA projects will evaluate the need for bicycle and pedestrian improvements, as fatalities on all roads in Maryland decreased from 110 pedestrians in CY 2013 to 100 in CY 2014, and from seven bicycle fatalities in CY 2013 to five in CY 2014. To improve safety, SHA projects are evaluated to see where the inclusion of improvements for bicyclists, such as the striping of bicycle lanes or shared use lanes, is feasible within each project's scope.
- The number of MTA's preventable accidents were reduced by 13% in FY 2015, with major reductions in Mobility preventable accidents.
- In FY 2015, the rate of airfield ramp incidents and accidents at BWI Marshall increased from 0.064 per 1,000 operations, to 0.119, remaining well below the average airfield rate of 0.244 as reported by Airports Council International.
- For the past seven years, all of MPA terminals' Facility Security Assessment and Facility Security Plans meet Maritime Transportation Security Act requirements and have received excellent ratings following the U.S. Coast Guard's annual inspection.

## System Preservation

- In CY 2014, 87% of SHA and MDTA roadway mileage provided an acceptable ride quality. This exceeded both the long-term target of 84%, and the short-term target of 86%. SHA spent more than \$287 million in FY 2015 on resurfacing roads, a 12% increase from FY 2014.
- SHA's ongoing focus on repair and rehabilitation of SHA-owned bridges has reduced the number of SHA State-owned structurally deficient bridges to an all time low, with only 68 bridges out of 2,565 bridges statewide by April 2015. In addition, the only structurally deficient MDTA bridge is programmed for replacement starting in 2018, which will bring MDTA's number of structurally deficient bridges down to zero once the bridge is replaced.
- On average, there are 0.6 million cubic yards (mcy)/year of Harbor maintenance dredging and 0.9 mcy/year of new work dredging in the Harbor to make improvements to the channel system. The current capacity of dredged material placement sites is well below the MPA target of 20 years of capacity.
- The average age of the MARC rail car fleet decreased from 17.2 to 9.3 years as MTA brought 54 new bi-level cars into service.

## Quality of Service

- The percent of the SHA highway network in preferred maintenance condition decreased to 78.8% in CY 2015, down from 83.4% the two prior years. The extreme and extended winter season caused deterioration to assets and limited typical springtime maintenance activities. In addition, challenges to contract authority, as well as the increased volume of customer requests and the customer-expected response time, created some challenges with meeting maintenance targets.
- Exceeded on time performance targets for Baltimore Metro (95%), Light Rail (95%) and MARC (92%) transit services in 2015.
- Overall, MTA operating cost per trip increased by 1.04% due to contract increases and general inflation. Local Bus is still MTA's most efficient way to move passengers, with cost growth well in line or below historical trends, and while Light Rail's cost per trip this year was higher than last, the costs are also within or below historical trends.
- For the fourth year in a row, average truck turn-around time at Seagirt Marine Terminal for both single and double moves fell below MPA targets and reflected improvement from FY 2014.
- MVA customer satisfaction went up two percentage points, and average customer visit time dropped from 36 minutes in FY 2014 to 30 minutes in FY 2015. These results are due to numerous significant policy and process changes and the continued implementation of technological enhancements that support ASD transactions, which increased 4.4 percentage points from 51.2% to 55.6% in FY 2015.
- In FY 2015, 86% of surveyed BWI Marshall customers stated that they were likely to fly from BWI Marshall on their next trip, a slight decrease from the 87% recorded in FY 2014, but well above the MAA target of 80%.
- The percent of toll transactions collected electronically increased two percentage points from 77% in FY 2014 to 78.5% FY 2015.





## Environmental Stewardship

- In FY 2015, SHA performed over 4,000 erosion and sediment control (ESC) inspections, with only 16 non-compliance findings documented by SHA's Quality Assurance Team, with SHA's overall annual ESC percentage of compliance reporting at 99.6% for FY 2015.
- SHA exceeded its target for light fleet fuel usage by 87,552 gallons due to the unusually large number of emergency winter-related call-outs involving large numbers of SHA personnel in light fleet vehicles during these events, the increase in the usage of light fleet vehicles utilized by construction inspection team members as a result of an increased construction program, and the scheduled replacement of 20 diesel light fleet trucks with gasoline-powered trucks. As diesel elements of the light fleet are replaced with gas engines, there will be increased usage of gasoline; however, SHA is meeting its objective to increase fleet fuel efficiency and reduce greenhouse gas (GHG) emissions. Although SHA used 12% more than the targeted number of gallons of gasoline, its overall fuel usage decreased in FY 2015.
- The MPA's Masonville Cove Environmental Education Center was designated by the United States Fish and Wildlife Service as the first Urban Wildlife Refuge in the nation. In the same year, the MPA was recognized twice for its environmental initiatives, receiving a successful recertification audit of its Environmental Management System (EMS) from the International Organization for Standardization (ISO) 14001, and the Innovative Best Management Practice (IBMP) Award for its Algal Turf Scrubber ® from by the Chesapeake Stormwater Network.
- The MVA Vehicle Emissions Inspection Program (VEIP) stations tested nearly 1.8 million vehicles in FY 2015, with 92% of vehicles in compliance and an average customer wait time of five minutes, well below MVA's 15-minute wait time target.
- Through the support of Travel Demand Management (TDM) projects and programs such as Commuter Choice Maryland, Commuter Connections, the Telework Partnership, various transit marketing and subsidy programs, and statewide park-and-ride facilities, MDOT helped reduce 919.8 million vehicle miles of travel (VMT) in CY 2015, resulting in less air pollution and reduced GHG emissions.
- The FY 2016–FY 2021 CTP includes \$588.0 million to plan, design and construct stormwater controls and alternative water quality improvement strategies adjacent to Maryland roadways to help meet the state's Total Maximum Daily Load (TMDL) obligations.



## Community Vitality

- MTA's local and commuter total average weekday transit ridership increased 2.4% from 376,209 in FY 2014 to 385,371 in FY 2015. Beginning in FY 2015, MTA restructured several routes on Local Bus service and implemented a bus stop optimization program to eliminate unnecessary stops.
- In October 2015, Governor Hogan announced a \$135 million transit initiative, BaltimoreLink, which includes redesigning the entire local and express bus routes throughout Baltimore, promoting interconnection to other transit modes, re-branding of the current MTA modes, construction of transitways and transit hubs, and the use of priority transit signals.
- The proportion of State-owned roadway miles within urban areas that have sidewalks increased slightly in FY 2015 to 21.9%, while the proportion of sidewalks that are American with Disabilities Act (ADA) compliant increased to 68.0%.
- In FY 2015, SHA added more than 12 directional miles of bicycle lanes and shared use lanes, helping to steadily increase the bicycle level of comfort (BLOC) on Maryland roadways. In FY 2015, SHA also updated the methodology to measure BLOC, reflecting the increasing importance of bicycling as a mode of travel.
- Congestion levels on Maryland's arterials remained steady while levels on freeways/expressways slightly worsened in CY 2014, as VMT slightly decreased.
- In FY 2015, there were 19,400 intermodal containers moved by rail through the Port, an increase of 3,400 from 18,300 in FY 2014.



# GOAL: Economic Prosperity



Support a healthy and competitive Maryland economy



## Objectives

- ▶ Improve the movement of freight and support growth in the flow of goods within and through Maryland
- ▶ Facilitate opportunities for growth in jobs and business across the state

The economy of Maryland depends on an effective transportation system – one that includes roadways, transit systems, aviation systems, ports and other transportation systems that work together to allow efficient movement of people and goods within and through the state. This multimodal transportation system enables commuting, shopping, leisure travel, the delivery of materials and the shipping of products from Maryland businesses. Making investments in the State’s transportation system not only supports a healthy state economy, but also continues to enhance access to markets across the globe. Adequate spending on transportation services and maintenance allows business activities and personal travel to be more efficient and cost-effective, supporting and enhancing Maryland’s position of economic competitiveness.

The FY 2016–FY 2021 CTP includes a package of investments in the State’s multimodal transportation system that will contribute to Maryland’s economic development. Projects include improvements to Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall), expansion of the Port of Baltimore (the Port), transit center construction, Purple Line light rail, advanced traffic management systems, intersection capacity improvements, and bicycle and pedestrian improvements. The recently-opened Maryland House and Chesapeake House travel plazas on I-95 and the Seagirt Marine Terminal are examples of successful transportation Public Private Partnerships (P3) projects in the state. The Purple Line P3 is supporting economic development and many of MDOT’s other policy goals while taking advantage of innovative financing and project delivery mechanisms.

Transportation investments create jobs, support residents and businesses, and position Maryland for success in today’s economy. The diverse, multimodal projects listed in the FY 2016–FY 2021 CTP also include funds for multimodal transportation projects – transit, bicycle and pedestrian improvements – supporting and enhancing local economic development and jobs creation, providing cost savings for residents and enhancing tourist activity. These investments provide a more robust, resilient and inclusive transportation network with additional options for travelers. The transportation infrastructure of Maryland affects not only its own economy, but the regional and national economy due to its location. The I-95 highway corridor, along with major rail and marine corridors, position it as a gateway to international trade and national goods movement. MDOT continues to work on multimodal freight initiatives, including adding double-stack freight capacity in the Baltimore & Potomac (B&P) tunnel, a large project supporting economic benefits associated with the Panama Canal expansion and congestion at other eastern seaboard ports.

## Key Initiatives and CTP Projects

**MAA:** In FY 2015, BWI Marshall set an all-time passenger record, with over 22.7 million passengers, a 2.4% increase from FY 2014. In addition, international passenger traffic rose 55% in June 2015 – the highest international total for any one month in BWI Marshall’s history. In addition, BWI Marshall is requesting proposals for the design, development, financing, construction and operation of an airport hotel in FY 2016.

**MDOT:** Approximately \$790 million has been programmed in the FY 2016–FY 2021 CTP for 10 statewide projects that support economic development announced as part of an 84-project, \$1.97 billion package announced in June 2015. Support short line rail lines such as those on Maryland’s Eastern Shore (\$26 million in the FY 2016–FY 2021 CTP for the State-Owned Freight Rail). In addition, SB 868 (Chapter 204) took effect in July 2015, authorizing the establishment and requirements of transportation network services such as Uber and Lyft in the state.

**MDTA:** Support the *E-ZPass* system to expedite the toll collection process, reduce toll plaza delays, decrease emissions and increase revenue for the agency. The \$54 million annual toll reduction (over a quarter billion dollars over five years) will stimulate Maryland’s economy for years to come (\$62.8 million in the FY 2016–FY 2021 CTP to Replace the Electronic Toll Collection and Operating System - 3rd Generation).

**MPA:** In 2015, the Port welcomed Maersk container shipping, with an expected 31,000 new containers per year and service to the Far East, Mediterranean and Northern Europe. In August 2015, the Port began working with an Asian container service to receive Under Armour imported goods, expected to ship around 800 containers a year.

**MTA:** The BaltimoreLink initiative will redesign the existing local and express bus routes, improve all aspects of bus service in the Baltimore metropolitan area and provide connectivity to MTA’s other modes of transit thereby increasing connectivity to local and regional job centers. Early route improvements include new service to the Amazon Distribution Center and to the Horseshoe Casino, and increased service on the Quickbus 40 improving transit to and from the West side of Baltimore City.

**MVA:** Invest in new technologies to maintain secure and accessible data for all MVA transactions. Promote efficiency and cost-effective measures at MVA offices, during license and registration processes, and in partnerships with Law Enforcement, Child Support Enforcement, Arrest Warrants, Courts Point System, Tax Compliance, Board of Elections, Organ Donor, and the Chesapeake Bay and Agriculture Programs (\$11.8 million in the FY 2016–FY 2021 CTP for Project Core Enterprise Management System).

**SHA:** Continue to reduce delay on Maryland’s roadways – in 2014, SHA reduced delay by 36.3 million vehicle-hours, saving roadways users \$1.26 billion. Continue to evaluate the potential expansion of the Coordinated Highways Action Response Team (CHART) program to determine its effect on user cost savings and reduction of delay on Maryland roadways (\$104.9 million in the FY 2016–FY 2021 CTP for CHART).

## Maryland Freight: Improving the Movement of Goods

Efficient and interconnected multimodal freight movement is essential to the economy. Maryland manufacturers depend on the freight system to move raw materials and finished goods between production facilities, distribution centers and retail outlets in Maryland and throughout the U.S. and the world. Freight dependent industries, such as mining, agriculture, retail and wholesale trade, manufacturing, construction, and warehousing, account for over one million jobs in Maryland.

### Freight Originating and Terminating in Maryland

METHOD FOR MOVING FREIGHT	TOTAL VALUE (MILLIONS)	TOTAL TONNAGE (THOUSANDS)
Air	\$4,272*	75
Other**	\$52,755	14,669
Rail*	\$10,413	27,744
Truck*	\$341,796	324,492
Water	\$51,200***	32,500***
All Freight	\$460,436	399,480

\* Source: U.S. Department of Transportation Freight Analysis Framework (FAF3) Version 3. Other, Rail, and Truck value and tonnage data is estimated based on FAF3 data. The data is adjusted yearly to account for previous year actual data and a 2% annual growth rate consistent with the Federal Highway Administration's Freight Summary 2008. The 2% growth rate reflects a conservative estimate of domestic and international freight growth given current economic conditions.

\*\* Freight consists largely of postal and courier shipments weighing less than 100 pounds and other intermodal combinations.

\*\*\* International cargo through the Port of Baltimore, based on the first three quarters of 2015, from MPA.



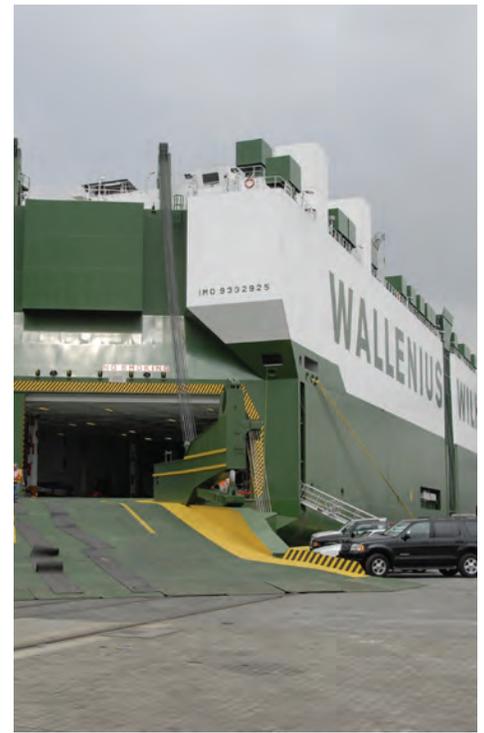
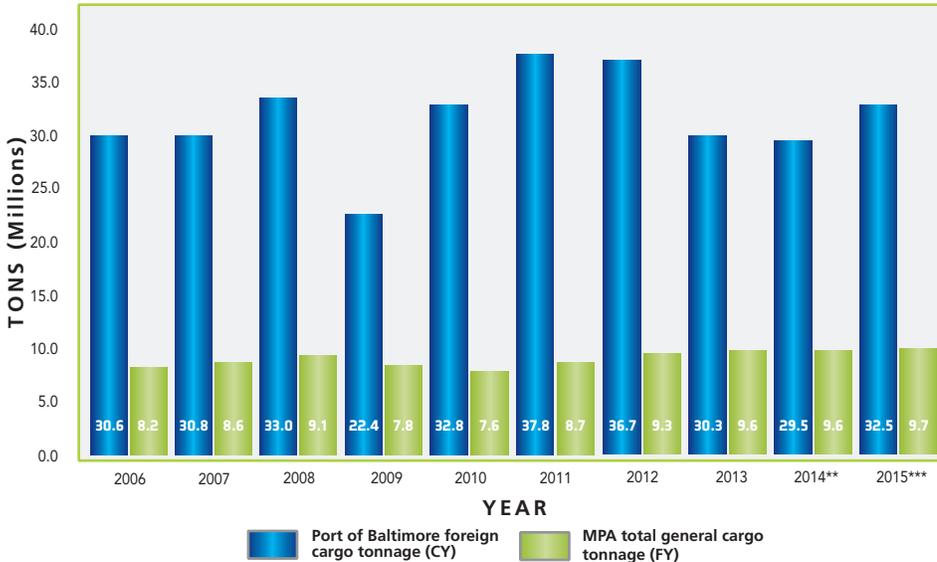
### Maryland Freight Highlights

- Water is well-suited to cost-effectively haul goods long distances. Commercial ships utilize the Port to transfer waterborne goods to land, at which point trucks and rail haul these imported goods to communities around the nation. The Port's operations also serve companies that make and ship goods for export. MPA terminals handle many commodities, including Roll-on/Roll-Off (RoRo) equipment, automobiles, forest products, containers and project cargo. The Port continues to enhance its operational capabilities and infrastructure through funding provided in the FY 2016–FY 2021 CTP, and from other sources. The economic activity at the Port has a direct and indirect positive impact on local and statewide jobs
- Heavy goods that need to be hauled long distances over land are typically moved by rail. Examples of these commodities hauled on Maryland's Class I railroads include coal, chemicals and nonmetallic minerals. The MDTA-owned Canton Development Company operates the Canton Railroad, which provides switching services that enable private port-related industrial facilities to seamlessly access Class I railroad service, while State-owned short lines on the Eastern Shore provide multimodal freight options to rural agricultural, manufacturing and distribution firms
- Trucks carry nearly every type of commodity, from consumer products to chemicals to machinery. Nonmetallic minerals, distribution center traffic and food products account for some of the highest tonnage hauled on Maryland's roads. By maintaining, improving and managing freight-critical highways and interstates, SHA and MDTA support economic growth in the state. Maryland's commercial vehicle enforcement and compliance program helps ensure the safe operation of trucks on Maryland's roadways
- High value and time-sensitive products are commonly shipped via air. The top air freight commodities shipped out of MAA facilities include mail, machinery and transportation equipment. To support commercial cargo, BWI Marshall offers warehousing, transportation and distribution for air cargo, and easy, interconnected access to Maryland's transportation system. The MAA continues to invest in transportation improvements at BWI Marshall and Martin State Airport and provides grants to general aviation airports to continue to ensure the safety of all aircraft operations



## MPA: Port of Baltimore Foreign Cargo & MPA General Cargo Tonnage\*

There are many factors that influence the movement of freight at the Port of Baltimore: national and world economic trends, labor costs (in Maryland and at competing ports), value of the U.S. dollar, rail and highway service and rates, prolonged weather conditions, incentive programs at other ports and changes in vessel sizes. Tracking cargo trends supports MPA's management decisions and helps to assess the economic impact of freight activity occurring at the Port of Baltimore and MPA terminals.



\* MPA general cargo includes both foreign and domestic waterborne cargo.  
 \*\* 2014 data has been revised from previous Attainment Report.  
 \*\*\* 2015 data for Port of Baltimore foreign cargo is preliminary and subject to change.

### Why Did Performance Change?

- In FY 2015, MPA handled 9.7 million tons of general cargo, which is a new record, increasing 1.5% since FY 2014. MPA saw increases in container tonnage (7.2%), but decreases in automobiles in FY 2015. RoRo fell 5.9% at MPA terminals due to weakness in the overseas markets. However, Baltimore remains the largest RoRo port in the USA
- Between 2013 and 2014, general cargo at the Port has increased 3.1%, however bulk commodities, such as coal, sugar and petroleum, have dropped 6.2% since 2013, for a total decline of 3.2%. Coal and salt are making strong increases in 2015
- In CY 2014, the Port handled 29.5 million tons of foreign cargo, at a value of over \$52 billion. Overall, the Port is ranked ninth for the total dollar value of international cargo and 13th for foreign cargo tonnage for all U.S. ports
- Recently, the Port was named the "top U.S. port for container berth productivity" by a leading industry media company
- The Seagirt Marine Terminal, the Port's primary container facility, includes 11 cranes, four of which are Super Post-Panamax capable of handling the biggest ships in the world
- The access channel to Seagirt marine terminal was widened in early FY 2016 to allow for the safe transit of the next generation of larger container ships

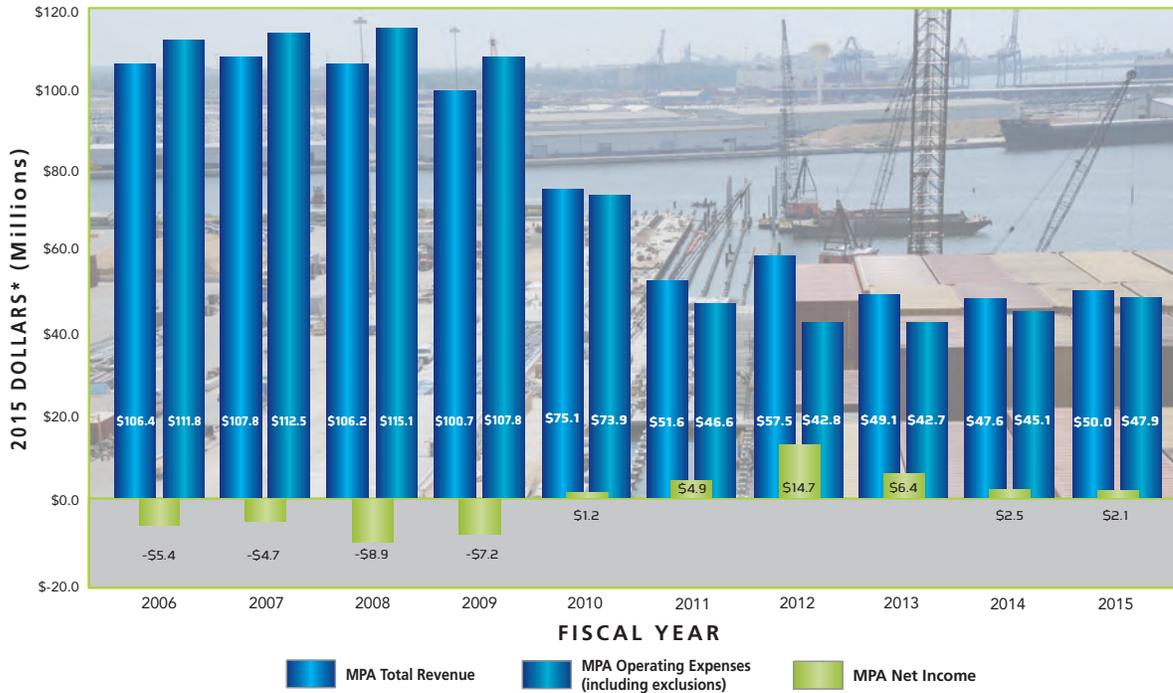
### What Are Future Performance Strategies?

- Continue the Quality Cargo Handling Action Team (Q-CHAT) and encourage existing auto processors and RoRo customers to increase cargo volumes, efficiency and throughputs by working with them to identify new opportunities and promote the Port. Develop new Dundalk gate security (TWIC) procedures to increase volumes of Previously Owned Vehicles (POVs)
- Continue to work with P3 partner, Ports America Chesapeake (PAC), to attract additional containerized cargo to the Port. Attract a new container ocean carrier, and a new service to the Port from an existing container carrier. Work with state and regional economic development offices to locate sites to attract new distribution centers to Maryland
- Take advantage of the larger set of locks due to be opened in Panama in 2016, which will benefit the container and coal ships transiting the Port
- Continue rail and terminal improvements to facilitate heavy lift cargoes and expansion of project cargo, and target auto and machinery manufacturers to provide long-term contracts
- Coordinate roadway permit issues with the City of Baltimore, MDTA and SHA to facilitate cargo movement and positive community relations
- Continue working to retain existing forest product customers. Facilitate efforts to maintain market share and volumes during current global economic downturn. Try to find new tenants/customers to use available shed space
- Continue to work with all stakeholders to develop the Duke property and Sparrows Point as distribution centers
- Continue to work with MDOT and CSX to enable high-cubed, double stack train access to/from Seagirt and Dundalk terminals (\$60.2 million in the FY 2016-FY 2021 CTP for reconstruction of Berths 1 – 6 at Dundalk Marine Terminal)
- Acquire and/or develop new land (i.e. Wet Basin, Mestek, Fruit Slip, etc.) to allow for more automobile cargo growth
- Preserve infrastructure to maintain cargo volumes



## MPA: Revenue, Operating Expense & Net Income

Revenues are an important measure of business activity at the MPA terminals. MPA's operating expenses are usually recovered by revenues generated. Net income is the difference between revenues and expenses.



\* The cost data is adjusted for inflation.

### Why Did Performance Change?

- In FY 2015, MPA's billable cargo tonnage exceeded 13 million tons, representing an increase of over 8% from FY 2014
- Approximately 350,000 passengers passed through the Cruise Maryland Terminal in FY 2015, on 83 cruises and Port calls
- MPA successfully controlled overall operating discretionary expenditures throughout FY 2015
- Non-discretionary utility expenses account for approximately \$6.2 million, and it is anticipated that the energy performance project will substantially reduce energy consumption over time

### What Are Future Performance Strategies?

- Attract and retain sufficient cargo volumes to provide future revenue growth
- Continue to improve MPA financial systems for web-based customer interface
- Continue efforts to increase World Trade Center occupancy
- Continue to develop business synergies with our public-private partner, PAC, to maximize container volumes through the Port
- Work with state and regional economic development offices to locate sites to attract new distribution centers to Maryland
- Continue to promote the Baltimore/Washington region as one of the highest sourcing markets for cruise passengers – Maryland is one of nine states in the South Atlantic Census Division which accounts for 37% of all U.S. cruise passengers, and five of the states are part of MPA's natural geographic marketing footprint
- Continue reducing energy consumption over time through the energy performance project

## MPA: International Cruises Using the Port of Baltimore

Measures cruise business activity departing from the Port of Baltimore to foreign destinations.

Fiscal Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Number of international cruises using MPA's terminal*	30	21	30	35	96	111	100	93	99	75

TARGET: 92 cruises in FY 2016 and 87 cruises in FY 2017

\* All data revised from previous Attainment Report because the measure was changed from Calendar to Fiscal Year.

### Why Did Performance Change?

- Carnival Cruise Lines and Royal Caribbean International reports that their ships are sailing at over 100% capacity (more than two people per cabin) and they continue to offer year-round service from the Port of Baltimore with one break in service for maintenance
- Carnival Cruise Lines removed their ship in October of 2014 to install exhaust scrubbers; however the ship returned in March 2015 resuming year-round service
- In FY 2015, the Port ranked 11th in the nation and sixth on the U.S. East Coast in terms of cruise passenger ridership

### What Are Future Performance Strategies?

- Continue promoting the Port as a convenient location for year-round cruising, and working with the travel industry to promote the Port
- Continue to improve the terminal facility by adding a covered breezeway for weather protection; expand the Wi-Fi capabilities; replace check-in counters; add permanent outside restroom facilities; provide online prepayment options for parking; and enhance the terminal's PA system
- Continue fostering partnerships with existing cruise lines and develop new opportunities for additional cruise lines to operate out of the Port

## MAA: Number of Nonstop Airline Markets Served

Growth in the number of nonstop destinations served provides enhanced mobility options to passengers traveling to cities in the U.S. and around the world; increases the attractiveness of BWI Marshall as the airport of choice in the region; and reflects the success of MAA's marketing efforts to increase the competitiveness of BWI Marshall for business and leisure travel.



## Why Did Performance Change?

- The number of total airline passengers at BWI Marshall increased in FY 2015 to 22.7 million (2.4% increase from 2014), setting an all-time FY record for total passengers
- In FY 2015, the number of nonstop markets served was slightly higher than forecasted
- Alaska Airlines began service at BWI Marshall in September 2014, WOW Air initiated service in May 2015 and Norwegian began service to two French Caribbean destinations in December 2015
- In 2015, Southwest began service to three new international destinations from BWI Marshall: San Jose, Costa Rica; Liberia, Costa Rica; and San Jose del Cabo, Mexico

## What Are Future Performance Strategies?

- Meet with both potential new entrant and current carriers to promote potential new air service opportunities to BWI Marshall
- Focus BWI Marshall advertising and awareness campaigns to passengers on the advantages and options the airport offers. Such services include air service options, parking, ease of access and ground transportation options
- Continue to highlight BWI Marshall as the "easy come, easy go" gateway to Washington D.C.
- Complete the D/E connector at BWI Marshall (104.7 million in the FY 2016–FY 2021 CTP for D/E connector at BWI Marshall)

## MAA: Non-Airline Revenue Per Enplaned Passenger (RPE)\*



TARGET: BWI Marshall non-airline RPE to be at or above the mean of comparable airports\*\*

\* RPE is based on non-airline revenue (e.g. parking, concessions and ground transportation).

\*\* Comparable airports are defined as Washington Reagan National, Washington Dulles International and Philadelphia International.

\*\*\* The cost per passenger data are adjusted for inflation.

\*\*\*\* 2015 data is preliminary and subject to change.

## Why Did Performance Change?

- In FY 2015, BWI Marshall compared favorably with its peer airports on non-airline RPE
- BWI Marshall continued to enhance the retail, food and beverage concessions at BWI Marshall with new concepts
- Passengers at BWI Marshall used the concessions and parking and ground transportation products leading to a stable non-airline RPE

## What Are Future Performance Strategies?

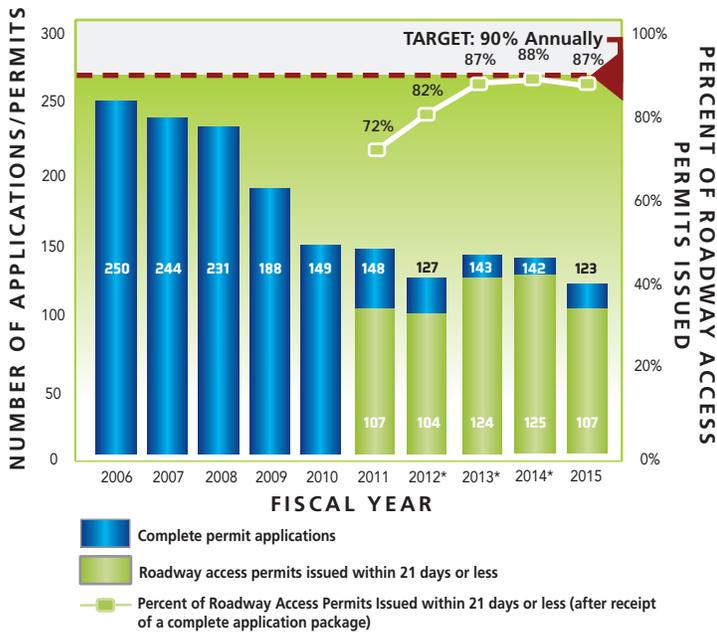
- Continue parking strategies to increase overall parking revenues
- Work in conjunction with BWI Marshall's master concessionaire to enhance the existing retail, food and beverage concessions in the terminal by adding recognized local and national new concepts



## SHA: Percent of Roadway Access Permits Issued Within 21 Days or Less (After Receipt of a Complete Application Package)

Access permits help promote safe and efficient roads for travel while supporting economic growth for jobs and businesses. Issuing access permits and construction of roadway and entrance improvements by developers are some of the last steps before opening businesses and/or selling commercial or residential properties for occupancy. This contributes to a larger tax base for the State, creation of jobs for businesses and redevelopment of vacant properties.

This measure tracks SHA efforts to improve customer service with a predictable, consistent and transparent process for obtaining an access permit in Maryland.



\* 2012, 2013 and 2014 data revised from previous Attainment Report.

## SHA: User Cost Savings for the Traveling Public Due to Incident Management

The total user cost savings to motorists and commercial traffic (from reduced delay on SHA, MDTA and other Maryland roadways) reflects the tangible benefits of the Coordinated Highways Action Response Team (CHART) incident management program.



TARGET: \$1,000 Million Annually

\* 2014 data revised from previous Attainment Report.

\*\* 2015 data is preliminary and subject to change.

