



2019 ANNUAL ATTAINMENT REPORT

On Transportation System Performance

Implementing the Maryland Transportation Plan & Consolidated Transportation Program



Larry Hogan
Governor

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LARRY HOGAN

GOVERNOR

As Maryland's economy continues to grow and prosper, the performance of our State's transportation system is increasingly important to the quality of life of our citizens. Facilitating the movement of people and the flow of goods through our State directly impacts our ability to connect our citizens to life's opportunities.

Our administration continues to deliver transportation projects and solutions, which have improved our roads, bridges, transit systems, airports and the Port of Baltimore. Our balanced program of transportation investments has included key projects like the Purple Line in Prince George's and Montgomery Counties, the recent completion of BaltimoreLink, the Traffic Relief Plan, and dedicated funding for the Washington Metropolitan Area Transit Authority (WMATA). Through strategic investments in the State's economic engines, we have seen record growth in cargo at the Port of Baltimore, as well as an expanding number of passengers passing through the Baltimore Washington International Thurgood Marshall Airport. We continue to focus on our customers' experiences concentrating on projects, like the MDOT Motor Vehicle Administration's Customer Service Initiative, which reduces wait times at our facilities, improves our delivery options through the internet and kiosks, and reduces tolls and fees at our transportation facilities.

By measuring our progress with implementing efficient and effective transportation solutions, we will continue to be a leader in transportation performance, and define ways to move forward in the future.



PETE K. RAHN

**TRANSPORTATION
SECRETARY**

The Maryland Department of Transportation (MDOT) is a customer-driven transportation agency that directly touches the lives of Maryland residents and visitors. Each day, Maryland's transportation system provides a vital link in moving millions of people, goods, and services where they need to go. With a budget of \$5.1 billion in fiscal year 2018 and a dedicated workforce of nearly 11,000, MDOT is meeting our mission to be "a customer-driven leader that delivers safe, sustainable, intelligent, and exceptional transportation solutions in order to connect our customers to life's opportunities."

Each year, MDOT produces this Attainment Report (AR) detailing how well we are doing in meeting our new seven key goals: Ensuring a Safe, Secure, and Resilient Transportation System; Maintaining a High Standard and Modernizing Maryland's Multimodal Transportation System; Improving the Quality and Efficiency of the Transportation System to Enhance the Customer Experience; Providing Better Transportation Choices and Connections; Facilitating Economic Opportunity and Reducing Congestion in Maryland through Strategic System Expansion; Ensuring Environmental Protection and Sensitivity; and Promoting Fiscal Responsibility. Each of these goal areas is vital to Maryland's ability to be competitive in the global economy and attract businesses and individuals who want to set down roots in our State.

To maintain the highest standards that our customers expect, we must understand where we are succeeding and where extra effort is needed. The AR provides us with the performance measure information we need to make those decisions. The annual Consolidated Transportation Program (CTP) outlines where MDOT will be making investments in the coming years on our roads and highways, at the Port of Baltimore, in our transit systems, at BWI Marshall Airport and Martin State Airport, and all the various facilities that see thousands of people each day. The AR lets us know how we are doing with those investments and where we can improve because a department that stays the same makes no progress.

We have assembled an excellent team and are committed to getting the most out of every taxpayer dollar we spend. MDOT delivers for its customers through innovation, teamwork, accountability and enhanced communication. I invite you to review this Annual Report and welcome your feedback. Our Department will continue to work hard every day to meet and exceed your transportation needs and expectations.

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ONE MDOT—INTEGRATING MULTIMODAL TRANSPORTATION

The Maryland Department of Transportation (MDOT) has a unique ability to deliver an expansive and integrated multimodal transportation system that provides a superior experience to the people and businesses it serves. MDOT houses all of the State's transportation agencies in one organization, enabling an integrated approach to planning and investment that results in seamless connectivity between State Highways, toll facilities, transit, airports, ports, and motor vehicle and driver services. Implementation of the MDOT One Stop Shop (mdotonestopshop.maryland.gov), a website that puts transportation network information in one central location, further enhances this interconnectivity. The website serves to improve user experience in all modes of transportation and make MDOT information more accessible to the public.

This organization is ONE MDOT instead of six separate entities; one Department with each of the nearly 11,000 employees working together towards the mission of ensuring MDOT is "a customer-driven leader that delivers safe, sustainable, intelligent and exceptional transportation solutions to connect our customers to life's opportunities." The MDOT Secretary serves as Chairman of the Maryland Transportation Authority (MDTA), which owns, operates and maintains the State's eight toll facilities. While the Washington Metropolitan Area Transit Authority (WMATA) is not part of MDOT, the Governor appoints two Maryland WMATA Board members and MDOT staff work closely with those appointees and the other Board members to ensure efficient and effective transit services in the metropolitan Washington region.

MARYLAND TRANSPORTATION BUSINESS UNITS (TBU)

ACRONYM

MDOT TSO
 MDOT MAA
 MDOT MPA
 MDOT MTA
 MDTA
 MDOT MVA
 MDOT SHA

BUSINESS UNIT

The Secretary's Office
 Maryland Aviation Administration
 Maryland Port Administration
 Maryland Transit Administration
 Maryland Transportation Authority
 Motor Vehicle Administration
 State Highway Administration

The State of Maryland also supports:

WMATA Washington Metropolitan Area Transit Authority

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Highlights

BELOW ARE SOME OF MDOT'S PERFORMANCE RESULTS OVER THE PAST YEAR.

GOAL: ENSURE A SAFE, SECURE AND RESILIENT TRANSPORTATION SYSTEM

- In 2017, MDOT MAA implemented a new International Checked Baggage Inspection System to improve customer safety.
- MDOT MTA experienced a 36% decrease in crime between 2014 and 2017.
- MDOT MVA produced approximately two million driver's licenses using an enhanced design that offers a secure and convenient way to display identification documents.
- MDOT MPA distributed Radio Frequency Identification Device (RFID) tags to truck drivers for better tracking of processing times at Seagirt Marine Terminal.
- MDOT SHA and MDTA achieved bare pavement during winter snow events within an average of under four hours consistently, for the past eight winter seasons.
- Maryland has experienced an increase in serious injuries from traffic crashes, from 3,163 in 2016 to 3,342 in 2017. The fatality rate has shown an increase of four hundredths of a percentage point, increasing from 0.89% in 2016 to 0.93% in 2017. Increases are largely attributable to the corresponding increase in vehicle miles traveled (VMT) resulting from the economic recovery, MDOT works diligently to prevent injuries and fatalities by implementing the strategies in the Maryland Strategic Highway Safety Plan (SHSP).
- Bicycle crashes and injuries in Maryland are increasing as the overall volume of bicyclists and pedestrians have increased.
- Pedestrian fatalities increased by four from 2016 to 2017 and account for 21% of all fatalities on State of Maryland roadways based on 2013–2017 averages.

GOAL: FACILITATE ECONOMIC OPPORTUNITY AND REDUCE CONGESTION IN MARYLAND THROUGH STRATEGIC SYSTEM EXPANSION

- BWI Marshall Airport continued to be the busiest airport in the Baltimore-Washington region in FY 2017 and saw record passengers. MDOT MAA opened a new six-gate expansion of the International Concourse in Fall 2018, valued at \$115 million.
- The Port of Baltimore ranked nationally as: #1 in Autos and Roll-on Roll-off Heavy Equipment; #1 in imported Sugar, and Gypsum; #2 in exported Coal; #9 in the U.S. in value of foreign cargo (\$53.9 billion); and #12 in the U.S. in foreign cargo tonnage (38.4 million tons).
- The Port of Baltimore's public and private marine terminals handled a total of 38.4 million tons of cargo worth \$53.9 billion in 2017, the largest amount handled since 1979, and also handled more containers and cars/light trucks in 2017 than any previous year in its history.

GOAL: MAINTAIN A HIGH STANDARD AND MODERNIZE MARYLAND'S MULTIMODAL TRANSPORTATION SYSTEM

- MDOT Asset Management Team has been meeting throughout 2018 to develop a Strategic Asset Management Plan, MDOT SHA and Maryland Transit Agencies have also been developing Transit Asset Management Plans (TAMPs).
- MDOT SHA treated the pavements of half of all State Highway lane miles from 2015–2018 (nearly 8,500 miles).
- MDOT SHA addressed all 69 bridges that were identified as structurally deficient in 2015.
- In CY 2018, 85.6% of the MDOT SHA highway network is in overall preferred maintenance condition and, in CY 2018, 87% of the MDOT SHA and MDTA roadway network was in overall acceptable pavement condition.
- MDOT MPA initiated planning and design of a second 50-foot deep berth at Seagirt Marine Terminal to accommodate additional containerized cargo growth.
- MDOT implemented and pursued Public-Private Partnerships (P3s), particularly on innovative projects such as the \$5.6 billion Purple Line and the \$7.6 billion I-495 and I-270 Congestion Relief portion of the Traffic Relief Plan (TRP).
- MDOT MTA conducted necessary and critical rail work on Baltimore Metro SubwayLink to further enhance service, safety and reliability, and allow trains to move faster through this corridor.
- More MDOT MVA services are available 24 hours a day, seven days a week (24/7) including quick, convenient services (Alternative Service Delivery) at the branches. MDOT MVA also now enables vehicle tag returns through handheld tablets and certified driving records available at self-serve kiosks.



GOAL: IMPROVE THE QUALITY AND EFFICIENCY OF THE TRANSPORTATION SYSTEM TO ENHANCE THE CUSTOMER EXPERIENCE

- MDOT MTA launched CharmPass a mobile app that provides an efficient way to purchase mobile ticketing for BaltimoreLink, MARC train and Commuter bus. MDOT MTA has also partnered with the Transit App which provides real-time trip planning and departure times.
- Wait time at MDOT MVA branch offices experienced a 34% reduction from July 2014 (28 minutes) to July 2018 (17 minutes).
- MDTA's electronic toll transactions increased from 79% of all transactions in 2015 to 83% in 2018. MDTA also expanded hours of the *E-ZPass*® Maryland Customer Service Centers.
- MDOT SHA and MDTA's Dynamic Messaging Signs (DMS) received a customer satisfaction rating for usefulness and accuracy over 95% since 2017.

GOAL: ENSURE ENVIRONMENTAL PROTECTION AND SENSITIVITY

- The MDOT TBUs completed a comprehensive Energy Plan in 2018.
- MDOT MPA reduced emissions by 19% between 2012 and 2016 while at the same time increasing cargo throughput by 10% through modernization of cargo handling equipment, truck replacement and improved operational efficiency.
- Overall, 86% of the current MDOT SHA inventory of stormwater management facilities were functioning properly by the close of FY 2018. MDTA achieved its Total Maximum Daily Load (TMDL) environmental permit requirement to reduce impacts to the Bay.
- MDOT MVA installed ten 24/7 self-serve VEIP kiosks throughout the State and reduced the price for a self-serve VEIP test from \$14 to \$10.
- MDOT MAA procured 20-60' articulated Shuttle Buses powered by Clean Natural Gas (CNG) for transportation between the BWI Marshall Airport terminal and the Consolidated Rental Car Facility.

GOAL: PROMOTE FISCAL RESPONSIBILITY

- Since 2015, Maryland drivers have saved almost \$186 million due to reductions in tolls and fees.
- MDOT SHA's Coordinated Highways Action Response Team (CHART) reached a milestone of one million responses since the inception of the program in 1995. MDOT SHA's CHART incident management program saved motorists \$1.465 billion in user costs and helped reduce delays by 38.6 million vehicle hours in CY 2017.
- The average Cost per Enplaned Passenger (CPE) at BWI Marshall Airport continued to be the lowest in the Mid-Atlantic region at \$9.33 in FY 2018.
- MDOT TSO tracked projects that have reallocated funding or seen a decrease in expected expenditure due to more efficient time or resource management.
- MDOT MAA made strategic use of provided funding to maximize Federal Aviation Administration (FAA) investment in BWI Marshall Airport, Martin State and 33 other public-use airports throughout the State.

GOAL: PROVIDE BETTER TRANSPORTATION CHOICES AND CONNECTIONS

- BaltimoreLink increased transit connectivity in the Baltimore region, allowing MDOT MTA to provide increased service to several centers of employment throughout the region including new bus routes to Port Covington and Trade Point Atlantic, connecting both centers of employment to the larger metropolitan area.
- MDOT MTA experienced an overall decrease of 7% in transit ridership from FY 2016 to FY 2017, ridership declines are consistent with national trends, due to low gas prices, a recovered economy, and likely also due to rideshare options replacing transit trips. In 2018, MDOT's Commuter Choice Maryland promoted options to support alternatives to driving alone such as Guaranteed Ride Home, outreach to employers, promotion of the Maryland Commuter tax Credit, outreach for ridesharing, transit and telework.
- MDOT SHA improved 93.9 directional miles for bicycle access in FY 2017 and another 62.5 in FY 2018.



Introduction

GUIDING MARYLAND'S TRANSPORTATION SYSTEM

MDOT continually takes steps to plan, invest in and evaluate the transportation system to ensure it connects customers to key destinations and enables a growing economy. MDOT's strategic approach is presented through the State Report on Transportation (SRT) which is comprised of three documents: (1) the Maryland Transportation Plan (MTP), which sets a vision for transportation; (2) the six-year capital budget for transportation projects that is produced annually as the Consolidated Transportation Program (CTP); and (3) the Annual Attainment Report (AR) on Transportation System Performance which evaluates and reports on the performance of Maryland's transportation system, focusing on the goals adopted in the MTP. MDOT also evaluates its performance quarterly through the MDOT Excellerator performance management system to ensure the Department is delivering on its commitments to its customers and to respond quickly throughout the year to improve decision-making and performance.

For more information on the FY 2019–FY 2024 CTP, please visit: www.CTP.maryland.gov.

Maryland updated its MTP in 2018, and this AR reflects the 2040 MTP goals, objectives and strategies. For more information on the 2040 MTP, please visit: www.mdot.maryland.gov/MTP.

The AR tracks MDOT progress in advancing toward its goals and objectives, and the effectiveness of strategies and actions, based on performance measures. It also helps Maryland citizens provide feedback about their transportation system. The performance measures evolve and are updated periodically in a collaborative effort between MDOT TSO, the TBUs, and, every five years, with an AR Advisory Committee. The performance measures were updated this year, in the spring of 2018, with the AR Advisory Committee, based on the updated 2040 MTP Goals and Objectives. (Please visit: mdot.maryland.gov/ARAC).