## Why Did Performance Change?

- Reorganized the Access Management division to have district engineers serve as the primary point of contact for local development access review, with a support team and a customer coordinator at headquarters
- Achieved 87% of the 21 days-or-less goal in FY 2015, a 1% decline from FY 2014. Four months of FY 2015 featured 100% achievement of the 21 days-or-less goal
- Issued 123 access permits to support safe access to state roadways and economic development
- Sponsored an Access Management Forum for the development and engineering communities to obtain customer feedback

## What Are Future Performance Strategies?

- Review customer service policies and procedures in an effort to improve access permits customer service
- Enhance the access permits database, including simplification and more rigid parameters for allowed user inputs
- Develop process improvements as part of the larger database improvement project, including regular district office collaboration and feedback
- Attend the MDOT/SHA-sponsored AASHTO 2015 Transportation Communications (TransComm) meeting for customer-oriented communications techniques and best practices training
- Focus on reviewing the details of the database performance
- Continue to meet with stakeholders groups to assess effectiveness of changes and resource needs



## Why Did Performance Change?

- Helped reduce delay by 36.31 million vehicle-hours, and saved roadway users nearly \$1.3 billion in CY 2014
- Provided Strategic Highway Research Program (SHRP) 2 Traffic Incident Management training to 1,629 responders (including representatives of several law enforcement, fire, Emergency Medical Services (EMS), and transportation business units at the state, county and local levels) in Maryland
- Handled 111,057 events, including incident responses, assistance with disabled vehicles, and traffic management operations, for special and weather-related events

## What Are Future Performance Strategies?

- Continue to evaluate the CHART patrol expansion to determine its effect on user cost savings and the reduction of roadway delays
- Continue to work through the SHA Mobility Key Performance Area (KPA) to implement a Transportation Systems Management and Operations (TSM&O) Strategic Plan by December 2015
- Continue providing SHRP 2 Traffic Incident Management training to partner organizations in Maryland
- Explore cost-effective uses of limited resources through local, regional and state incident management coordination and collaboration

# GOAL: Safety & Security



Enhance the safety of transportation system users and provide a transportation system that is resilient to natural or man-made hazards



## Objectives

- ▶ Reduce the number of lives lost and injuries sustained on Maryland's transportation system
- ▶ Provide secure transportation infrastructure, assets and operations for the safe movement of people and goods

Effective safety planning, programming, and project delivery by MDOT's transportation business units and partners contributes to enhancing the safe movement of people and goods and reducing traffic injuries and fatalities in Maryland. In 2014, there were 443 traffic fatalities in Maryland, the lowest number since 1948 when 401 highway deaths were reported, and also a decline from the 2013 number of 466. MDOT is dedicated to improving safety on all roads, bridges, transit networks, harbors and airports in the state. Three MDOT transportation business units - MTA, MPA, and SHA - won awards in 2015 recognizing their commitments to safety. MTA was awarded the *GOLD Award for Safety* for its Safety Rules and Compliance Program and MPA won two awards for excellence in customer safety. In October 2015, SHA won the AASHTO 2015 President's Award in the Highway Traffic Safety category for the Ocean City Pedestrian Safety Team. Another notable achievement includes the completion of the Runway Safety Areas (RSA) program at Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall), in which \$350 million in airfield program improvements were accomplished well ahead of schedule.

The FY 2016–FY 2021 CTP and the Calendar Year (CY) 2011–2015 Strategic Highway Safety Plan (SHSP) guide strategic implementation for reducing fatalities and serious injuries on Maryland's roadways, using a data-driven approach to identify solutions for the most pressing behavioral and infrastructure issues in Maryland. The Federal Fiscal Year (FFY) 2015 Highway Safety Plan, funds proven-effective projects to address crashes related to impaired driving, unbelted motorists, distracted drivers, aggressive driving, motorcycles, pedestrian and bicyclists, and older and younger drivers. New safety initiatives within these documents focus on impaired driving crashes, which have averaged approximately 8,000 annually over the last five years. Using crash and citation data, the Maryland Highway Safety Office (MHSO) and law enforcement agencies collaborate to locate high risk impaired driving areas and then direct resources to those locations for Driving Under the Influence (DUI) enforcement operations, such as checkpoints.

A number of safety education and enforcement campaigns have been implemented throughout the year to drive down fatalities and create awareness on a variety of multimodal transportation safety issues. The *Smooth Operator Program*, implemented in the summer months, aims to stigmatize and reduce aggressive driving; the Road Ready e-brochure, published annually, informs drivers about major upcoming construction projects, and raises awareness about safety in work zones; the *Ocean City Walk Smart!* campaign continues to prevent pedestrian fatalities during the busy summer months along the coast; and MDTA leads efforts during April's Distracted Driving month to educate drivers about the dangers of using a cell phone or texting while driving.

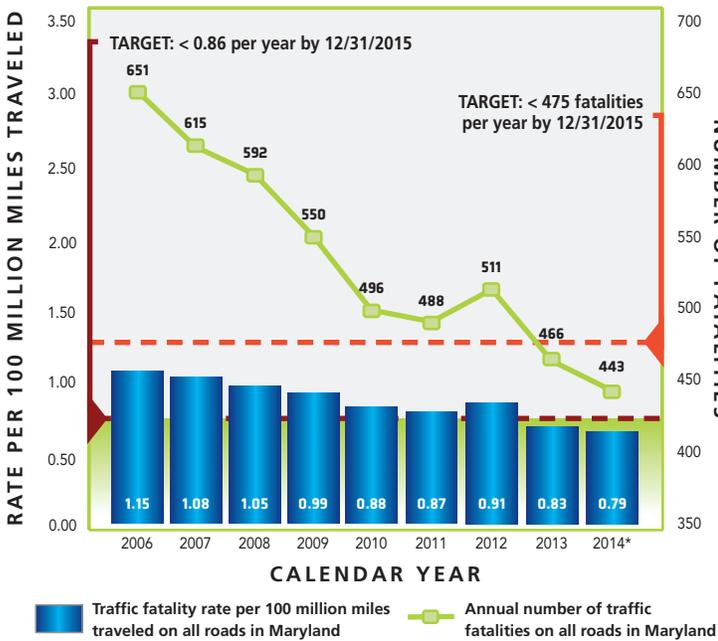
## Key Initiatives and CTP Projects

- MAA:** Ahead of the FY 2015 Federal deadline established by the U.S. Congress, BWI Marshall's commercial runways met the updated RSA standards. Approximately \$350 million in airfield program improvements, including runway pavement reconstruction, grading, airfield lighting improvements, taxiway upgrades, enhancements to navigational aids and other associated projects were completed. Security improvements include \$22.0 million in the FY 2016–FY 2021 CTP for an International Checked Baggage Inspection System at BWI Marshall.
- MDOT:** Continue to implement the \$1.97 billion funding program for highway and bridge safety projects in Maryland, whereby approximately \$355 million will be spent to improve safety in 25 locations.
- MDTA:** Continue to support efforts to reduce distracted driving fatalities and serious injuries year-round by providing education, enforcement efforts and increased activities during April National Distracted Driving Awareness Month. Also, improve security of the toll roads by investing \$1.4 million (as listed in the FY 2016–FY 2021 CTP) for Installing Security Systems and Video Surveillance at Major Bridges.
- MPA:** Continue to provide safe and reliable customer service at the Port of Baltimore's (The Port) cruise terminal. In 2015, the Port won two international customer service awards from Royal Caribbean Cruise Line that recognize the Port's efforts to safely board and debark passengers from cruises. MPA will continue to advance port security through the \$1.7 million in the FY 2016–FY 2021 CTP for the Terminal Security Program.
- MTA:** Enhance public safety and security for transit riders through installation of high-resolution surveillance cameras to monitor and record activity associated with rail platforms. The cameras are a part of the Homeland Security CCTV Phase IV and are viewable by the MTA Police in realtime. Cameras are to be installed at the following MARC stations: College Park, Penn Station, and West Baltimore (\$1.2 million in the FY 2016–FY 2021 CTP for CCTV Improvements).
- MVA:** The MHSO continues to explore innovative solutions to reduce impaired driving fatalities and serious injuries. Launched in 2015, the ENDUI (End DUI) smart phone application helps people plan ahead or find a safe ride home to avoid impaired driving with features allowing users to: prevent impaired driving by allowing users to create a designated driver contact list; easily locate transit and taxi options; estimate their blood alcohol concentration level; and participate in two motor skills tests to gauge response time.
- SHA:** Continue to improve work zone safety to reduce sharp increases in fatality and injury trends over the past three years. Each April is Work Zone Awareness month, but throughout the year, education strategies, including social media, web banners, radio public service announcements and an e-brochure "Road Ready" are used to save lives in work zones. Dynamic Message Signs are another way SHA communicates important messages that help improve safety on Maryland Roads (\$3.2 million in the FY 2016–FY 2021 CTP for CHART - Areawide Dynamic Message Signs Deployment - Phase 3).

# MVA/SHA/MDTA: Annual Number of Traffic Fatalities & Serious Injuries on All Roads in Maryland

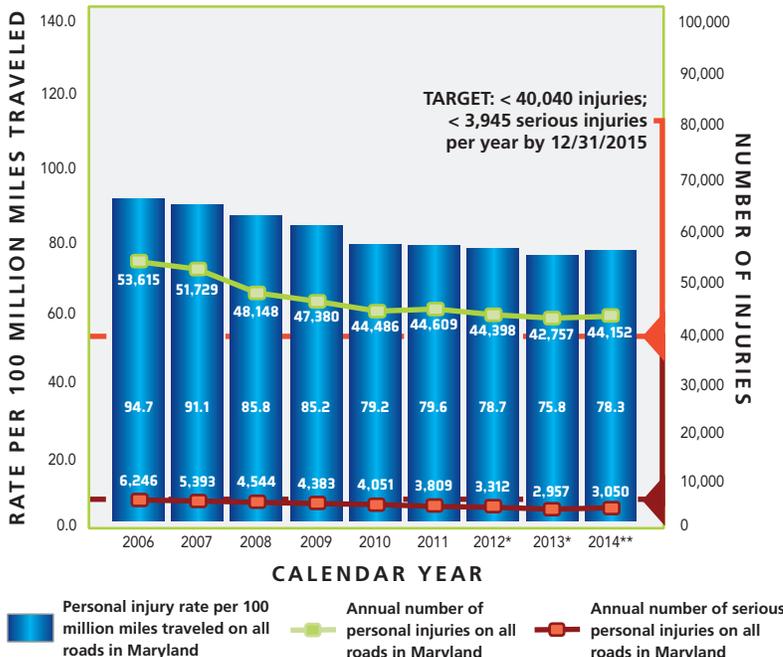
Maryland measures reductions in the actual numbers of traffic fatalities and serious injuries on all Maryland roadways, in six emphasis areas, as desired safety outcomes. Maryland joined other states and organizations in adopting the goal of the national initiative Toward Zero Deaths: A National Strategy on Highway Safety, to reduce traffic fatalities by half by 2030. Maryland supports the long-term goal of zero deaths and is committed to adopting strategies to achieve that purpose. Unless otherwise noted, injury and fatality targets are from the 2011-2015 SHSP, which was amended in 2014 to reflect requirements in the most recent federal transportation legislation, Moving Ahead for Progress in the 21st Century (MAP-21). Attainment Report fatality and injury reporting is anticipated to be aligned with the updated 2016-2020 SHSP and MAP-21 requirements in the next Report.

## Annual Number of Traffic Fatalities on All Roads in Maryland



\* 2014 data is preliminary and subject to change.

## Annual Number of Personal Injuries on All Roads in Maryland



\* 2012 and 2013 data was revised from previous Attainment Report.

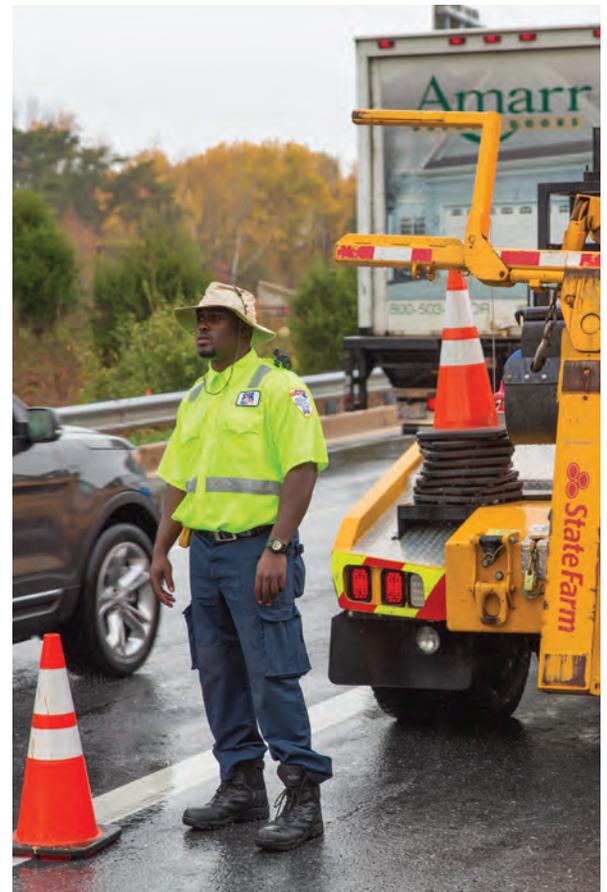
\*\* 2014 data is preliminary and subject to change.

## Why Did Performance Change?

- On average, the numbers of traffic fatalities on Maryland roads are steadily declining each year. Since 2009, there has been a 33% reduction in serious injuries on Maryland roadways. In 2014, Maryland's fatality rate declined, dropping from 0.83 to 0.79
- The reduction in fatalities is a direct result of the collaborative work with national, state and local partners. Education, enforcement, engineering and emergency responders, the four "E's" of highway safety, continue to have a positive impact on driver behavior, working together to achieve a significant decrease in highway deaths from aggressive driving, speeding, distracted driving and impaired driving
- Pedestrian roadway safety audits were implemented to improve a data-driven approach to the project selection and programming of pedestrian safety enhancement projects and educational outreach

## What Are Future Performance Strategies?

- Focus on geographical locations with the highest crash severity
- Work with geospatial analysis of crash data to identify high risk curves and screen candidate locations for high friction surface treatments
- Increase the number of virtual weigh stations in order to increase compliance with federal motor carrier safety regulations and Maryland size and weight laws
- Develop and implement a communications and marketing plan that addresses high priority traffic safety issues
- Ensure security on the transportation system (\$1.4 million in the FY 2016–FY 2021 CTP for installing security systems and video surveillance at major MDTA bridges)



# MVA/SHA: Number of Bicycle & Pedestrian Fatalities & Serious Injuries on All Maryland Roads

Maryland measures reductions in the actual numbers of traffic fatalities and serious injuries on all Maryland roadways, in six emphasis areas, as desired safety outcomes. Maryland joined other states and organizations in adopting the goal of the national initiative Toward Zero Deaths: A National Strategy on Highway Safety, to reduce traffic fatalities by half by 2030. Maryland supports the long-term goal of zero deaths and is committed to adopting strategies to achieve that purpose. Unless otherwise noted, injury and fatality targets are from the 2011-2015 SHSP, which was amended in 2014 to reflect requirements in the most recent federal transportation legislation, Moving Ahead for Progress in the 21st Century (MAP-21). Attainment Report fatality and injury reporting is anticipated to be aligned with the updated 2016-2020 SHSP and MAP-21 requirements in the next Report.

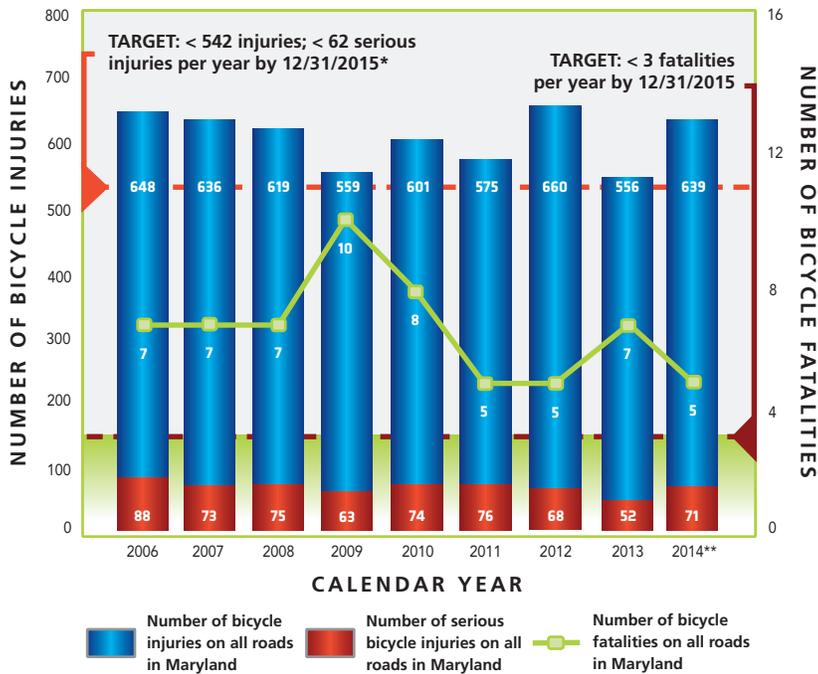
## Why Did Performance Change?

- To improve safety, SHA projects are evaluated to see where the inclusion of improvements for bicyclists, such as the striping of bicycle lanes or shared use lanes, is feasible within each project's scope
- Established an official pedestrian safety committee/task force within SHA to develop a strategic approach to improve pedestrian safety around the state
- Identified high crash locations across the state to focus additional engineering, enforcement and education efforts to improve pedestrian safety
- Performed pedestrian safety audits and implemented innovative engineering design to improve pedestrian safety in high incident locations in Ocean City, College Park, and in Montgomery, Prince George's and Baltimore counties
- Began formulating pedestrian safety action plans in coordination with local government and community leaders in high crash locations that have had audits previously performed
- Developed the comprehensive Walk Smart College Park campaign to promote pedestrian safety along US 1 in College Park

## What Are Future Performance Strategies?

- Utilize social media to establish an open and direct line of communication between the bicycling community and SHA
- Conduct a pedestrian roadway safety audit on the next round of high pedestrian crash locations and work to implement the resulting recommendations from each audit
- Seek ways to coordinate education and enforcement efforts with engineering efforts to more effectively improve pedestrian and vehicular behaviors in high crash locations

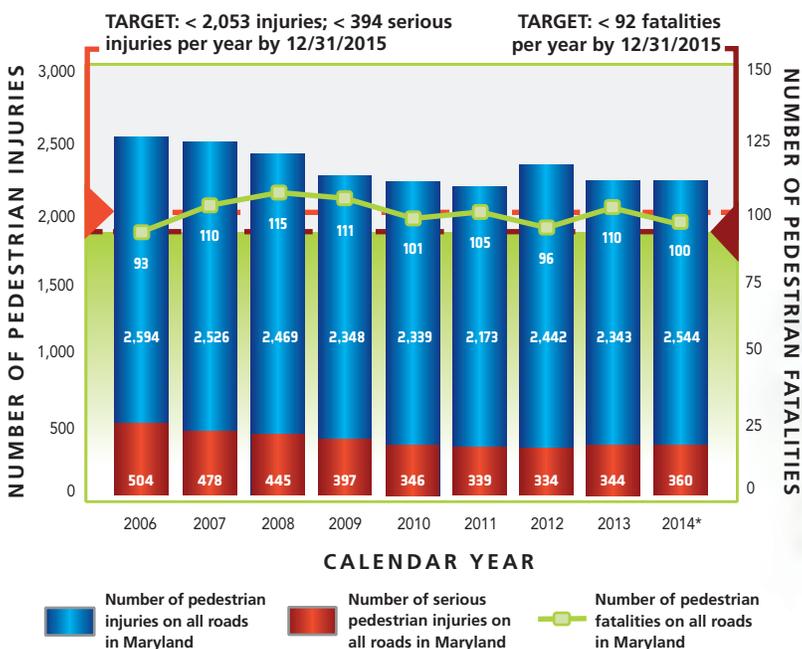
## Number of Bicycle Fatalities and Injuries on All Maryland Roads



\*Serious injury target is based on the Maryland 2016-2020 SHSP, as this measure was not developed for the MD 2011-2015 SHSP.

\*\* 2014 data is preliminary and subject to change.

## Number of Pedestrian Fatalities and Injuries on All Maryland Roads

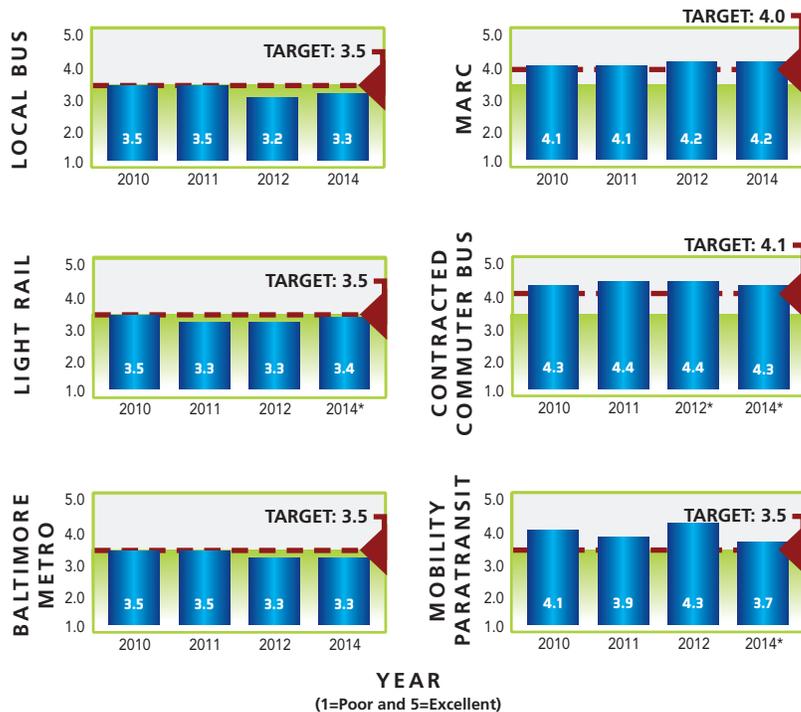


\* 2014 data is preliminary and subject to change.



## MTA: Customer Perceptions of Safety on the MTA System\*\*

A positive perception of personal safety is correlated with higher ridership and stronger commitment to transit as a mode of travel.



\* 2014 Light Rail data, 2012 and 2014 Contracted Commuter Bus data, and 2014 Mobility Paratransit data revised from previous Attainment Report.

\*\*A survey was not completed in 2009, 2013, or 2015. The last survey was completed in 2014.

## Why Did Performance Change?

- Continued safety and security programs such as unannounced and highly visible police sweeps of MTA facilities and CompStat, a weekly review of all reported incidents
- Continued installation of closed circuit television (CCTV)
- Created a Mobile Field Force Team (deployable team of officers with special crowd control equipment and training)

## What Are Future Performance Strategies?

- Continue use of unannounced police sweeps and CompStat programs
- Make improvements to the CCTV facility with start-of-the-art monitoring
- Implement upgrades to the Police radio communications for statewide coverage and interoperability improvements
- Implement enhanced crowd/rioting control training for all officers
- Support School Stat Taskforce to address school age crime and safety concerns



## MTA: Preventable Accidents Per 100,000 Vehicle Miles

MTA has developed a baseline from which to reduce preventable accidents, increase efficiency and provide a safer ride to customers.

CALENDAR YEAR	2009	2010	2011	2012	2013	2014	2015*	Target
Preventable accidents per 100,000 vehicle miles								
Local Bus	2.41	3.49	2.61	2.43	1.49	1.42	1.43	2.26
Light Rail	0.03	0.13	0.13	0.24	0.03	0.06	0.08	0.24
Baltimore Metro	0.00	0.11	0.10	0.06	0.00	0.00	0.00	0.06
Paratransit/Taxi Access	1.14	0.34	0.48	1.74	1.55	1.10	0.53	1.00

\*2015 data is preliminary and subject to change.



## Why Did Performance Change?

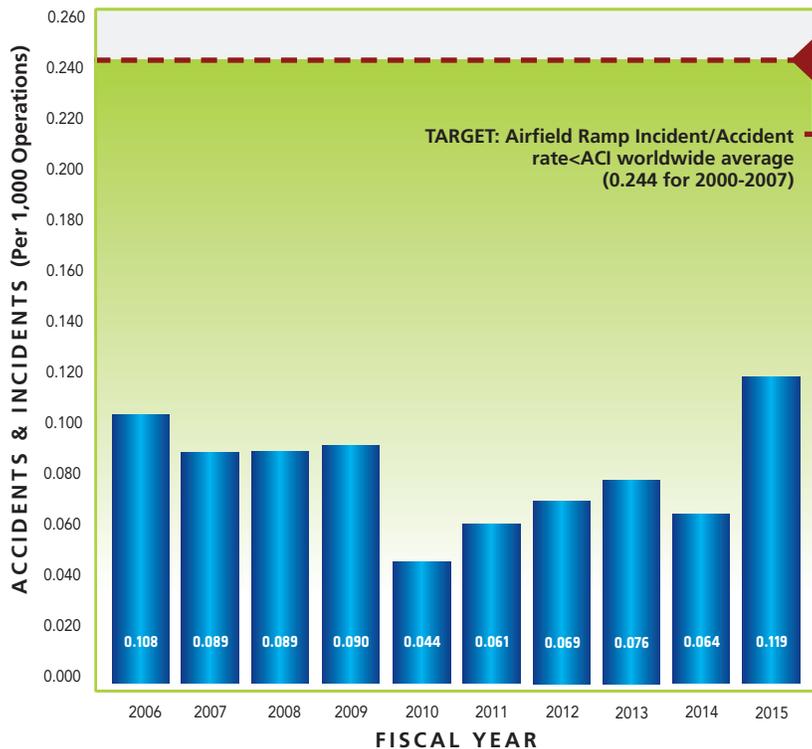
- MTA experienced a decrease of 13% in preventable accidents since FY 2014
- MTA continued the implementation of the revised Bus Safety Performance Evaluation System (SPES) policy which holds Operators accountable for the accidents they are involved in; required retraining after these accidents and disciplinary actions associated with the accident based on a points system explained in the policy
- The significant decrease in Paratransit accidents is a result of aggressive management and auditing of contract service providers

## What Are Future Performance Strategies?

- Continue accountability efforts to ensure that operators with multiple preventable accidents receive appropriate retraining and corrective action via SPES on core modes: Local Bus, Light Rail and Baltimore Metro
- Utilize efficient and effective training methodologies, including the bus simulator, operator recertification programs, and safe operation awards, to give operators the skills they need to perform their duties safely
- Review accidents with the aid of Geographic Information Systems (GIS) to determine patterns in operators, times of day, locations, etc. and develop corrective action policies to further reduce accident risks

## MAA: Rate of Airfield Ramp Incidents & Accidents Per 1,000 Operations

This measure provides an indication of the safety and security of operations-related activity at BWI Marshall.



### Why Did Performance Change?

- The rate of airfield incidents and accidents remained well below the average rate as reported by Airports Council International (ACI)
- Continued emphasis with the tenants at BWI Marshall on reporting of all airfield incidents has led to an increase in the number of reported incidents

### What Are Future Performance Strategies?

- Continue to monitor all incident reports for trends that need to be addressed and implement safety changes as required
- Increase inspections by Airport Operations to identify problems and hazards before they become accidents and incidents
- Continue to implement RSA improvements to meet new federal standards and enhance airfield safety (\$16.9 million in the FY 2016–FY 2021 CTP for Runway Safety Area Standards and Pavement Improvements Phase 2 at BWI Marshall)



## MAA: BWI Marshall Crime Rate

This measure provides an indication of the relative safety passengers experience when traveling through BWI Marshall. Poor performance in this area could result in a decline in passenger numbers.



### Why Did Performance Change?

- BWI Marshall's actual number of crimes committed remained well below targets

### What Are Future Performance Strategies?

- Continue to utilize CCTV to monitor, record and respond to security and life safety incidents
- Continue inspections by BWI Marshall Airport Operations to identify problems and hazards before they become accidents and incidents



## MAA: Number of Repeat Discrepancies in the Annual Federal Aviation Administration's Federal Aviation Regulation Inspection

The passing of Federal Acquisition Regulation (FAR) Part 139, which governs the certification and operation of U.S. commercial airports, is required for the airport to remain open and operational. Each year, MAA works closely with the FAA to ensure that BWI Marshall remains in compliance with the provisions of FAR Part 139 and maintains its FAA-issued operating certificate. Compliance is determined by annual inspections conducted by the FAA. Work orders are generated when Letters of Correction are issued and are given high priority with urgent resolution. BWI Marshall successfully completed the 2015 FAA safety and certification inspection with zero repeat discrepancies. MAA will continue to address all discrepancies in accordance with the federally prescribed timeline. BWI Marshall continues to pass the annual safety certification inspection process required to keep the airport open.

## MPA: Compliance with the Maritime Transportation Security Act of 2002

The MPA incorporates a personnel and physical security plan, which meets security requirements as outlined within the Maritime Transportation Security Act of 2002 (MTSA). The MPA's security procedures are documented within its Facility Security Plan, which is approved by the U.S. Coast Guard. For the past seven years the MPA has received "Excellent" ratings following the U.S. Coast Guard's annual security inspection.

The MPA is required to maintain and execute a Facility Security Assessment and Facility Security Plan. The Facility Security Plan for all MPA terminals currently meets the MTSA 2002 requirements and has been approved by the U.S. Coast Guard. MPA continues to assess its security plans and make adjustments or additions to maintain the delicate balance between security requirements and enhanced commerce capabilities. In 2015, the MPA completed physical security enhancements at the North Locust Point Marine Terminal Gate, and is currently conducting a cyber-related vulnerability assessment of physical security technology and CCTV Video Analytics, to be completed in FY 2016.

## MVA: Percent of Homeland Security REAL ID Act Benchmarks Achieved

The Federal REAL Identity Act (REAL ID) provisions for secure licensing and IDs (REAL ID) sets standards for issuing driver licenses and identification cards and is intended to improve the integrity and security of State-issued driver licenses and identification cards. MDOT has created a State driver's license that fully complies with the federal REAL ID regulations released by the Department of Homeland Security. The REAL ID compliant license in Maryland requires an individual to provide proof of lawful presence in the United States, as legislatively required by Congress under the REAL ID Act of 2005.

The REAL ID process has been phased in over time to enable states to achieve the required 39 benchmarks in order to be in full compliance with REAL ID. As of September 2015, the MVA has achieved full compliance with 35 of the 39 eligible benchmarks that are currently available to be implemented. Once all electronic verification systems can be fully implemented, Maryland will work to achieve all 39 benchmarks. The MVA continues to implement technical and program enhancements as they become available by the federal government, in partnership with the American Association of Motor Vehicle Administrators (AAMVA).

## What Are Future Performance Strategies?

- Continue to work closely with FAA to ensure that the airport passes its annual FAA Part 139 safety and certification inspection
- Continue working with FAA to implement a pilot Safety Management System (SMS) program
- Continue efforts to work toward a goal of 100% compliance with FAA safety and certification requirements. Continue to reduce the number of noted discrepancies and reduce airfield safety incidents involving aircraft, vehicles and personnel

## What Are Future Performance Strategies?

- Replace and maintain all terminal CCTV cameras, and remain an active participant within the State's CCTV Interoperability System. Develop and implement a CCTV Analytics System
- Execute capital funds (state and federal) to improve and protect critical infrastructure in the Port (\$1.7 million in the FY 2016–FY 2021 CTP for Terminal Security Program)
- Continue active participation in maritime and homeland security initiatives with federal, state and local Port partners which includes the U.S. Coast Guard's Area maritime Security Committee and the American Association of Port Authorities' Security Committee
- Coordinate with federal, state, and local law enforcement partners on joint enforcement initiatives

## What Are Future Performance Strategies?

- Continue to maintain MVA's REAL ID status, which was approved in January 2013
- Continue to administer statute and regulations that require individuals to provide proof of lawful presence in the U.S. for issuance of a fully-compliant driver's license and ID card
- Develop a more secure driver's license and ID card (\$1.0 million in FY 2016–FY 2021 CTP for REAL ID Act)
- With the procurement of new high volume printers, mailers and enhanced security cards, MVA will transition to 100% central issuance by FY 2016



# GOAL: System Preservation



Preserve and maintain the State's existing transportation infrastructure and assets



## Objective

- ▶ Preserve and maintain state-owned or supported roadways, bridges, public transit, rail, bicycle and pedestrian facilities, port, airports and other facilities in a state of good repair

From the Eastern Shore to Western Maryland, it is essential that the State maintain and preserve its strong and well-established transportation network. Maintenance of the State's existing transportation system is one of the top priorities of the MDOT Administration and its business units. In the FY 2016–FY 2021 CTP, bridge and roadway maintenance are two significant funding priorities in the State, followed by rail and bus maintenance. Preservation and maintenance projects dominated the landscape of infrastructure investments in FY 2015 at a cost of \$622 million, including 66 highway segment resurfacing projects, 22 bridge rehabilitation/replacements, 10 safety/geometric improvements and 354 other rehabilitation projects.