MTP Goals

Ensure a Safe, Secure and Resilient Transportation System



Facilitate Economic Opportunity and Reduce Congestion in Maryland through Strategic System Expansion

Maintain a High Standard and Modernize Maryland's Multimodal Transportation System



Improve the Quality and Efficiency of the Transportation System to Enhance the Customer Experience

Ensure Environmental Protection and Sensitivity



Promote Fiscal Responsibility

Provide Better Transportation Choices and Connections



MARYLAND'S INVESTMENT IN TRANSPORTATION

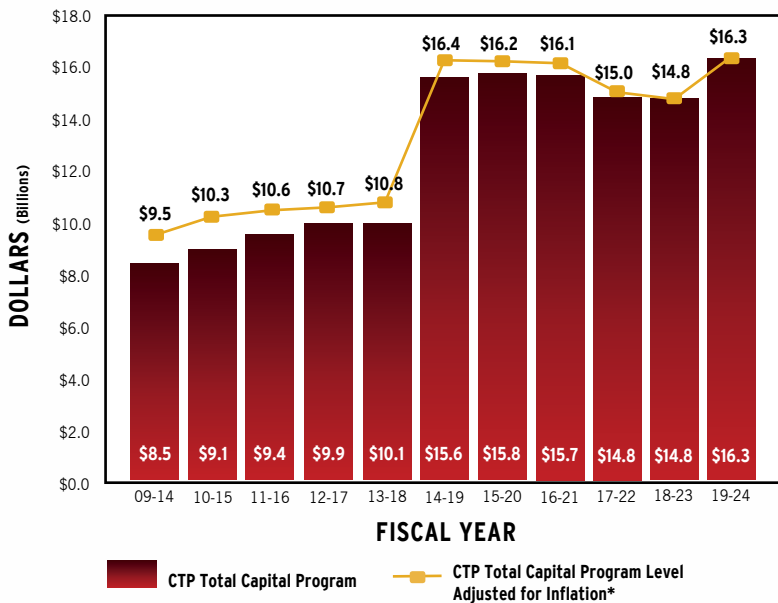
MDOT uses all available financial resources to maximize the efficiency and value of the transportation system. The main resource is the Transportation Trust Fund (TTF), MDOT's non-lapsing dedicated fund. This fund draws on motor vehicle fuel taxes, vehicle titling taxes, motor vehicle fees (such as registration), corporate income taxes, sales and use taxes, operating revenues, bond proceeds, federal sources and other minor sources. MDOT also actively pursues Public-Private Partnerships (P3s), particularly on innovative projects, such as the \$5.6 billion Purple Line and \$7.6 billion I-495 and I-270 portion of the Traffic Relief Plan (TRP). Public-private partnerships are also pursued on a smaller scale, where appropriate, such as various minor projects under the purview of MDOT TSO.

MDOT actively implements transportation strategies across modes to reduce congestion, improve the customer experience on the transportation system, expand transit and non-motorized options, and improve interconnectivity. In the FY 2019–FY 2024 CTP, Maryland anticipates spending approximately \$16.3 billion on transportation projects across the State including improvements to local roads, innovative transit solutions and freight facility improvements.

In the FY 2019–FY 2024 CTP, MDOT also allocated \$1.25 billion in system preservation projects for FY 2019. In FY 2019 \$868.2 million will go towards completing MDOT SHA safety, congestion relief, highway and bridge projects, a slight decrease compared with FY 2018's \$941.2 million program for these projects.



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.



TRANSPORTATION MOBILITY AND ACCESSIBILITY

As Maryland's population grows, its transportation landscape is adapting to accommodate demographic trends and new technologies. According to the U.S. Census, the State's population is expected to increase by 12% from 2017 to 2040 (6.052 million in 2017 to about 6.8 million in 2040). This population growth inevitably means more vehicles and vehicle miles traveled (VMT); 2018 forecasts 60.8 billion annual VMT, an expected 1.5% rise from last year's levels. More than ever, decisions regarding where to live and work or how to spend leisure time are shaped by what travel choices are available. These choices, in turn, are shaped by two main factors: mobility and accessibility. Mobility is defined by the ease of traveling along the transportation network, while accessibility describes the ease of reaching desired destinations or activities.

MDOT works to address mobility and accessibility in several different ways, beginning with the preservation and modernization of Maryland's existing transportation network. In Maryland, just over 2% of MDOT SHA maintained bridges are in poor condition, the lowest number since MDOT SHA began tracking and one of the lowest percentages of any state DOT. From 2015–2018, MDOT SHA treated pavement for half of all State Highway lane miles, spending more than \$260 million in FY 2018 alone. Pavement treatments include a variety of improvements from crack sealing to reconstruction. MDOT SHA invested in projects that expand capacity and reduce congestion, such as the widening of MD 32 from Linden Church Road to MD 108, the U.S. 50 Severn River Bridge widening, the southwest outer loop of I-695 expansion and the Innovative Congestion Management (ICM) project on I-270.

Other projects aim to increase the efficiency of MDOT's existing transportation system and services, such as the TRP's Smart Signals Program that invests \$50.3 million in more than a dozen corridors statewide, benefitting 700,000 drivers. Transit, biking and walking projects facilitate viable alternative travel options to driving to work alone. Since MDOT MTA opened the redesigned BaltimoreLink in 2017, an estimated 130,000 additional people are within a quarter mile access to frequent transit, i.e., transit that operates every 15 minutes or less during peak and midday periods. The FY 2019–FY 2024 CTP committed \$166.9 million to improving bicycle and pedestrian safety and access across the State through programs like Bikeways and the 2019 Bicycle and Pedestrian Master Plan Update.

The advance of new transportation technologies such as on demand transportation services, like Lyft and Uber, Connected and Automated Vehicles (CAVs), and other shared mobility services are expected to change travel behavior in the next few years and in coming decades. MDOT's embrace of these and other technologies, whether through testing or proactive regulatory policymaking, will ensure their integration into today's existing transportation network benefits its users. Opportunities to incorporate innovative technologies abound across MDOT's multimodal system, ranging from electric vehicle charging devices at regional rail and park-and-rides to fleet incentives for fuel-efficient freight flows. Maryland's Vision for CAVs is to uphold and enhance a safe, efficient and equitable transportation future by delivering collaborative and leading edge CAV solutions. Maryland is open for business and eager to realize the anticipated life-saving and economic benefits of CAV technology, while ensuring safety for all. MDOT is embracing CAV technology and innovation through continuing collaboration with partners interested in researching, testing and implementing CAVs in Maryland.

MARYLAND'S VISION FOR CONNECTED AND AUTOMATED VEHICLES

MARYLAND



safe | efficient | equitable
and open for business.



BALANCING THE MULTIMODAL APPROACH AND PROVIDING TRANSPORTATION OPTIONS

Through partnerships with local, non-profit, State and federal entities, MDOT orchestrates a multimodal network of travel options, including transit, highway, air travel, cycling, walking and ridesharing. These partnerships collectively envision a safe environment for all roadway users and a cohesive, comprehensive delivery of mobility services. Alternative travel modes, like biking and walking, play a key role in supporting overall transportation system mobility. Investments in bicycle and pedestrian infrastructure create safe alternatives to driving alone, reducing VMT and the overall demands on Maryland's transportation network. Biking and walking are important commuting and recreational resources, encouraging public health and spurring economic development in Maryland.

In 2018 MDOT made significant strides to advance transportation alternatives to driving alone. Construction continued on the MDOT MTA Purple Line, which will offer important new east-west transit service in the D.C. metro area. This line will ultimately carry nearly 75,000 riders each day. MDOT MTA is also modernizing existing services, including the purchase of 30 new MARC cars. This fleet accommodates bikes on board each of the three lines, complemented by 36 new or replaced bike racks at regional rail stations.

Federal and MDOT grant making supports these important multimodal options. In FY 2019, \$17.2 million in grants were announced for 43 projects supporting bicycle and pedestrian safety and connectivity. These funds include \$2.1 million from the Maryland Bikeways Program, as well as more than \$478,000 in federal funding from the Recreational Trails Program and \$17.8 million in federal funding from the Transportation Alternatives Program. MDOT also recently established a new State Transit Innovation Grant (STIG), awarding five grants in 2018 totaling \$515,377 to Baltimore City and Cecil, Charles, Howard and Queen Anne's counties for projects such as automated fare collection, real-time information services and security improvements that improve transit services in these communities.

Biking and Walking in Maryland

MDOT supports biking and walking through a series of policies, grant making and strategic partnerships. These efforts encourage cycling and walking as safe transportation alternatives in Maryland. MDOT also identifies opportunities for bike and pedestrian projects as components of larger projects throughout the State. Following is a description of the current MDOT biking and walking programs.

- **Bicycle Pedestrian Priority Areas (BPPAs):** The BPPA program focuses on planning bicycle and pedestrian facility improvements in areas with a high concentration of bicycling and walking, or areas identified for high-potential gains in alternative transportation mode share. State and local transportation agencies collaborate to align planning goals with innovative bicycle and pedestrian treatments.
- **Bicycle Retrofit Program (Fund 88):** This MDOT SHA system preservation program looks to increase bicycle connectivity and safety throughout the State Highway system by constructing bicycle facilities adjacent to State Highways or by retrofitting State roadways for on-road bicycle accommodation where no other projects are planned.
- **New Sidewalk Construction Program for Pedestrian Access (Fund 79):** This MDOT SHA system preservation program works to construct new sidewalks along State Highways where no other projects are planned. Projects are prioritized to complete gaps in the sidewalk network, provide access to transit or other public services and improve safety.
- **Sidewalk Reconstruction for Pedestrian Access (Fund 33):** This MDOT SHA system preservation program works to upgrade existing pedestrian facilities adjacent to State Highways to ensure compliance with the Americans with Disabilities Act (ADA) Accessibility Guidelines and MDOT SHA's Accessibility Policy and Guidelines for Pedestrian Facilities along State Highways.
- **Urban Reconstruction Program:** This program coordinates planning efforts between MDOT SHA staff and local stakeholders to promote safety and economic development on and around State roadways in urban areas.
- **The Recreational Trail Program** funds community-based, motorized and non-motorized recreational trail projects.
- **Maryland Bikeways:** This State-funded reimbursable grant program provides grant support for the design, construction and retrofits of Maryland's bicycle network. Projects maximize bicycle access by focusing on bicycle-friendly trails, last-mile connections to transit hubs and completion of MDOT's statewide trail vision.
- **Transportation Alternatives (TA) Program:** This program is a reimbursable federal aid funding program for transportation-related community projects designed to strengthen an intermodal transportation system, including the Safe Routes to School (SRTS) program.
- **State Transit Innovation Grant:** This competitive grant program, was established in 2018, with the goal of supporting local efforts to improve transit reliability, improving access and connections to activity centers and improving transit mobility options.



ECONOMIC DRIVERS IN MARYLAND

Air Travel in Maryland

Maryland is home to 35 public-use airports, the largest of those being BWI Marshall Airport, which provided 8,751 additional direct jobs since 2015, while supporting more than 106,000 jobs overall. In FY 2017, BWI Marshall Airport exceeded 26 million passengers and generated \$9.3 billion in total economic activity. These numbers reflect the variety that BWI Marshall Airport offers: 36 airlines operate in BWI Marshall Airport, with seven of those providing international service. In total, the airport serves 92 nonstop air markets, 13 international and 79 domestic. To ensure the continued success of BWI Marshall Airport, MDOT MAA has funded over \$379.6 million in major projects and \$187.4 million in system preservation projects. Some examples of the projects that help make BWI Marshall Airport competitive are the international concourse extension, midfield cargo area improvements and aircraft maintenance facility infrastructure.

The 34 other public airports in Maryland provide valuable connections to all parts of the State. To maintain these regional airports and the services they provide, MDOT MAA has funded over \$12.0 million in projects (excluding federal and local funds), including an investment of \$2.3 million in FY 2019. These investments support regional airports as additional transportation choices for passengers and cargo shippers who may seek access to specific markets. Ultimately, these regional airports connect people and goods to a global market and MDOT MAA seeks to facilitate access to that market through strategic investments. Martin State

Airport is one of these regional airports which functions as a "reliever" to BWI Marshall Airport by accommodating general aviation and corporate type aircraft, thereby improving the efficiency of commercial airline operations at BWI Marshall Airport. Martin State also has the distinction of being a joint civil/military public-use facility. It is home to the 175th Wing of the Maryland Air National Guard, as well as an aviation unit of the Maryland State Police, making it a key asset for the State when a natural disaster or threats occur.

Maryland's airports are constantly improving and offering more connections between the State and other locales. BWI Marshall Airport, in particular, has added seasonal service to Cozumel, Mexico as well as service to Montreal, Canada. Meanwhile, Iceland Air has returned to BWI Marshall Airport after a 10-year absence and started service to Reykjavik, Iceland while WOW Air expanded its service to Iceland during the summer period. Southwest Airlines, BWI Marshall Airport's largest carrier, is also considering expansion within the next 25 years and has continued to invest in infrastructure at BWI Marshall Airport in the interest of building its presence on the east coast. These new routes and critical airline stakeholder engagement will continue to support tourism and freight in Maryland while contributing directly to Maryland's economy.



Port of Baltimore

The Port of Baltimore is a critical economic asset that contributes nearly \$3 billion in personal wages and salaries for roughly 34,000 employees in Maryland, with 13,650 of those jobs directly provided by the Port, which then generate another 20,000+ indirect and induced jobs. The Port also generates more than \$300 million in State and local tax revenue each year.

Investments at the Port have given it the distinction as one of the first U.S. east coast ports capable of handling larger post-Panamax vessels. As a result, the Port has seen a 14% increase in container business since 2016, and set a record in 2017 by surpassing 800,000 cars and light trucks handled. The Port handled 38.4 million tons of cargo overall in 2017, the most in 38 years. By the end of 2018, this will likely increase thanks to a new roll-on/roll-off service to New Zealand and Australia and ongoing facility improvements.

Cruises also contribute to the Port's success, with two cruise ships (from Carnival and Royal Caribbean) using it as their home port. In FY 2018, the port welcomed 94 home port cruises carrying more than 216,000 passengers to destinations in the Caribbean, New England and Canada. In that same year, the Port welcomed nine international port calls bringing over 16,000 passengers to Maryland. To continue meeting the needs of cruise customers, MDOT MPA completed improvements to the Cruise Maryland terminal including a "VIP" lounge, public-address system, new signage and increased comfort for passengers as they embark on their journey and return home.

In addition, the Port is working to expand its highly-rated facilities. In 2018, the Governor's Office and Maryland Board of Public Works approved a contract to purchase additional land to handle cargo at the Port of Baltimore. The land was purchased in 2017 and will be used to process surging cargo volumes at the Port. Other investments are made on an as-needed basis, including dredging to maintain port operations and keep shipping channels clear and navigable.

The Port of Baltimore also remains conscious of its environmental impacts and works to mitigate those impacts. For example, it used dredged material to rebuild Poplar Island. The Port has also provided grants to replace 172 older dray trucks with more efficient, cleaner engines and continues to seek new ways to minimize the environmental impact of Port activities. As a result, the Port was selected to host the first North American GreenPort Congress in 2018.





Goal: Ensure a Safe, Secure and Resilient Transportation System

OBJECTIVES:

- Reduce the number of lives lost and injuries sustained on Maryland's transportation system
- Provide for the secure movement of people, goods and data
- Provide a resilient multimodal system by anticipating and planning for changing conditions and hazards whether natural or man-made
- Improve roadway clearance times and facilitate efficient and coordinated responses to emergency and disaster events throughout the transportation system

Safety within Maryland's transportation system is important to ensuring the orderly movement of goods and services within the State. With safety as MDOT's top priority, the goal of many roadway safety initiatives in Maryland is to reduce the number of roadway-related crashes, serious injuries and fatalities across the State. Recent increases in traffic-related deaths prompted MDOT Secretary Pete Rahn to issue a challenge to the more than 10,000 MDOT employees, to take the traffic safety pledge and agree to follow the State's highway and bicycle safety guidelines whenever they drive, ride or walk. Traffic safety starts at home among the individuals working for MDOT, which is why he urged every employee to lead by example and demonstrate safe behavior. MDOT also urges each and every Maryland citizen to accept this challenge, and follow the rules when traveling on Maryland roadways. For more information, see the safety pledge at <https://www.surveymonkey.com/r/MDOTsafetypledge>.

Several Maryland transportation plans focus on improving safety. The 2016-2020 Strategic Highway Safety Plan (SHSP) outlines goals, strategies and action steps to address roadway safety by focusing on priority areas including impaired driving, young drivers, distracted driving, seat belt usage and more. The SHSP and the Highway Safety Improvement Program (HSIP) outline the actual behavioral programs and infrastructure projects being implemented to reach zero fatalities on Maryland's roadways, in accordance with MDOT's Toward Zero Deaths goal. The current program objective is to reduce the 2008 fatalities and serious injuries by half in 2030 to work toward achieving zero deaths.



To enforce laws governing road safety, the MDOT MVA Maryland Highway Safety Office (MHSO), MDOT SHA, MDTA and Maryland State Police (MSP) collaborated throughout FY 2017 to address the State's most urgent safety challenges such as pedestrian crosswalk violations, impaired driving, speeding and seat belt usage. MDOT also implements the Maryland SafeZones Automated Speed Enforcement program, a joint effort involving MDTA, MDOT SHA and the MSP, to enforce speed limits along heavily traveled roadways by placing automated enforcement vehicles on some roadway shoulders in construction zones.

Safety and security priorities extend across MDOT. In early 2018, the Port of Baltimore was awarded the U.S. Coast Guard's highest security ranking for the ninth consecutive year. MDOT MTA also received national recognition for its safe operations for the fourth consecutive year. A national study by the Metropolitan Atlanta Rapid Transit Authority (MARTA), showed that MDOT MTA saw a 36% decrease in crimes between 2014 and 2017.

MDOT has also been developing vulnerability assessment data and resiliency plans to address current and future impacts of climate change on the state's transportation network. MDOT's TBUs are actively integrating data from vulnerability assessments into all aspects of planning and programming to ensure a resilient multimodal system.

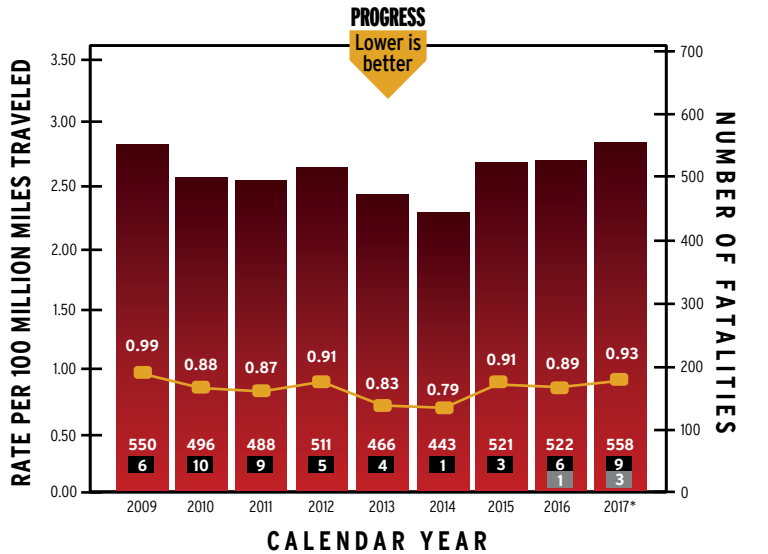
OBJECTIVE:

Reduce the number of lives lost and injuries sustained on Maryland's transportation system



ANNUAL NUMBER OF TRAFFIC FATALITIES & INJURIES ON ALL ROADS IN MARYLAND AND ON TRANSIT FACILITIES

ANNUAL NUMBER OF FATALITIES



- Annual number of traffic fatalities on all roads in Maryland (including MDTA-owned roads)
- Traffic fatality rate per 100 million miles traveled on all roads in Maryland
- Annual number of traffic fatalities on all MDTA-owned roads, a subset of total annual number of traffic fatalities on all roads in Maryland
- Annual number of transit passenger fatalities

Target: ≤0.64 traffic fatality rate on all roads in Maryland by 12/31/2020, ≤4 transit fatalities per year by 12/31/2020, ≤391 traffic fatalities on all MDTA-owned roads per year by 12/31/2020

* 2017 data is preliminary and subject to change.

Maryland supports the long-term goal towards zero deaths and is committed to adopting strategies to achieve that important milestone. Measuring bicycle, pedestrian and transit passenger fatalities and injuries illustrates Maryland's commitment to the safety of all transportation system users and informs the prioritization of investments and strategies to improve safety.

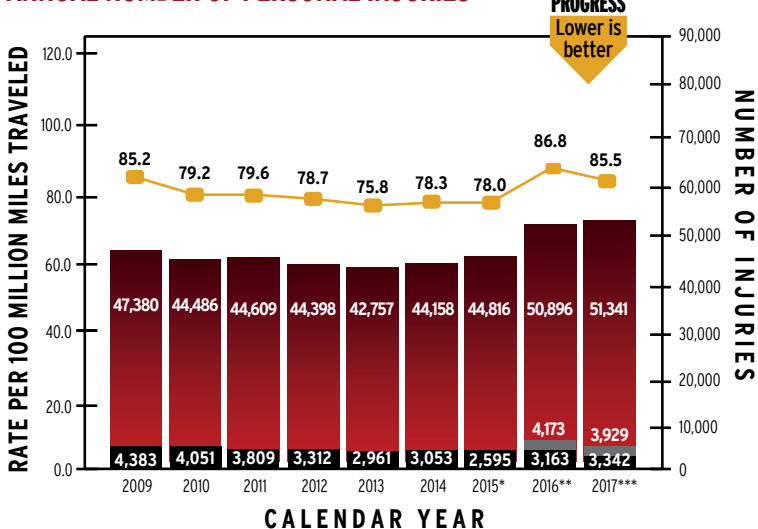
Why Did Performance Change?

- Piloted a Mobil-eye Camera system to help transit operators (drivers) see in blind spots
- Conducted high visibility traffic safety outreach and education campaigns to address critical traffic safety issues, including aggressive driving, impaired driving and occupant protection
- Increased seat belt use continues to be the most practical way to reduce fatalities (92.1% seat belt use in Maryland in 2017, which is above the national average of 89.7%)
- Continued to implement best practice approaches to maintaining safe roadway infrastructure, including the installation of rumble strips to reduce roadway departure and head-on crashes
- MDOT MTA worked with local jurisdictions to understand where preventable accidents are most likely to occur

What Are Future Performance Strategies?

- Develop and implement enforcement practices, identify and implement effective engineering and technological solutions, and conduct public awareness, training and media programs that address SHSP emphasis areas
- Promote and support legislation and adjudication to reduce aggressive, distracted and impaired driving, increase occupant, bicycle and pedestrian protection, and facilitate highway infrastructure-related improvements
- Evaluate and improve data quality (timeliness, accuracy, completeness, uniformity, accessibility and integration) for problem identification and program evaluation purposes
- Enhance and improve enforcement of adult and child occupant protection laws
- Identify intersections where the Crash Severity Index is high and implement safety improvements
- Complete Light Rail and Metro SubwayLink vehicle upgrades to enhance safety including installing new software and hardware that will assist MDOT MTA in monitoring performance and reducing accident frequency

ANNUAL NUMBER OF PERSONAL INJURIES



- Annual number of personal injuries on all roads in Maryland
- Personal injury rate per 100 million miles traveled on all roads in Maryland
- Annual number of serious personal injuries on all roads in Maryland
- Annual number of transit passenger personal injuries on all roads in Maryland

Target: ≤5.23 serious personal injury rate on all roads in Maryland by 12/31/2020, ≤5.073 serious injury rate of tansit passengers on all roads in Maryland by 2020

* Changes to law enforcement crash data collection has affected serious injury statistical reporting, since the implementation of the Automated Crash Reporting System (ACRS) on January 1, 2015.

** 2016 data has been revised from previous report.

*** 2017 data is preliminary and subject to change.



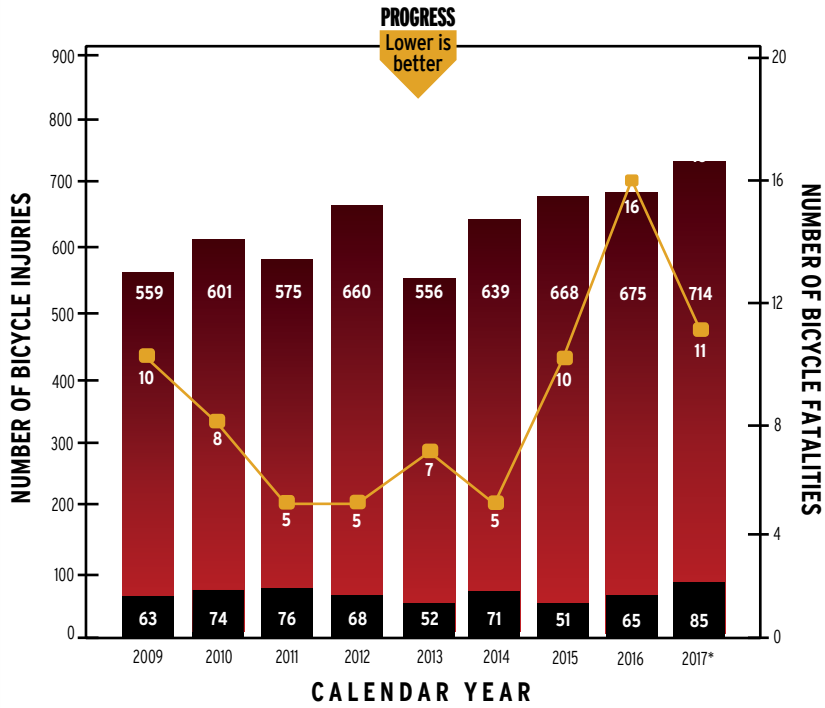
OBJECTIVE:

Reduce the number of lives lost and injuries sustained on Maryland's transportation system

NUMBER OF BICYCLE & PEDESTRIAN FATALITIES & INJURIES ON ALL MARYLAND ROADS



NUMBER OF BICYCLE FATALITIES AND INJURIES



■ Number of bicycle injuries on all roads in Maryland
—●— Number of bicycle fatalities on all roads in Maryland
■ Number of serious bicycle injuries on all roads in Maryland

Target: ≤5 bicycle fatalities per year by 12/31/2020 (2016-2020 average),
 ≤52 serious injuries per year by 12/31/2020 (2016-2020 average)
 * 2017 data is preliminary and subject to change.

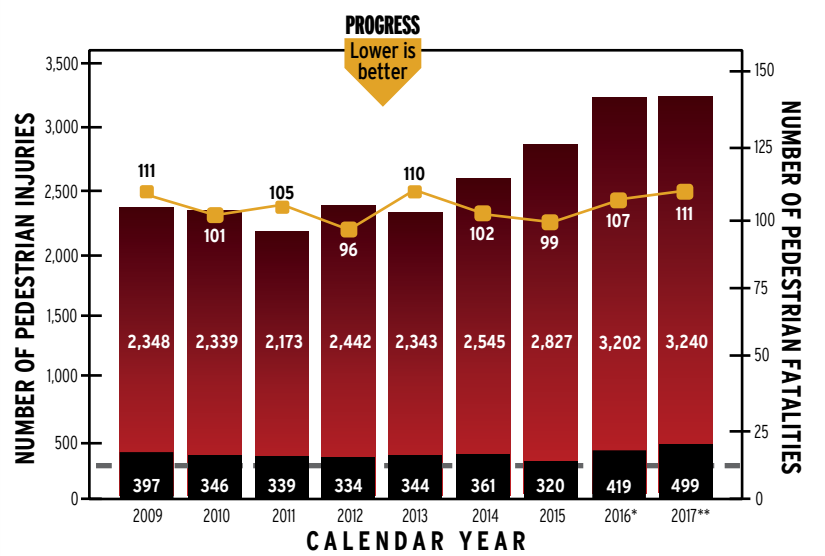
Why Did Performance Change?

- Increases in severe and fatal crashes are attributed to a change in police reporting and the increase in VMT
- Focused on strategies identified in the SHSP and continued to install bicycle improvements, such as marked bicycle lanes, where feasible
- Continued work with the MDOT SHA bicycle committee to improve bicycle guidance and policies pertaining to MDOT SHA roadways
- Identified and implemented engineering solutions identified in MDOT SHA Pedestrian Road Safety Audits (PRSAs) to improve pedestrian safety in high-incident locations
- Invested in the new statewide education and outreach campaign, "A Cyclist May Be Someone You Know" which features actual Maryland professionals who bike and share safety messages

What Are Future Performance Strategies?

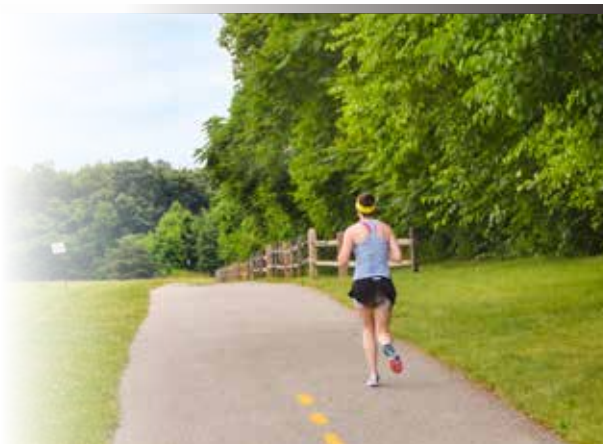
- Focus on geospatial analysis of crash data
- Coordinate with local governments to identify locations for approved innovative bicycle treatments, such as green pavement, cycle tracks, bicycle signal heads and other bicycle treatment
- Identify and target pedestrian and bicycle safety issues through the collection, analysis and evaluation of data
- Develop, apply and promote technological approaches, including those in vehicles and emergency response equipment, to better prevent and reduce the severity of collisions involving pedestrians and bicyclists
- Create and improve pedestrian and bicycle safety culture in Maryland, including the promotion and implementation of legislation and training of professionals and stakeholders about best safety practices
- Implement engineering treatments, land use planning and system-wide countermeasures
- Streamline the MDOT SHA PRSA reporting; develop a data management program to integrate seamlessly with eGIS portal developing recommendations that more readily fit into existing MDOT SHA funding programs

NUMBER OF PEDESTRIAN FATALITIES AND INJURIES



■ Number of pedestrian injuries on all roads in Maryland
—●— Number of pedestrian fatalities on all roads in Maryland
■ Number of pedestrian serious injuries on all roads in Maryland

Target: ≤78 pedestrian fatalities per year by 12/31/2020 (2016-2020 average),
 ≤293 serious injuries per year by 12/31/2020 (2016-2020 average)
 * 2016 data is revised from previous report.
 ** 2017 data is preliminary and subject to change.



OBJECTIVE:

Provide for the secure movement of people, goods and data

The introduction of new transportation technologies increases the importance of cybersecurity, respecting privacy, safeguarding data and facilitating trust. As the transportation system becomes more connected and technologically driven, the security of the transportation system becomes more important to transportation planning for state DOTs. MDOT is invested in ensuring the privacy and security of transportation data. Information technology (IT) improvements are planned in Network Maryland and the Center for Internet Security Multistate Information Sharing and Analysis Center (MS-ISAC). MDOT is also working to develop and implement a comprehensive SMS for aviation, establishing a formalized process for consideration of operational risk factors related to infrastructure development projects. It will also continue to upgrade security infrastructure such as closed-circuit television, security cameras and other technology on the multi-modal transportation system. MDOT MVA introduced a new driver's license design that offers a secure and convenient way to display identification documents.