Maryland's roads and bridges connect communities, economic centers and destinations, while also moving commuters, businesses and visitors within and through the state efficiently, safely, and on time. SHA has spent more than \$287 million in FY 2015 on resurfacing roads, a 12% increase from FY 2014. The number of "structurally deficient" bridges in the state – bridges that are safe for travel, but need to be programmed for repairs or replacement – is an essential measure of system preservation. SHA has been making strides in reducing this number year after year, and by April 2015, the number of SHA structurally deficient bridges in the state was at an all-time low – 69 bridges out of 2,565 statewide – due to SHA's ongoing focus on repair and rehabilitation of SHA bridges. In addition, the only structurally deficient MDTA bridge is programmed for replacement starting in 2018, which will bring MDTA's number of structurally deficient bridges down to zero once the bridge is replaced.

Preserving the quality of Maryland's transit systems, airports, ports, and bicycle and pedestrian facilities is critical to maintaining the state's connectivity with surrounding states and the globe. A total of \$6.12 billion (\$1.02 billion each year through 2021) is included in the FY 2016–FY 2021 CTP for system preservation projects in Maryland: \$250 million for the Maryland share of Washington Metropolitan Area Transit Administration (WMATA) state of good repair and preservation program, \$103 million for MVA preservation projects, \$194 million for MDOT, \$234 million for MAA, \$229 million for MPA, \$363 million for MTA, and \$5.1 billion for SHA. In 2015, MTA will continue to invest in Maryland's transit network through Automatic Vehicle Location (AVL) systems for the state's Local Bus network, and an Asset Management Plan to provide insight into maintenance/capital needs. To continue to provide safe, reliable and efficient transportation options within the state, that support Maryland's growing economy, MDOT is committed to ensuring its transportation system remains high-quality, reliable and efficient.

## Key Initiatives and CTP Projects

**MAA:** In July 2015, the FAA gave a \$16.8 million grant to Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall) to complete the fourth phase of a multi-phase comprehensive taxiway improvement program for Runways 10/28 and 15R/33L. This Airport Improvement Program (AIP) grant helped fund the fourth phase of the overall program, including the relocation and reconfiguration of various parts of the airport taxiway system to meet FAA safety and design standards, elimination of unclear taxiway configurations, provision of a dual parallel taxiway system, and enhancement of airport capacity to permit unrestricted operations during low-visibility conditions (\$78.2 million in the FY 2016–FY 2021 CTP for Phase 4).

**MDOT:** Continue to fund system preservation needs in the FY 2016–FY 2021 CTP at \$6.1 billion through FY 2021.

**MDTA:** Support preservation of all MDTA facilities and expand the current system preservation program to include preventative maintenance activities. Critical highway links that underwent maintenance work in 2015 included the Bridge Deck Overlay on the Baltimore Beltway south of the Key Bridge, I-95 south of the Fort McHenry Tunnel, Pavement Resurfacing of NB/SB I-95 between MD 24 and Tydings Memorial Bridge, and the Rehabilitation of I-95 Bridges over Herring Run and CSX (\$3.1 million in the FY 2016–FY 2021 CTP for deck of I-95 Fort McHenry Tunnel).

**MPA:** Continue to renovate port facilities at Dundalk Berth 4, manage an effective dredging program to maintain and improve shipping channels to the Port of Baltimore, and work towards increasing the capacity at the Cox Creek Dredged Material Containment Facility (DMCF) (\$164 million in the FY 2016–FY 2021 CTP for increasing the capacity at the Cox Creek DMCF and \$60.2 million for the reconstruction of berths 1-6 at Dundalk Marine Terminal).

**MTA:** Continue to invest in the maintenance and preservation of all MTA facilities, including working with the FTA on the development of the MARC Northeast Maintenance Facility in Perryville, Maryland. Maintain and replace transit vehicles, including annual bus procurement to replace vehicles in service for 12 or more years and the Light Rail vehicle mid-life overhaul (\$7.9 million in the FY 2016–FY 2021 CTP for the MARC Northeast Maintenance Facility).

**MVA:** Maintain facilities, information and communication systems to ensure seamless operation (\$4.0 million in the FY 2016–FY 2021 CTP for security system preservation and improvement, \$4.4 million for telecommunication system preservation and improvement, and \$2.8 million for central document processing system preservation).

**SHA:** Continue investing in maintenance of structurally deficient bridges throughout the state, simultaneously increasing the use of more durable roadway materials and recycled materials. An online asset management dashboard is being developed to publish interactive maps with pavement conditions and bridge status.



## SHA & MDTA: Percent of Roadway Miles with Acceptable Ride Quality\*

The traveling public has identified acceptable ride quality (i.e., the smoothness or roughness of the pavement) as a priority. Ride quality facilitates mobility, efficiency and safe movement of people and goods within Maryland.



\* Ride quality is represented by the International Roughness Index (IRI).

\*\* 2014 data was revised from previous Attainment Report.

\*\*\* 2015 data is preliminary and subject to change.

## SHA & MDTA: Number of Bridges & Percent That Are Structurally Deficient

The structurally deficient rating is an early warning sign for engineers to initiate the rehabilitation or replacement process and to use when prioritizing and recommending system preservation funding. The rating applies to three main elements of a bridge: 1) deck (riding surface); 2) superstructure (main supporting element of the deck); and 3) substructure (supports to hold up the superstructure and deck). These elements are rated on a scale from zero (closed to traffic) to nine (relatively new). If any of the three elements is rated as a four or less, the bridge is categorized as structurally deficient by federal standards. This does not mean that the bridge is unsafe; if a bridge becomes unsafe, it is closed. The business units place a high priority on bridge programs, as impassable bridges can cause significant rerouting of traffic and congestion delay and in rural areas, closed bridges can create significantly longer travel distances for rural communities' daily activities and commutes.

CALENDAR YEAR	2009	2010	2011	2012	2013	2014	2015
Number deficient	117	111	110	101	88	82	69
Percent deficient	4.1%	3.9%	3.9%	3.5%	3.0%	2.8%	2.4%

TARGET: Less than 67 total bridges by CY 2017



## Why Did Performance Change?

- SHA focused on improvements in roadways with deficient ride quality and continued implementation of operations and business plan strategies designed to effectively maintain ride quality
- MDTA continued performing needed preservation improvements to all facilities, including resurfacing travel lanes and ramps, rehabilitating and/or painting bridges, and upgrading signs and lighting
- MDTA has overhauled and enhanced the inspection program over the past several years to better identify, report and address inspection findings
- MDTA has continued the use of an integrated facility management software to collect inspection findings, track repair efforts and compare facility needs over time
- SHA continued to increase the use of pavement preservation treatments where appropriate to extend the service life of SHA roadways; SHA improved 15% of the SHA pavement network in CY 2014 with a mix of pavement preservation treatment to prolong the service life of the network

## What Are Future Performance Strategies?

- Focus on high priority prevention and maintenance projects and ensure that all repair assignments are made based on priority; utilize the design and construction contract schedule to perform structural repairs in the high-priority category of the annual inspection
- Continue to prioritize defects based on the confirmed rating of the defect
- Continue implementation of the Federal Highway Administration (FHWA) and SHA pavement preservation program, and seek federal funding for maintenance activities as part of an asset management program
- Increase the use of durable materials in high-demand SHA roadways and target low surface friction locations on SHA roadways



## Why Did Performance Change?

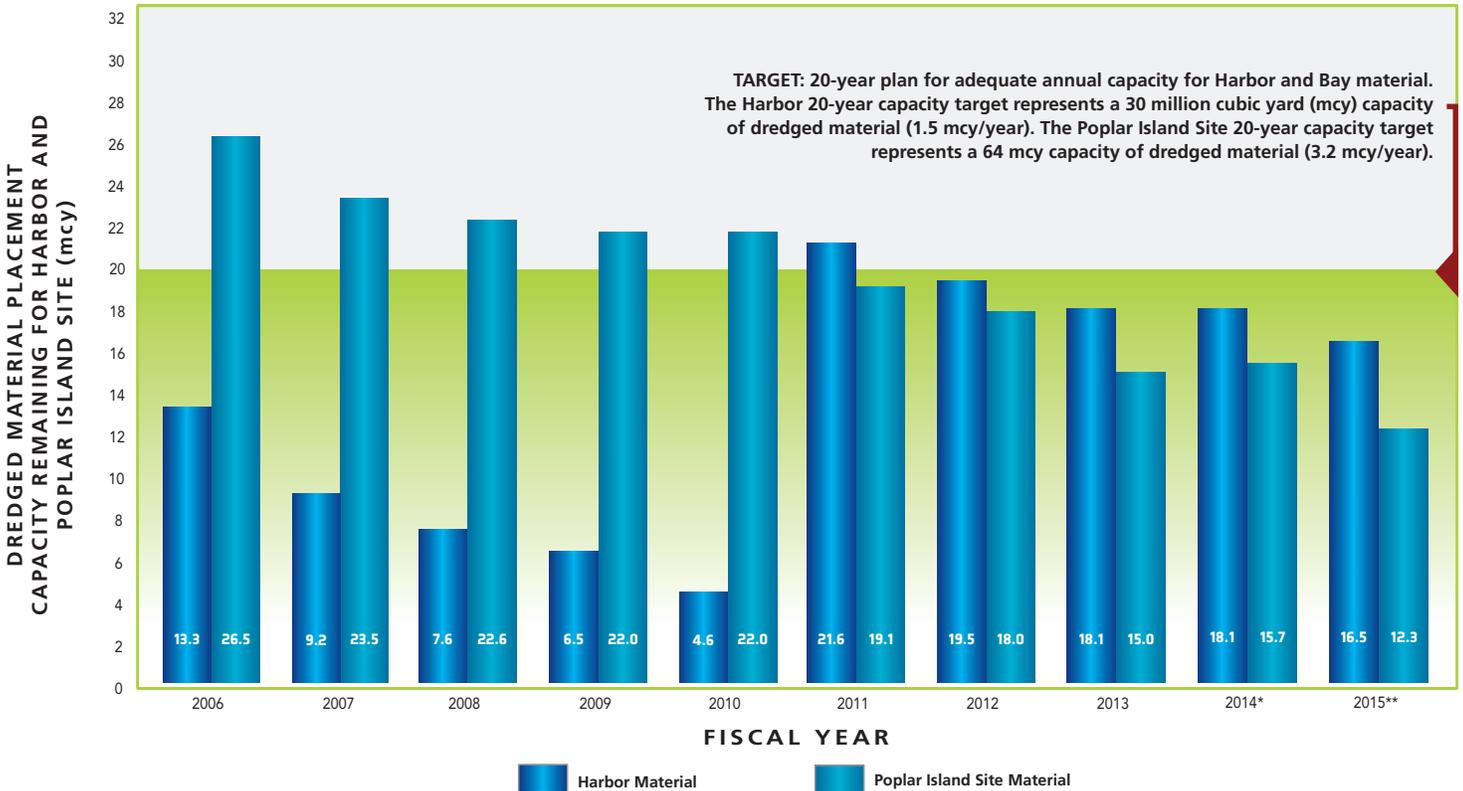
- MDTA implemented an aggressive System Preservation program that identified projects in various stages of engineering, contract procurement and construction
- MDTA conducted their yearly inspection on all facilities; SHA conducted their inspection on all bridges, done every two years per FHWA requirements
- Total replacement or proactive system preservation projects are developed based on the priorities and overall condition assessment
- SHA continued an aggressive bridge rehabilitation program with numerous contractor construction crews working full time year-round, addressed bridges that were structurally and otherwise deficient and minimized the number of bridges that may become structurally deficient

## What Are Future Performance Strategies?

- Advertise a contract in FY 2017 to replace the Canton Viaduct, the final MDTA bridge identified as structurally deficient in the 2010 inspection cycle
- Continue to deliver high-priority system preservation projects and fund, design and perform high priority structural repairs based on annual inspection report findings
- Continue to include preventative maintenance activities which will prolong the life of the existing infrastructure
- Prioritize projects to more rapidly reduce the number of weight postings
- Evaluate, monitor and prioritize bridges with at least one main element rated a five

# MPA: Dredged Material Placement Capacity Remaining for Harbor & Poplar Island Sites

MPA is responsible for obtaining dredged material placement sites.



\* 2014 data was revised from previous Attainment Report.

\*\* 2015 data is preliminary and subject to change.

## Why Did Performance Change?

- Dredged material capacity at placement sites is being consumed faster than new capacity can be brought online. For several years, only maintenance dredging of Harbor channels could be accommodated without overloading existing placement sites. New private sector dredging work for channel improvement in the Harbor is not being considered for placement in MPA sites at this time
- Design began for Stage 1 expansion of the Cox Creek Dredged Material Containment Facility which will bring an additional 12.5 mcy of Harbor material capacity online in FY 2018. Administrative steps required to initiate expansion of Poplar Island and to reopen Pearce Creek began in FY 2015 (\$14.2 million in the FY 2016–FY 2021 CTP for Pearce Creek Waterline Project)
- The State’s Dredged Material Management Program (DMMP) continued to support the Corps’ DMMP and General Reevaluation Report for completion of widening the existing 50 ft. channel by providing expert technical and citizen’s committee guidance, review and evaluation based on scientific techniques developed for the State’s DMMP
- Safety and mobility efforts to ensure unimpeded shipping access to the Port have been effective. The Port compares extremely well, and only three other U.S. East Coast ports currently have a channel with a depth of 50 feet
- Significant advances to bring additional dredged material placement capacity online for all major channel segments were made in FY 2015

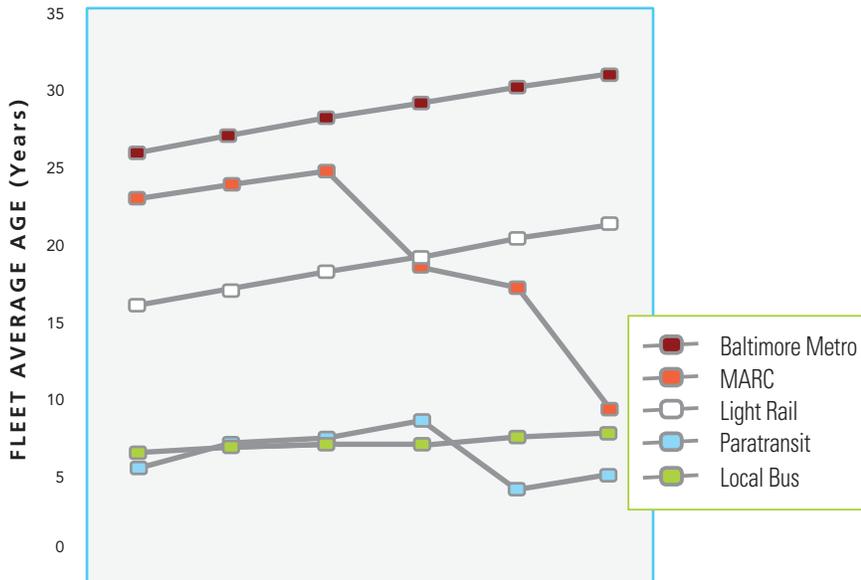
## What Are Future Performance Strategies?

- Maintain and improve the shipping channels for safe, unimpeded access to the Port by ensuring adequate placement capacity is available to meet dredging demand, removing access channel restrictions and improving the navigation system
- Maintain strategic communication and outreach program to communities, local jurisdictions, maritime and other harbor interests for dredged material placement process, and actions leading to prioritization and ultimate recommendation for construction of placement sites and options
- Take actions necessary to bring the following sites online for first placement: Pearce Creek (C&D Canal approach channels) in FY 2018; Poplar Island (Bay channels) Vertical Expansion in FY 2018 and Lateral Expansion in FY 2020; and Cox Creek Expanded Stage 1 in FY 2018
- Continue to evaluate innovative reuse of dredged material
- Work with the Corps of Engineers and elected officials to ensure that all channels in the system are maintained to authorized depths and widths
- The FY 2016–FY 2021 CTP includes \$510 million to implement the Governor’s Strategic Plan for Dredged Material Management, which will help maintain shipping channels
- Execute a pilot Confined Aquatic Disposal (CAD) project to test the viability of this placement option



## MTA: Average Fleet Age of Transit Revenue Vehicles

The average fleet age of revenue vehicles is used to understand the status and age of the fleet used to transport patrons. Calculating fleet age informs the agency of the age of vehicles used in revenue service indicating fuel consumption, energy efficiencies, preventative maintenance needs and repair expectations.



	2010	2011	2012	2013	2014	2015
Baltimore Metro	26.3	27.3	28.3	29.3	30.3	31.3
MARC	22.9	23.6	24.6	18.7	17.2	9.3
Light Rail	16.3	17.3	18.3	19.3	20.3	21.3
Paratransit	5.9	6.8	7.5	8.5	4.4	4.9
Local Bus	6.6	6.9	7.1	7.1	7.6	7.9

TARGET\*: Average fleet age of six years for the Local Bus system

\* Rail cars do not have a target for the fleet age as rather than replacing cars the vehicles are often overhauled, replacing or updating key components.

## Why Did Performance Change?

- Continued with investments in renewal of aging infrastructure for all of MTA's modes, including annual bus procurement to replace vehicles in service for 12 or more years
- Acquired 41 new clean technology buses during FY 2015
- MARC received 54 new bi-level cars from Bombardier during FY 2015
- Acquired 84 new Mobility Paratransit vehicles in FY 2014

## What Are Future Performance Strategies?

- Overhaul MARC railcars and procurement of new diesel locomotives and railcars in accordance with manufacturer's schedule of retirement to maintain a state of good repair (\$73.0 million in the FY 2016–FY 2021 CTP for MARC locomotives, and \$57.6 million for MARC coaches' overhauls and replacements)
- Continue with ongoing mid-life inspection and renovation of Light Rail fleet to ensure vehicle reliability and useful life (\$136.6 million in the FY 2016–FY 2021 CTP for Light Rail vehicle overhaul)
- Enhance passenger comfort and conveniences, ensure better reliability, reduce system failures and offer improved safety through replacement of 90 Metro vehicles and overhaul of Metro signaling systems. The FY2016–FY2021 CTP includes \$497.4 million for Metro railcar replacement, overhaul and signal replacement
- Procure replacement vehicles and equipment repair for Baltimore Metro and Mobility Paratransit
- Maintain the average age of the bus fleet (\$218.3 million in the FY 2016–FY 2021 CTP for bus procurement)



# GOAL: Quality of Service



Maintain and enhance the quality of service experienced by users of Maryland's transportation system



## Objectives

- ▶ Increase the efficiency of transportation service delivery through the use of systems, processes, partnerships, technologies and improved service delivery methods
- ▶ Maintain and enhance customer satisfaction with transportation services across modes
- ▶ Seek to maintain or improve travel reliability for key transportation corridors and services
- ▶ Continue to apply enhanced technologies to improve the transportation system and to communicate with the traveling public

Every day, MDOT implements projects, programs, initiatives and technologies to provide efficient and reliable transportation services that meet the needs and expectations of system users. To provide quality service, MDOT employs strategies to increase efficiency, such as streamlining the Purple Line through practical design changes to provide cost-effective transit service (such as buying fewer trains, downsizing the train maintenance facilities and modifying station architecture requirements); and augmenting MVA online services to reduce costs while enabling system users to conduct many types of transactions from a personal computer. In addition, MDTA will be updating the *E-ZPass* website for ease of use for customers.

To enhance customer service, MDOT tracks customer priorities and customer experience with Maryland transportation facilities and services. MDOT monitors customer service and satisfaction email services, hosts online comment centers, and conducts customer satisfaction surveys. Public comments and priorities are taken into consideration as MDOT and its partners develop strategies and projects that will improve facilities and services. In July 2015, tolls for bridges, tunnels and roadways across Maryland were lowered as part of a statewide toll-reduction plan, while still maintaining an MDTA budget of approximately \$2 billion over six years. In October 2015, BaltimoreLink, a \$135 million multi-phase plan, was initiated to redesign the entire local and express bus routes throughout Baltimore and provide interconnection to other transit modes.

A key component of delivering quality service is to provide a reliable transportation system so that Maryland's transportation system users can plan to travel to their destination comfortably, conveniently and on time. Reliability is also extremely important to freight and goods movement, as Maryland's businesses depend upon the transportation system to move workers and goods quickly and dependably. MDOT is addressing this need by making strategic investments to reduce congestion on Maryland roadways, including Widening I-81 (Phase 1) from four to six lanes between the Potomac River and MD 68 (Lappans Road), widening approximately one mile of the I-695 Outer Loop from US 40 to MD 144 from three to four lanes, and constructing a diamond interchange to improve access to and from MD 5.

## Key Initiatives and CTP Projects

**MAA:** Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall) was rated the best U.S. airport for healthful meal options by the Physicians Committee for Responsible Medicine (PCRM). The PCRM's 2014 Airport Food Review, released in 2015, found that 92% of BWI Marshall restaurants serve at least one nutritious option for travelers.

**MDOT:** MDOT has reached out to stakeholders to identify the most important transportation needs to improve transit in the Baltimore Region. Using an MTA Stakeholder Work Group, MDOT has been reaching out to business leaders, local jurisdictions and transit users to better understand their needs and interests for improving transit and transit performance. Hearing from elected officials, business leaders and transit users is vital to developing a path forward.

**MDTA:** The \$54 million annual toll reduction (over a quarter billion dollars over five years) was made possible by efficiencies in MDTA's capital and operating budgets that allow the agency to meet its financial responsibilities and implement the toll reduction. The MDTA maintains a robust capital budget of \$1.9 billion over six years. These investments will fund key projects, including cleaning and painting the westbound Bay Bridge, re-decking I-95 south of the Fort McHenry Tunnel, and replacing the Canton Viaduct (an elevated section of I-895 north of the Harbor Tunnel) (\$258.3 million in the FY 2016–FY 2021 CTP for Canton Viaduct replacement).

**MPA:** Averaging nearly 40 container moves per hour per crane, the Port of Baltimore is also known for being one of the most efficient seaports on the East Coast (\$29.6 million in the FY 2016–FY 2021 CTP for in the Port of Baltimore Export Expansion Project).

**MTA:** The BaltimoreLink initiative will include CityLink, 12 new high-frequency, color-coded bus routes to improve connections to jobs and other transit modes. Other key elements of the initiative will be the construction of transitways and transit hubs, and the use of priority transit signals. Announced a new 5-day weekly MARC pass with a lower fare than the 7-day weekly MARC pass fare, responding to concerns from MARC commuters regarding the June 2015 fare increase.

**MVA:** Maryland vehicle owners can now test vehicle emissions using two new, convenient self-service Vehicle Emission Inspection Program (VEIP) kiosks, one located at the Glen Burnie VEIP station and one located at the Gaithersburg MVA branch office – available 24 hours a day, seven days a week (\$9.4 million in the FY 2016–FY 2021 CTP for VEIP preservation).

**SHA:** SHA will address congestion and improve connectivity of communities through investment in key construction projects, including: \$23.8 million in the FY 2016–FY 2021 CTP for Widening MD 2/4 (Solomon's Island Road) to provide a third through lane and auxiliary lane in each direction, \$154.0 million for MD 404, Shore Highway construction, \$9.5 million for MD 5, Point Lookout Road construction, \$14.8 million for MD 140, Reisterstown Road construction from Garrison View Road to Painters Mill Road (Baltimore), and \$48.7 million for Base Realignment and Closure (BRAC) intersections near Aberdeen Proving Grounds.

# SHA: Maryland Driver Satisfaction Rating

Customer Satisfaction Surveys help determine if SHA services are better than average in the eyes of its customers. SHA strives to achieve a "B" grade, which is equivalent to a four out of five rating.

CALENDAR YEAR*	2008	2010	2012	2014
Rating	3.90	3.94	3.92	3.88

TARGET: 4 out of 5

\* Survey administered biennially. Next survey will take place in CY 2016.

## Why Did Performance Change?

- Handled more than 26,600 service requests, providing increased service to roadway users
- Grew the primary social media accounts by approximately 10,000 fans on Facebook to reach a total of 47,149, and 11,000 followers on Twitter to reach a total of 29,083 people
- In 2014, customers said the four most important SHA responsibilities are maintaining roadways, keeping bridges safe, clearing the road after a crash, and plowing, salting and sanding of snow-covered roadways
- In 2014, only 15.7% of drivers cited congestion as the number one concern, a 50% decrease from 2012, when 30.5% cited it as number one
- To quickly respond to after-hours and weekend incidents, the Coordinated Highways Action Response Team (CHART) has provided 24-7 emergency patrol service in the Baltimore, Washington D.C. and Frederick metro areas

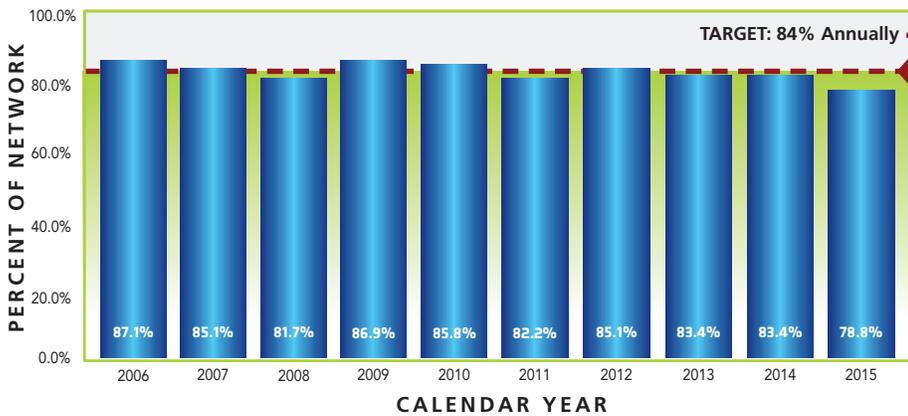


## What Are Future Performance Strategies?

- Continue to conduct biennial driver survey and share results with business units for action plans
- Deploy CCMS social media interface to expedite service requests initiated indirectly on social platforms
- Provide hands-on training for cloud-based customer tracking system for district personnel
- Conduct new customer service training with curriculum provided by Governor's Office in compliance with 2015 legislation

# SHA: Percentage of the Maryland SHA Network in Overall Preferred Maintenance Condition

The overall condition of the network reflects how well asset management strategies, improved operations and technology have sustained the quality and safety of existing highways.



## Why Did Performance Change?

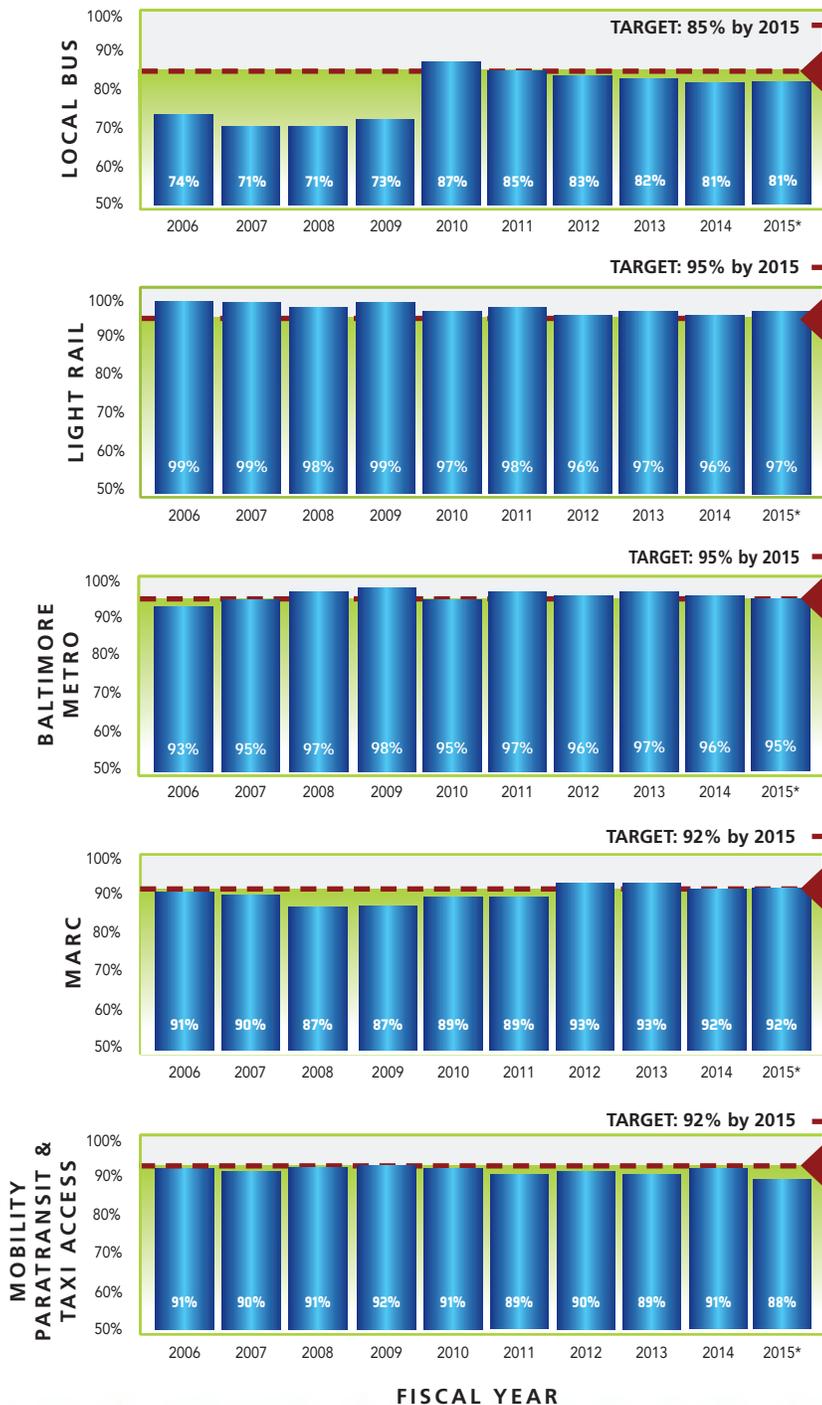
- The extreme weather over the past two winter seasons caused deterioration to assets, such as line striping, pavement markings and curbs, that will require extra effort to bring back up to the desired maintenance condition
- The extended winter season did not afford as much opportunity for winter and early springtime work such as brush and tree maintenance, ditching, culvert/inlet cleaning and repair, and drop-off/build-up maintenance
- Challenges in contract authority and severity of winter created challenges in spending full maintenance allocations
- Through social media and other efforts, SHA promoted an online system for citizens to report issues to SHA. The outreach resulted in an increase in service requests, requiring maintenance crews' response to address customer concerns. The increased time spent performing customer service left less time for planned maintenance activities required to maintain assets
- In FY 2010, SHA addressed more than 16,300 customer service requests; in FY 2015, SHA addressed more than 26,600 requests

## What Are Future Performance Strategies?

- Continue to explore opportunities to utilize federal funding for maintenance activities as part of an asset management program approach
- Focus additional work efforts on safety-related assets, such as signs, pavement markings, and brush and trees, while ensuring adequate contract resources that support these activities
- Collaborate with the finance and procurement and contract management offices to increase contract authority within the maintenance program so additional work can be performed on assets falling below the desired maintenance condition

# MTA: Percent of Service Provided On Time

On time performance (OTP) is an important indicator of service quality and efficiency, and correlates highly with system usage and customer satisfaction.