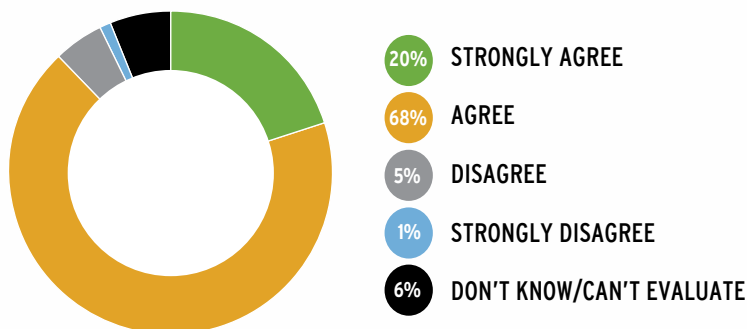
MDOT-WIDE OVERALL PERCEPTION OF SAFETY: CRIME AND SAFE MOVEMENT



Customer surveys determine if MDOT is successful in its efforts to provide a safe transportation experience. This survey provides an indication of transportation system users' overall perception of safety in the entire Maryland transportation system, and their experience with crime while utilizing the transportation system. The safety customers feel while using the system is an important indicator of their future or continued use of MDOT's transportation assets.

PERCEPTION OF SAFETY ON THE MARYLAND TRANSPORTATION SYSTEM (Including BWI Marshall Airport, Ports, Roads, Transit)

MDOT Survey question: I feel safe on the Maryland transportation system



Why Did Performance Change?

- MDOT SHA's Coordinated Highways Action Response Team (CHART) incident management program handled 152,482 events
- MDOT SHA and MDTA achieved bare pavement on primary and interstate highways during winter events in fewer than four hours, on average for the past eight winter seasons
- MDOT MTA continued safety and security programs such as unannounced and highly visible police sweeps of facilities and CompStat, a weekly review of all reported incidents
- MDOT MTA continued use of closed circuit television (CCTV) and created a Mobile Field Force Team, a deployable team of officers with special crowd control equipment and training
- MDOT MTA initiated the Light Rail Fare Evasion Prevention Program to reduce crime and fare evasion
- MDOT MAA ensures security through coordination with MDTA Police, the Transportation Security Administration (TSA) and operations personnel, and through application of technology (cameras, sensors, CCTV), hardened facilities (fences and gates) and police presence in terminals

What Are Future Performance Strategies?

- MDOT MAA will continue perimeter hardening improvements at MDOT MAA facilities and will incorporate the latest security technologies for all phases of the passenger travel experience
- MDOT MAA will maintain adequate emergency response facilities to accommodate growing passenger and airfield demands
- MDOT SHA will continue an aggressive bridge rehabilitation and preservation program
- MDOT SHA and MDTA will assure adequate anti-icing equipment is available and under contract to enable its shops to anti-ice their entire State-maintained network, as needed
- MDTA and MDOT MTA will continue to review crime data on a weekly basis and utilize the information for resource allocation, targeted enforcement and determination of areas of security concern

OBJECTIVE:

Provide for the secure movement of people, goods and data



PREVENTABLE ACCIDENTS PER 100,000 VEHICLE MILES

MDOT MTA has developed a baseline from which to target preventable accidents on transit to reduce fatalities and injuries, increase efficiency and provide a safer ride to customers.

PROGRESS
Lower is better

CALENDAR YEAR	2011	2012	2013	2014	2015	2016	2017	2018	TARGET
Preventable Accidents Per 100,000 Vehicle Miles									
Core Bus	2.61	2.43	1.49	1.42	1.43	1.54	1.54	1.44	1.50
Light Rail	0.13	0.24	0.03	0.06	0.14	0.24	0.02	0.03	0.25
Baltimore Metro	0.10	0.06	0.00	0.00	0.00	0.06	0.06	0.02	0.06
Paratransit/Taxi Access	0.48	1.74	1.55	1.10	0.79	1.04	1.04	0.77	1.00

Why Did Performance Change?

- Better training for MDOT MTA operations staff
- Piloting Mobil-eye Camera system to help operators see in blind spots
- MDOT MTA Operations Control Center (OCC) working with the local jurisdiction to understand where preventable accidents are most likely to occur

What Are Future Performance Strategies?

- Continue to improve training of MDOT MTA staff
- Vehicle upgrades to the Light Rail and Metro SubwayLink will enhance safety
- New FTA SMS policies targeted towards reducing preventable accidents

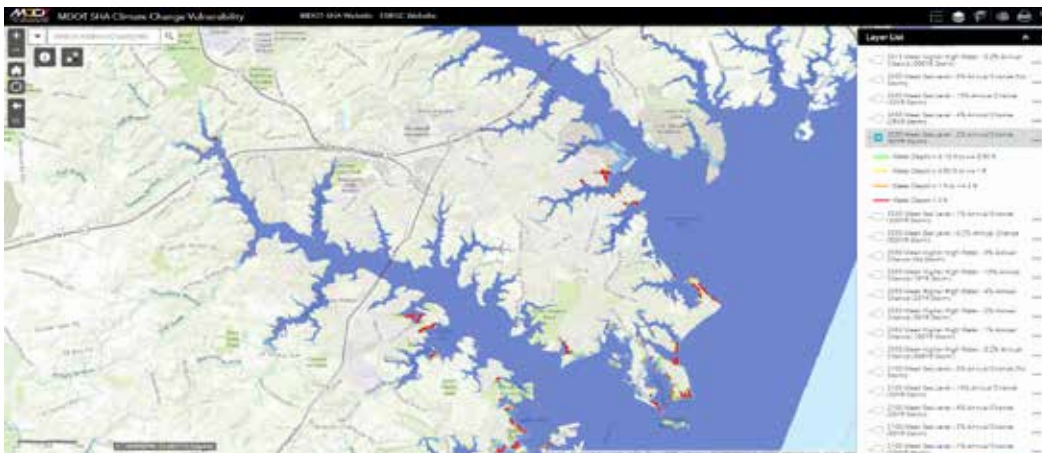


OBJECTIVE:

Provide a resilient multimodal system by anticipating and planning for changing conditions and hazards, whether natural or man-made

Transportation systems are critical infrastructure designed to operate under defined conditions. However, disruptions to those conditions, such as a storm or incident, are inevitable and can have a significant impact on the transportation system and user safety. MDOT is dedicated to improving the resiliency of the State's multimodal transportation system through vulnerability assessments of future conditions and our ability to recover from disruptions. MDOT tracks the readiness of emergency personnel dedicated to emergency response by ensuring awareness and understanding of the National Incident Management System (NIMS) and Incident Command System (ICS). NIMS is a consistent, nationwide approach for government agencies at all levels, along with non-government agencies, to work effectively and efficiently during all incidents. NIMS, combined with ICS, is an integrated comprehensive approach to domestic incident management, crisis management and consequence management. There are several approaches to resiliency. MDOT adaptation strategies such as innovative design in new construction, relocation, and other protective or adoptive measures to address existing and potential future network disruptions.

With over 17,000 lane-miles of roadway and nearly 2,900 bridges on the MDOT highway network, MDOT is planning for resiliency of these critical transportation assets. As MDOT needed a way to systematically identify vulnerabilities, rank the importance of its extensive assets, and define solutions to improve the system's resiliency to a changing climate, it worked with federal, university and local partners to develop a Climate Change Vulnerability Viewer tool for the Maryland shoreline and roadways, that offers maps and data of observed and projected climate variables. For roadways and bridges that are potentially vulnerable to various climate-related threats, MDOT can take action to develop adaptation or protective measures to increase the resilience of the transportation network. This information is also shared with local partners as a communication tool with an intent to develop collaborative strategies or as additional information for their planning purposes.



The image to the left depicts a screen of a geographic information system (GIS) tool that MDOT uses to identify and address vulnerable locations. Based on the insights of this analysis and other agency information, MDOT works with its partners to ensure resiliency of the Maryland transportation system.

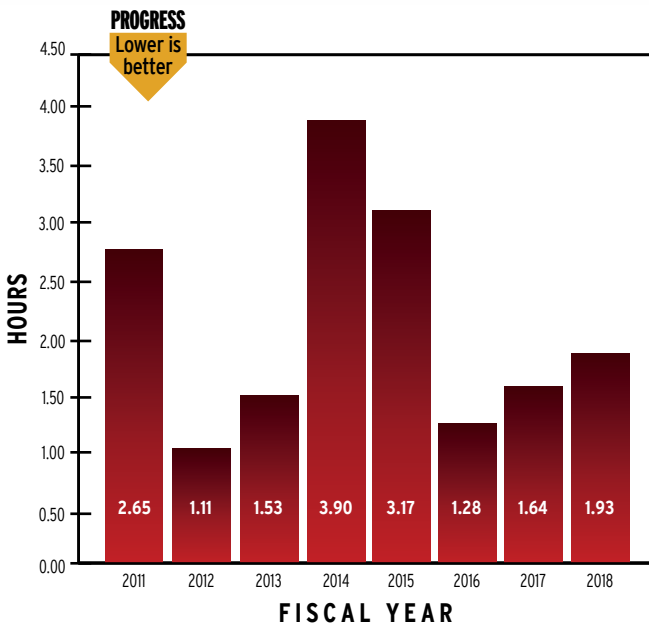
OBJECTIVE:

Improve roadway clearance times and facilitate efficient and coordinated responses to emergency and disaster events throughout the transportation system

RESTORING TRANSPORTATION SERVICES: AVERAGE TIME TO RESTORE NORMAL OPERATIONS AFTER A WEATHER EVENT



A safe, well-maintained, efficient and reliable transportation system with minimal disruption is important to Maryland's residents, businesses, and for emergency services. Disruptions in the transportation system due to inclement weather require specialized operations experience and response to restore normal operating conditions. This measure illustrates Maryland's efficiency in quickly restoring transportation services on primary and interstate highways after weather events (up to eight inches of snow).



Target: 4 hours of fewer to regain bare pavement

Why Did Performance Change?

- MDOT SHA added more contract anti-icing equipment allowing the anti-icing of more State Highways closer to the starting time of events
- After a successful rubber/ceramic plow blade pilot from the 2016-2017 winter season, MDOT SHA added new specifications to the existing Department of General Services (DGS) contract for plow blades, to utilize this new technology
- Internal upgrades to the Emergency Operations Reporting System (EORS) were made to improve data integrity
- Direct Liquid Application (DLA) can deplete brine resources quickly; therefore, MDOT SHA procured an additional 196,000 gallons of brine storage tanks and strategically placed them statewide

What Are Future Performance Strategies?

- Ensure adequate supplies of brine storage tanks statewide for DLA operations and expand MDOT SHA DLA program to all seven districts and increase the number of routes using DLA
- Train 20% of MDOT SHA maintenance personnel in winter operations (in the required Snow College) annually so that 100% of employees are trained at least once every five years
- Procure additional loader scales to improve snow operations and assure adequate contract anti-icing equipment to enable MDOT SHA shops to anti-ice their entire State-maintained highway network





Goal: Facilitate Economic Opportunity and Reduce Congestion in Maryland Through Strategic System Expansion

Invest in and pursue opportunities to promote system improvements that support economic development, reduce congestion and improve the movement of people and goods

OBJECTIVES:

- Pursue capital improvements to the transportation system that will improve access to jobs and tourism and leverage economic growth opportunities
- Improve the movement of goods within and through Maryland by investing in intermodal connections and improvements to reduce freight bottlenecks
- Strategically invest in expansion and operational improvements to reduce congestion along the multimodal transportation system

Maryland's economic success is closely tied to its extensive transportation system. Highways, railways and buses transport residents and visitors to their jobs, homes and vacation destinations throughout the State. Airports and the Port of Baltimore connect businesses with external goods and talent, from domestic and international markets. Trucks carrying billions of dollars of product annually traverse the State's roadways, along with railcars, container ships and cargo planes that also contribute billions of dollars of revenue within Maryland. A strategic investment in the transportation system is, therefore, a strategic investment in continued economic success and expansion.

MDOT SHA is proactive in its facilitation of economic opportunity. There are approximately \$3.6 billion worth of Maryland transportation projects including 470 construction projects. A \$281 million project on I-695 between I-70 and MD 43 will convert the shoulder for peak period travel use and upgrade the I-695/I-70



interchange in Baltimore County. Additionally, MDOT SHA has entered a \$7.6 billion Public-Private Partnership (P3) focused on adding managed lanes to I-495 and I-270 in Montgomery, Prince George's and Frederick counties.

MDOT MPA also continues to contribute to the economic prosperity of Maryland, recording a 14% increase in its container business between 2016 and 2017. The Port remains one of the few East Coast ports capable of receiving fully-laden post-Panama Canal expansion container ships. The Port of Baltimore generates about 13,650 direct jobs and 20,270 induced and indirect jobs which are responsible for \$2.9 billion in personal wages and salary and \$310 million in State and local tax revenues. In total, approximately 127,600 jobs in Maryland are linked to port activities. In addition, the average salary of a port generated direct job is 16% higher than the average Maryland salary.

BWI Marshall Airport also continues expanding, remaining the busiest in the Washington, D.C. area. More than 26 million passengers passed through BWI Marshall Airport in 2017, while several new international and domestic routes were added. Air cargo in Maryland also increased 40% from 2016 to 2017, and continues to increase in 2018.

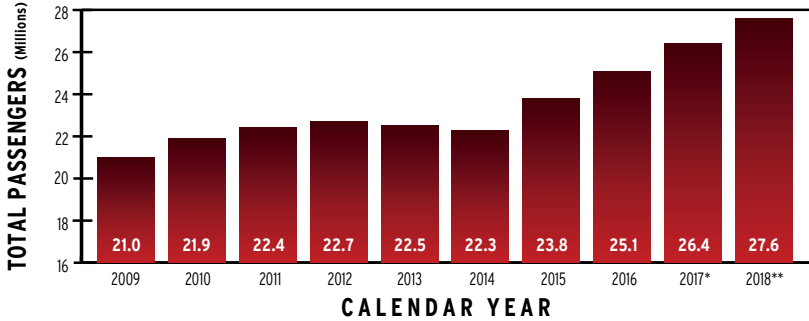
OBJECTIVE:

Pursue capital improvements to the transportation system that will improve access to jobs and tourism, and leverage economic growth opportunities.

BWI MARSHALL AIRPORT TOTAL ANNUAL PASSENGERS



Measures number of annual passengers using the BWI Marshall Airport.



* 2017 data revised from previous report.
 ** 2018 data is preliminary and subject to change.

Why Did Performance Change?

- BWI Marshall Airport has set three straight annual passenger records and strong growth continues in 2018; through May 2018, BWI Marshall Airport has set monthly passenger records in 34 of the past 35 months

What Are Future Performance Strategies?

- Continue to meet with both potential new entrant and current carriers to promote potential new air service opportunities to BWI Marshall Airport
- Focus BWI Marshall Airport advertising and awareness campaigns to passengers on the advantages and options the airport offers, such as air service parking and ground transportation options
- Continue to highlight BWI Marshall Airport as the "easy come, easy go" gateway to Baltimore and Washington D.C.

INTERNATIONAL CRUISES USING THE PORT OF BALTIMORE



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

FISCAL YEAR	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018*
Number of International Cruises using MDOT MPA's Terminal*	35	96	111	100	93	99	75	94	86	94

Target: Maintain two year-round cruise operations at the Port
 * 2018 data is preliminary and subject to change.

Why Did Performance Change?

- Carnival Cruise Lines and Royal Caribbean International Cruise Lines offered year-round service from the Port of Baltimore; they report that ships are sailing at over 100% capacity with more than two people per cabin, which is good for revenue
- MDOT MPA made improvements to the Cruise Maryland terminal, including: new carpeting, new kiosks, Caribbean colors inside the terminal, a new VIP lounge, new bathrooms and wall dressings, electrical upgrades, an enclosed breeze way, a repaired gangway, a new public announcement system with visual monitors for the hearing impaired, and a new comfort trailer for waiting passengers during extreme weather conditions

What Are Future Performance Strategies?

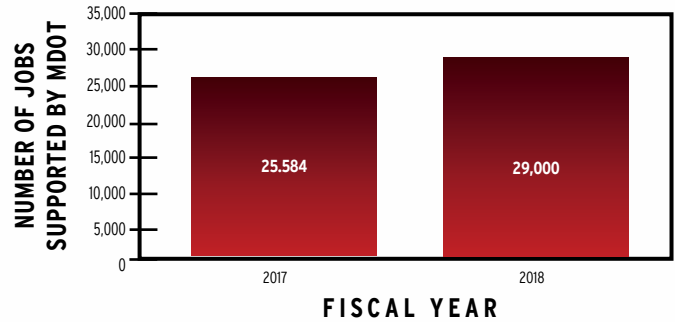
- Actively promote the Port as a convenient location for year-round cruising and expand consumer awareness of cruising from Baltimore
- Improve the terminal facility through enhancements to the exterior; exterior signage and vehicular entrance circulation
- Continue partnerships with existing cruise lines, while working with the Travel Industry to actively promote cruising from Baltimore
- Continue to pursue opportunities to bring additional cruise lines to sail regularly to/from the Port of Baltimore



JOBS SUPPORTED BY MDOT CAPITAL PROGRAM*

The annual CTP is used to identify planned investments by each TBU on major construction projects, which generate direct construction jobs, jobs supported by the business purchases necessary for the project's construction, and jobs supported by local purchases of goods and services by the direct employees. Capital investments in transportation infrastructure support economic activity across a wider region, beyond the specific project location.

Economic return from transportation investment is based on the estimated number of jobs created as a result of MDOT investments in capital projects. In FY 2018, approximately 29,000 jobs were supported in Maryland by MDOT, which is an increase of more than 3,400 jobs over FY 2017.



* This measure will be reported in the AR until the replacement measure, Change In Market Access and Productivity Due To Improvements In The Transportation Network, is ready for reporting.



OBJECTIVE:

Improve the movement of goods within and through Maryland by investing in intermodal connections and improvements to reduce freight bottlenecks

IMPROVING GOODS MOVEMENT: FREIGHT ORIGINATING AND TERMINATING IN MARYLAND

Maryland is a significant crossroad of goods and people movement as it is home to many freight-related industries. The State's key supply chains are comprised of mining, agriculture, pharmaceuticals, manufacturing and retail travel and rely on the safe and efficient mobility of the State's multimodal freight network. Through coordination, planning and strategic investments, Maryland and its freight partners aim to provide a world class multimodal transportation infrastructure that accommodates today's demand and identifies improvements to address future growth.

Freight Originating and Terminating In Maryland (2017)*

METHOD FOR MOVING FREIGHT	TOTAL VALUE (MILLIONS)	TOTAL TONNAGE (THOUSANDS) SATISFIED
Air	\$6,800	87
Other	\$1,143	62
Rail	\$13,231	29,046
Truck	\$303,855	204,476
Water	\$53,900	38.44
All Freight	\$391,380	263,132

* Source: U.S. Department of Transportation Freight Analysis Framework (FAF4) Version 4.4.1. that was refactored using 2016 data. To report 2018 data, a 3% annual growth rate was applied. FAF generates estimates based on a base year of data. Therefore, tonnage and values represented are estimates, not exact amounts. The water tonnage data based is for 2017, based on U.S. Army Corp of Engineers reporting.

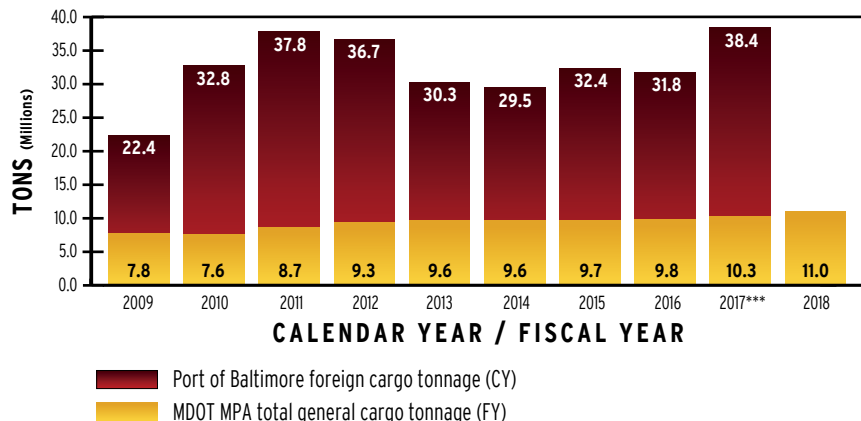
MDOT continues to invest in projects with the aim of facilitating freight movement throughout the State. After updating its Strategic Goods Movement Plan (SGMP) in 2017, MDOT is now in compliance with the requirements of the Fixing America's Surface Transportation (FAST) Act. As such, MDOT will seek every opportunity to apply for funding derived from the FAST Act, including Infrastructure for Rebuilding America (INFRA) and Better Utilizing Investments to Leverage Development (BUILD) grants. In December 2018, the MDOT MPA received a \$6.6 million BUILD grant for Seagirt Marine Terminal, to deepen a second container berth to allow the Port to handle two supersized container ships simultaneously.

Maryland's freight network is multimodal, spanning highways, railways, airports and waterways. Freight transportation traversing along Maryland's highways is the largest contributor to economic development in the State. In 2017, Maryland roadways and highways handled 83.5% of truck shipments in value or the equivalence of \$303.9 Billion of freight. By addressing bottlenecks and congestion-related issues, MDOT is ensuring that the State's largest contributor to freight movement continues to be competitive and viable for cargo shippers. The improvements underway will serve as long-term investments rather than short-term stopgaps in the interest of improving freight movement which also benefits the roadway experience for non-freight roadway users. MDOT will continue to collaborate with its freight industry partners to maintain and improve the State's capacity for freight across all modes.

PORT OF BALTIMORE FOREIGN CARGO AND MDOT MPA GENERAL CARGO TONNAGE*



Measures the amount of foreign and general cargo moving through the Port of Baltimore.*



* MDOT MPA cargo data is provided by fiscal year, but The Port information is reported using the latest full calendar year because The Port statistics combine data for public and private marine terminals that use different fiscal year reporting timeframes. Therefore, 2018 The Port data cannot be reported until early 2019.
 ** MDOT MPA general cargo includes both foreign and domestic waterborne cargo. The Port foreign cargo data for 2018 is an estimate.
 *** 2017 data for The Port was revised from previous Attainment Report.

Why Did Performance Change?

- The Port of Baltimore's public and private marine terminals handled a total of 38.4 million tons of cargo worth \$53.9 billion in 2017; the Port also handled more containers and cars/light trucks in 2017 than any previous year in its history
- MDOT MPA's container tonnage increased 7.4%, automobile units were up 5.6% compared to the prior year, and roll on/roll off Roll on/Roll off (Ro/Ro); (farm, mining and construction equipment) increased 13%, POB remains the largest Ro/Ro port in the United States (U.S.)
- The Port of Baltimore ranked nationally as: #1 in Autos and Ro/Ro Heavy Equipment; #1 in imported Sugar and Gypsum; #2 in exported Coal; #9 in the U.S. in the value of foreign cargo (\$53.9 billion); and #12 in the U.S. in foreign cargo tonnage (38.4 million tons)
- MDOT MPA will make numerous terminal improvements such as increasing cargo space at Dundalk Marine Terminal and stabilizing and filling slips for increased cargo space
- In the first and second quarters of 2018, MDOT MPA's public marine terminals had back to back record quarters for general cargo
- Governor Hogan and the Board of Public Works approved a contract to fill in the wet basin at the Fairfield Marine Terminal, creating additional land for the Port's surging auto and Ro/Ro cargo
- A new Ro/Ro service to New Zealand and Australia via Hoegh Autolines began in March 2018 from the Port of Baltimore
- The MDOT MPA received \$1.1 million in federal port security grants to improve cybersecurity, upgrade technology and update the facility security program

What Are Future Performance Strategies?

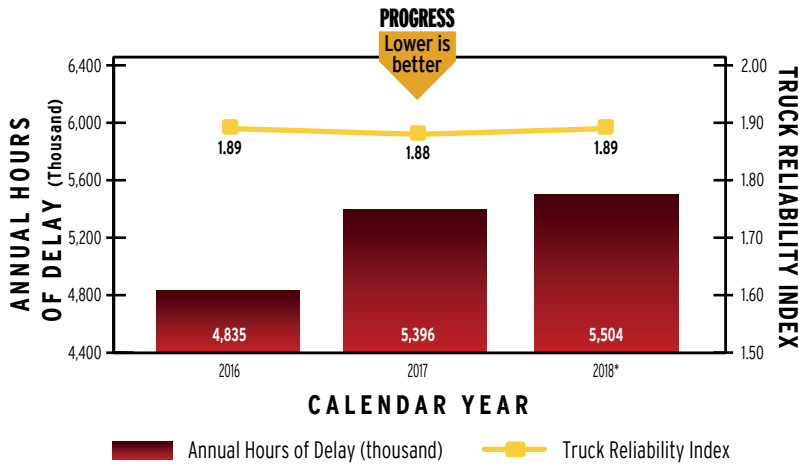
- MDOT MPA and its P3 partner, Ports America Chesapeake (PAC), will be renovating Seagirt Berth 3 to accommodate larger vessels coming through the expanded Panama Canal and MDOT MPA purchased the Point Breeze Business Center to accommodate future cargo growth
- Make rail and terminal improvements to facilitate heavy lift cargoes and growth in project cargo; work with CSX to obtain US Department of Transportation (USDOT) funding to expand the Howard Street Tunnel to allow double stacking of shipping containers to/from the Mid-west markets
- Target auto and machinery manufacturers to secure long-term contracts, and continue working to retain existing forest product customers
- Acquire and/or develop new land (i.e. Wet Basin, Mestek, Kurt Iron Slip and Fruit Slip, etc.) to allow for automobile cargo growth
- Offer exceptional services, world-class facilities and aggressive rates to keep and acquire customers
- MDOT MPA received a \$6.6 million BUILD grant for Seagirt Marine Terminal, to deepen a second container berth to allow the Port to handle two supersized container ships simultaneously
- Negotiate with goods manufacturers and international logistics providers to secure long-term contracts, construct new facilities that attract new cargo and retain existing customers



ANNUAL HOURS OF DELAY FOR TRUCKS, AND TRUCK RELIABILITY INDEX



Reliability and efficiency are critical for economic development and growth. Federal regulations mandate tracking Truck Reliability Index as a measure of the efficiency of truck freight movements on the MDOT highway network.



Target: 6,070 thousand hours of truck delay in 2021, Truck Reliability Index of 1.88 in 2021

* 2018 data is preliminary and subject to change.

Why Did Performance Change?

- A growing economy, historic low unemployment rates, and relatively low gas prices have resulted in higher usage of major corridors in peak hours
- Peak hours has a non-linear effect on congestion (i.e., even though peak hour demand grew by a smaller percentage, the congestion impacts were disproportionately higher)
- Demand is growing as urban truck delivery systems and ride-hailing and ride-sharing markets, like Uber and Lyft, experience record growth
- A whole host of system preservation projects and capital projects lead to additional delay in work zones and the surrounding network

What Are Future Performance Strategies?

- Major projects including the I-270 Innovative Congestion Management (ICM), Smart Signals and the I-95 Express Toll LanesSM (ETL), will significantly reduce congestion
- Partner with Metropolitan Planning Organizations (MPOs), other State and local agencies and the private sector to develop strategies to improve reliability on the State Highways and minimize delays
- Implement Intelligent Transportation System (ITS) infrastructure and advanced technological capabilities to manage non-recurring congestion like incidents, inclement weather, work zones, special events, etc., leveraging successful programs like the Coordinated Highways Action Response Team (CHART) Program
- Develop Transportation Systems Management and Operations (TSMO) solutions that provide active traffic management and integrated corridor management capabilities

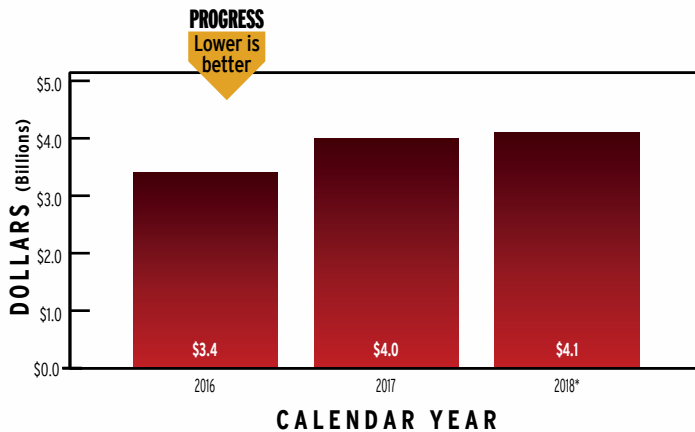
OBJECTIVE:

Strategically invest in expansion and operational improvements to reduce congestion along the multimodal transportation system

ANNUAL COST OF CONGESTION (BILLIONS) ON THE MDOT HIGHWAY NETWORK



Reliability and efficiency are critical for quality of life, economic development and growth. The annual cost of congestion allows MDOT to measure the impact of congestion including travel time impacts as well as fuel and emissions impacts.



Target: \$4.6 billion in 2021

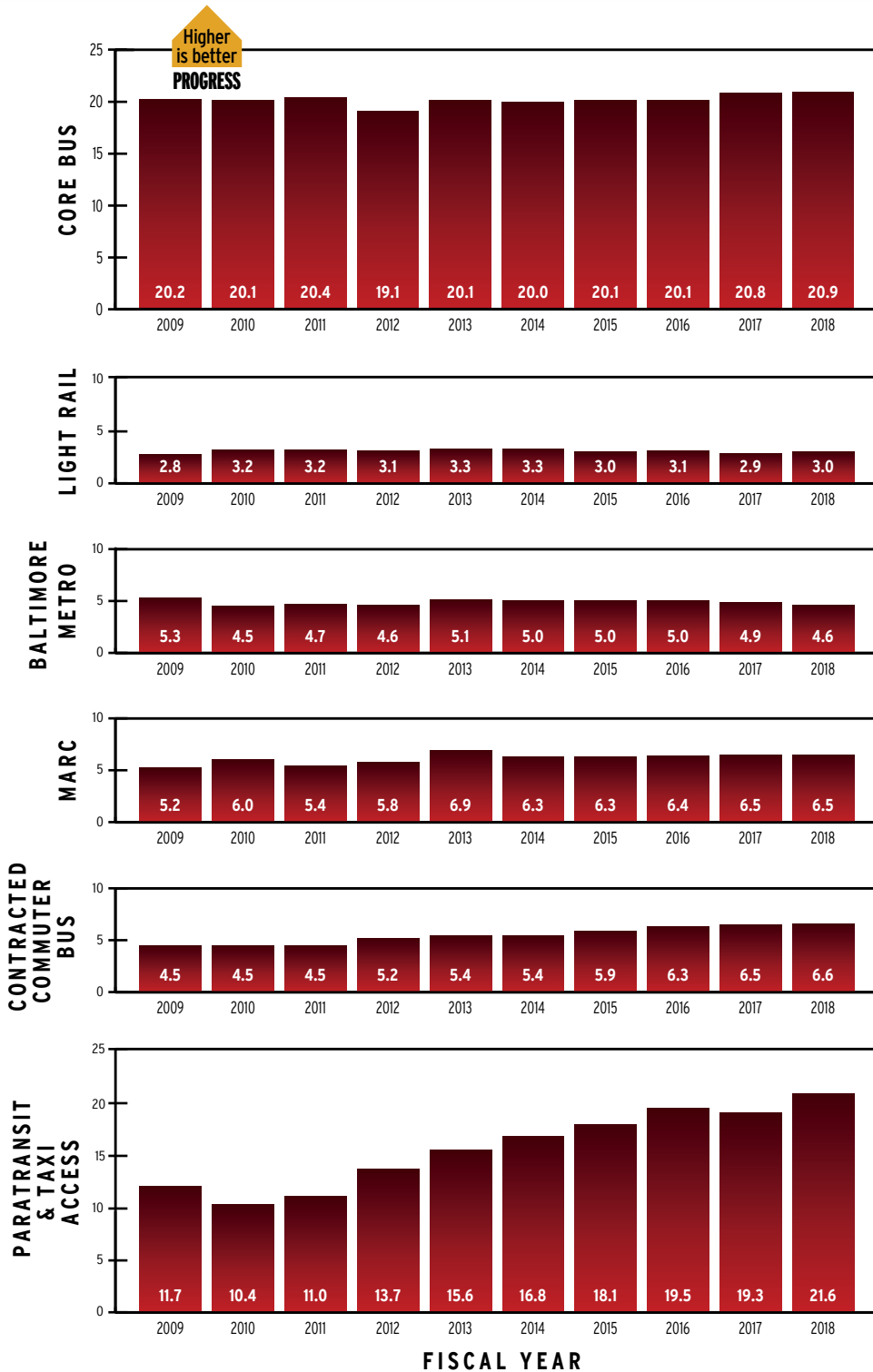
* 2018 data is preliminary and subject to change.