\* 2015 data is preliminary and subject to change.

## Why Did Performance Change?

- Despite the considerable challenges noted below, MTA efficiently and effectively deployed resources to deliver service on time by either improving or maintaining OTP for all modes except Local Bus and Light Rail within 0.05% of FY 2011 values
- Heavy rains/flooding and several snowstorms during FY 2015 affected service production and on time performance
- The Baltimore riots during April-May 2015 affected core service (Bus, Light Rail and Baltimore Metro) causing detours, delays and service cuts

## What Are Future Performance Strategies?

- Improve OTP with the BaltimoreLink initiative, which will redesign the local and express bus routes throughout Baltimore, transforming the connectivity of transit in the Baltimore metropolitan region
- Target and resolve issues creating OTP challenges for the Local Bus system, using better data systems to find and troubleshoot performance issues
- Improve OTP through better schedule design and better operational supervision, using Automatic Vehicle Location (AVL) and Automatic Passenger Counter (APC) technologies
- Continue with Light Rail vehicle mid-life overhaul project to increase fleet reliability
- Schedule major track maintenance activities during periods of low ridership, minimizing the effect of this work on riders
- Continue aggressive monitoring of MARC contracted operations and pursue infrastructure and schedule improvements that will benefit MARC riders



# MTA: Operating Cost Per Passenger Trip

Together, the operating cost per passenger trip and operating cost per revenue vehicle mile are key industry performance measures that show MTA's ability to effectively and efficiently provide service to passengers on various modes of travel.

OPERATING COST PER PASSENGER TRIP (2015 Dollars\*\*)



TARGET: Cost per passenger trip for Local Bus, Baltimore Metro and Light Rail to increase at a rate no higher than the Consumer Price Index (CPI)\*

\* The CPI provides information about price changes in the national economy.  
 \*\* The cost data are adjusted for inflation.

## Why Did Performance Change?

- Overall, cost per trip increased by 1% due to contract increases and general inflation
- Local Bus is still MTA's most efficient way to move passengers, with cost growth well in line or below historical trends
- While Light Rail's cost per trip this year was higher than last, the costs are still well within or below historical trends
- While MARC and Commuter Bus cost per trip increased this year, increasing ridership combined with better contractual management have kept this cost growth minimized and actually below historical levels

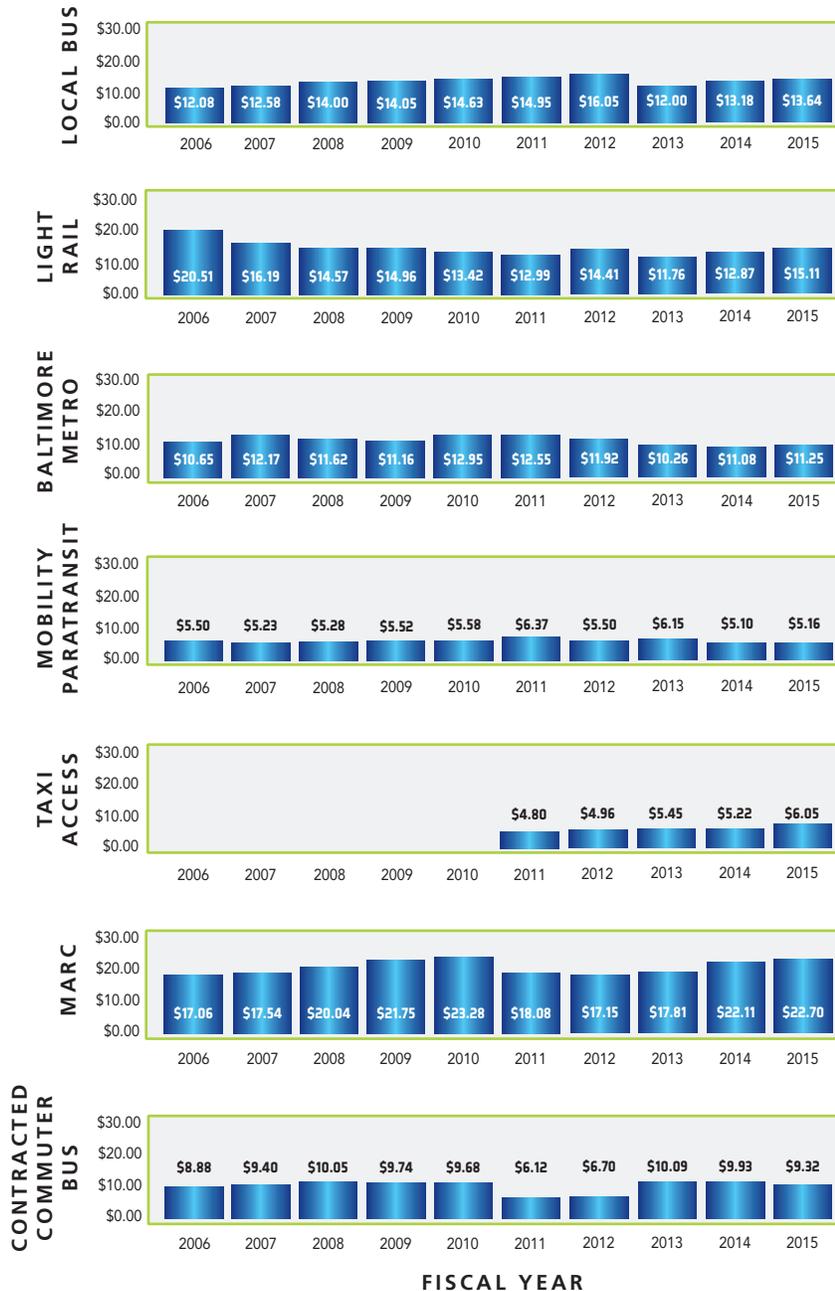
## What Are Future Performance Strategies?

- Improve the efficiency of MTA's transit system and increase capacity in high-demand areas through the BaltimoreLink initiative, designed to transform the connectivity of transit in the Baltimore metropolitan region
- Continue efforts to control system costs while maintaining high levels of service quality
- Continue aggressive management and auditing of contracted service providers to ensure 100% accuracy in invoices and claims
- Provide maximum transit capacity in areas of highest demand potential in order to provide increased passenger trips while utilizing agency resources efficiently



# MTA: Operating Cost Per Revenue Vehicle Mile

OPERATING COST PER REVENUE VEHICLE MILES (2015 Dollars)\*\*



## Why Did Performance Change?

- Overall passengers per revenue vehicle mile increased by 9.13% since FY 2013. Ridership increases and improved route scheduling on core services are keeping the transit system at an optimized utilization rate
- Local Bus is seeing impressive gains; passengers per mile increased by 15.39% since FY 2013
- Commuter Bus is also making significant progress by consolidating unproductive routes and adding routes to existing, overpopulated routes

## What Are Future Performance Strategies?

- The BaltimoreLink initiative is expected to improve the efficiency (and operating cost per revenue vehicle mile) of MTA's transit system and increase capacity in high-demand areas through improved connectivity of transit in the Baltimore metropolitan region
- Continue to improve the Local Bus network to maximize efficiency and connectivity to places of employment

TARGET: Cost per revenue vehicle mile for Local Bus, Baltimore Metro and Light Rail to increase at a rate no higher than the Consumer Price Index (CPI)\*

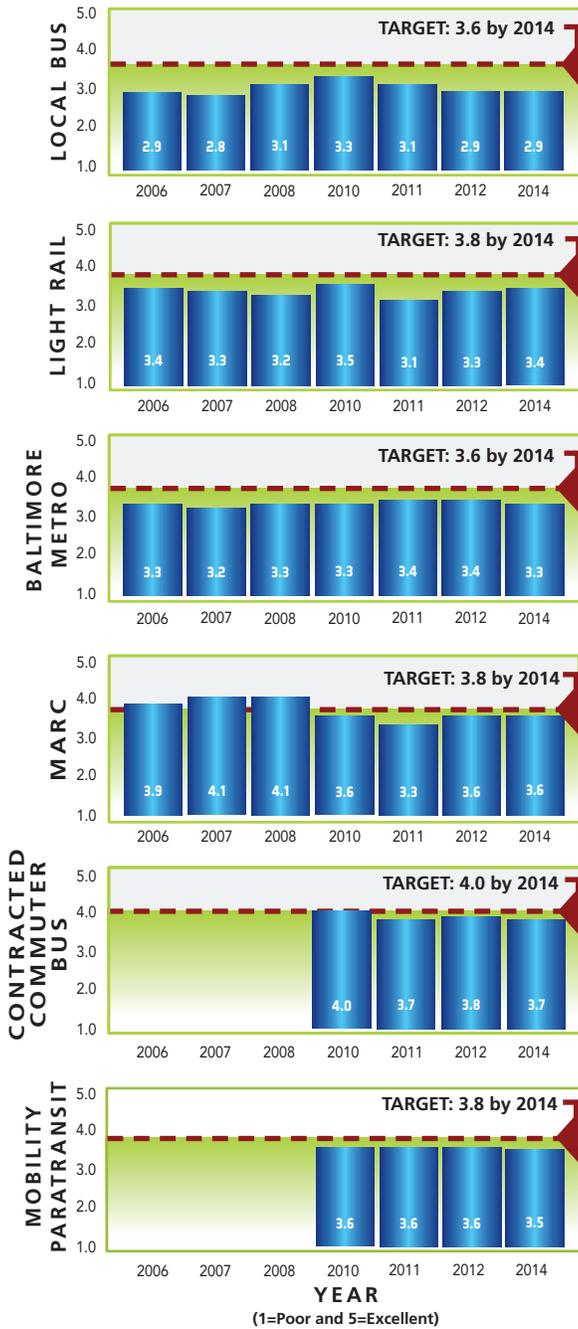
\* The CPI provides information about price changes in the national economy.

\*\* The cost data are adjusted for inflation.



# MTA: Customer Satisfaction Rating\*

Reliable, safe and convenient service are key factors in attracting ridership. Customer satisfaction reflects whether MTA is meeting its customer service standards and signals which modes require improvement.



\* A survey was not completed in 2009 or 2013. The most recent survey was completed in 2014.

## Why Did Performance Change?

- The overall satisfaction rating remained comparatively steady from 3.2 in CY 2012 to 3.18 in CY 2014. However, there was an increase in the satisfaction rating for Light Rail and MARC. Local Bus, Baltimore Metro, Commuter Bus and Mobility remained the same or decreased. Some variations were within the survey's margin of error; however, MTA takes these decreases seriously and is examining additional ways to enhance customer satisfaction
- MTA replaced and enhanced signage in all rail stations to improve customer information

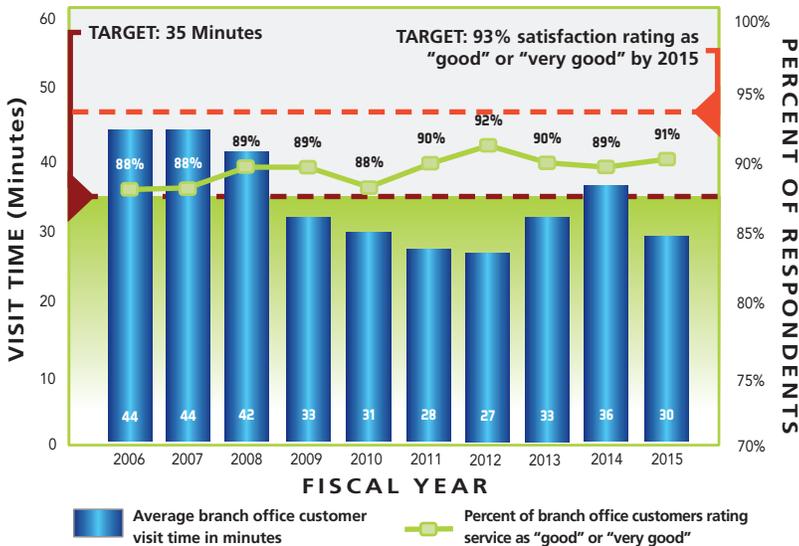
## What Are Future Performance Strategies?

- The BaltimoreLink initiative is expected to improve the levels of customer satisfaction by redesigning the local and express bus routes throughout Baltimore, improving the connectivity of transit in the Baltimore metropolitan region
- Provide real-time customer information to help increase customers' access to next vehicle arrivals, service disruptions, diversions and other important transit information
- Continue field observations (covert and overt) to identify and rectify performance issues



## MVA: Branch Office Customer Visit Time Versus Customer Satisfaction Rating

Average customer visit time is a key indicator of the quality and efficiency of service delivery to customers and is directly related to customer satisfaction (i.e., as MVA branch customer visit time decreases, customer satisfaction increases).



### Why Did Performance Change?

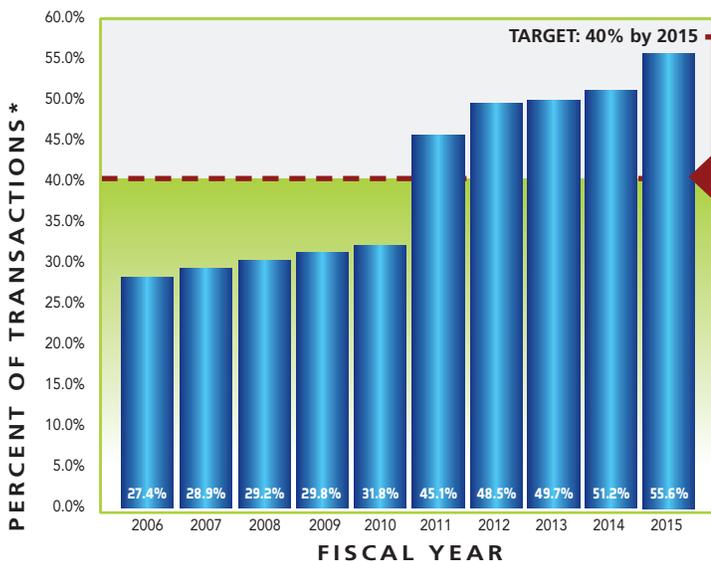
- Made numerous significant policy and process changes to reduce customer wait times and increase customer satisfaction and made changes in branch operations and business processes through technology enhancements
- Implemented technological enhancements that support Alternative Service Delivery (ASD)
- Branch wait times were made available online so that customers could have clear expectations of service time prior to their arrival
- Offered additional alternative delivery methods for services and products which provide for

### What Are Future Performance Strategies?

- Through 2017, continue to implement policies, technologies and strategies contained in the MVA Alternative Service Delivery Plan to reduce the average branch office and VEIP customer visit time
- Through inter- and intra- agency partnerships and collaboration, the MVA will enhance its external service and product delivery to associated government agencies
- Plan, design and implement an enhanced technical platform that will allow for the full integration of core business services and processes
- Enhance its policies and practices to effectively coordinate dealer investigations and exchange of information between Business Licensing and Investigations Division

## MVA: Alternative Service Delivery Transactions as Percent of Total Transactions

Alternative services offer the ability to provide fast and convenient service delivery to the MVA customer. These transactions do not involve a walk-in interaction and require development of new information technology systems and changes in customer behavior, which may be offset by new legislation and programs that require a walk-in transaction.



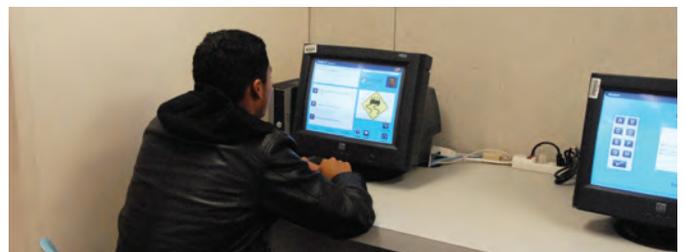
\* The number of transactions includes the number of vehicles tested at VEIP stations, and excludes driver and vehicle Direct Access Records (DARS).

### Why Did Performance Change?

- Through the implementation of legislative and policy changes, deployment of innovative technology, branch process changes and creative marketing, the MVA was able to successfully increase its ASD usage from 31.8% in FY 2010 to 55.6% in FY 2015
- By providing additional service and product availability through alternative means, customer ASD usage increased
- Use of email to communicate with MVA customers, such as sending email notices for vehicle registration renewals, has resulted in cost savings to MVA and improved convenience for the customer

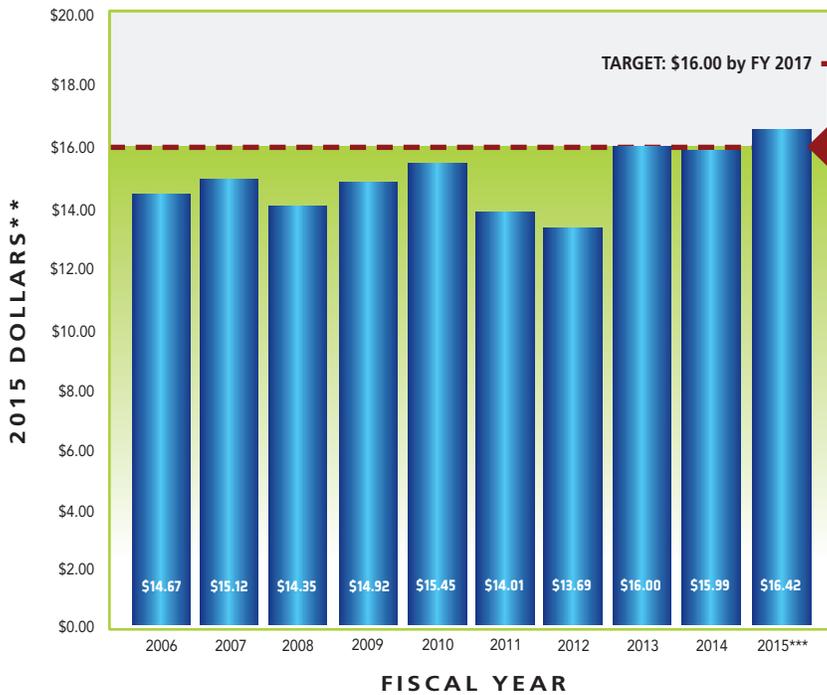
### What Are Future Performance Strategies?

- Continue to implement the ASD plan by adding MVA services over the Internet (\$10.3 million in the FY 2016–FY 2021 CTP for ASD design and implementation)
- Continue to provide the ability for individuals less than 40 years of age to renew their driver's license through the web and kiosk every other renewal cycle
- Continually review the MVA website, to reflect the most recent information
- Implement voluntary appointments which can be accessed from the MVA website



## MVA: Cost Per Transaction\*

Cost per transaction is an indication of whether MVA business practices and programs are increasingly cost-effective through the employment of better technology and operational practices.



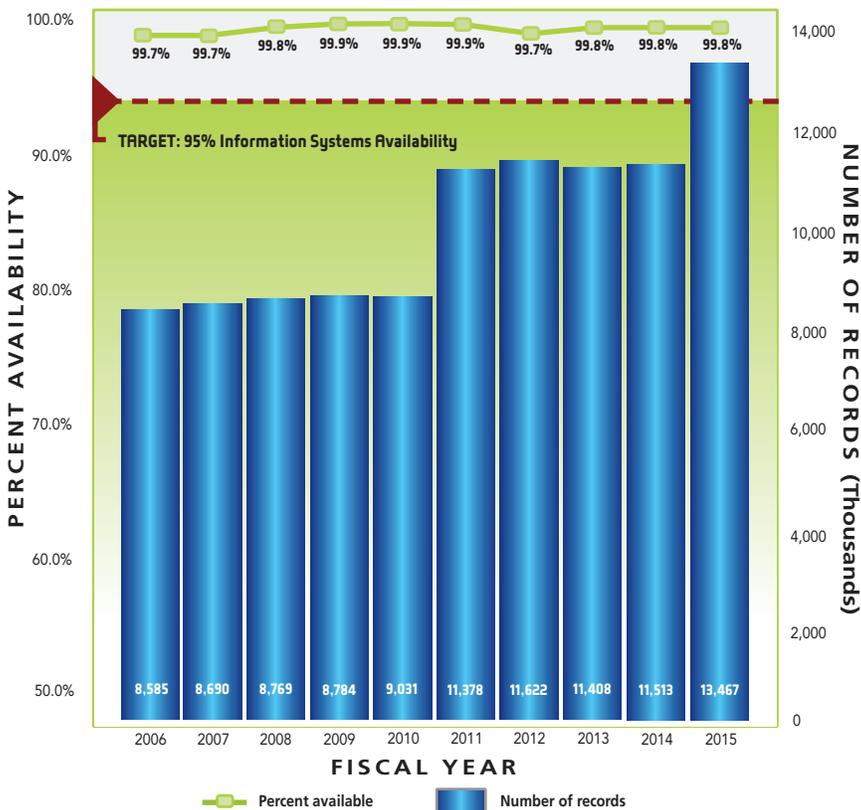
\* Includes all transactions (e.g. licensing, registration, titling).

\*\* Methodology has been revised and historical data has been updated from 2013 to reflect this changed methodology. The historical cost per transaction data area also adjusted for inflation

\*\*\* 2015 value is preliminary and subject to change.

## MVA: Percent of Information System Availability Compared to Total Number of Records Maintained

This measures progress in maintaining the availability, integrity and security of MVA data because access to driver and vehicle data is critical to law enforcement and government agencies, 24 hours a day, seven days a week.



## Why Did Performance Change?

- MVA consistently provides secure services to all its customers, which include the residents of Maryland as well as numerous external agencies (e.g., central collection unit, E-ZPass sales, organ donor program, child support enforcement, insurance enforcement, voter registration, warrants and flags)
- To provide more enhanced and efficient services and products, there was a larger FY 2015 investment in MVA information technology programs to include planning efforts for the modernization of core systems; in turn, this investment increases overall cost of service
- There were over 360,000 more transactions in FY 2015 over FY 2014, therefore the cost of transactions increased

## What Are Future Performance Strategies?

- Continue modernization of IT systems to increase efficiency in the delivery of core services and products
- Cost containment of operating expenses, specifically within the IT budget, to include centralizing internal operations and processes
- Consolidate the master IT hardware maintenance contract to accommodate IT budget savings



## Why Did Performance Change?

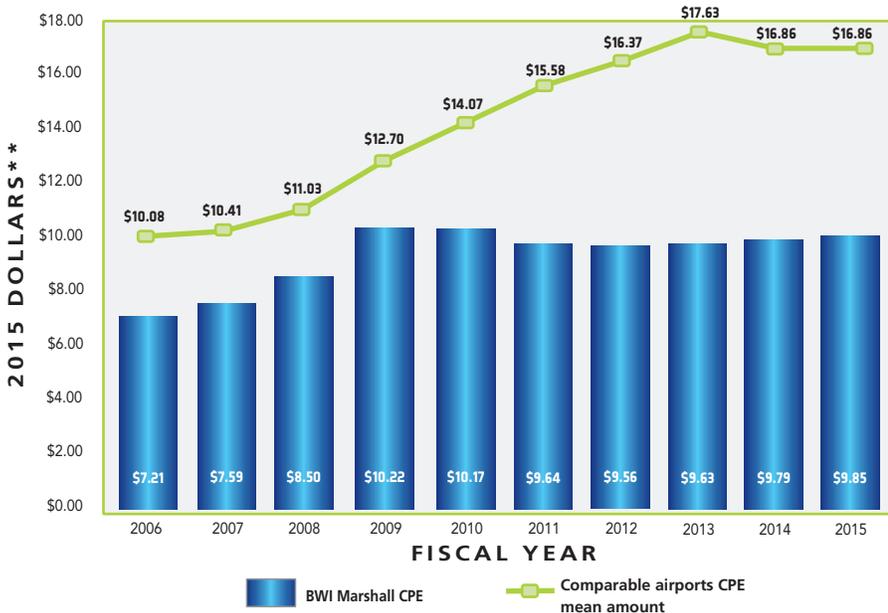
- Access to MVA system data is critical to support law enforcement and public safety agencies. In addition, access to MVA system data is essential to support programs such as Child Support Enforcement, Arrest Warrants, Tax Compliance, Courts Point System, Board of Elections, Organ Donor, and Chesapeake Bay and Agriculture programs
- The MVA maintains an abundance of records based on the various transactions completed. Some of the records are inclusive of multiple transaction types over time before a product is issued, such as the attempts taken to pass the skills test or the law test prior to issuance of a drivers license or learners permit respectively
- The increase in records is inclusive of the influx in non-compliant drivers licenses issued in FY 2015, in which case, each person would have had several database entries associated with obtaining their MVA product
- Car sales increased in FY 2015, generating more transactions

## What Are Future Performance Strategies?

- Continue to provide data for Law Enforcement, Child Support Enforcement, Arrest Warrants, Courts Point System, Tax Compliance, Board of Elections, Organ Donor, and Chesapeake Bay and Agriculture Programs
- To maintain system availability of 95%, MVA will continue to employ the latest technological system conventions, security requirements and security techniques to ensure full-time system access with minimal business disruptions

## MAA: Airline Cost Per Enplaned Passenger (CPE)

Airline cost and non-airline revenue measures allow BWI Marshall to remain competitive in a region that is unique because it has four proximate airports.



TARGET: BWI Marshall CPE below the mean CPE of comparable airports\*

\* Comparable airports are defined as Washington Reagan National, Washington Dulles International and Philadelphia International.

\*\* The cost per passenger data are adjusted for inflation.

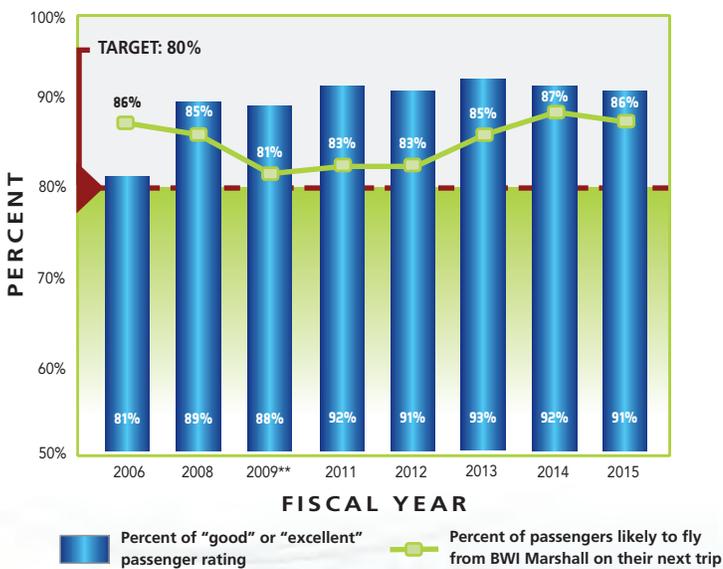
### Why Did Performance Change?

- Performance at BWI has remained relatively stable as enplanement growth is currently exceeding cost increases
- FY 2015 cost increases of 2.2% were offset by enplanement growth of 2.5%
- The CPE at BWI Marshall continues to be the lowest in the Mid-Atlantic Region and well below the mean of comparable airports
- Capital and operating expenses are monitored closely to keep BWI rates competitive
- Capital projects cost effectiveness are thoroughly reviewed prior to moving forward with design and construction
- Alternative funding sources for each capital project are fully exploited to minimize the impact on CPE

### What Are Future Performance Strategies?

- \$9.1 million in the FY 2016–FY 2021 CTP for Passenger Loading Bridge Replacement Program at BWI Marshall
- Continue to review the cost effectiveness of capital projects before moving forward with design and construction
- Continue to closely monitor all airport costs in order to keep BWI Marshall rates competitive with other regional airports

## MAA: Percent of BWI Marshall Customers Rating the Airport “Good” or “Excellent” on Key Services\*



\* Surveys not administered in 2007 and 2010.

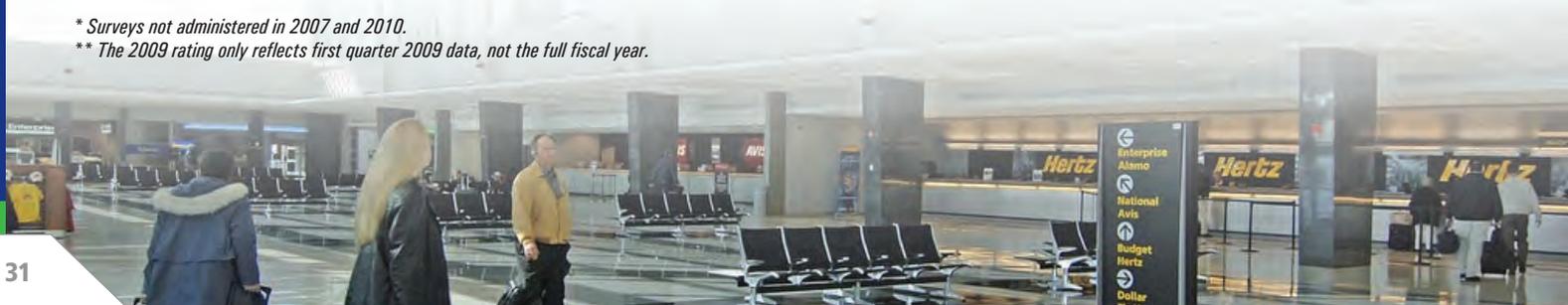
\*\* The 2009 rating only reflects first quarter 2009 data, not the full fiscal year.

### Why Did Performance Change?

- Continued to enhance the customer experience at BWI Marshall by increasing the number of charging stations available in the terminal building
- Began construction on the Concourse D/E connector which will further enhance the customer experience at BWI Marshall with a new security screening checkpoint for Concourses D and E
- Focused on providing healthy food options for travelers, BWI Marshall was rated the best U.S. airport for healthful meal options by the PCRM

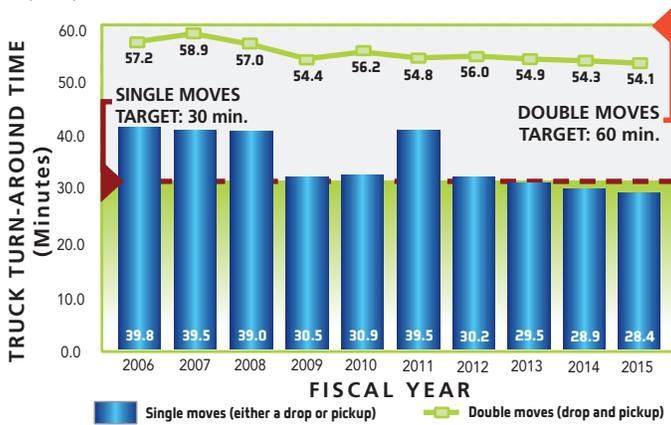
### What Are Future Performance Strategies?

- Continue to manage the BWI Marshall cleaning contracts to ensure that the cleanliness of the terminal building, restrooms, etc. meet the expectations of passengers at BWI Marshall
- Continue to enhance the food/beverage and retail options at BWI Marshall
- Continue to develop parking strategies to enhance the customer experience (\$3.2 million in the FY 2016–FY 2021 CTP for replacement to the existing parking system)



## MPA: Average Truck Turn-Around Time at Seagirt Marine Terminal

Truck turn-around time is a gross measure of the efficiency and operations of the Seagirt Marine Terminal. Reductions in turn-around times improve throughput capacity and result in incremental environmental benefits.



### Why Did Performance Change?

- Made terminal operating system enhancements to handle larger volumes and minimize down time
- Four additional Rubber-Tire Gantry Cranes (RTG Cranes) in the yard improved handling times for import loads to truckers
- Made improvements to truck drive lanes to improve safety and efficiency and added five inbound truck gate lanes, up from eight
- Improved planning in order to maintain adequate staffing levels on heavy days

### What Are Future Performance Strategies?

- Continue the Quality Cargo Handling Action Team (Q-CHAT) to further improve containerized cargo handling
- Evaluate business processes to ensure gate and terminal processes are not adversely impacted by commercial improvements
- Technology (radio frequency identification (RFID) and weigh in motion) should be in place in CY 2016

## MDTA: Overall Customer Satisfaction of E-ZPass Customers

This measure tracks the satisfaction of E-ZPass private account holders.