ANNUAL REVENUE VEHICLE MILES OF TRANSIT 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.



Why Did Performance Change?

- MDOT MTA BaltimoreLink increased service thereby increasing the vehicle revenue miles
- New commuter bus routes were established, increasing service and vehicle revenue miles
- More people using MobilityLink (Paratransit) due to aging population means an increase in the total number of people that qualify for paratransit services
- Baltimore Metro SubwayLink continued to perform scheduled track repair and maintenance, having an impact on the revenue miles

What Are Future Performance Strategies?

- MDOT MTA is currently constructing the Purple Line, a 16-mile Light Rail line that will extend from Bethesda in Montgomery County to New Carrollton in Prince George's County; it will provide a direct connection to Metro SubwayLink, MARC, Amtrak and other local bus services, as well as several major economic centers, and will increase vehicle revenue miles through the increased service that will be provided
- MDOT MTA plans to increase MobilityLink (paratransit) service; more mobility service utilization will increase vehicle revenue miles





Goal: Maintain a High Standard and Modernize Maryland's Multimodal Transportation System

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

OBJECTIVES:

- **Preserve and maintain State-owned or funded roadways, bridges, public transit, rail, bicycle and pedestrian facilities, ports, airports and other facilities in a state of good repair**
- **Strategically modernize infrastructure through new and innovative technology, enhanced partnerships, design standards and practices to facilitate the movement of people and goods**
- **Use asset management to optimize public investment and ensure the sustainability of transportation infrastructure**

Poorly maintained roads constrain mobility, increase crash rates and can hinder economic growth and development. As such, MDOT is committed to preserving and maintaining Maryland's State-owned or funded roadways, bridges, public transit, rail, bicycle and pedestrian facilities, ports, airports and other facilities. In the FY 2019–FY 2024 CTP, \$6.2 billion is allocated for safety, congestion relief, highway and bridge projects, and \$288.5 million for rail and bus maintenance, making maintenance for roadways, bridges, rail and buses significant priorities.

Preservation and maintenance asset management is also a priority of MDOT SHA and MDTA. By the end of 2018, MDOT SHA reached the halfway point of resurfacing or treating all State Highway lane miles. Nearly 8,500 lane miles have been improved since 2015, bringing 88% of Maryland roadways up to acceptable overall pavement condition, improving safety and enhancing the customer experience for millions of drivers across the State. As good stewards of public transportation assets, MDOT looks to utilize asset management techniques to ensure the sustainability of transportation infrastructure. MDOT SHA uses Automated Road Analyzer (ARAN) vehicles to collect data to help evaluate all highways each year, and has invested \$890 million to extend the



life of State roadways, reducing pothole-ridden and deteriorated lanes. In 2018, the new Dover Bridge along MD 331 opened a full year ahead of schedule. Most notably by the end of FY 2017 all 69 structurally deficient bridges identified in 2015 by the Governor have been addressed.

At the Port of Baltimore, MDOT MPA updated and received approval of the State's Dredged Material Management Program (DMMP); this program is critical to maintain the 50-foot deep marine channels and berth at Seagirt Marine Terminal. MDOT MPA also initiated planning for a second 50-foot deep berth at Seagirt Marine Terminal due to increasing containerized cargo growth.

Technological advancements have the ability to change the landscape of the transportation network and can place Maryland in a strategic position for growth nationally. MDTA is advancing tolling and customer service technologies that will replace its existing toll collections system. Maryland has made connected and automated vehicle (CAV) permits available for testing to ensure the State remains on the forefront and is prepared as this technology advances. MDOT MVA is working to address licensing and registration issues for CAVs and actions of the Maryland CAV Statewide Working Group have led to a centralized resource for the private sector to research and develop new technology.



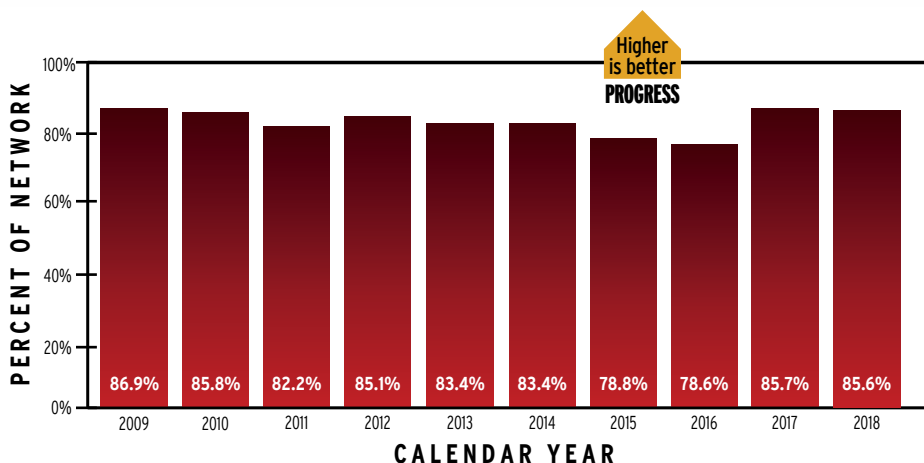
OBJECTIVE:

Preserve and maintain State-owned or funded roadways, bridges, public transit, rail, bicycle and pedestrian facilities, ports, airports and other facilities in a state of good repair

PERCENTAGE OF THE MDOT SHA NETWORK IN OVERALL PREFERRED MAINTENANCE CONDITION



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



Target: 85% Annually

Why Did Performance Change?

- The past two relatively light winters did not cause as much damage as in recent years, and allowed maintenance forces to catch up on deferred work from prior years, such as sign maintenance, pavement markings, line striping, guardrail repair, brush and tree cutting and drainage work

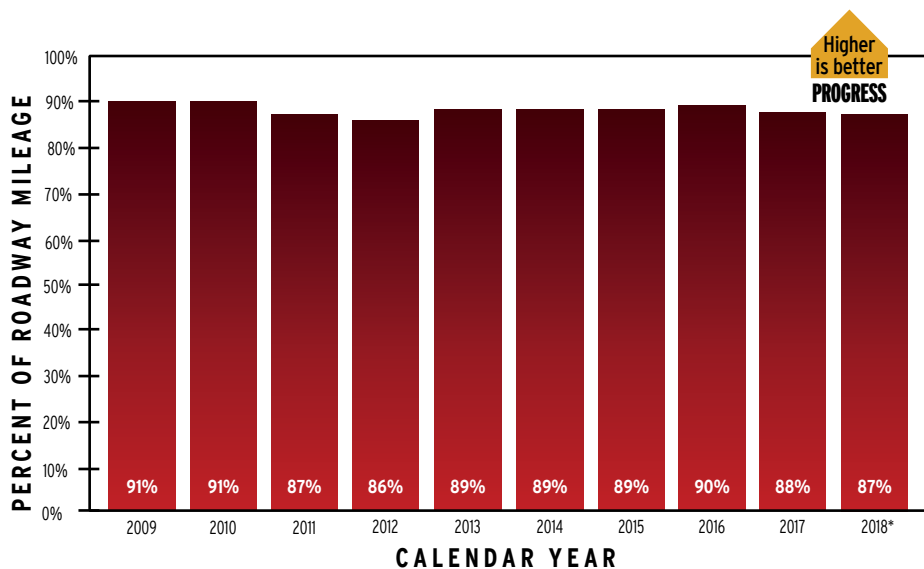
What Are Future Performance Strategies?

- Maintain focus for additional work efforts on safety-related assets, such as signs, pavement markings, line striping, guardrail repair, and brush and tree cutting
- Evaluate the efficiency and effectiveness of many of the maintenance programs and policies
- Continue to collaborate with the finance office and the procurement and contract management office to ensure additional work can be performed on assets falling below the desired maintenance condition

OVERALL ACCEPTABLE PAVEMENT CONDITION



Overall pavement condition is based on remaining service life. MDOT completes annual road inspections on most Maryland State-owned roadways. Quality pavement facilitates mobility, efficiency and safe movement of people and goods within Maryland and has been identified as a priority for the public.



Target: 90% Annually

* 2018 data is preliminary and subject to change.

Why Did Performance Change?

- MDOT SHA continued focusing on improvements in roadways with deficient condition
- MDOT SHA increased use of non-traditional pavement preservation treatments; cracking (a significant cost driver) has been reduced, decreasing maintenance costs and increasing surface quality

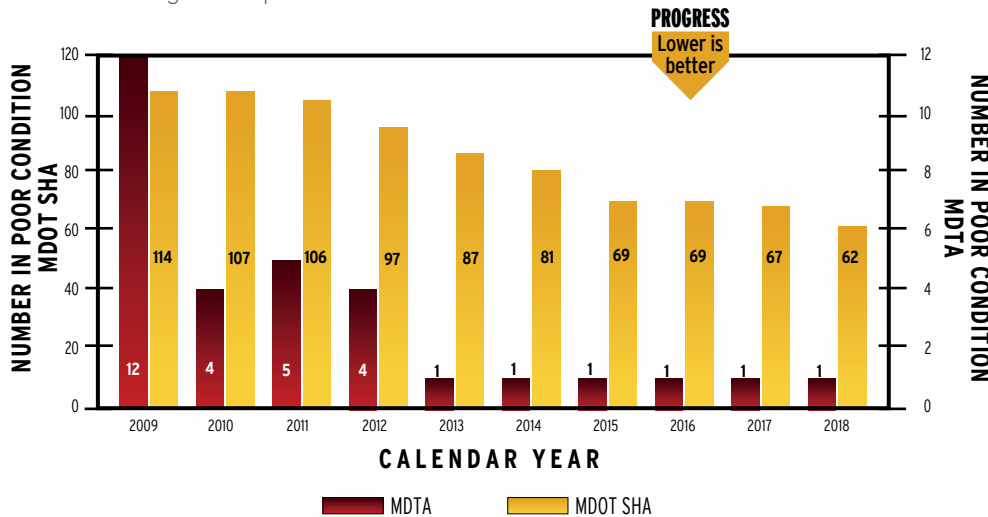
What Are Future Performance Strategies?

- Increase the use of more durable materials in high-demand MDOT SHA roadways and investigate alternative pavement treatments to extend the pavement life
- Target low surface friction locations on MDOT SHA roadways and expand the use of recycled materials
- Continue to implement the Pavement Preservation Program
- Continue to focus on higher-priority prevention and maintenance

NUMBER OF BRIDGES & PERCENT THAT ARE IN POOR CONDITION



The poor condition rating (also referred to as structurally deficient) is an indicator for engineers to initiate the rehabilitation or replacement process, and is used 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 0 (closed to traffic) to 9 (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 MDOT Transportation Business Units (TBUs) 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. MDOT MAA has 19 bridges, none of the MDOT MAA bridges are in poor condition.



Why Did Performance Change?

- MDOT SHA continued an aggressive bridge rehabilitation and preservation program, which has over 30 contractor construction crews working full time year-round, addressing bridges rated as poor, minimizing the number of bridges that would have deteriorated to a poor rating without rehabilitation
- MDOT SHA efficiently and economically used all funding received
- MDTA overhauled and enhanced its inspection program to better identify, report and address inspection findings and moved toward a system-wide preventative maintenance and preservation focus; emphasis over the next few years will be an advanced response to needs identified in the annual inspection reports
- MDTA developed and implemented the comprehensive Facility Inspection Program Strategic Plan and completed a comprehensive inspection manual specific to the MDTA facilities, continued use of an integrated facility management software and continued needed preservation improvements to all facilities, changes that resulted in significant improvements to the MDTA infrastructure

What Are Future Performance Strategies?

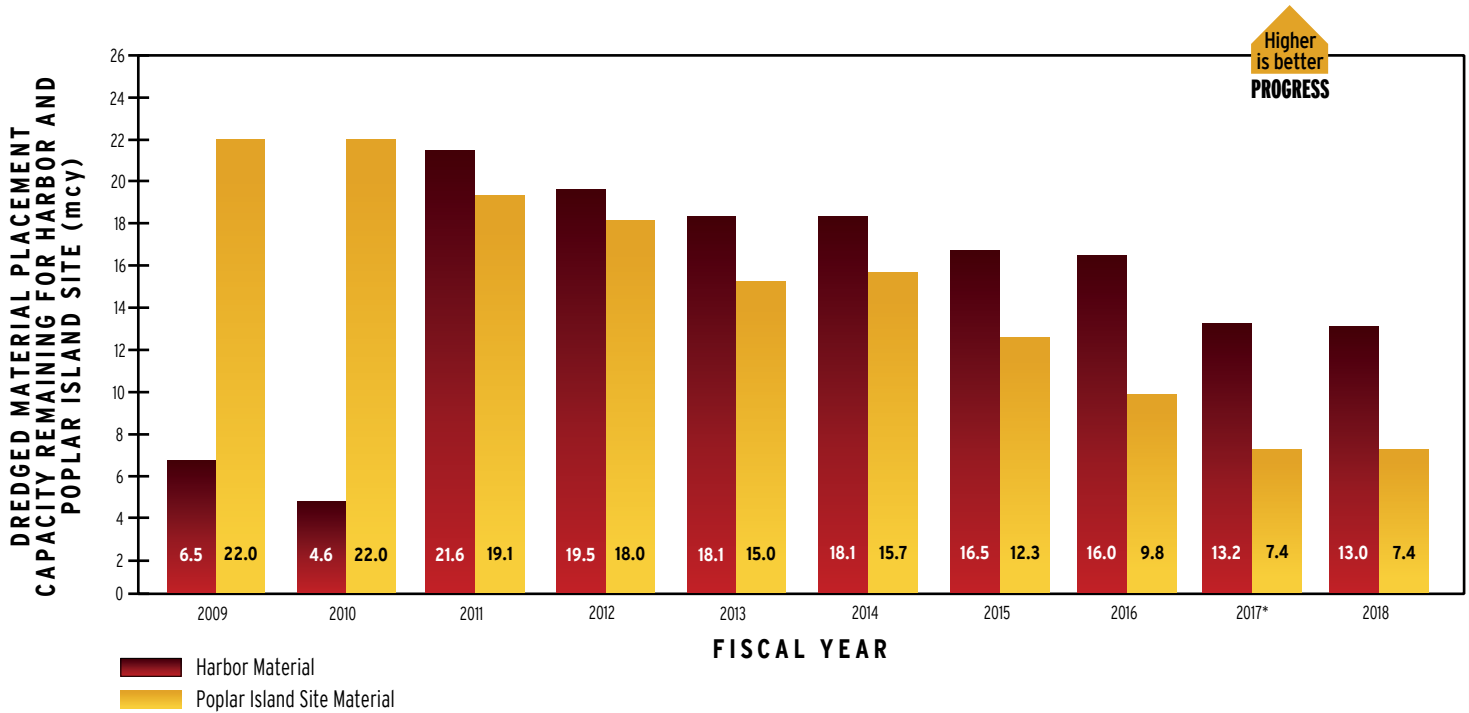
- Perform immediate structural evaluations, including scour evaluations, on water crossings after local storm events in the area of the storm
- Prioritize projects that will increase weight ratings on bridges with current weight restrictions
- Evaluate, monitor and prioritize those bridges with a rating of 5 (fair condition) in at least one main element
- Continue to deliver high-priority system preservation projects, such as: multi-facility structural steel painting projects and suspension span rehabilitation on the Bay Bridge
- Continue preliminary engineering of the Nice Bridge replacement project and continue to fund, design and perform high-priority structural repairs based on annual inspection report findings
- Continue to expand the current system preservation program to include preventative maintenance activities
- Focus on higher-priority prevention and maintenance projects



DREDGED MATERIAL PLACEMENT CAPACITY REMAINING FOR HARBOR SITES AND POPLAR ISLAND



MDOT MPA is responsible for obtaining dredged material placement sites. Maintained and improved shipping channels provide safe, unimpeded access to the Port.



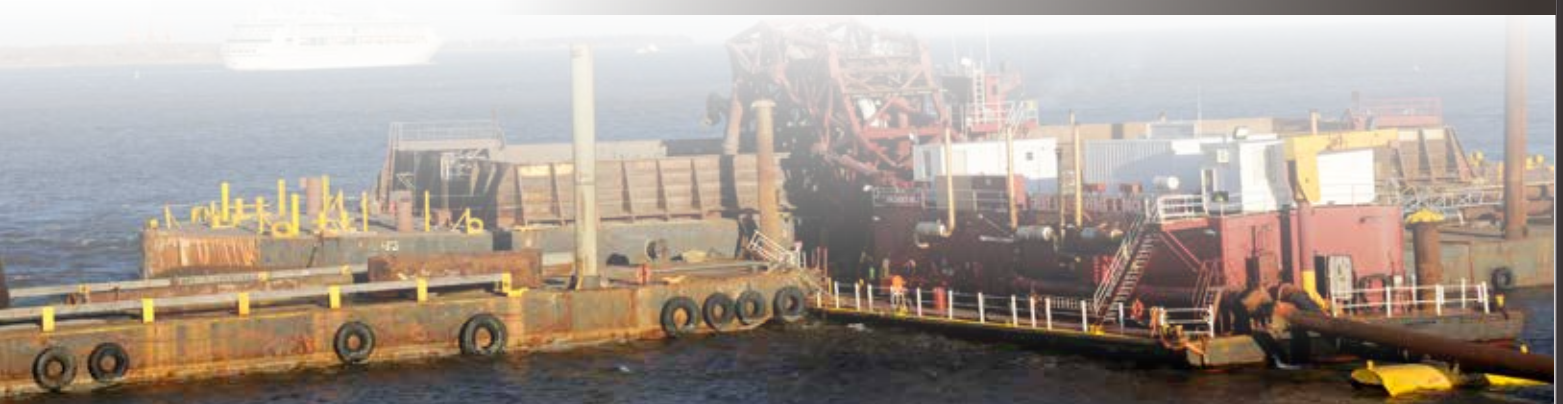
Harbor Target: Maintain a rolling 20-year plan for adequate dredged material placement capacity
Poplar Island Target: Maintain a rolling 20-year plan for adequate dredged material placement capacity

Why Did Performance Change?

- The State's Dredged Material Management Program (DMMP) continued to support the Corps' Federal DMMP
- Initiated planning for a second 50-foot deep berth at Seagirt Marine Terminal due to increasing cargo growth that requires additional dredging
- Completed the design, permitting and procurement of the base dike necessary for the Stage 1 expansion of the Cox Creek Dredged Material Containment Facility
- Pearce Creek was successfully reactivated by the U.S. Army Corps of Engineers and received the first inflow of dredged material
- Performed maintenance dredging near the Dundalk Marine Terminal

What Are Future Performance Strategies?

- Ensure adequate placement capacity is available to meet dredging demand, removing channel restrictions and improving the navigation system
- Construct the Poplar Island Environmental Restoration Project expansion to provide additional placement capacity
- Continue with strategic public communication for the DMMP
- Maintain shipping channels utilizing the \$497.3 million included in the FY 2019–FY 2024 CTP to implement the Governor's Strategic Plan for Dredged Material Management
- Begin permitting and design for a second 50-foot berth at Seagirt, including a deeper and wider Seagirt Loop Channel to accommodate larger vessels
- MDOT MPA will commence numerous construction efforts to address dredged material placement
- Begin construction of the dike raising at Masonville



TRANSIT ROLLING STOCK WITHIN USEFUL LIFE BENCHMARK



The transit rolling stock within useful life benchmark is used to understand the condition of transit vehicles. The amount of stock within useful life informs the agency of the needs and expected repairs or replacements.

TRANSIT VEHICLES	2018 PERCENT OF VEHICLE STOCK WITHIN USEFUL LIFE	TARGETS
Baltimore Metro	0%	11%
MARC	97%	100%
Light Rail	100%	100%
Paratransit	51%	99%
Core Bus	100%	98%

Why Did Performance Change?

- Asset Management is now officially a part of the organizational chart; MDOT MTA has an intranet page that shows details on Asset Portfolio, Condition Data, Transportation Emission Reduction measures (TERMs) Analysis and the Asset Management Program in general
- After monitoring the guideway performance for the past 18 months, MDOT MTA now has a dashboard that streamlines the data flow and has a user-friendly interface
- Began visually assessing the condition of MDOT MTA and Locally Operated Transit System (LOTS) facilities
- Initiated a pilot Asset Management Program at Eastern Bus garage including visually collecting inventory data and conducting condition assessments on sample inventory
- Initiated a Warranty Management program at Bus; improving Warranty Management was one of the key objectives highlighted in the MDOT MTA Transit Asset Management Plan

What Are Future Performance Strategies?

- MDOT MTA will develop a comprehensive asset management program to better track and extend useful life of our facilities and vehicles
- 2018 will be the first year Federal Transit Administration (FTA) requires asset management compliance reporting through the National Transit Database (NTD)
- MDOT MTA is awaiting delivery of a replacement fleet of Metro SubwayLink cars beginning around 2020 that will change the percent from that 0% to 100%

OBJECTIVE:

Strategically modernize infrastructure through new and innovative technology, enhanced partnerships, design standards and practices to facilitate the movement of people and goods

AVERAGE TRUCK TURN TIME AT SEAGIRT MARINE TERMINAL



Truck turn times are a measure of the efficiency and operations of the Seagirt Marine Terminal. Reducing turn times improves throughput capacity and results in incremental environmental benefits. Truck turn time is very important to drivers, shipping companies and cargo owners and demonstrates the level of efficiency of moving freight off the terminal and into the broader economy.

For security purposes, each truck is required to have a registered radio-frequency identification (RFID) tag in order to enter Seagirt. When a truck turns off of Broening Highway toward the gate, the RFID tag is read by the scanner, which starts measuring that truck's turn time, and it is pinged again in the same location when that truck exits the terminal. The time between the first scan of the RFID tag on entering and the second scan on exiting is the total turn time for that truck. In 2018, the average truck turn around time was 89 minutes.

Why Did Performance Change?

- With the expansion of the Panama Canal, vessel sizes and cargo volumes continue to increase, resulting in higher truck turn times due to a corresponding increase in gate and terminal processing activity
- RFID tags were distributed to truck drivers for better tracking of their processing times
- Six new rubber-tired gantry (RTG) cranes were delivered in 2018 and placed in service to improve efficiency
- Improved planning to maintain adequate staffing levels on heavy cargo volume days
- Provided full terminal Wi-Fi coverage to monitor terminal activity
- Started operations at an off-dock chassis depot to relieve congestion at the terminal

What Are Future Performance Strategies?

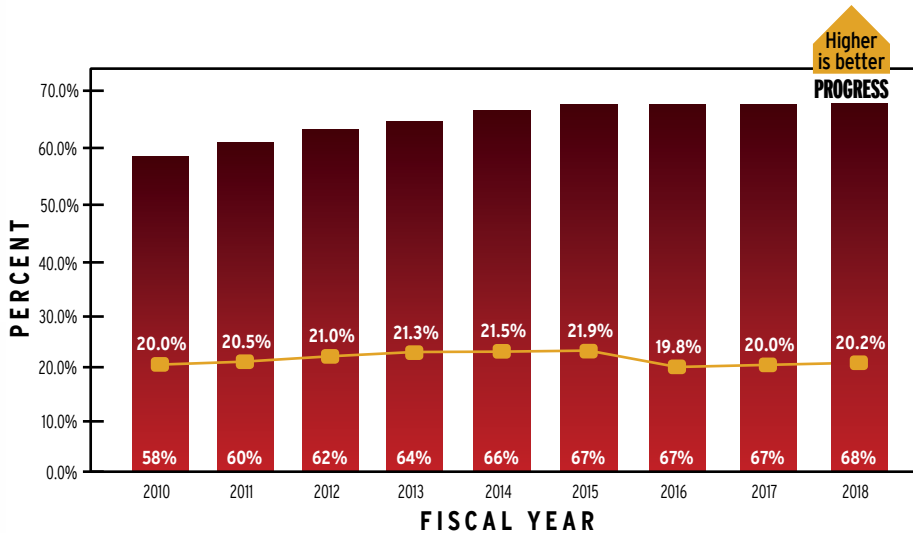
- Open an off-dock empty container yard to provide additional space
- Seek and obtain a United States Department of Transportation (USDOT) Infrastructure for Rebuilding America (INFRA) grant to allow double stack rail capability via CSX's Howard St. Tunnel and increase containers moving by rail to/from the Port
- Open five inbound lanes at the Vail Street back gate, install a new Terminal Operating System (TOS) and redevelop the 37-acres acquired at Point Breeze
- Continue the Quality Cargo Handling Team (Q-CHAT) to further improve containerized cargo handling
- Complete the second 50-foot deep berth at Seagirt Marine Terminal to accommodate larger ships and containerized cargo growth, and continue with planned technology enhancements



PERCENTAGE OF STATE-OWNED ROADWAY DIRECTIONAL MILES WITHIN URBAN AREAS THAT HAVE SIDEWALKS AND 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.



■ Percentage of sidewalks that meet ADA compliance
— Percentage of State-owned roadway directional miles within urban areas that have sidewalks

Target: Increase sidewalks in urban areas by 0.5% and ADA compliance by 2%, per year

Why Did Performance Change?

- Invested \$3.4 million in FY 2019 to design and construct new sidewalks
- Invested \$6.1 million in FY 2019 to design and construct sidewalk improvements to address ADA accessibility
- Included improvements to existing sidewalks in all projects to the maximum extent practical

What Are Future Performance Strategies?

- Collaborate with urban counties and local governments to identify new sidewalk projects
- Begin construction of sidewalk project in Crofton, MD in FY 2019
- Identify and prioritize critical ADA compliance projects
- Support safe pedestrian access along State Highways (\$35.7 million for the New Sidewalk Construction for Pedestrian Access Program and \$44.6 million for the Sidewalk Reconstruction for Pedestrian Access Program (ADA Compliance) in the FY 2019–FY 2024 CTP)

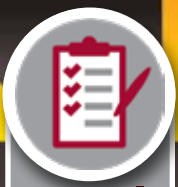


OBJECTIVE:

Use asset management to optimize public investment and ensure the sustainability of transportation infrastructure

MDOT is incorporating asset management programs with sustainability goals. Focusing on sustainability throughout the procurement, construction, operations, maintenance, renewal and replacement phases can enhance an asset's life and usefulness. MDOT strategically manages its diverse capital assets and each MDOT TBU maintains its physical assets according to policies that minimize life-cycle costs and avoids negative impacts on the delivery of transportation services. MDOT has created a Department Asset Management Program to inventory and monitor the condition and performance of assets and is investing in the National Highway System (NHS) to ensure longevity and good maintenance of those assets. MDOT is also developing asset management and Business Intelligence tools to aggregate and manage asset data, and to implement the short-term, midterm, and long-term strategies identified in the State Asset Management Plan to improve asset management and project selection across MDOT.





Goal: Improve the Quality and Efficiency of the Transportation System to Enhance the Customer Experience

Increase the use of technologies and operational improvements to enhance transportation services and communication to satisfy our customers

OBJECTIVES:

- Increase the efficiency of transportation services through partnerships, advanced technologies and operational enhancements to improve service delivery methods
- Enhance customer satisfaction with transportation services across all modes of transportation
- Minimize travel delays and improve predictability of travel times on Maryland's transportation system
- Apply enhanced technologies to improve communications with the transportation system users and to relay real-time travel information

Millions of people utilize Maryland's transportation system each day. Meeting the system users' needs and providing quality service is an important function of MDOT and its Transportation Business Units (TBUs). MDOT looks to provide superior customer service through increased efficiency. MDOT SHA is developing major projects through the I-270 and MD 295 Innovative Congestion Management (ICM) project and the Governor's Traffic Relief Plan (TRP). The TRP is a combination of Public-Private Partnerships (P3) efforts on I-495, I-270 and other innovative projects such as Smart Signals, I-95 Express Toll LanesSM (ETL) and the I-695 Transportation Systems Management and Operations (TSMO) projects. These major projects will reduce congestion on Maryland highways and provide roadway users with travel options. In 2018, MDTA rolled out its new *E-ZPass*[®] Maryland mobile website, providing customers with more convenient access to their accounts. MDOT MVA also began selling *E-ZPass* "On the Go" transponders at the eStore, and began sending customers account activity notifications via e-mail. MDOT MVA has been improving



customer service and customer wait times since 2014, in alignment with the Governor's Customer Service Plan. In 2018, the average customer wait time statewide was 16.9 minutes, down from roughly 28.1 minutes in 2014. This was achieved mainly through Alternative Service Delivery (ASD) systems that do not require face-to-face interactions. Instead, users may go online and conduct some MDOT MVA-related business, such as tag renewal, or use any one of the 52 self-serve kiosks at MDOT MVA locations across the State.

MDOT utilizes new tools and technologies whenever possible to enhance the customer experience. In 2018, Maryland launched the first vehicle recall safety pilot program in the nation that will send recall information to vehicle owners and lessees with their MDOT MVA renewal notices. MDOT MVA also announced Customer Connect, a new project that will modernize all information technology (IT) systems used to deliver services to customers. MDTA advanced two contracts totaling \$71.9 million for tolling technology/operations and \$200.4 million for customer-service technology/operations that allow MDTA to replace its existing toll collections system, including replacing toll-lane terminals and associated hardware and software. The customer-service project will establish a more efficient and responsive Customer Service Center for *E-ZPass* Maryland customers.