FISCAL YEAR*	2007	2010	2013
Percent Satisfied	87%	86%	86%

TARGET: 80% or higher

\* Surveys were not conducted in FY 2012 due to demands on time and staffing constraints.

### Why Did Performance Change?

- Survey results are consistent with the past two surveys, every question had a majority response of "satisfied" or "completely satisfied"
- Continued developing innovative ways to market E-ZPass and all-electronic toll roads within fiscal constraints.
- Provided Public Information Act (PIA) training to improve internal customer performance and external customer service regarding PIA responsiveness.

### What Are Future Performance Strategies?

- Undertake new research methodology to help gauge customer satisfaction
- Continue to respond to customer suggestions for improvements, as fiscally possible
- Redesign E-ZPass website for ease of use for customers
- Conduct PIA training for new managers to improve internal customer performance and external customer service and provide updates to the PIA process mandated by legislation
- Develop innovative ways to market E-ZPass and all-electronic toll roads within fiscal constraints

## MDTA: Percent of Toll Transactions Collected Electronically\*

Electronic toll collection systems expedite the toll collection process, reduce delays at toll plazas, decrease emissions and are available at all eight toll facilities across the state.



\* Toll collections are paid as cash, ticket or electronic transaction.

\*\* 2015 value is preliminary and subject to change.

### Why Did Performance Change?

- E-ZPass transactions minimally increased in volume, but increased substantially in regard to the percentage of total toll transactions
- Effective July 1, 2015, increased the E-ZPass toll discount from 10% to 25%, and eliminated the monthly account maintenance fee on E-ZPass accounts with a Maryland address

### What Are Future Performance Strategies?

- Fully implement the Citation system through MVA and Central Collection Unit (CCU) should encourage the use of E-ZPass transponders
- Complete studies to facilitate the movement to All Electronic Tolls (AET) for Francis Scott Key (FSK) and Thomas J. Hatem (TJH) bridges
- Continue to invest in new technology as systems advance (\$62.8 million in the FY 2016–FY 2021 CTP for replacement of electronic toll collection and operating systems)

# GOAL: Environmental Stewardship



Ensure that the delivery of the State's transportation infrastructure program conserves and enhances Maryland's natural, historic and cultural resources



## Objectives

- ▶ Limit the impacts of transportation on Maryland's natural environment through impact avoidance, minimization and mitigation
- ▶ Employ resource protection and conservation practices in project development, construction, operations and maintenance of transportation assets
- ▶ Implement transportation initiatives to mitigate the impacts of climate change and improve air quality
- ▶ Support broader efforts to improve the health of the Chesapeake Bay, protect wildlife, conserve energy and address the impacts of climate change

MDOT's commitment to environmentally sustainable transportation is delivered through the development and implementation of innovative and forward-looking strategies to ensure that Maryland's transportation system protects statewide natural, cultural and community resources. By coordinating land-use, transportation and natural resource planning with partners in other state business units and local governments, MDOT helps ensure that maintaining, operating and expanding the transportation system minimally impacts the environment. This is accomplished in part by using Maryland's Green Infrastructure Plan and Chesapeake Bay Restoration priorities as a guide to minimizing negative impacts and using best-management practices to support Maryland's conservation goals.

To help decrease pollution from entering Maryland's waterways and meet the Federal Total Maximum Daily Load (TMDL) requirements, the FY 2016–FY 2021 CTP supports a comprehensive approach including: retrofitting older parts of the transportation network with the latest stormwater management technology; restoring natural filters through stream restoration, forest establishment and wetland creation; and adopting protective operational practices. In total, this multifaceted approach helps move Maryland closer to meeting mandated water quality targets.

MDOT is deploying multiple strategies to help reduce emissions and manage energy consumption from all facets of the transportation sector. This includes selecting more environmentally friendly options during fleet replacement for SHA and MTA, operator requirements limiting idling, installation of alternative fuel and electric vehicle charging stations at MDOT facilities, and other operational strategies such as installing solar power grids and more efficient lighting and traffic signals.

MDOT is implementing these strategies and many others in cooperation with our partners in the metropolitan planning organizations (MPOs), the Maryland Department of the Environment (MDE), local governments and the private and not-for-profit sectors. Through leadership and guidance in the areas of environmental compliance, stewardship and sustainability, MDOT, MDTA and transportation business units have a proven record of being national leaders in both long-range environmental planning and policy programs, and day-to-day operations.

## Key Initiatives and CTP Projects

**MAA:** In 2014, MAA passed 12 Energy Conservation Measures, aimed to decrease the agency's energy usage. Since the passing of those measures, MAA has seen increased efficiencies in lighting, water conservation, heating and air conditioning, and solar energy usage. Savings from 2014 were around \$2.2 million, and 2015 savings increased to just below \$2.5 million.

**MDOT:** MDOT addresses climate change through incentive programs and technology investment to reduce vehicle emissions and manage transportation energy consumption. MDOT chairs the Maryland Electric Vehicle Infrastructure Council (EVIC), which spearheads Maryland's effort to promote the adoption of electric vehicles (EVs) through outreach, infrastructure planning and legislation. MDOT is also working on updating its Green Book, which serves as the primary input into the transportation sector portion of the 2015 Greenhouse Gas Reduction Act (GGRA) Plan Update and highlights MDOT's activities in achieving greenhouse gas (GHG) emission reductions consistent with goals set forth in the GGRA. In addition, MDOT is also working on a post-2020 analysis that assesses GHG emission trends and forecasts for the transportation sector in Maryland and documents the primary factors impacting these emission trends. Similar to the 2025/2030 analysis conducted previously, the objective of this analysis is to understand potential long-term trends in GHG emissions from the transportation sector in Maryland (\$24.0 million in the FY 2016–FY 2021 CTP for Transportation Emission Reduction Program).

**MTA:** MTA is going beyond its environmental policy commitments by actively engaging in ongoing sustainability initiatives in energy conservation, materials and waste management, fuel management and alternative fuels, stormwater management, and award winning green infrastructure projects (\$424 thousand in the FY 2016–FY 2021 CTP for energy savings improvements). MTA now provides service with 41 new 40-foot clean technology buses, bringing the share of clean technology buses in MTAs fleet up to 89%.



## Key Initiatives and CTP Projects (continued)

**MDTA:** MDTA is addressing the Environmental Protection Agency (EPA) Chesapeake Bay Restoration goals by completing and refining an inventory of impervious areas, investigating innovative approaches to implement stormwater retrofits, and designing and constructing bio-swale and bio-filter stormwater retrofits along MDTA highways, to achieve the goal of treating 20% of untreated impervious surfaces by 2020.

In FY 2015, MDTA received approval from MDE for stormwater management and erosion and sediment control (ESC) plan review and permitting authority. This significant change allows MDTA to approve ESC field changes during construction, reduces project delays and costs, ensures desired environmental outcomes, and improves customer service to all stakeholders. In 2015, over 4,000 ESC inspections were performed by MDTA, independent environmental monitor inspections and quality assurance inspections with 16 non-compliance findings, for a compliance rate of 99.6%.

**Renewable Energy** – Utilizing a grant program from the Maryland Energy Agency, MDTA coordinated the installation of two anemometer towers at the Francis Scott Key and Point Breeze facilities in December 2014. Over a year, data from the towers will be collected and used to calculate an average windspeed, then cross-referenced to the promulgated standards from the Department of Energy (DOE) Wind and Water Technologies office. If the data supports the installation of a wind turbine at either or both locations, MDTA will start to evaluate engineering and fiscal considerations and potentially plan for the infrastructure in the future.

**Environmental Management** – MDTA continues to maintain an active environmental management program. Through routine facility assessments, annual employee training, development of Standard Operating Procedures and the development of an Environmental Management System (EMS), MDTA is continually evaluating the effectiveness of its environmental management programs, as well as its overall compliance with applicable regulations.

**MPA:** MPA developed an Environmental Strategy and Action Plan (“Plan”), a roadmap for meeting the agency’s environmental responsibilities including voluntary goals for continuous improvement. The Plan provides for calculating and evaluating emission data in order to implement air emission reduction programs, such as replacing dray trucks and cargo handling equipment, greening the MPA fleet, and improving efficiency of cargo operations. The MPA is developing or updating its water quality improvement and TMDL reduction plans, and a major component is the installation of innovative or emerging technologies. The algal turf scrubber, floating treatment wetlands and green roofs are a few examples of these technologies that allow for their advancement and acceptance. Another significant aspect of the Plan is the evaluation of alternative fuels, including solar, wind and fuel cells, as well as using more efficient lighting and promoting energy conservation through training of employees (An example project is the Stormwater Drain Structure Inspection and Rehab Program, which has \$900 thousand dedicated in the FY 2016–FY 2021 CTP).

**MVA:** MVA continues to work with MDE to ensure compliance with State emissions regulations, and continues to monitor the number of registered vehicles in non-attainment counties to ensure Vehicle Emission Inspection Program (VEIP) testing compliance. Maryland vehicle owners can now test vehicle emissions using two new, convenient self-service VEIP kiosks, one located at the Glen Burnie VEIP station and one located at the Gaithersburg MVA branch office – available 24 hours a day, seven days a week. The MVAs “Green Way” is a project to promote the use of Alternative Service Delivery (ASD) as an alternate means of accessing MVA services (online), and therefore reducing the VMT and trips to the MVA.

**SHA:** SHA completed the Climate Change Adaptation Plan with Detailed Vulnerability Assessment pilot project in Anne Arundel and Somerset counties and initiated analysis in FY 2015 of six additional counties for vulnerability to future flooding. SHA continues to investigate and develop new tools and methods to determine asset vulnerability to climate change and expand analysis to all tidally influenced counties of Maryland. National Environmental Policy Act (NEPA) reviews for SHA projects now include screening for locations subject to future sea level inundation.

SHA continues to far exceed the 30% facility recycling rate mandated under the Maryland Recycling Act, and achieved a recycling rate of 55% in CY 2014. SHA used 267,694 tons of recycled asphalt pavement in highway construction projects in CY 2014; an increase of 74% over CY 2013. SHA increased its inventory of stormwater management facilities to 3,638 and continued to meet its goal to maintain 90% of inventoried facilities functioning as designed in FY 2015. SHA has reduced 65,241 pounds of nitrogen pollution, 10,523 pounds of phosphorus pollution and 5,201,477 pounds of sediment pollution into local waterways since FY 2011. In addition, 52,566 trees were planted in FY 2015 to meet requirements of the Watershed Implementation Plan (\$588 million in the FY 2016–FY 2021 CTP Total Maximum Daily Load (TMDL).

## Maryland Aviation Administration

MAA promotes stewardship of Maryland’s environment while keeping its people and economy moving. Approaches include recycling, energy efficiency, natural resource protection, community enhancement and alternative energy initiatives.

**Recycle:** Continue to recycle at least 20% of Baltimore/Washington International Thurgood Marshall Airport’s (BWI Marshall’s) solid waste, including refuse, building materials and pavement.

**Energy Efficiency:** MAA established 12 Energy Conservation Measures, aimed at decreasing the agency’s energy usage and has seen increased efficiencies in lighting, water conservation, heating and air conditioning, and solar energy usage. Total savings are estimated at \$4.7 million and emissions of 9 kwh or gallons saved.

**Environmental Protection:** As the landlord for the more than 3,200 acres that comprise BWI Marshall, MAA is also the steward of the many natural resources on its property. MAA must determine the potential effects of development on these resources and fulfill all applicable laws that protect the environment.

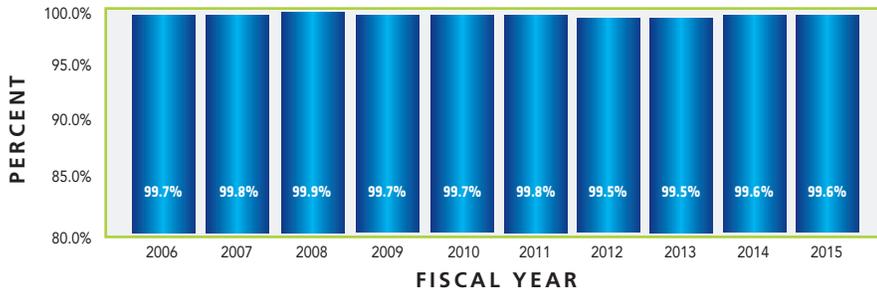
**Community Protection:** MAA enhances the environment of neighboring communities through the Homeowner Assistance Program, providing noise mitigation for those residing within the BWI Marshall Noise Zone. The MAA also implements a MDOT Secretary Community Enhancement Program that provides improvement grants for community-sponsored projects.

**Alternative Energy:** To reduce the amount and cost of energy used, the MAA installed a 505 kW solar Photovoltaic (PV) system on top of the BWI Marshall daily parking garage.

**Outdoor Recreation:** BWI Marshall partnered with Zagster, a company that provides bike sharing services, to provide bicycles to travelers, employees and members of the public for use on the BWI Marshall Trail.

## SHA: Percent of Compliance on Erosion & Sediment Control (ESC) Ratings

State and federal regulations mandate ESC during construction of any land disturbing activity. ESC is a system of structural and vegetative measures that minimize soil erosion and off-site sedimentation from construction and roadway runoff. At any given time, SHA has many construction and maintenance activities that cause earth disturbance and require ESC. MDE has delegated inspection authority with oversight to SHA with specific parameters to be observed and rated. The results of the individual project inspection rating indicate compliance or non-compliance with the ESC requirements and the law.



TARGET: 100% Annually

### Why Did Performance Change?

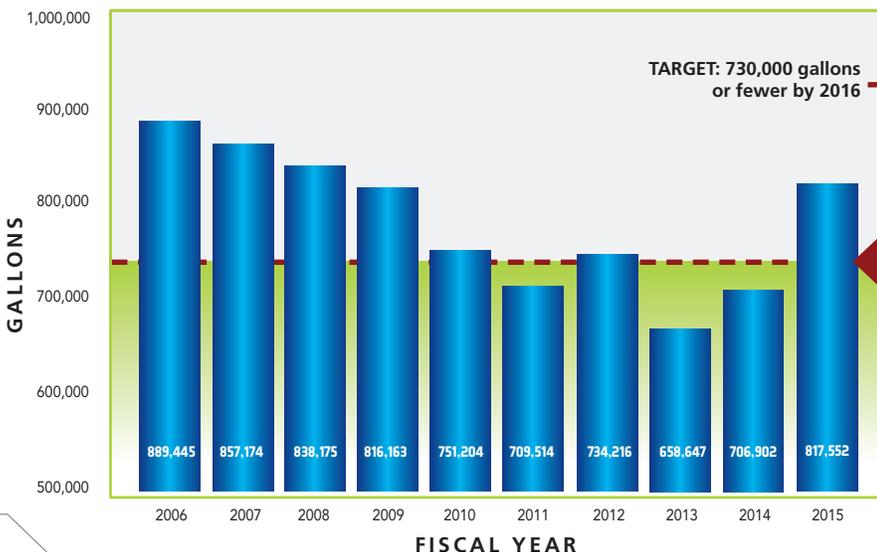
- SHA Office of Environmental Design created and initiated delivery of Compliance with Delegated Authority training to SHA construction project engineers
- SHA performed over 4,000 ESC inspections, with only 16 non-compliance findings documented by SHA's Quality Assurance Team
- SHA's overall annual ESC percentage of compliance was 99.6%
- ESC Yellow Card training was made available online. At the close of FY 2015, 5,461 SHA employees, consultants and contractors had been ESC-certified

### What Are Future Performance Strategies?

- Include incentives/liiquidated damages to ensure compliance statewide using the Quality Assurance rating system
- In FY 2015, SHA received approval from MDE for stormwater management and ESC plan review and permitting authority. This significant change allows SHA to approve ESC field changes during construction, reduces project delays and costs, ensures desired environmental outcomes, and improves customer service to all stakeholders
- Continue to deliver ESC training and certification programs for contractors, inspectors and designers

## SHA: Total Fuel Usage of the Light Fleet

This measure is tracked statewide to monitor success in reducing consumption of gasoline through conservation strategies, including use of higher fuel efficiency vehicles for scheduled fleet replacements.



### Why Did Performance Change?

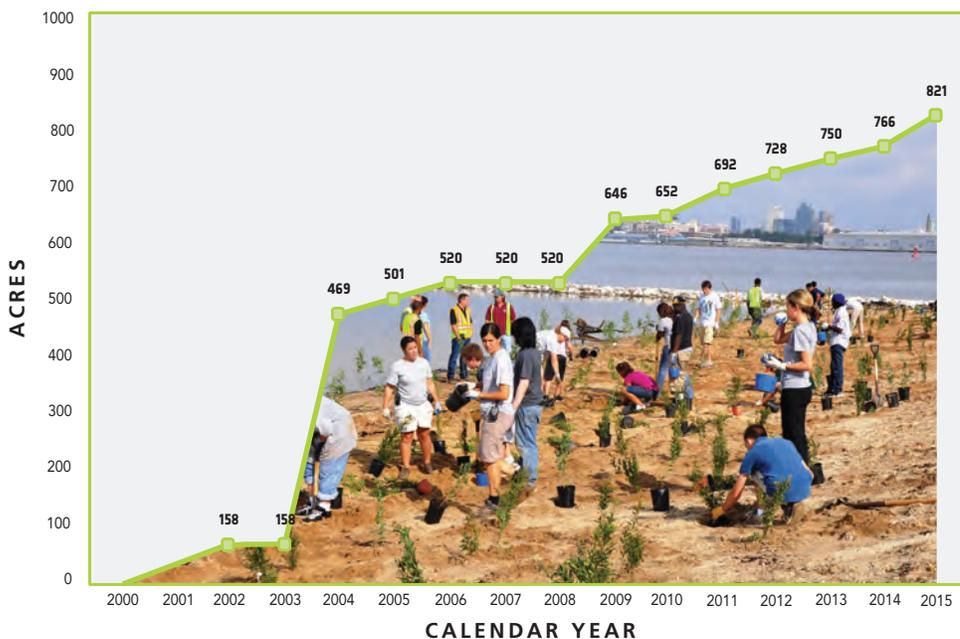
- Continued to enforce the automobile engine-idling policy for all employees and consultants, and encouraged employees to save fuel through carpooling and videoconferencing for state business trips
- Conducted employee outreach to encourage use of the existing E-85 distribution facility at the SHA Hanover Complex and planned and existing E-85 fueling stations at Maryland State Police facilities
- Purchased more flex-fueled vehicles in FY 2015 and continued outreach efforts to use E-85 fueling facilities
- SHA exceeded its target for light fleet usage by 87,552 gallons due to the unusually large number of emergency winter-related call-outs, and by construction inspection team members utilizing light fleet vehicles
- Since SHA has structured its fleet to maximize efficiency levels, SHA has reached a plateau in use reduction and fuel efficiency

### What Are Future Performance Strategies?

- Continue to look for opportunities to institute fleet reductions to cut overall fuel consumption
- Continue to replace older diesel pickup trucks with flex-fueled pickup trucks of similar hauling and towing capacity
- As diesel elements of the light fleet are replaced with gas burners, there will be increased usage of gasoline; however, SHA is meeting its objective to increase fleet fuel efficiency and reduce GHG emissions

## MPA: Acres of Wetlands or Wildlife Habitat Created, Restored or Improved Since 2000\*

MPA is in compliance with the various permits that are granted to construct projects needed for MPA customers (e.g., landside tenants or steamship lines).



TARGET: Mitigate projects as required by federal, state and local statutes

\* Represents cumulative mitigation efforts by MPA since 2000. MPA has re-evaluated the methodology for counting acres of "wildlife habitat created, restored or improved." This has reduced the acres counted for 2001 and 2002, thereby reducing annual totals. The original acreage reported for 2001 and 2002 will be created, but does not meet new methodology to be counted in the totals at this time.

### Why Did Performance Change?

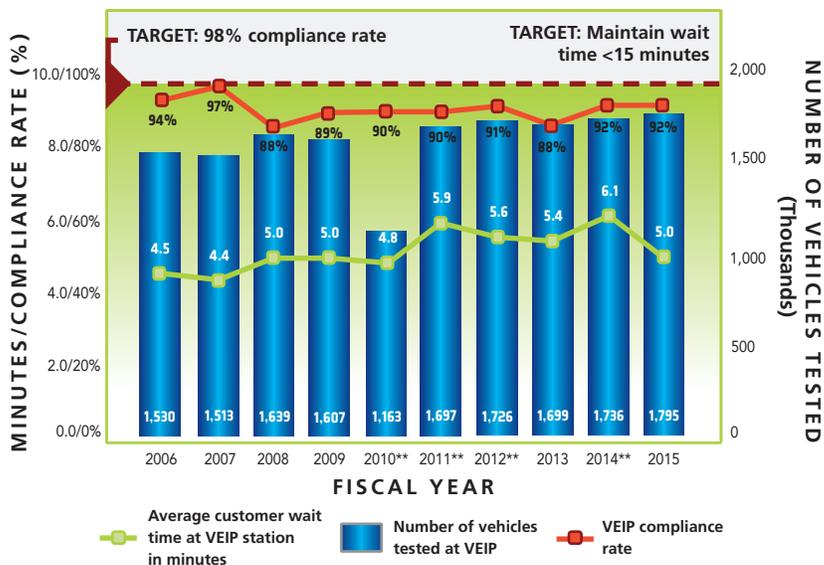
- MPA conducted tree plantings/meadow habitat mitigation project at the Hawkins Point Dredged Material Containment Facility (DMCF) to stabilize the site and improve habitat
- The MPA received the Innovative Best Management Practice Award for its Algal Turf Scrubber® from the Chesapeake Stormwater Network
- The MPA's Masonville Cove Environmental Education Center was designated by the United States Fish and Wildlife Service as the first Urban Wildlife Refuge in the nation
- The EPA awarded a grant of \$750,000 for the Port's Dray Truck Replacement Program, extending the program through March 2016

### What Are Future Performance Strategies?

- When required to mitigate for a construction project, the MPA will seek to create and improve wildlife habitat wherever appropriate, and in conformance with permit requirements
- Continue environmental enhancements at Masonville, specifically the eastern and peninsula uplands
- Continue long-term efforts including Hart-Miller Island North Cell restoration and Poplar Island Expansion (\$32.8 million in the FY 2016–FY 2021 CTP for Hart-Miller Island-related projects)

## MVA: Compliance Rate and Number of Vehicles Tested for Vehicle Emissions Inspection Program (VEIP) Versus Customer Wait Time\*

Monitoring the VEIP testing compliance rate ensures system effectiveness and identifies vehicles exceeding allowable standards. Tracking the average wait time at VEIP stations ensures that the 15-minute average wait time requirement is met. Timely and efficient customer service helps the State meet federal clean air standards by identifying polluting vehicles and encouraging regular vehicle maintenance.



\* 14 counties offer VEIP tests: Anne Arundel, Baltimore, Baltimore City, Carroll, Harford, Howard, Queen Anne's, Cecil, Washington, Calvert, Charles, Frederick, Montgomery and Prince George's.

\*\* 2010, 2011, 2012 and 2014 data revised from previous Attainment Report.

### Why Did Performance Change?

- MVA has enhanced VEIP over the last five years by adding fleet testing for larger companies and government agencies that elected to be participants
- MVA continued to provide convenient and accessible service by adding the VEIP kiosks for general public use. The VEIP kiosks are available 24/7 in two locations, at the Ordinance Road VEIP Station and the Gaithersburg branch office

### What Are Future Performance Strategies?

- Continue to work with MDE to ensure compliance with State emissions regulations
- The MVA will continue to monitor the number of registered vehicles in non-attainment counties to ensure VEIP testing compliance
- Track and monitor the recently installed vehicle emissions self-service testing kiosks, and continue to actively research new technologies and services to facilitate vehicle emissions testing
- In collaboration with MDE, continue to develop strategies, policies and regulations to ensure compliance with State VEIP testing mandates, which require Maryland to meet Federal clean air standards by identifying polluting vehicles and encouraging regular vehicle maintenance

# Travel Demand Management (TDM)

Travel Demand Management (TDM) offsets vehicle congestion by offering incentives for Marylanders to use public transit, carpool, walk or bicycle instead of driving alone. Other ways that roadway demand can be reduced is the promotion of telecommuting and flexible work hours as a way to reduce or shift trips to times when roadway capacity is less constrained. TDM initiatives also contribute to reduced emissions and improved air quality by cutting down on single-occupant vehicle trips and reducing peak period congestion.

## MTA/SHA: Reduction in Vehicle Miles Traveled (VMT) Through Park-and-Ride Usage

By offering park-and-ride facilities, SHA and MTA provide commuters with an alternative to driving to their destinations and supports increased carpooling and public transit ridership.

AGENCY	TOTAL SPACES	AVERAGE WEEKDAY UTILIZATION*
SHA (2015) (Estimated)	13,236	7,346
MTA (2015)	23,734	15,285
Transit Multipurpose**	17,858	12,860
<b>Total</b>	<b>54,828</b>	<b>35,491</b>

\* Facility usage fluctuates due to the economy; weather conditions; special events; emergencies; delays or shutdowns of parallel lines or modes; maintenance and repair; storage of plowed snow; increases in frequency, service, and capacity; and other factors.

\*\* Includes facilities operated by MTA, Amtrak, WMATA, Penn Station in Baltimore and Union Station in Washington, D.C.



\* MTA park-and-ride lot VMT reductions are estimated based on the same assumptions used to calculate VMT reductions associated with MTA Transportation Emission Reduction Measures. These assumptions differ from SHA's VMT reduction calculation methodology.

## Why Did Performance Change?

- Completed three projects in 2015 which added 350 additional spaces, including: 100 additional spaces at MD 175/Snowden River Parkway, 200 additional spaces at MD 424/US 50 (Davidsonville) and 50 additional spaces at I-70/MD 75
- Statewide park-and-ride lots were at 65% capacity in CY 2015, an increase from 58% in CY 2014, due to reduced spaces/capacity
- Completed resurfacing for the MARC Monocacy and MARC Dorsey stations park-and-ride lots in FY 2015
- Completed new parking garage at the MARC Savage station in FY 2015

## What Are Future Performance Strategies?

- The BaltimoreLink initiative will likely increase park-and-ride use by transforming the connectivity of transit in the Baltimore metropolitan region
- SHA will continue ongoing efforts to look for opportunities to construct park-and-ride lots while planning major projects along interstate and principal arterials
- SHA will complete the design of park-and-ride projects at MD 5/MD 373 and US 15/MD 140
- SHA will complete the construction of a project to add capacity at US 15/Monocacy Rd
- New park-and-ride lot in Waldorf will be opening during FY 2016

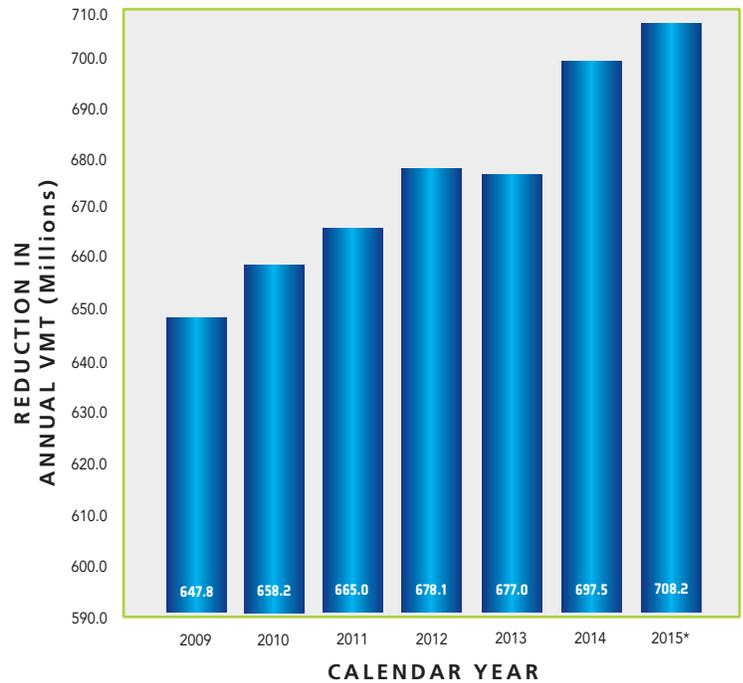


## MDOT: Reduction in Vehicle Miles Traveled Through Transportation Emission Reduction Measures (TERMS)

Maryland supports a wide variety of programs and projects to promote TDM, including Commuter Choice Maryland, Commuter Connections, the Telework Partnership, transit marketing and subsidy programs, and statewide park-and-ride facilities. These programs support reductions in single-occupant vehicle driving while increasing ridesharing, transit and telecommuting.



## Estimated Annual Regional VMT Reduction through TERMS



\* 2015 data is preliminary and subject to change.

## 2015 MDOT and MTA TRANSPORTATION EMISSION REDUCTION MEASURES

PROGRAM	PROGRAM DESCRIPTION	DAILY REDUCTION IN VEHICLE TRIPS*	DAILY REDUCTION IN VEHICLE MILES OF TRAVEL *
Commuter Connections Transportation Emission Reduction Measures**			
<b>Guaranteed Ride Home</b>	Provides transit users or carpoolers up to four rides home per year in a taxi or rental car in the event of an unexpected personal or family emergency	7,711	212,823
<b>Employer Outreach</b>	Supports marketing efforts to increase employee awareness and use of alternatives to driving alone to work every day	78,553	1,327,044
<b>Integrated Rideshare</b>	Promotes other alternative transportation services to employers and to the general public. Commuter information system documentation is provided with comprehensive commute information, to include regional TDM software updates, transit, telework, park-and-ride and interactive mapping	2,379	66,442
<b>Commuter Operations and Ridesharing Center</b>	Updates and maintains the Commuter Connections database for ride-matching services and provides information on carpooling, vanpooling, telecommuting, bicycling and walking for the Washington-Baltimore metropolitan region	23,262	488,226
<b>Telework Assistance</b>	Provides information to employers in Maryland on the benefits of telecommuting and assists in setting up new or expanded telework programs for employers	9,651	205,511
<b>Mass Marketing</b>	Promotes and communicates the benefits of alternative commute methods to single-occupant vehicle commuters through the media and other wide-reach communications	10,294	173,269
MTA Transportation Emission Reduction Measures			
<b>MTA College Pass</b>	Offers a subsidized monthly transit pass to full- or part-time students enrolled in greater Baltimore metropolitan area colleges or universities	3,030	23,937
<b>MTA Commuter Choice Maryland Pass</b>	Baltimore region program that allows employers to purchase transit passes and vouchers for their employees. Employers can subsidize these for their employees or allow employees to purchase passes or vouchers with pre-tax income	16,862	284,457
<b>Transit Store in Baltimore</b>	Provides customer access to transit information and for purchases of transit passes. Some 15-20% of total transit pass sales occur through this outlet	3,023	51,005

\* The impacts shown reflect the current definitions and most recent data available for each of the measures.

\*\* The Commuter Connections program is run through the Metropolitan Washington Council of Governments. The reduction in trips and VMT for Commuter Connections reflect reductions for all of the Metro Washington region, including Maryland, District of Columbia and Virginia.

## MDOT: Transportation-Related Emissions by Region\*

Reducing vehicle emissions improves air quality in compliance with federal regulations and provides health benefits for Maryland residents. MDOT programs supporting TDM, transit, ridesharing, bicycling and walking, as well as projects that reduce roadway congestion all support air quality goals.

PERFORMANCE MEASURE	REGION	CALENDAR YEAR				% CHANGE 2002-2014
		2002	2008	2011	2014	
Volatile Organic Compound (VOC) Tons per Day	Baltimore	78.2	50.1	45.3	32.7	-58%
	Washington**	73.4	42.8	40.0	28.6	-61%
Nitrogen Oxide (NOx) Tons per Day	Baltimore	209.4	125.7	116.7	78.7	-62%
	Washington**	175.1	102.2	103.0	63.8	-64%
Carbon Monoxide (CO) Tons per Day	Baltimore	1,243.5	844.3	699.9	494.9	-60%
	Washington**	1,085.4	666.0	575.1	399.5	-63%
Particulate Matter (PM2.5) Tons per Day	Baltimore	8.1	5.8	5.5	3.8	-53%
	Washington**	6.3	4.4	4.7	3.0	-53%

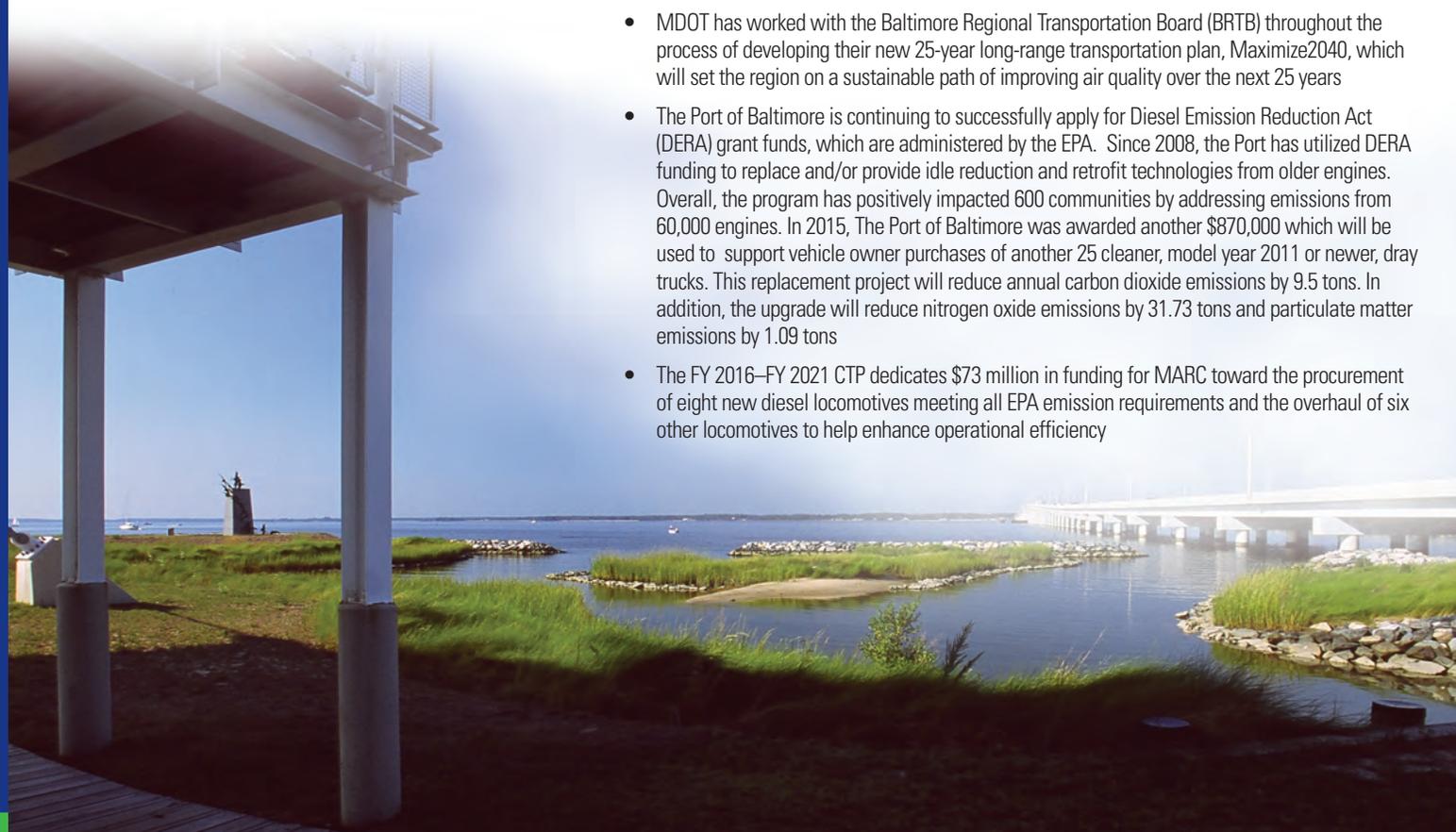
\* 2002, 2008 and 2011 analysis years: emissions calculated using MOVES2010a model. 2014 analysis year: emissions calculated using MOVES2014 model.

\*\* All Washington data represents Maryland's share of emissions in the Washington region non-attainment areas, including Charles, Frederick, Montgomery and Prince George's counties.



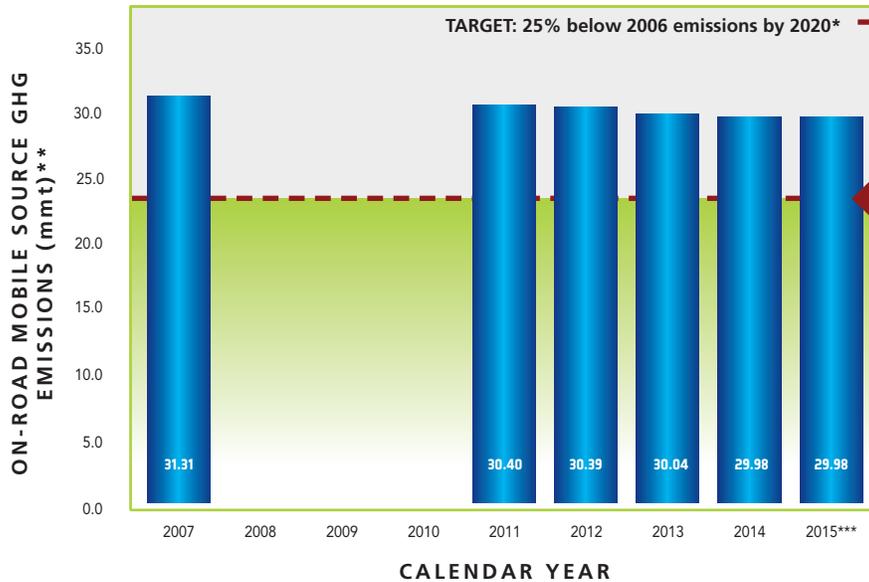
### What Are Future Performance Strategies?

- Through TERMS, MDOT supports the reduction of emissions in air quality non-attainment and maintenance areas in Maryland through congestion mitigation, ridesharing and commuter incentive programs (\$24.0 million in dedicated funding in the FY 2016–FY 2021 CTP)
- MDOT has worked with the Baltimore Regional Transportation Board (BRTB) throughout the process of developing their new 25-year long-range transportation plan, Maximize2040, which will set the region on a sustainable path of improving air quality over the next 25 years
- The Port of Baltimore is continuing to successfully apply for Diesel Emission Reduction Act (DERA) grant funds, which are administered by the EPA. Since 2008, the Port has utilized DERA funding to replace and/or provide idle reduction and retrofit technologies from older engines. Overall, the program has positively impacted 600 communities by addressing emissions from 60,000 engines. In 2015, The Port of Baltimore was awarded another \$870,000 which will be used to support vehicle owner purchases of another 25 cleaner, model year 2011 or newer, dray trucks. This replacement project will reduce annual carbon dioxide emissions by 9.5 tons. In addition, the upgrade will reduce nitrogen oxide emissions by 31.73 tons and particulate matter emissions by 1.09 tons
- The FY 2016–FY 2021 CTP dedicates \$73 million in funding for MARC toward the procurement of eight new diesel locomotives meeting all EPA emission requirements and the overhaul of six other locomotives to help enhance operational efficiency



# MDOT: Transportation-Related Greenhouse Gas Emissions

A reduction in the growth of overall VMT is one of several strategies that MDOT is pursuing to address climate change through mitigation of GHG emissions. Reducing growth in VMT through providing transportation alternatives has other potential benefits to Marylanders, such as reduced congestion, reduced travel costs and improved travel time reliability. Other strategies include investing in technologies that minimize GHG, providing alternatives to Single-Occupancy Vehicle (SOV) travel and transitioning to a less carbon-intensive vehicle fleet and lower carbon fuels.



\* The MDOT selected GHG emission reduction goal (25% below 2006 emissions by 2020) is consistent with the statewide target set in the 2009 Greenhouse Gas Reduction Act. For on-road transportation, the goal equals 23.5 mmt CO<sub>2</sub>e in 2020.

\*\* MMT stands for million metric tons, the standard unit of measurement for GHG emissions. Emissions calculated using EPA's MOVES2010b model.

\*\*\* 2015 data is preliminary and subject to change.



## Why Did Performance Change?

- Vehicle GHG emissions have continued to decrease nationwide due to improved vehicle technologies, growing consumer preference and improved price competitiveness for more fuel-efficient vehicles, including hybrid and electric vehicles. There are over 5,000 EVs currently owned by Maryland households, with access to over 610 charging stations across 269 locations
- MDOT-implemented emission-reduction strategies in non-attainment areas to foster expansion and improved service for alternative modes, including carpooling and transit, for commute trips
- With new hybrid and clean diesel bus replacements in CY 2014 and 2015, 89% of MTA's current fleet now uses clean technology alternatives to conventional diesel
- The Port used grants and other funds to update equipment including engine repowers, anti-idling devices, vehicle replacements and electrification of gantries
- MDOT has conducted planning activities to support the 2009 GGRA, including development of a 2015 GGRA Plan Update, which was legislatively required
- SHA placed 2,600 tons of foamed asphalt stabilized base (FASB) utilizing 100% recycled asphalt pavement material in highway construction in FY 2015. FASB allows use of significant quantities of recycled asphalt and concrete materials and reduces GHG emissions

## What Are Future Performance Strategies?

- MDOT will continue to participate on the Maryland Commission on Climate Change and its associated work groups, helping to develop a sustainable approach and action plan to mitigate GHG emissions beyond 2020
- SHA will continue to use the FHWA Infrastructure Carbon Estimator Tool to estimate life cycle energy and GHG emissions associated with different construction material and roadway maintenance programs
- SHA is using its Carbon Footprint and Reduction Recommendations Report to further develop agency-wide GHG reduction strategies and is tracking performance in the FY 2016 - FY 2019 SHA Business Plan
- MTA will continue to make strategic investments in projects and programs, such as BaltimoreLink, to redesign Local and express Bus service, improved passenger information, and fleet vehicle replacements and overhauls, to improve reliability and passenger comfort
- Continue MTA's green bus fleet service expansion with purchases of clean technology buses to replace buses in service for 12 or more years
- MDOT will continue to work with multiple State business units and private partners to implement recommendations of the Maryland EVIC. Recent developments include extension of the EV excise tax credit to June 2017 and deployment of 21 fast-charging stations as part of a Maryland Energy Administration (MEA) grant program
- MPA is committed to continue the purchase of low-emission vehicles and equipment, such as hybrid vehicles and equipment, and is exploring the feasibility of alternative marine power for vessels docking at MPA terminals
- MDTA is conducting a legislatively required follow-up All Electronic Tolling (AET) and Prioritization Study to identify the potential for a statewide AET program and approach to prioritizing deployment of such a system
- MVA will continue utilizing various new technologies at their full-service and express branch locations, reducing energy, fuel and water consumption while simultaneously reducing MVA's carbon footprint

# GOAL: Community Vitality



Provide options for the movement of people and goods that support communities and quality of life



## Objectives

- ▶ Better coordinate transportation investments and land use planning to support the environmental, social and economic sustainability of Maryland’s existing communities and planned growth areas
- ▶ Enhance transportation networks and choices to improve mobility and accessibility, and to better integrate with land use
- ▶ Increase and enhance transportation connections to move people and goods within and between activity centers

MDOT works to provide a comprehensive multimodal transportation network that is well connected and provides modal options for all users, including visitors and residents throughout Maryland. This includes projects to enhance and connect the State’s highway, transit, rail, freight, pedestrian and bike networks, ensuring communities across Maryland have improved access to key activity centers for goods and services while supporting healthy ways of life.

On a statewide level, the SHA’s Complete Streets policy advances MDOT’s overarching mission of “enhancing the quality of life for Maryland’s citizens by providing a balanced and sustainable multimodal transportation system for safe, efficient passenger and freight movement.” On a local level, initiatives within Maryland that promote and support bicycle and pedestrian travel include *Cycle Maryland*, which aims to make bicycling a viable transportation alternative, as well as the following programs: the Maryland Bikeways Program, Safe Routes to School, Transportation Alternatives, Federal Lands Access Program and the Recreational Trail Program. Together, these programs fund bicycle and pedestrian projects throughout the rural and urban areas of the state, supporting local jurisdictions with funding to assist in making biking and walking convenient, safe and reliable.



## Key Initiatives and CTP Projects

**MAA:** Support passenger growth and ensure safe and efficient passenger experience by continuing terminal improvements and airfield construction. Continue to support noise mitigation programs, ensuring communication between MAA and the surrounding communities through various active and engaged outreach programs such as the BWI Neighbors Committee, BWI Community Enhancement Program, Quarterly Noise Report, Airlines Progress Report and noise monitoring (\$40.4 million in the FY 2016–FY 2021 CTP for Terminal Development).

**MDOT:** Support alternative transportation options by improving transit accessibility, bicycle and pedestrian facilities, and overall transit access by making strategic investments in every corner of the state. Expand bicycling and walking opportunities by ensuring localities have access to funding for alternative transportation programs (\$91.6 million in the FY 2016–FY 2021 CTP for Transportation Enhancements Program/ Alternatives). Ensure that transit is reliable and efficient for all users by establishing a Transit Performance Plan that will highlight reliability, ridership, on time performance and farebox recovery. Improve connectivity by improving Maryland’s roads and bridges, upgrading highways to ensure safe and reliable travel. Implement a streamlined and cost-effective plan to enhance the transportation Public-Private Partnership (P-3) delivery method for the Purple Line.

**MDTA:** Support the system preservation of tunnels and bridges along I-95 through pavement resurfacing, better lighting, and repairing and rehabilitating over 50 bridges north of the Fort McHenry Tunnel. MDTA is also working to reconfigure northbound and southbound I-95 Tunnel and the I-95 Express Toll Lanes (I-95 ETL) in order to provide a total of four continuous mainline lanes in each direction (\$74.7 million in the FY 2016–FY 2021 CTP for this project).

**MPA:** Continue to support and invest in environmental programs to improve air quality around the Port of Baltimore (the Port). Enhance air quality surrounding the Port with \$500,000 from the U.S. Department of Transportation (USDOT) by replacing old diesel trucks that are used to haul freight around port facilities with newer, cleaner trucks.

**MTA:** The BaltimoreLink initiative will transform the connectivity of transit in region by providing additional and more frequent connections from Local Bus to rails, commuter bus and mobility locations. MTA will improve on time performance and reliability of local transit options through real-time data improvements, increased on time reporting and improved maintenance tracking (\$486 thousand in the FY 2016–FY 2021 CTP for CAD/AVL Systems). MTA will continue to provide options to MTA bicycle-riding customers such as the MARC Penn Line trains equipped with the popular bike car, part of MTA’s newly-expanded MARC weekend bike car service.

**MVA:** Support the implementation of convenient and efficient use of alternative services to reduce customer wait times and enhance connectivity in branch offices through Internet and improved technology, kiosks, electronic delivery through a smartphone/ tablet application and telephone Interactive Voice Response (IVR) systems (\$10.3 million in the FY 2016–FY 2021 CTP for Alternative Service Delivery (ASD) Systems).

**SHA:** Continue to advance strategies to balance the safety and efficiency of roads with access to other modes of transportation, such as facilities for bikes and pedestrians through Maryland’s Statewide Complete Streets policy. Use of practical design principles will aid in addressing the highest community needs.

# Maryland Transit-Oriented Development

Transit-Oriented Development (TOD) is an important land use and development strategy to support economic development, efficient use of the transportation network, to help achieve local land use and development objectives and investment in Maryland's dense urban centers. The State of Maryland supports the creation and implementation of strategic TOD projects in a variety of ways, including through a formal initiative established in 2008 that recognized TOD as a transportation purpose. MDOT collaborates with state, local and private partners to leverage transit infrastructure by providing support for pre-development planning, pursuing strategic partnerships for joint-development, investing to enhance transportation and land use accessibility and coordinating across other program and policy initiatives.

For more information, follow either of these links: <http://www.mdot.maryland.gov/TOD> or [www.todmd.com](http://www.todmd.com)



**Reisterstown Plaza TOD:** Reisterstown Shopping Center Plaza, located near the Reisterstown Plaza Metro Subway station in Baltimore City, consists of 35 acres of MDOT-owned surface parking lots and open space. In 2011, the State conveyed over 11 acres of the 35-acre Reisterstown Plaza to the General Services Administration (GSA) for construction of a Social Security Administration (SSA) building. In 2014, construction of the SSA building, which includes a parking garage with 1,076 stalls, was completed and occupied by tenants of the SSA.



**Owings Mills TOD:** Owings Mills TOD is comprised of 43 acres of MDOT-owned surface parking lots adjacent to the lots adjacent to the Metro Subway station. Construction commenced on the newest phase of development in September 2015. The project consists of a mixed-use development in several phases. Features of the TOD include 1.2 million square feet of commercial office space, 300,000 square feet of complementary retail space, 1,700 residential units, a restaurant and hotel properties. It also features a new branch of the Baltimore County Public Library, which comprises the first two levels of the Owings Mills Learning Center.



**Savage MARC Station TOD:** After breaking ground in 2014, development at the MARC Savage Station TOD moved ahead with construction of a 100,000 square-foot office building at the Annapolis Junction Town Center near the Savage MARC Station. The mixed-use TOD project is expected to consist of 416 apartments, 100,000 square feet of office space, 17,000 square feet of retail space, a 150-room hotel and a garage for MARC commuters. The project is on a 19-acre site at the junction of MD 32 and US 1 in Howard County, with the adjacent station on the MARC Camden Line.

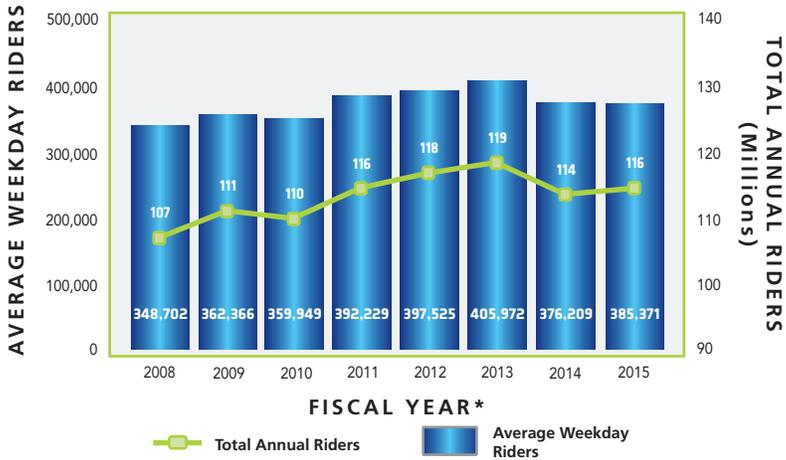


## TOD Benefits:

- Access to economic opportunity by linking residents with employment and service destinations
- Lower housing and transportation burdens through the reduced need to own and drive vehicles to work
- Reduced public infrastructure costs by utilizing existing compact development and linking infrastructure to dense, developed centers
- Cleaner air by reducing traffic congestion

## MTA: Average Weekday Transit Ridership

Weekday transit usage demonstrates progress toward better mobility for our customers and contributes to statewide goals.



\* To maintain the integrity of historical comparisons of bus ridership, the MTA used ridership estimate differences between the new APC system and previous systems to adjust previous bus ridership estimates and allow for comparable data for fiscal years.



### Why Did Performance Change?

- MTA restructured several routes on Core Bus service and implemented a bus stop optimization program to eliminate unnecessary stops causing transit vehicles to stop too frequently in short spans of space
- MTA restructured several Commuter Bus routes to combine unproductive routes and adding routes to existing, overpopulated routes

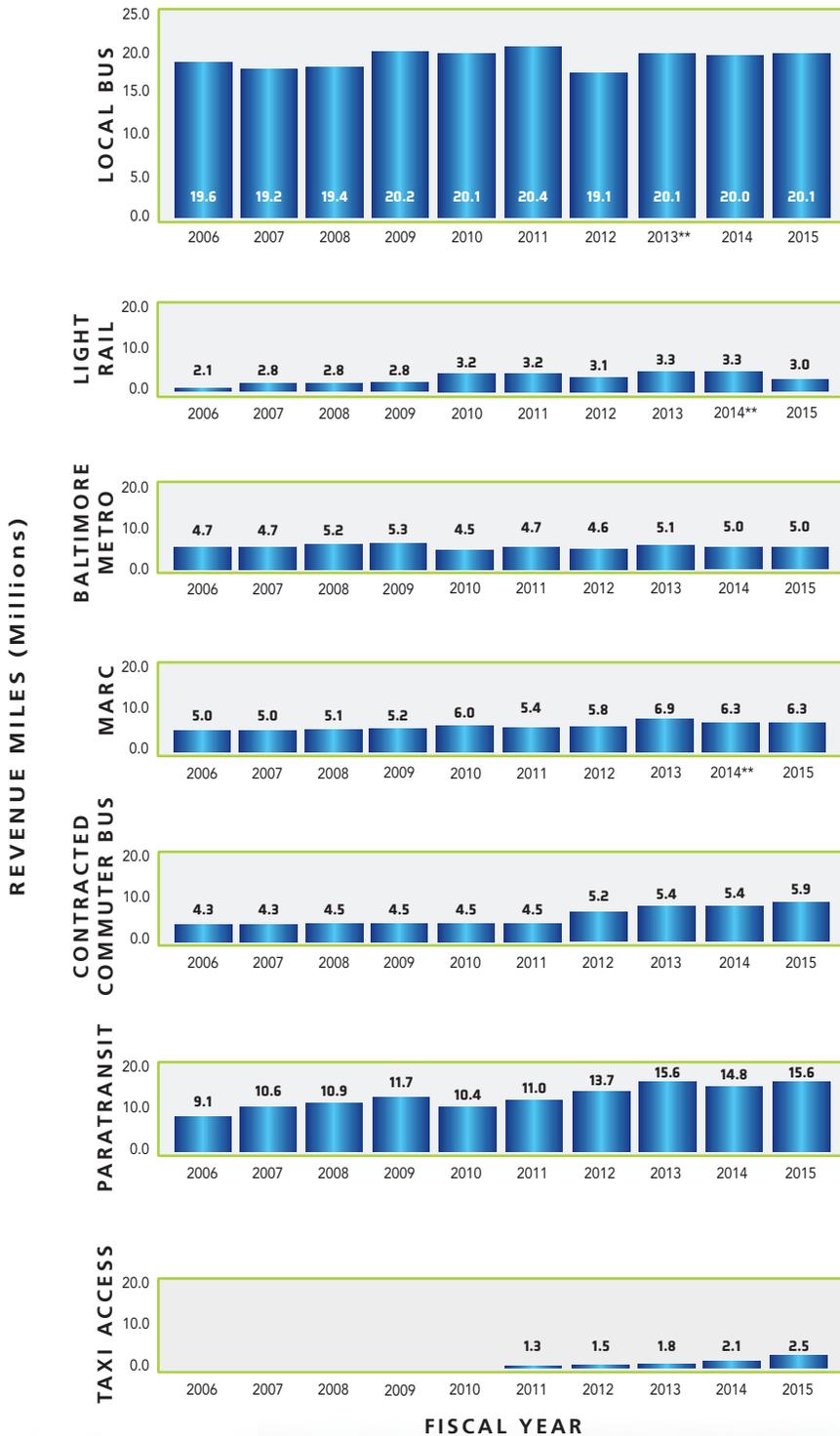
### What Are Future Performance Strategies?

- With the BaltimoreLink initiative, connectivity of transit in the Baltimore metropolitan region and current centers of employment will be vastly improved and thereby increases in ridership is expected
- Aggressively seek solutions to maximize Local Bus system capacity while controlling costs through efficient scheduling and system design
- Continue to investigate and implement more parking options for commuters to alleviate over-crowded lots
- Implement real-time passenger information on MTA's transit services
- Increase system reliability through reductions in mechanical failures and improving on time performance



# MTA: Annual Revenue Vehicle Miles of Service Provided\*

Revenue vehicle miles, or each mile for which a transit vehicle is in service and accepting customers, indicates the level of transit service available to, and in use by, the general public.



\* Excludes Locally Operated Transit Systems (LOTS) and Washington Metropolitan Area Transit Administration (WMATA).  
 \*\* Selected data was revised from previous Attainment Report.

## Why Did Performance Change?

- In FY 2015, several snowstorms occurred during the months of February and March, and the Baltimore riots at the end of April through mid-May 2015 affected all MTA service
- Commuter Bus service enhancements in FY 2015, consolidating unproductive routes and adding routes to existing, overpopulated routes, provided an efficient alternative to driving
- A large increase in Paratransit and Taxi Access mileage was due to the large increase in the number of trips provided
- Baltimore Metro continued to perform scheduled track repair and maintenance affecting service from 10pm - 6am. This had an impact on the revenue miles, but little impact to the riding public

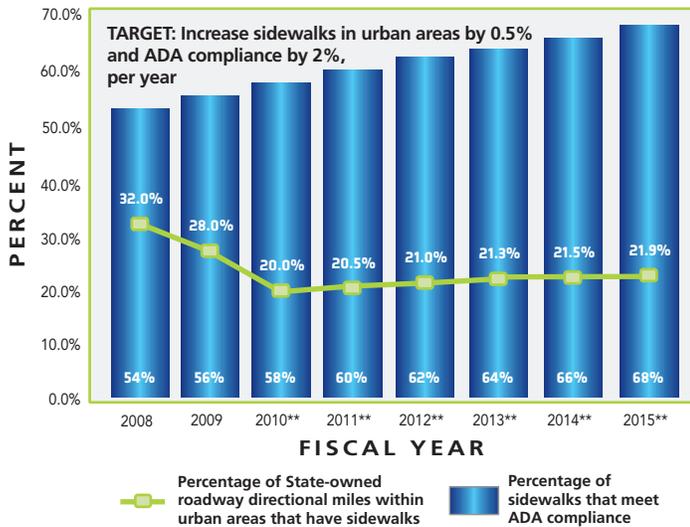
## What Are Future Performance Strategies?

- The revenue vehicle miles of service for Local and Express bus will drastically alter with the BaltimoreLink initiative, which will reconfigure existing routes to reallocate service miles and maximize transit connectivity to all of MTA services



## SHA: Percentage of State-Owned Roadway Directional Miles Within Urban Areas That Have Sidewalks & Percent of Sidewalks That Meet Americans with Disabilities Act (ADA) Compliance\*

Available sidewalk facilities provide mobility for pedestrians. Tracking the percent that are ADA compliant helps ascertain whether Maryland's sidewalk program meets federal benchmarks.



\* In the future, Bike and Pedestrian Attainment Report performance measures might include Attainment Report Advisory Committee (ARAC) approved updates and modifications that result from the Bike and Pedestrian Master Plan update.

\*\* 2010-2015 data are based on a new data collection method that cannot be accurately compared to previous years' data.

### Why Did Performance Change?

- SHA invested \$22.5 million in FY 2015 to improve and construct sidewalks and to address ADA accessibility, including the construction of 11.5 new directional miles of sidewalk

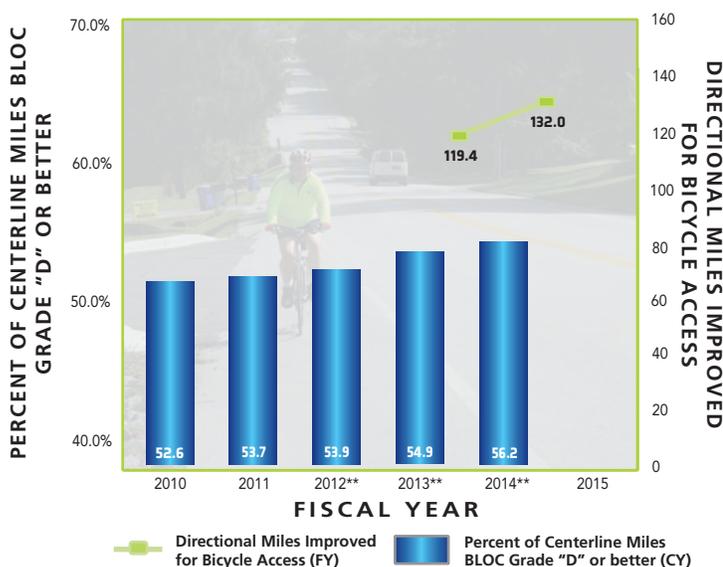
### What Are Future Performance Strategies?

- Support safe pedestrian access along state highways (\$30.2 million for the New Sidewalk Construction for Pedestrian Access Program and \$60.4 million for the Sidewalk Reconstruction for Pedestrian Access Program (ADA Compliance) in the FY 2016–FY 2021 CTP)
- Target improvements to increase accessibility to transit and other public services and to address areas of high pedestrian injuries and fatalities
- Construct numerous sidewalk improvement projects in FY 2016, including MD 210 in Charles County, MD 765 in Calvert County and MD 144 in Frederick County, and moving forward with projects in FY 2016 on MD 424 in Anne Arundel County and MD 272 in Cecil County
- Upgrade existing traffic signals with audible pedestrian signals and countdown pedestrian signals and ADA features (pedestrian curb ramps and median cut-throughs)



## SHA: Percentage of State-Owned Roadway Centerline Miles with a Bicycle Level of Comfort (BLOC) Grade "D" or Better & Number of Directional Miles Improved for Bicycle Access\*

Bicycle Level of Comfort (BLOC) (scale "A" to "F") is a measure for assessing the quality of the statewide roadway system for its comfort and compatibility with bicycle users. It accounts for multiple characteristics of the roadway through a formula, which produces a single BLOC grade for any section of roadway. "Improved for bicycle access" means that shoulder and travel lanes have permanent markings to designate use for bicyclists. Bicycle access is a good measure of "bike friendliness"; however, access is not captured in the BLOC formula; thus, both must be taken into account when evaluating the quality of the bicycling environment.



\* In the future, Bike and Pedestrian Attainment Report performance measures might include ARAC approved updates and modifications that result from the Bike and Pedestrian Master Plan update. The BLOC measure was updated in 2015, therefore, results are not comparable to past reports. Directional Miles Improved for Bicycle Access reported for FY 2015 only, data is not comparable to data for previous years due to improved data collection method.

\*\* FY 2012- FY 2014 Percent of Centerline Miles data revised from previous Attainment Report.

### Why Did Performance Change?

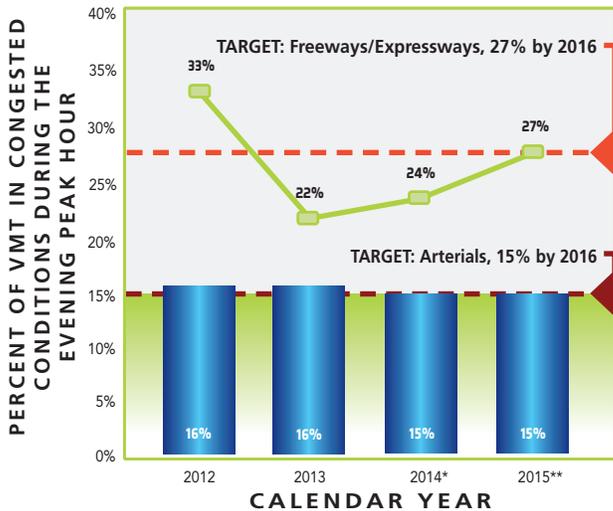
- Instituted a Bicycle Safety Education Steering Committee with the participation of regional MPOs, local and statewide bicycle advocate groups, and the Maryland Highway Safety Office to review and recommend approaches and strategies to statewide bicycle safety education and outreach
- Invested \$2.8 million in FY 2015 for dedicated bicycle improvement projects

### What Are Future Performance Strategies?

- Increase and enhance outreach efforts to the general public to more effectively communicate safety and roadway conditions about bicycling
- Implement the statewide MDOT 20-Year Bicycle and Pedestrian Master plan by identifying critical bicycle connections and working with local jurisdictions to identify priority areas and projects
- Complete development of a bicycle route policy as part of the updated bicycle guidelines, which will help define how routes should be designated, designed and signed
- Implement statewide, multi-jurisdictional bicycling routes that will serve as the most comfortable route between regionally significant points of interest, beginning with the Fort Meade to Columbia route
- Update the SHA inventory of directional miles of shared use paths by June 2016

## SHA & MDTA: Percent of VMT in Congested Conditions on Freeways/Expressways & Arterials During the Evening Peak Hour

This measure tracks SHA performance in reducing congestion on the state highway system. This is an indicator of congestion and the people/vehicles impacted by congestion.



Legend:  
■ Percent of VMT in congested conditions on freeways/expressways in Maryland during the evening peak hour  
■ Percent of VMT in congested conditions on arterials in Maryland during the evening peak hour

\* 2014 data revised from previous Attainment Report.

\*\* 2015 data is preliminary and subject to change.

### Why Did Performance Change?

- Continued mobility/congestion management initiatives
- The 2013 to 2014 increase in the percent of Vehicle Miles Traveled (VMT) experiencing congestion on freeways/expressways in evening peak hour could be attributed to the steadily improving economy that has resulted in increased peak hour VMT in the last few years, as the improved job market appears to be contributing to increased commuter travel
- Work zones related to capital projects like the MDTA I-95 ETL project and other system preservation projects around the state also impacted the peak hour operations on freeways and expressways
- Percent of VMT experiencing congestion on arterials in evening peak hour remained at very similar levels between 2013 and 2014. This could be attributed to the relatively flat demand on the arterial system, local intersection improvement projects, additional data coverage on local arterials and rounding methods

### What Are Future Performance Strategies?

- Develop and implement low-cost geometric improvements to alleviate congestion hotspots on the arterial system
- Continue to work on long-term multimodal solutions that enhance safety, mobility and reliability of the arterials including some bus rapid transit (BRT) projects
- Continue signal retiming and optimization program to improve arterial operations
- Develop short-term congestion management solutions (geometric improvements, incident management, special event planning and ITS strategies) to improve traffic operations on freeways/expressway systems
- Incorporate strategies that improve reliability of the transportation system will be a focus area. SHA will look at implementing Transportation Systems Management and Operations (TSM&O) strategies to improve mobility and reliability
- Work on long-term multimodal solutions that enhance safety, mobility and reliability of the transportation system

## MPA: Intermodal Containers Moved by Rail Through the Port

Tracking intermodal containers moved by rail through the Port provides an understanding of the options for containerized freight movement to/from MPA's terminals (particularly Seagirt & Dundalk) via CSX or Norfolk Southern (NS) railroads.



\* 2014 data revised from previous Attainment Report.

\*\*2015 data is annualized, based on 10 months of data, and subject to change.

### Why Did Performance Change?

- Over the past decade, CSX and NS have carried similar volumes of port containers; however, for the past few years, NS's volumes have been greater. NS numbers continue to be greater than CSX mainly because of ownership of the Interdom contract
- Several mergers have occurred in the container industry, most notably: Hapag Lloyd recently acquired CSAV (a Chilean shipping company) and Hamburg Sud acquired another Chilean carrier, CCNI. These acquisitions changed the dominant position that Interdom had held for several years
- South American cargo via rail to the Port is persistent. Previous contracts in other competing ports associated with the steamship line changes have shifted some rail volume away from Baltimore

### What Are Future Performance Strategies?

- Ports America is working with CSX to develop new operating arrangements that will bring new efficiencies to the Intermodal Container Transfer Facility (ICTF) with the goal of having Ports American Chesapeake (PAC) operate the ICTF and utilize existing economies of scale associated with their other operations at Seagirt
- The MPA has secured funding from TSO to start an intermodal rail incentive program. This goal will be to provide parity in the rail costs associated with Baltimore compared to competing ports despite not having double stack capabilities. The program is expected to begin once the new operating structure at the ICTF with PAC is completed
- MDOT and MPA are working with CSX as CSX investigates the possibility of making improvements to the existing rail route from the marine terminals to the Mid-West

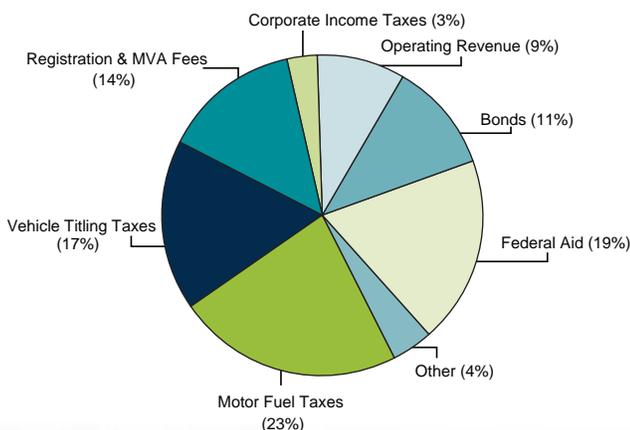


# System Finance & Mobility

## Promoting Environmentally Sustainable Transportation

MDOT is committed to a balanced transportation system that supports a sustainable future for all Marylanders. Through engaged leadership and strategic agency collaboration, MDOT prioritizes the protection of human health and natural resources, as well as the implementation of sustainable business practices. MDOT advances its commitment to environmental stewardship through rigorous environmental compliance, forward-thinking environmental initiatives, effective planning and employee commitment to achieving environmental performance objectives. To learn about MDOT's environmental initiatives, compliance actions and goals, please review the fourth goal chapter, Environmental Stewardship, which begins on page 33.

### MDOT Transportation Trust Fund Sources FY 2016–FY 2021 CTP



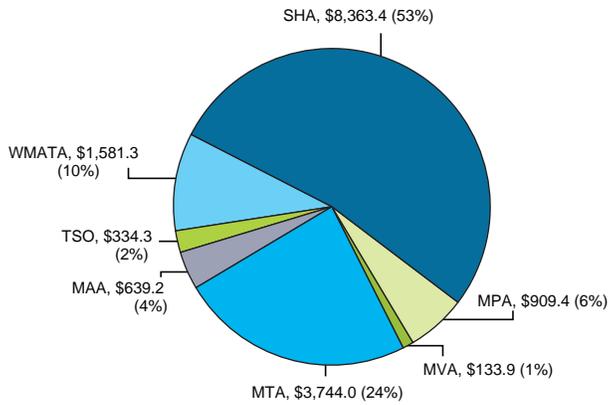
## Maryland's Investment in Transportation

Maryland's transportation investments are funded from the Transportation Trust Fund (TTF). The TTF is funded from a combination of motor fuel taxes, vehicle titling taxes, motor vehicle fees, federal aid, corporate income taxes, sales and use taxes, operating revenues, bond proceeds and other minor sources. To accomplish the Maryland Transportation Plan (MTP) goals and objectives, the FY 2016–FY 2021 CTP funds projects across all modes — addressing congestion relief, safety improvements, transit expansion and upgrades at the Port of Baltimore (the Port) and Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall). This multimodal approach allows Maryland to expend available funds efficiently, following the goals and priorities of the MTP. Maryland transportation business units' investments include \$1.2 billion is programmed in FY 2016 toward system preservation to fund maintenance of infrastructure assets. MDTA will allocate, out of separate MDTA funds, \$1.9 billion for system preservation and system enhancements through several MDTA projects. MDOT and its modes also track the "percentage of budgeted dollars expended" as a way to compare the budget with borrowing levels and to avoid unnecessary borrowing. In FY 2015, for example, MDOT expended 96% of its budgeted dollars, meeting its goal of 90%.

MDOT's capital and operating budget allocations, the FY 2016–FY 2021 CTP funding sources and capital and operating budgets by transportation business units and WMATA, are shown in the pie charts. As MDTA is independently funded through separate sources, its capital and operating budget are shown separately.



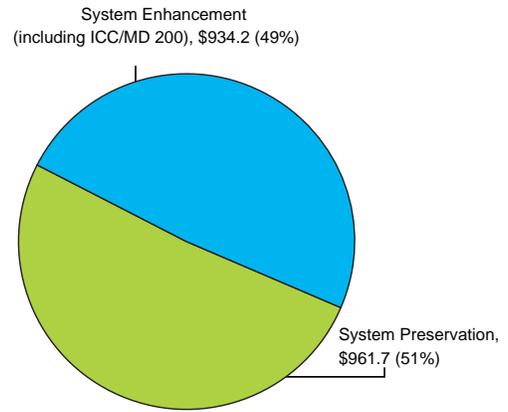
## MDOT Capital Budget (Millions) FY 2016–FY 2021 CTP



Total MDOT Capital Budget: \$15.71 Billion

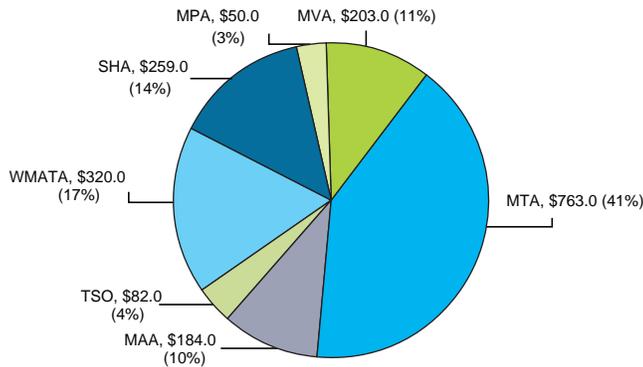
\*The FY 2016–FY 2021 CTP totals about \$15.5 billion; \$14.5 billion of which comes through the TTF and \$1.2 billion from "Other" fund sources, including earned interest from trust funds, reimbursements and miscellaneous revenues.

## MDTA Capital Budget (Millions) FY 2016–FY 2021 CTP



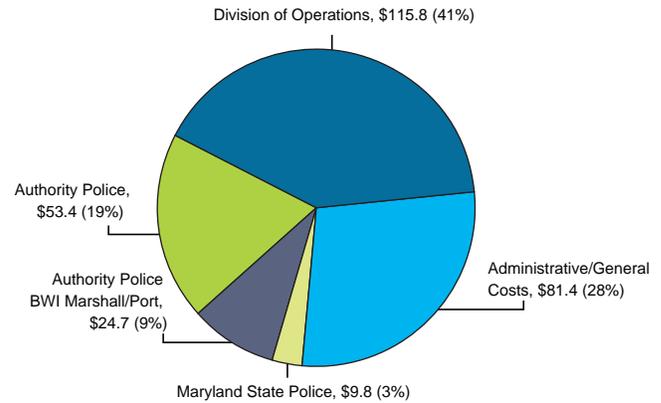
Total MDTA Capital Budget (Including ICC/MD 200): \$1.9 Billion

## MDOT Operating Budget (Millions) FY 2016



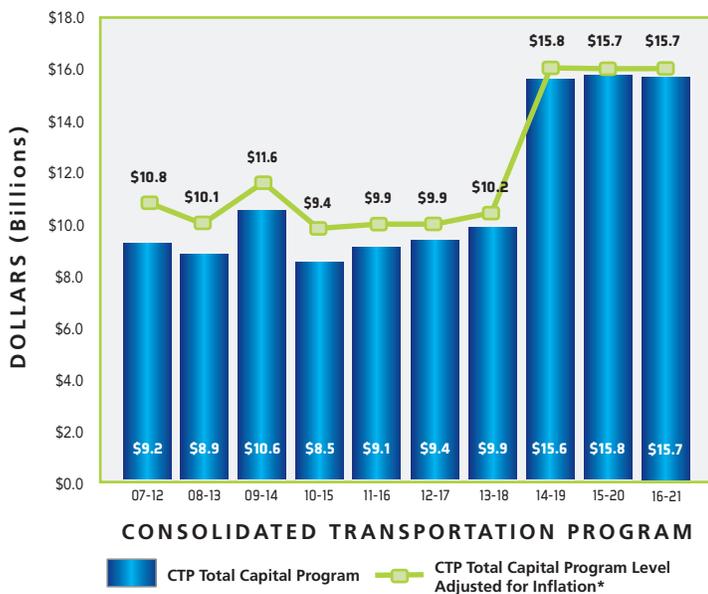
Total MDOT Operating Budget: \$1.86 Billion

## MDTA Operating Budget (Millions) FY 2016



Total MDTA Operating Budget: \$285.1 Million

## MDOT Total Capital Program Levels (Billions)



\*The inflation adjusted amounts are calculated using the Consumer Price Index (CPI), which measures the average change in prices of a variety of consumer goods and services.

The MDOT Total Capital Program Levels chart displays both the CTP Total Capital Program Funding Levels and CTP Capital Funding Levels adjusted for inflation. CTP Total Capital Program Levels (blue columns) represent the total capital program amount for each CTP expressed in the particular year's dollar value. In order to accurately compare CTP Total Capital Program Levels and their comparative purchasing power over the last 10 years, the CTP Capital Funding Levels are adjusted for inflation (green line).



# Transportation Mobility and Accessibility

## Strategic Investments and Approaches to Accommodate Travel Demand

Maryland continues to be a national leader in accommodating travel demand by providing safe, efficient, reliable and affordable transportation options through MTA's Local Bus, Light Rail, Metro Rail and Paratransit services, commuter rail (MARC) and commuter bus and by supporting all 23 of Maryland's counties Locally-Operated Transit Systems (LOTS) and WMATA Metrorail. The State also promotes alternative modes of transportation, such as bikeshare systems and multi-use trails.

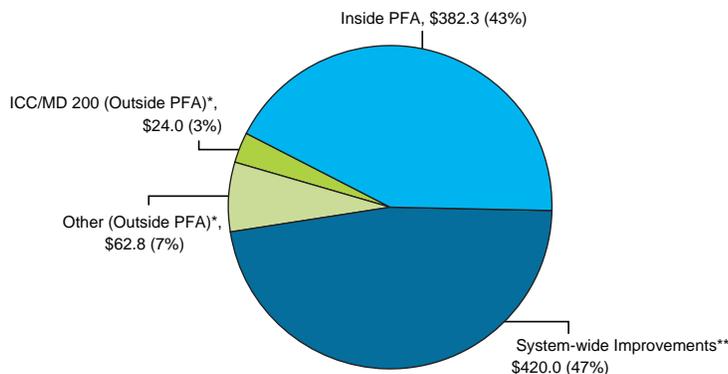
As Maryland's population increases and economic growth experiences an upturn, past experience and recent evidence suggest that we will see more demand for travel by people and freight. In Maryland, Vehicle Miles Traveled (VMT) has increased slightly with a total of 57.2 billion miles driven in 2015. At the same time, transit ridership on the MTA's core and commuter systems have increased in FY 2015, whereas ridership on LOTS have decreased slightly. These travel demand changes can be attributed to several factors in 2015 – the significant decrease in gas prices, social unrest in Baltimore during the summer of 2015, and the extreme temperatures, precipitation and length of the 2014-2015 winter season. MDOT anticipates and develops approaches to respond to demographic changes such as the aging Baby Boomer generation, technological changes that affect how we shop, drive and manage transportation systems, and increasing weather-related events that impact Maryland and the region's transportation network. Since each year brings new challenges and unexpected events that impact travel demand, MDOT is committed to monitoring changes and making timely adjustments to transportation networks or services.

Among the factors that have historically determined travel demand are population growth, growth in the school-age and working-age segments of the population, employment growth and the types of development that are built to accommodate that growth. Over the next 25 years, Maryland's population is expected to continue growing, particularly in urban centers in the Washington and Baltimore regions. By 2040, the Maryland Department of Planning projects Maryland's population will be nearly 6.9 million, an increase of 16% from 5.9 million in 2015. Jobs are also projected to grow, however, at a slower rate than the population - from 3.3 million in 2015 to nearly 3.6 million jobs in 2040, an increase of 9%. MDOT will closely monitor conditions on the transportation system and make adjustments to forecasts and corresponding policies and investment strategies as necessary.

The majority of planned and programmed projects in the FY 2016–FY 2021 CTP are focused on preserving the existing transportation system while accommodating and preparing for future travel demand. These projects include MAA plans to continue expansion/rehabilitation of BWI Marshall (parking, terminals and a new airport hotel), SHA focus on repair and rehabilitation of roadways, MVA Vehicle Emissions Inspection Program (VEIP) self-service kiosks at two locations, and MTA's addition of MARC weekend service. SHA is expecting with wider adoption of practical design principles, more funds will be available to apply to a wider array of mobility issues. As population and employment trends continue to evolve, Maryland will respond with projects and programs that address the most pressing challenges and issues in the state.

## FY 2015 MDOT Major Transportation Projects Spending within Priority Funding Areas (Millions)\*\*\*

The Priority Funding Areas (PFAs) Act of 1997 establishes growth areas designated by the local jurisdictions and the State as geographic areas for targeting strategic investment in state infrastructure. The State focuses investment on growth-related infrastructure within these PFAs, yet investments are also made in local roads and bridges that provide connections to PFAs.



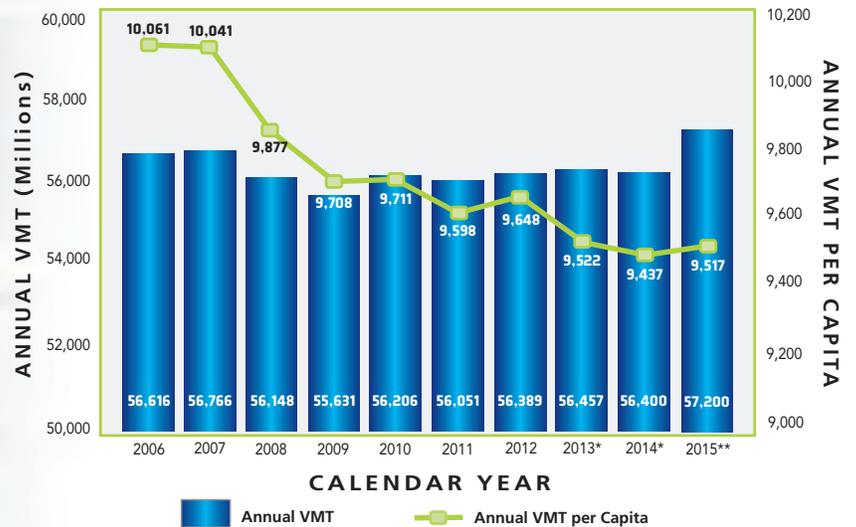
\* Expenditures related to "Funding outside of PFAs" includes projects underway prior to enactment of the Smart Growth Areas Act (therefore grandfathered) as well as exceptions granted in compliance with the statute. Exceptions include bridge replacements that did not add significant highway capacity as well as projects approved for exception by the Board of Public Works, such as the Intercounty Connector (ICC)/MD 200.

\*\*The category of "system wide improvements" includes funding for local transit assistance programs, the Maryland portion of the WMATA system, transit vehicle acquisition by MTA, and facility management system improvements by MVA.

\*\*\* Data is preliminary and subject to change.



## Annual Number of Vehicle Miles Traveled (VMT) and VMT per Capita



\* 2013 and 2014 data revised from previous Attainment Report.  
 \*\* 2015 data is preliminary and subject to change.

## MVA Transactions (Thousands)

	2008	2009	2010	2011*	2012*	2013*	2014*	2015
Number of registered vehicles	4,774	4,736	4,816	4,809	4,838	4,824	4,882	4,963
Number of drivers licenses issued	3,995	4,049	4,082	4,084	4,102	4,140	4,143	4,186
Number of motorcycle licenses	244	252	257	263	269	274	275	284
Number of Commercial Driver's Licenses issued	167	168	170	173	177	180	188	184
Number of transactions	12,388	12,263	11,011	11,880	11,995	10,315	10,756	11,117

\* 2011-2014 data revised from previous Attainment Report.

## Induced Travel

As additional capacity or efficiency is added to a transportation network, increases in users or travel demand can result, a result called induced travel. At its most basic, induced travel reflects the economic laws of demand, which states that consumption of a good increases as its price declines. Transportation system improvements that reduce congestion help to lower the generalized cost of driving, which encourages more vehicle use. However, induced travel does not negate the benefits of increasing roadway or transit capacity, but it changes the nature of the expected benefits. For example, roadway capacity expansion benefits are more associated with increased peak-period mobility rather than reduced traffic congestion, since additional traffic can also produce increased air pollution, noise or energy consumption.

The decision to expand roadway or transit capacity requires years of planning and engineering, and in Maryland, includes proactive management using a number of Travel Demand Management (TDM) strategies. MDOT also supports a variety of other TDM strategies that support the use of alternatives to the single-occupant vehicle, including ridesharing, transit, alternative work schedules and teleworking. MDOT provides funding to support Commuter Choice Maryland, Commuter Connections, Telework Baltimore and statewide park-and-ride facilities. In total, the combination of these programs are estimated to remove 2.83 million VMT annually from regional roadways.



# Balancing the Multimodal Approach and Providing Transportation Options

Maintaining a balanced multimodal approach requires insight and consideration of numerous factors by MDOT, examining population needs, rural versus urban areas, travel demand and differing travel preferences based on type of trip and type of household. Marylanders have an array of transportation options to travel; which options they choose to employ are largely influenced by factors such as the ease of access to options, time and cost. The most recent American Community Survey (ACS) report, in 2013, shows that fewer people are choosing to drive alone: 73% of Marylanders drove alone in 2013 compared to the national average of 76%. This small but important shift highlights the increasing prominence of alternative transportation choices such as transit and bicycling for commuters.

MDOT continues to advance comprehensive transportation options for residents and visitors alike, including: highways, transit networks, ridesharing, bicycle facilities and pedestrian networks. MDOT works to streamline the delivery of transportation services, options and infrastructure for commuters in both rural and urban areas, while ensuring that investment is balanced in a way that best meets the needs of the state's growing population.

Maryland is also advancing initiatives to promote and support walking and bicycling. These travel modes play a crucial role in supporting commute trips made by public transit. In FY 2015, MTA announced the addition of a new, full-size bike car enabling passengers on select MARC weekend Penn Line trains to bring full-sized bicycles onboard, and 100% of MTA's services on Local Bus/Express Bus/Light Rail/Baltimore Metro Subway (MTA Core Service) is bicycle accessible, which helps solve the first-mile/last-mile problem that transit riders often face. The State continues to advance comprehensive design standards for roadways that consider all users of the roadway, including pedestrians, transit, bicyclists and motorists. The Complete Streets Policy, adopted by SHA in 2012, impacts all divisions and influences how projects are developed from concept to final design. In 2015, \$15.0 million in reimbursable grant funding was made available for projects that enhance walking, biking, pedestrian safety and recreational trail access.



## Cycle Maryland

The Cycle Maryland initiative works to encourage Marylanders to get out and ride and to ensure that bicycling is a safe, viable and realistic alternative to driving. MDOT implemented the Maryland Bikeways in FY 2012, and the statewide Bikeshare Program in FY 2014.

**Bikeways Program:** MDOT's Bikeways Program supports local bicycle transportation projects, providing necessary funding to implement the Statewide Trails Plan and the Bicycle and Pedestrian Master Plan. The Secretary's Office (TSO) FY 2016 capital budget includes \$4.5 million for this program, including on- and off-road bicycle route connections, bike route signage, bike parking racks and safety improvements. The FY 2016–FY 2021 CTP dedicates just over \$204.7 million for bicycle and pedestrian projects, including \$12.3 million for future Bikeways Program grant awards.

**Bikeshare Program:** The Maryland Bikeshare program is a key component of the Cycle Maryland initiative, providing reimbursable grant funding to Maryland communities to establish or expand bikesharing programs. In 2014, Maryland opened its first bikeshare station in Montgomery County, which has since grown to 50 stations. A total of \$1,356,300 was dedicated to the Maryland Bikeshare program in 2015, of which \$881,300 was dedicated to establishing bikeshare in the city of Baltimore.

**Bike to Work Day:** MTA and SHA supported National Bike to Work Day activities; MTA and SHA supported National Bike to School Day activities.

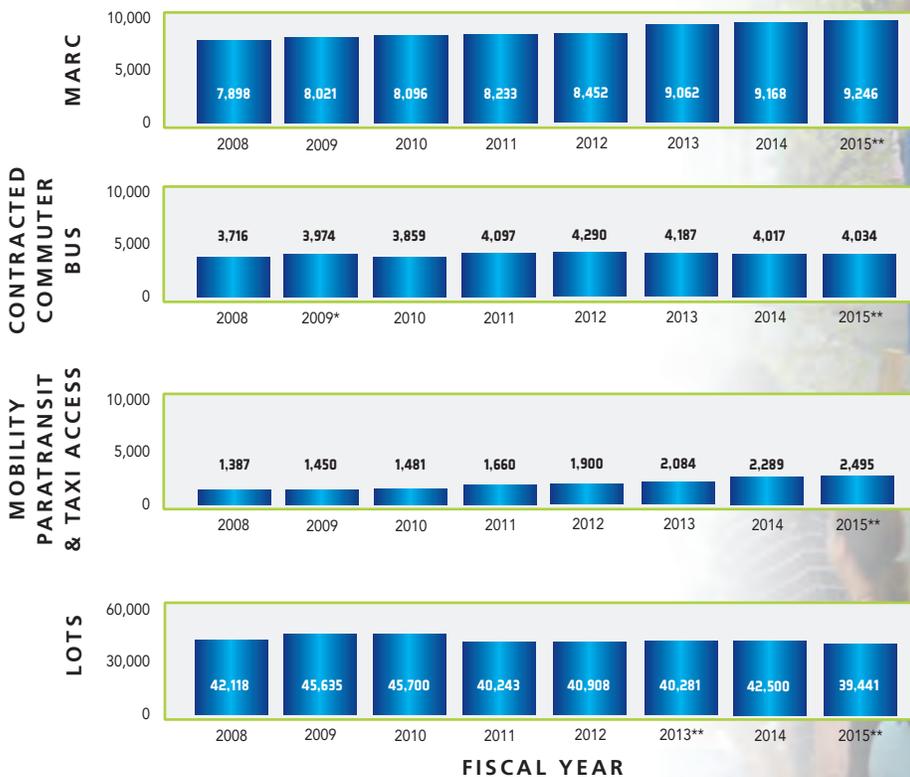
# Transit Ridership

Transit investments are strongly supported in the FY 2016–FY 2021 CTP, ranging from MARC service, Baltimore Metro, and support of Washington Metropolitan Area Transit Authority (WMATA) in the Capital Region, to support of LOTS across Maryland. MTA directs funding and statewide assistance to LOTS serving each of Maryland’s 23 counties, providing approximately \$133.9 million in federal and state grants in FY 2015. MTA continues to invest in transit infrastructure statewide, enabling Maryland’s residents and commuters to have safe, efficient and affordable transportation options. For example, MTA envisions \$467 million in MARC capital improvements between 2013 and 2019 and another \$1.8 billion for the following decade, according to the MARC Growth & Investment Plan (MGIP) 2013-2050 plan.

## Transit Ridership—MTA Direct-Operated Services (Thousands)



## Transit Ridership—Contracted Services and LOTS (Thousands)



\* 2009 Contracted Commuter Bus data was revised from previous Attainment Report.  
 \*\* 2015 data is preliminary and subject to change.



## WMATA Service in Maryland

MDOT has facilitated long-standing partnerships with WMATA, the District of Columbia and the Commonwealth of Virginia for years, united with the common goal to provide a comprehensive transit network through the region. Each jurisdiction contributes funding to WMATA's capital investments and system maintenance, and in FY 2015, close to 123 million passengers used the WMATA Metrorail, Metrobus and MetroAccess systems in Maryland. WMATA connects Marylanders to local and major regional transit modes, including: BWI Metrobus service at the Greenbelt Metro station, Montgomery County Ride-On, Prince George's County's TheBus, MARC, MTA Commuter Bus and Amtrak.

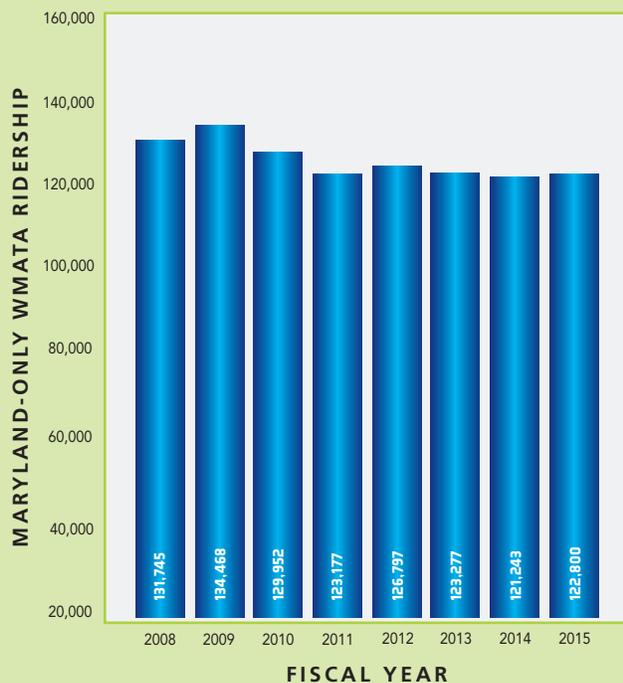
**Safety, security, reliability and customer satisfaction performance information is provided in the Metro Scorecard and Vital Signs Report: [www.wmata.com/about\\_metro/scorecard/](http://www.wmata.com/about_metro/scorecard/)**

**WMATA Capital Improvement Program (CIP):** WMATA's proposed \$7.0 billion FY 2016–FY 2021 CIP supports system rebuilding, Metro 2025 improvements and state of good repair investments. These latter investments include replacement of the 1000-series railcars, closing of outstanding FTA, Tri-State Oversight Committee and National Transportation Safety Board (NTSB) recommendations, upgrades to the train control system software, bus and paratransit fleet replacements, and ongoing rehabilitation of elevators, escalators, tracks and structures.

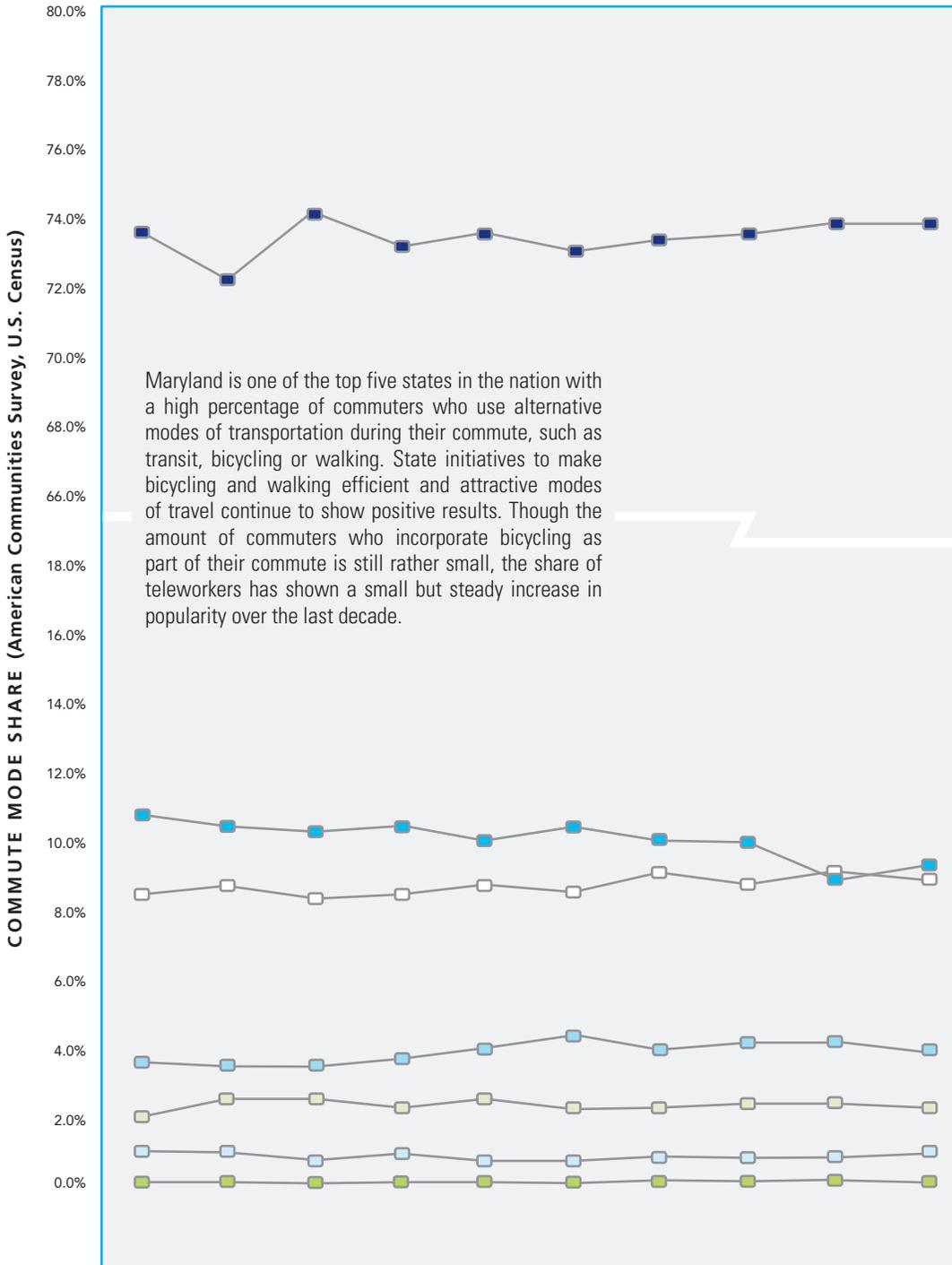
**Transit-Oriented Development:** MDOT has actively partnered with WMATA on Transit-Oriented Development (TOD) planning and joint development projects for several years, spanning multiple jurisdictions and station types. MDOT partners with WMATA to support joint development agreements at Metrorail stations including New Carrollton, White Flint and Branch Avenue stations.

**Bike and Pedestrian Access:** MDOT recognizes bicycle and pedestrian travel as integral elements of the broader transportation network, and supports investments in local bicycle transportation projects.

## Maryland-Only WMATA Ridership (Thousands)



# Mode Split for Maryland Commuters



Maryland is one of the top five states in the nation with a high percentage of commuters who use alternative modes of transportation during their commute, such as transit, bicycling or walking. State initiatives to make bicycling and walking efficient and attractive modes of travel continue to show positive results. Though the amount of commuters who incorporate bicycling as part of their commute is still rather small, the share of teleworkers has shown a small but steady increase in popularity over the last decade.

## Key Activities & Accomplishments to Promote Alternatives to Driving Alone

- 2007** MARC Growth & Investment Plan, SHA Bike & Pedestrian Design Guidelines
- 2008** Southern Maryland Commuter Bus Initiative, BRAC Action Plan
- 2009** ARRA—LOTS, MTA, & WMATA Projects, Ongoing Park-and-Ride Lot Expansion
- 2010** Guaranteed Ride Home Expansion, Maryland TOD Designation, MTA Charm Card
- 2011** ICC/MD 200 Commuter Bus, MARC Penn Line Service enhancement, MARC Rail Car and Locomotive Replacement
- 2012** Maryland Bikeways and Bikeshare programs
- 2013** Transportation Infrastructure Investment Act, MARC Penn Line weekend service, implementation of Bikeways and Bikeshare programs
- 2014** Inclusion of the streamlined Purple Line, and CCT in the FY 2016–FY 2021 CTP
- 2015** Announcement of BaltimoreLink, a \$135 million multi phase initiative to transform transit throughout the Baltimore metropolitan area, expansion of MARC Weekend Service and addition of new bike car service

## Key

- Drive Alone
- Carpool
- Transit
- Work at Home
- Walk
- Other
- Bicycle

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Drive Alone	73.6%	72.8%	74.3%	73.2%	73.4%	73.0%	73.3%	73.4%	73.9%	73.9%
Carpool	10.9%	10.7%	10.2%	10.8%	10.0%	10.7%	10.1%	9.8%	9.0%	9.3%
Transit	8.5%	8.8%	8.4%	8.5%	8.8%	8.6%	9.2%	8.9%	9.2%	9.0%
Work at Home	3.7%	3.6%	3.6%	3.8%	4.1%	4.3%	4.1%	4.2%	4.2%	4.1%
Walk	2.1%	2.6%	2.6%	2.3%	2.6%	2.3%	2.3%	2.5%	2.4%	2.3%
Other	1.1%	1.1%	0.7%	1.0%	0.7%	0.7%	0.9%	0.9%	0.9%	1.1%
Bicycle	0.2%	0.3%	0.2%	0.3%	0.4%	0.2%	0.3%	0.4%	0.4%	0.3%

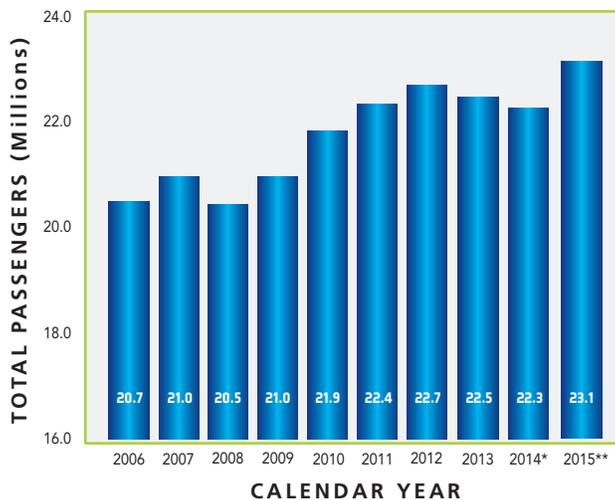


# Air Travel in Maryland

As evidenced by continued passenger growth, domestic visitors and international visitors continue to experience safe, convenient, first-class air travel at the 36 public airports in Maryland. The largest of those public airports, BWI Marshall, is a key destination for many domestic and international travelers, and in June 2015, saw its highest-ever amount of passengers in a month – a total of 116,000 passengers. Not only does this continued level of passenger growth indicate BWI Marshall's increasing ease and convenience for customers, but also its position as a vital economic engine for Maryland and the region. Through the state, MAA has funded approximately \$46.4 million since 2002 (excluding federal funds and local airport funds) to continue to support our vibrant and critical aviation future. MAA owns and operates Martin State Airport, a general aviation reliever facility and a support facility for the Maryland Air National Guard and Maryland State Police.

Maryland's tourism and economic sector strongly depends on the success of its 36 airports, which connect Maryland with jobs, tourism and freight suppliers for businesses. In FY 2015, just over 23 million passengers and 112,105 metric tons of cargo passed through BWI Marshall, an increase of 3.4% from FY 2014. Based on the most recent MAA Airport Economic Impact Study (released in 2015), just over 97,000 jobs, \$3.8 billion in personal income, \$7.0 billion in business revenue and \$1.6 billion in local purchases result from activity at BWI Marshall.

## Total Annual Commercial Passengers at BWI Marshall Airport



\* 2014 data updated from previous Attainment Report.

\*\* 2015 data is preliminary and subject to change.

The amount of international passenger traffic at BWI Marshall has continued to grow steadily in recent years, and in the first half of 2015, increased by 30%. In 2015, three new international destinations for BWI Marshall were added, increasing the airport number of nonstop airline markets served from 74 to 77 in 2015. In 2015, a combination of new carriers and expanded service prompted the June 2015 record-breaking international passenger traffic at BWI Marshall. In May 2015, WOW Air, an international low-cost airline, began service to Reykjavik, Iceland, with connections to other European markets. Southwest Airlines also added service this year, to San José, Costa Rica in March and to Los Cabos, Mexico in June. Condor Airlines added a third weekly flight between BWI Marshall and Frankfurt, Germany; and Spirit Airlines began offering service to Atlanta and Los Angeles from BWI Marshall. Other service destinations added or announced during the fiscal year include flights to Mexico, the Bahamas, Martinique, Guadalupe, Aruba and Jamaica. In addition, BWI Marshall is requesting proposals for the design, development, financing, construction and operation of an airport hotel, which will continue to enhance economic growth at BWI Marshall.

As a result of the record-breaking passenger traffic in 2015, the addition of new domestic and international markets, the rehabilitation of the D/E Terminal Connector and the addition of an airport hotel, it is expected that the coming years will continue to see growth in passenger traffic at BWI Marshall, on both domestic and international routes.

## The Port of Baltimore's Contributions to Maryland

The Port continues to handle a large variety of cargo and evolves to meet the demands of the global economy. With a 50-foot deep channel and berth, the Port is prepared to accommodate larger Post-Panamax cargo ships when the widened Panama Canal opens in 2016. Recent improvements to Port infrastructure are expected to bring \$1.8 billion in total investment and revenue for the State of Maryland over the life of the Port's agreement with terminal operator, Ports America Chesapeake. Estimated in a 2015 Economic Benefit Study, the Port generates 13,650 direct jobs while 127,600 jobs in Maryland are linked to port activities. The Port results in personal wage and salary incomes of \$2.9 billion, regional business revenue of \$2.2 billion, local purchases by businesses dependent on port activity of \$526 million and \$310 million in state and local tax revenues.

In 2015, Maersk and CMA CGM, two of the largest ocean carriers in the world, began serving the Port of Baltimore. Maersk now operates three container services through the Port enroute to the Far East, Mediterranean and Northern Europe, and CMA CGM operates container service between Northern Europe and New York, Baltimore and Charleston. With these and other new developments in the Port, cargo volume is on-pace to exceed record-breaking volumes observed during CY 2014. In FY 2015, MPA's billable cargo tonnage exceeded 13 million tons, representing an increase of over 8% over FY 2014. In addition to growth in the Port's cargo markets, the Port has continued to increase its presence in the commercial cruise line industry. In FY 2015, approximately 350,000 passengers passed through the Cruise Maryland Terminal, serving 83 cruises.

Environmental sustainability is an important objective of the Port, and in 2015, MPA continued to implement and expand a number of initiatives that support their environmental strategy, outlining three key objectives—clean water, healthy air and reduced energy consumption.



# Improving the Movement of Goods: Maryland Freight Activity

Maryland's freight transportation network supports the growth of Maryland's economy and its communities. Industry sectors in Maryland, including agriculture, mining, construction, manufacturing, wholesale and retail trades, warehousing, energy, and more, depend on safe and efficient movement of raw materials and/or finished products to support their business activities. These industry sectors compose 38% of Maryland's Gross State Product (GSP), and employ 45% of Maryland's workforce. These industries also contribute \$4.1 billion in tax and fee revenues to the State annually, as of FY 2013.

MDOT has completed a Strategic Goods Movement Plan, a data-driven policy guidance plan that recommends strategies for MDOT and relevant freight stakeholders over the next five years. MDOT also has a Statewide Rail Plan, which outlines investments and policies needed to ensure the efficient, safe and sustainable movement of freight and passengers by rail. This plan identifies more than \$9 billion in public and private railroad investment needs over 2015-2040 throughout the state. The Maryland Freight Lines Strategic Plan establishes an investment program for infrastructure upgrades to the State-owned short line rail system on the Eastern Shore of Maryland. Major and minor projects will enhance the efficient movement of predominantly agricultural and chemical imports and exports. Safe and reliable rail connections will encourage continued focus of freight-dependent business along the existing railroad corridor while preserving valuable rural agricultural land and natural resources.

## Performance Measures

MTP GOAL	2016 AR FREIGHT RELATED MEASURES	PAGE
<b>Economic Prosperity</b>	Freight originating and terminating in Maryland	8
	(MPA)—Port of Baltimore foreign cargo and MPA general cargo tonnage	9
<b>Safety &amp; Security</b>	(MVA/SHA/MDTA)—Annual number of traffic fatalities and personal injuries on all roads in Maryland	14
<b>System Preservation</b>	(SHA & MDTA)—Number of bridges and percent that are structurally deficient	20
	(SHA & MDTA)—Percent of roadway miles with acceptable ride quality	20
<b>Quality of Service</b>	(SHA)—Percentage of the Maryland SHA network in overall preferred maintenance condition	24
	(MPA)—Average truck turn-around time at Seagirt Marine Terminal	32
<b>Community Vitality</b>	(MPA)—Intermodal Containers moved by rail through the Port	46
	(SHA & MDTA)—Percent of VMT in congested conditions on Freeways/Expressways/Arterials in Maryland during the evening peak hour	46

MDOT continues to work with public and private sector stakeholders to address impediments to the movement of goods, and to prepare for the demands that continued population and economic growth will place on the State's transportation system in the future.

## Key Freight Initiatives

- MDOT is coordinating with Amtrak and the Federal Railroad Administration on the BWI Marshall Rail Station Improvement and 4th Track Project, Susquehanna River Rail Bridge Project, and the B&P Tunnel Project, to improve rail service reliability and address a longstanding bottleneck along Amtrak's busy Northeast Corridor for passenger and freight rail service.
- In 2015, MVA made scheduling commercial driver license (CDL) road tests faster and easier by launching an online appointment scheduling system. The system allows applicants to browse available test times at any or all of the MVA's 12 CDL driving test locations and to make an appointment to take a test, increasing efficiency and reducing wait times for commercial drivers.
- MDOT recognizes the truck drivers need safe and secure locations to park and obtain mandated amount of rest, and truck parking supply is not sufficient to meet current demand and projected need. Solutions require partnerships and innovative project delivery to expand truck parking capacity and availability, and evaluate current state-of-the-practice in truck parking availability technology systems.



# Glossary

GLOSSARY TERM	DEFINITION
<b>All Electronic Tolling (AET)</b>	Collection of tolls at highway speeds using <i>E-ZPass</i> transponders or video tolling; no toll booths or cash collection.
<b>Annual Attainment Report on Transportation System Performance</b>	Pursuant to Transportation Article Section 2-103.1 of the Annotated Code of Maryland, the State is required to develop or update an annual performance report on the attainment of transportation goals and benchmarks in the Maryland Transportation Plan (MTP) & Consolidated Transportation Program (CTP). The Attainment Report must be presented annually to the Governor and General Assembly before they may consider the MTP and CTP.
<b>Base Realignment and Closure (BRAC)</b>	BRAC is a Congressionally authorized process the Department of Defense has previously used to reorganize its base structure to more efficiently and effectively support U.S. forces, increase operational readiness and facilitate new ways of doing business.
<b>Calendar Year (CY)</b>	The period of 12 months beginning January 1 and ending December 31 of each reporting year.
<b>Coordinated Highways Action Response Team (CHART)</b>	CHART is an incident management system aimed at improving real-time travel conditions on Maryland's highway system. CHART is a joint effort of the State Highway Administration, Maryland Transportation Authority and the Maryland State Police, in cooperation with other federal, state and local agencies.
<b>Consolidated Transportation Program (CTP)</b>	A six-year program of capital projects, which is updated annually to add new projects and reflect changes in financial commitments.
<b><i>E-ZPass</i></b>	An electronic toll collection system utilized to provide a more efficient flow of traffic through MDTA toll facilities. <i>E-ZPass</i> toll collection is available at all eight MDTA toll facilities. The benefits of <i>E-ZPass</i> membership allow travel from Virginia to Maine and as far west as Illinois, with tolls paid from a Maryland <i>E-ZPass</i> account.
<b>Fiscal Year (FY)</b>	A yearly accounting period covering the time frame between July 1 and June 30 of each reporting year.
<b>Intercounty Connector (ICC)/MD 200</b>	All electronic toll-road from I-270 in Montgomery County to I-95 in Prince George's County.
<b>Locally Operated Transit Systems (LOTS)</b>	Transit systems that provide primarily bus service and demand response within the local areas in which they operate. They are funded through a combination of federal, state and local money. MDOT provides financial, technical and operating support for these services.
<b>Maryland Transportation Plan (MTP)</b>	The MTP is MDOT's long-range transportation policy plan and includes the vision, goals and objectives that provide the policy framework and context for Maryland's transportation programs and investments. The MTP sets Department policy for the 20-year period and is updated every five years.
<b>MPA General Cargo</b>	Foreign and domestic waterborne general cargo handled at the public (MPA) terminals.
<b>Port of Baltimore Foreign Cargo</b>	International (Foreign) cargo handled at public and private terminals within the Baltimore Port District. This includes bulk cargo (e.g., coal, sugar, petroleum, ore, etc. shipped in bulk) and all general cargo (e.g., miscellaneous goods shipped in various packaging).
<b>MAP-21</b>	On June 6, 2012, the President signed into law the Moving Ahead for Progress in the 21st Century (MAP-21) P.L. 112-141 - new legislation that will stabilize funding for highway and transit programs for two years and will set national, statewide and metropolitan transportation planning and policy direction. The federal bill did not increase funding levels and also did not address the long-term solvency of the Federal Highway Trust Fund.
<b>Mode</b>	Form of transportation used to move people or cargo (e.g., truck, rail, air).
<b>REAL ID</b>	The federal REAL ID Act of 2005 sets new standards designed to improve the integrity and security of State-issued driver's licenses and identification cards. The legislation contains 39 benchmarks for states to meet the requirements of the REAL ID Act. The full text of the REAL ID Act (including benchmarks) is available on the Department of Homeland Security's website at <a href="http://www.dhs.gov">www.dhs.gov</a> . General information about Maryland's involvement with the REAL ID Act is available on MVA's website at <a href="http://www.mva.maryland.gov">www.mva.maryland.gov</a> .
<b>Smart, Green &amp; Growing</b>	<i>Smart, Green &amp; Growing</i> is a long-range, statewide multi-agency initiative to help Maryland achieve a more sustainable future by linking community revitalization, transportation improvements, Smart Growth and environmental restoration efforts.
<b>State Report on Transportation (SRT)</b>	The SRT is prepared annually and distributed to the General Assembly, local elected officials and interested citizens. It consists of two documents, the Maryland Transportation Plan (MTP) and the Consolidated Transportation Program (CTP).
<b>Transit-Oriented Development (TOD)</b>	Transit-Oriented Development (TOD) is a land use strategy intended to promote efficient use of land and transportation infrastructure. TODs are places of relatively higher density, pedestrian-friendly development with a mix of land uses located within an easy walk of a bus or rail transit center. In 2008, the legislature adopted a definition of TOD. As defined in statute, a TOD is: "a dense, mixed-use deliberately-planned development within a half-mile of transit stations that is designed to increase transit ridership."
<b>Transportation Infrastructure Investment Act</b>	Signed into law on May 16, 2013, the Transportation Infrastructure Investment Act of 2013 (Transportation Act) - new legislation that will support thousands of jobs and invests an average of \$800 million a year at full implementation and a total of \$4.4 billion over the next six years (FY 2014 - FY 2019).
<b>Travel Demand Management (TDM)</b>	TDM strategies support the use of alternatives to the traditional single-occupant vehicle through a variety of programs and incentives (e.g., carpooling, car sharing, transit, park-and-ride facilities, teleworking and flexible work hours).
<b>Vehicle Miles of Travel (VMT)</b>	A measurement of the total miles traveled by all vehicles.

# Appendix: List of Performance Measures by Business Unit

MTP GOAL	PERFORMANCE MEASURE	DEFINITION
<b>Maryland Department of Transportation (MDOT)</b>		
<b>Economic Prosperity</b>	Freight originating and terminating in Maryland (value and tonnage)	Data is based upon the following sources, U.S. Department of Transportation Freight Analysis Framework (FAF3) Version 3. The data is adjusted yearly to account for previous year actual data and a 2% annual growth rate consistent with the Federal Highway Administration's Freight Summary 2008. BWI Marshall report to Airports Council International (2011); and MPA and U.S. Army Corps of Engineers (2010)
<b>Environmental Stewardship</b>	Transportation Emissions Reduction Measures (TERMs) <ul style="list-style-type: none"> <li>• Commuter Operations and Ridesharing Center</li> <li>• Employer Outreach (including Employer Outreach for Bicycles)</li> <li>• Guaranteed Ride Home</li> </ul>	TERMs and Travel Demand Management (TDM) strategies support the use of alternatives to the traditional single-occupant vehicle
<b>Environmental Stewardship</b>	Transportation-related emissions by region	Tons of Volatile Organic Compound (VOCs) and Nitrogen Oxide (NOx), precursors of Ozone, emitted per day for an average weekday from transportation sources in the Baltimore and Washington regions
<b>Environmental Stewardship</b>	Transportation-related greenhouse gas (GHG) emissions	GHG emissions primarily include carbon dioxide, methane, nitrous oxide, carbon monoxide, oxides of nitrogen and non-methane volatile organic compounds
<b>Maryland Aviation Administration (MAA)</b>		
<b>Economic Prosperity</b>	Number of nonstop airline markets served	Nonstop flights are direct to destination without connections
<b>Economic Prosperity</b>	Non-airline revenue per enplaned passenger (RPE)	Total non-airline revenue (ground transportation, parking, concessions, etc.) / Total enplaned passengers at BWI Marshall
<b>Safety &amp; Security</b>	Rate of airfield ramp incidents and accidents per 1,000 operations	Incident reports collected by MAA / 1,000 operations (take offs and landings)
<b>Safety &amp; Security</b>	BWI Marshall crime rate	Crimes include all crimes against persons or property at BWI Marshall facilities
<b>Safety &amp; Security</b>	Number of repeat discrepancies in the annual Federal Aviation Administration's Federal Aviation Regulation inspection	Annual FAA Part 139 Federal Aviation Regulation (FAR) assessment conducted by the Federal Aviation Administration
<b>Quality of Service</b>	Airline cost per enplaned passenger (CPE)	Total airline-related fees / Total enplaned passengers at BWI Marshall
<b>Quality of Service</b>	Percent of BWI Marshall customers rating the airport "good" or "excellent" on key services	Percent of customers giving a score of 4 or 5 (on a 5 point scale) for "Overall Satisfaction" and "How likely to fly from BWI Marshall on their next trip"
<b>Maryland Port Administration (MPA)</b>		
<b>Economic Prosperity</b>	Port of Baltimore foreign cargo and MPA general cargo tonnage	MPA general cargo includes foreign and domestic waterborne cargo; Port of Baltimore foreign cargo includes bulk and general cargoes within the Port District, but does not include domestic cargo
<b>Economic Prosperity</b>	Revenue, operating expense and net income	Total revenues compared to operating expense of MPA
<b>Economic Prosperity</b>	International cruises using the Port of Baltimore	Number of international cruises using the Port of Baltimore as a home port
<b>Safety &amp; Security</b>	MPA compliance with the Maritime Transportation Security Act of 2002	MPA activities in support of a compliance (Pass / Fail) rating from the U.S. Coast Guard
<b>System Preservation</b>	Dredged material placement capacity remaining for Harbor and Poplar Island sites	Monitors existing capacity remaining at Harbor and Poplar Island dredged material placement sites
<b>Quality of Service</b>	Average truck turn-around time at Seagirt Marine Terminal	Amount of time for a truck to enter the Terminal gate, drop off and/or receive a container, and exit the gate
<b>Environmental Stewardship</b>	Acres of wetlands or wildlife habitat created, restored or improved since 2000	Cumulative tally of acreage created, restored or improved for wildlife habitat
<b>Community Vitality</b>	Intermodal containers moved by rail through the Port	Tracks intermodal containers that are moved by rail through the Port. This is containerized freight movement to/from MPA's terminals (particularly Seagirt & Dundalk) via CSX or Norfolk Southern railroads

# Appendix: List of Performance Measures by Business Unit

MTP GOAL	PERFORMANCE MEASURE	DEFINITION
<b>Maryland Transit Administration (MTA)</b>		
<b>Safety &amp; Security</b>	Customer perceptions of safety on the MTA system	Average score for: Feeling safe while riding, while waiting at stops and stations, and for my vehicle left in an MTA parking lot
<b>Safety &amp; Security</b>	Preventable accidents per 100,000 vehicle miles	Preventable accidents are accidents in which drivers did not do everything they could to avoid an accident / 100,000 vehicle miles
<b>System Preservation</b>	Average fleet age of transit revenue vehicles	Average fleet age of revenue vehicles to understand the status of the fleet used to transport patrons. This indicates fuel consumption, energy efficiencies, preventative maintenance needs and repair expectations
<b>Quality of Service</b>	Percent of service provided on time	Baltimore Metro and Marc: Number of trips arriving on schedule. Local Bus: Calculated from data-transmitting buses tracking the number of time points arrived at on time divided by the total number of scheduled time points
<b>Quality of Service</b>	Operating cost per passenger trip	Total operating expenses / Number of unlinked passenger trips
<b>Quality of Service</b>	Operating cost per revenue vehicle mile	Operating cost for each mode / Total miles when vehicle is in service (not deadheading or down time)
<b>Quality of Service</b>	Customer satisfaction rating	Average score for: Overall satisfaction of each MTA service (Local Bus, Light Rail, Baltimore Metro and MARC)
<b>Environmental Stewardship</b>	Travel Demand Management <ul style="list-style-type: none"> <li>• Number of park-and-ride spaces—MTA Operated</li> <li>• Transit Multipurpose</li> </ul>	Transit lots are MTA owned; multipurpose lots are not MTA owned
<b>Environmental Stewardship</b>	Transportation Emissions Reduction Measures <ul style="list-style-type: none"> <li>• MTA College Pass</li> <li>• MTA Commuter Choice Maryland Pass</li> <li>• Transit Store in Baltimore</li> </ul>	TERMs and Travel Demand Management strategies support the use of alternatives to the traditional single-occupant vehicle
<b>Community Vitality</b>	Average weekday transit ridership	Ridership for Local Bus, Light Rail, Baltimore Metro, MARC, Contracted Commuter Bus, and Paratransit & Taxi Access
<b>Community Vitality</b>	Annual revenue vehicle miles of MTA service provided	Revenue vehicle miles are defined as each mile for which a transit vehicle is in service and accepting customers
<b>Maryland Transportation Authority (MDTA)</b>		
<b>Quality of Service</b>	Overall customer satisfaction of <i>E-ZPass</i> customers	Customer satisfaction based on customer satisfaction survey
<b>Quality of Service</b>	Percentage of tolls collected electronically	Toll collections by <i>E-ZPass</i> and Automatic Vehicle Identification/Total number of toll collections
<b>Motor Vehicle Administration (MVA)</b>		
<b>Safety &amp; Security</b>	Percent of Homeland Security REAL ID Act benchmarks achieved	Federal legislation contains 39 benchmarks for states to meet requirements of the federal REAL ID Act
<b>Quality of Service</b>	Branch office customer visit time versus customer satisfaction rating	Average visit time plotted against percentage of customers rating their MVA experience as "good" or "very good" (based on quarterly survey of customers)
<b>Quality of Service</b>	Alternative service delivery transactions as percent of total transactions	Transactions by alternative services (using a means other than a visit to an MVA branch) / Total transactions
<b>Quality of Service</b>	Cost per transaction	Operating costs and capitalized costs / Number of transactions
<b>Quality of Service</b>	Percent of information system availability compared to total number of records maintained	Includes availability of data records by type and systems up time
<b>Environmental Stewardship</b>	Compliance rate and number of vehicles tested for Vehicle Emissions Inspection Program (VEIP) versus customer wait time	Registered vehicles in non-attainment counties are scheduled for VEIP testing every two years. Compliance rate is the number of vehicles registered in non-attainment counties scheduled for testing / Number of registered vehicles in non-attainment counties tested

# Appendix: List of Performance Measures by Business Unit

MTP GOAL	PERFORMANCE MEASURE	DEFINITION
<b>State Highway Administration (SHA)</b>		
<b>Economic Prosperity</b>	Percent of roadway access permits issued within 21 days or less (after receipt of a complete application package)	Access permits are issued to parties desiring to perform work in the SHA right-of-way and/or for the construction of entrances and public streets connecting to the State roadways
<b>Economic Prosperity</b>	User cost savings for the traveling public, including commercial traffic due to incident management	Cost saving calculated using Coordinated Highways Action Response Team (CHART) incident response data
<b>Quality of Service</b>	Maryland driver satisfaction rating	Satisfaction rating based on weighted average score for 26 questions
<b>Quality of Service</b>	Percentage of the Maryland SHA network in overall preferred maintenance condition	Internal peer review assessment of roadway features of the total SHA lane-miles
<b>Environmental Stewardship</b>	Percent of compliance on erosion and sediment control ratings	A system of structural and vegetative measures that minimize soil erosion and off-site sedimentation
<b>Environmental Stewardship</b>	Total fuel usage of the SHA light fleet	Fuel used by fleet of State-owned cars, dispensed at SHA facilities that contains ethanol (SHA light fleet consists of sedans, SUVs, half-ton pickup trucks and vans that use gasoline or gasoline/ethanol blends)
<b>Environmental Stewardship</b>	Travel Demand Management <ul style="list-style-type: none"> <li>• Number of SHA park-and-ride spaces</li> <li>• Reduction in vehicle miles traveled through park-and-ride usage</li> </ul>	SHA operates a number of park-and-ride facilities to support TDM
<b>Community Vitality</b>	Percentage of State-owned roadway directional miles within urban areas that have sidewalks and percent of sidewalks that meet American's with Disabilities Act (ADA) compliance*	On SHA roads where pedestrian access is allowed and within urban areas as defined by the U.S. Census Bureau
<b>Community Vitality</b>	Percentage of State-owned roadway centerline miles with a bicycle level of comfort (BLOC) grade "D" or better and number of directional miles improved for bicycle access*	BLOC is an "A" to "F" scale, a formula based on many factors, including outside lane width, the presence of on-street parking, roadway speed and shoulder width and truck percentage, with the greatest driving factors being shoulder width, speed and truck percentage
<b>MEASURES SHARED BY BUSINESS UNITS</b>		
<b>State Highway Administration (SHA) and Motor Vehicle Administration (MVA)</b>		
<b>Safety &amp; Security</b>	Number of bicycle and pedestrian fatalities and injuries on all Maryland roads	Number of bicyclists and pedestrians killed / injured in traffic related crashes in a calendar year, on all Maryland roads including MDTA and locally owned facilities
<b>State Highway Administration (SHA), Motor Vehicle Administration (MVA) and Maryland Transportation Authority (MDTA)</b>		
<b>Safety &amp; Security</b>	Annual number of traffic fatalities and personal injuries on all roads in Maryland	The annual number of traffic fatalities and personal injuries on all Maryland roads including MDTA and locally owned facilities (the fatality and personal injury rate is calculated as fatalities and personal injuries per 100 million vehicle miles of travel)
<b>State Highway Administration (SHA) and Maryland Transportation Authority (MDTA)</b>		
<b>System Preservation</b>	Percent of roadway miles with acceptable ride quality	Percent of road with acceptable International Roughness Index (IRI) score
<b>System Preservation</b>	Number of bridges and percent that are structurally deficient	Number of bridges where at least one major structural element has a condition rating of four or less (on a scale from zero (closed to traffic) to nine (relatively new))
<b>Community Vitality</b>	Percent of VMT in congested conditions on freeways/expressways and arterials in Maryland during the PM peak hour	Annual average daily traffic / Number of through lanes

The logo of the Maryland Department of Transportation is a stylized orange and white graphic that resembles a speech bubble or a drop shape with a tail pointing downwards and to the right. It is centered behind the text.

## Maryland Department of Transportation

“The Maryland Department of Transportation is a customer-driven leader that delivers safe, sustainable, intelligent, and exceptional transportation solutions in order to connect our customers to life’s opportunities.”

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This document is prepared pursuant to Transportation Article Section 2-103.1 of the Annotated Code of Maryland.  
Additional copies are available by calling (410) 865-1277; Toll Free (888) 713-1414; or from the internet at [www.mdot.maryland.gov](http://www.mdot.maryland.gov).

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