One of the most important functions of a transportation network is to facilitate on time travel or to minimize delays and improve predictability. To increase the ability of both residents and visitors to predictably plan travel, MDOT MTA launched a mobile app, in partnership with Transit that provides real-time transit information, simple trip planning, step-by-step navigation and more. The app is free and available on both Apple and Android devices. Users will benefit from accurate location and arrival information for every CityLink, LocalLink and ExpressBusLink bus in the BaltimoreLink fleet. In 2018, through a contract, MDOT MTA installed GPS tracking in each of its 753 Core Buses, allowing them to communicate location information with the Transit app. MDOT MTA also released the CharmPass app enabling mobile ticketing and free transfers between bus, Light Rail and Metro SubwayLink for up to 90 minutes. The transfer benefit is also available on CharmCard. More info is available at: <https://mta.maryland.gov/charmpass>.

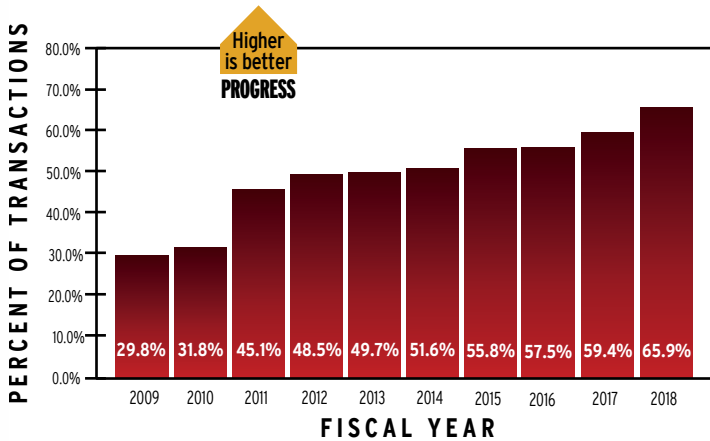
OBJECTIVE:

Increase the efficiency of transportation services through partnerships, advanced technologies and operational enhancements to improve service delivery methods

MDOT MVA ALTERNATIVE SERVICE DELIVERY TRANSACTIONS AS PERCENT OF TOTAL TRANSACTIONS



Alternative services offer the ability to provide fast and convenient service delivery to the MDOT MVA customer without requiring a customer agent to conduct a transaction at a branch counter (e.g., website, self-serve kiosks, mail-in options, etc.). They do require and utilize the development of new IT systems and changes in customer behavior.



Target: 72.4% by 2020

Why Did Performance Change?

- Increased service enhancements to include services 24 hours a day, seven days a week (24/7), such as the VEIP kiosks and eStore transactions, as well as quick, convenient services through ASD delivery at the branches such as vehicle tag returns, accepted through handheld tablets, and certified driving records, available at kiosks
- Implemented stand-alone vision screening stations inside branch offices, making it easier for eligible customers to satisfy their vision screening requirements for driver's license renewals

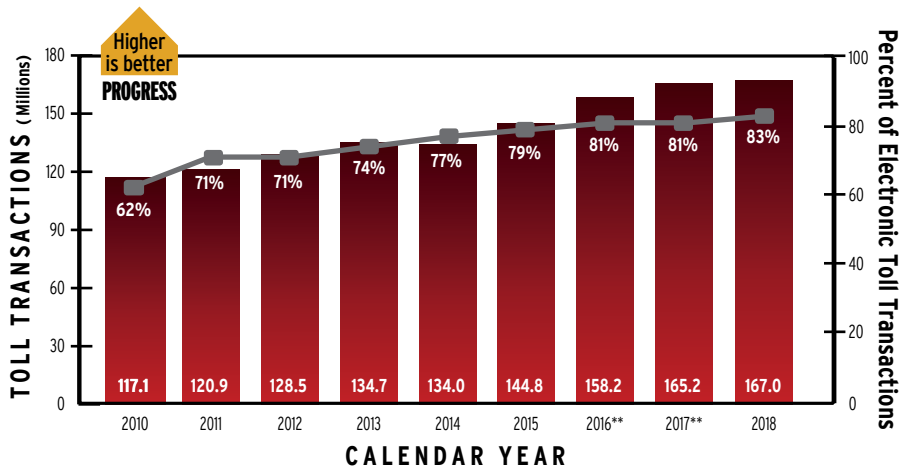
What Are Future Performance Strategies?

- Continue to implement system modernization efforts, to offer customers additional services online
- Increase the use of text and email for timely notification of customer services, requests and transactions
- Continually review the MDOT MVA website, the customer facing support tool for the agency, for content and ease of use

PERCENT OF TOLL TRANSACTIONS COLLECTED ELECTRONICALLY*



Electronic toll collection (ETC) systems expedite the toll collection process, reduce delays at toll plazas, decrease congestion and emissions, and are available at all nine toll facilities across the State.



Legend: Total toll transactions (Bar), Electronic toll transactions as a percent of total (Line)

Target: Short-Term Target: 82%, Long-Term Target: 85%

*Toll collections are paid as cash, ticket or electronic transaction. ETC includes Transponder, I-tolls and Video Tolls.

**2016 and 2017 data revised from previous Report.

Why Did Performance Change?

- E-ZPass* accounts increased due to an increase in total traffic and a public outreach campaign to "Stop Waiting. Start Saving;" the campaign was focused on educating customers on the benefits of having a Maryland *E-ZPass* for faster, reliable, less expensive and easier ways to travel
- The MDTA launched the *E-ZPass* Maryland mobile website, providing customers with easier and more convenient access to their accounts via ezpassmd.com and began sending email alerts to *E-ZPass* customers when certain account-based activities occur
- MDTA revamped the *E-ZPass* Maryland Outreach Program in 2017, and, as a result, has significantly increased the number of events and sales of *E-ZPass* "On the Go" transponders
- On May 23, 2018, Governor Hogan eliminated the \$7.50 transponder fee and announced "Free Transponders" for all new customers

What Are Future Performance Strategies?

- Encourage increased use of transponders by fully implementing the citation system through MDOT MVA and the Central Collection Units (CCU)
- The Governor's announcement of "free transponders" is expected to drive further increases in *E-ZPass* accounts in addition to marketing campaigns and outreach programs



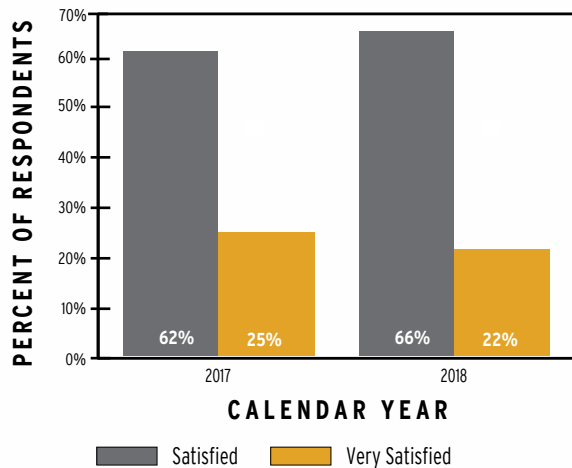
OBJECTIVE:

Enhance customer satisfaction with transportation services across all modes of transportation



OVERALL SATISFACTION WITH MDOT

Customer satisfaction surveys determine if MDOT is succeeding in their efforts to provide exceptional customer service. These surveys also help to identify where MDOT and its TBUs have weaknesses that need to be addressed, as well as where areas of strength are as these can be modeled to improve weaker areas.



Why Did Performance Change?

- Reduced fees for 22 MDOT MVA services and began beautification efforts across the agency to enhance the customer experience at branch offices
- Launched the "Anytime, Anywhere, MDOT MVA Online" campaign and made more MDOT MVA services and transactions available online
- MDOT MVA expanded Customer Call Center hours by an hour to increase capacity by 21% to better serve customers, answering an additional 323,829 calls
- MDOT MVA provides services for other agencies (e.g., CCUs, E-ZPass sales, organ donor program, child support enforcement, voter registration, warrants and flags) and continues to partner with other agencies to develop procedures to offer more services to customers
- MDOT MVA became a centralized resource with the implementation of several services provided by government partners such as Maryland Department of Natural Resources (DNR), Maryland Department of Health (DOH), Transportation Security Administration ((TSA) for Pre-Check)), and to buy or add to the MDOT MTA CharmCard and MDTA E-ZPass
- MDOT SHA is reinventing customer service through an emphasis on the overall customer experience and an emphasis on empathetic customer interactions
- For cruises, MDOT MPA added new check-in stations, carpeting, restrooms, a VIP lounge, traffic flow and a public address system for customer comfort
- MDOT MTA launched a Transit app to provide customers with real-time arrival information, simple trip planning and step-by-step navigation
- MDOT SHA continued its Coordinated Highways Action Response Team (CHART) program, providing its one millionth assist since the inception of the program, assisting a motorist every 14 minutes, 24/7
- MDOT SHA continued to deliver a historic construction program relieving congestion and improving safety in every corner of the State with 470 active construction projects

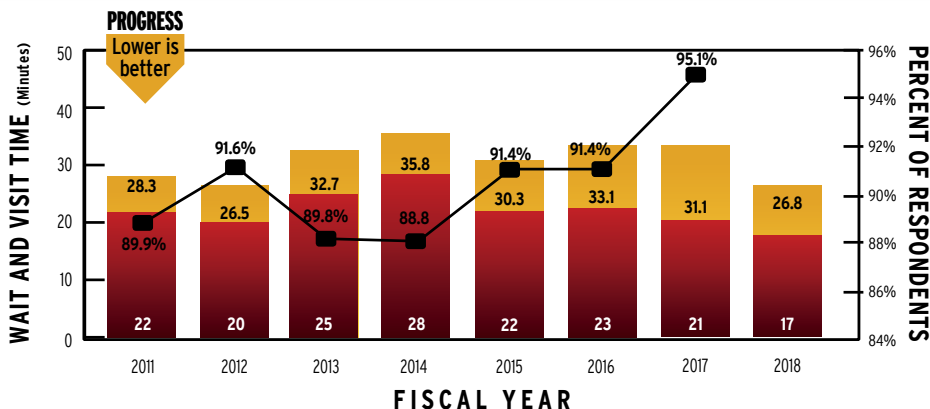
What Are Future Performance Strategies?

- MDOT MVA will launch system modernization to enhance capabilities and customer interactions and MDOT MTA will update their website to be fully ADA compliant
- MDOT SHA will continue to deliver Governor Hogan's \$10 billion TRP, which includes smart signals; smart signals will ease congestion along 14 corridors, decreasing travel delays for more than 679,000 drivers
- MDOT MTA will replace the Kirk Bus Facility in Baltimore and the Bus Transfer Facility in Ocean City and increase operators throughout the state so they can meet expanding demand
- MDOT MAA will establish a new customer service training program for BWI Marshall Airport employees to enhance the customer experience
- MDOT SHA will modernize its Customer Care Management System with updated Salesforce platform
- CHART will continue to provide real-time traffic condition notifications to drivers along major routes through variable message signs and highway advisory radio broadcasts



MDOT MVA BRANCH OFFICE CUSTOMER WAIT AND VISIT TIME VERSUS CUSTOMER SATISFACTION RATING

Average customer wait and 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 MDOT MVA branch customer wait and visit time decreases, customer satisfaction increases).



- Average Branch Office Customer Wait Time In Minutes
- Average Branch Office Customer Visit Time In Minutes (includes Wait Time)
- Percent of Branch Office Customers Rating Service as "Good" or "Very Good"

Target: 93% Satisfaction Rating as "Good" or "Very Good" by 2018, Visit Target: 25.3 Min., Wait Time Target: 14.8 Min.

* 2018 data is preliminary and subject to change.

Why Did Performance Change?

- Provided scheduled appointments for Driver's Skills and Knowledge tests and for Driver's Licenses
- Partnered with Department of Natural Resources (DNR) to combine service centers in MDOT MVA branch offices in Essex, Bel Air, Frederick, Salisbury and Cumberland
- MDOT MVA began accepting vehicle tag returns using mobile tablets to help reduce wait times for customers who visit a branch to return vehicle tags
- Improved employee training and development
- The self-serve vision test kiosk reduced wait time by 40% from FY 2014 to FY 2018

What Are Future Performance Strategies?

- Continue to promote convenience for customers through increased number of MDOT MVA services available through ASD
- Continue to promote commerce through cross marketing opportunities and unification of Maryland services offered in MDOT MVA branches
- Continue to implement system modernization efforts which will increase customer convenience and improve the overall customer service experience

OBJECTIVE:

Minimize travel delays and improve predictability of travel times in Maryland's transportation system

PERCENT OF TRANSIT 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.

MODE	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Core Bus	73%	87%	85%	83%	82%	81%	81%	85%	77%	68%
Light Rail	99%	97%	98%	96%	97%	96%	97%	98%	96%	94%
Baltimore Metro	98%	95%	97%	96%	97%	96%	95%	96%	96%	94%
MARC	87%	89%	89%	93%	93%	92%	92%	94%	91%	91%
Mobility Paratransit & Taxi Access	92%	91%	89%	90%	89%	91%	88%	92%	93%	93%

* The method of calculation for measuring Core Bus performance has been modified since the previous report; data prior to 2018 is not comparable.

Why Did Performance Change?

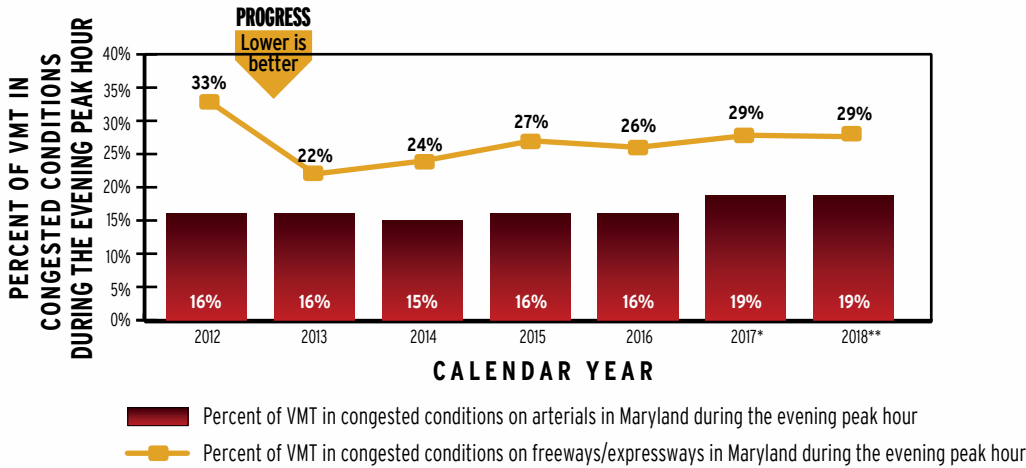
- Installed geo-positioning units on all MDOT MTA buses to more accurately track location and launched a Transit app to provide real-time data bus locations to customers
- Completely redesigned the bus routes through BaltimoreLink to improve the service and interconnectivity
- Changed the methodology for measuring Commuter Bus OTP using an intelligent transportation management platform

What Are Future Performance Strategies?

- Conduct a mid-life Light Rail vehicle overhaul to improve reporting and provide real-time information
- Tracking technologies will improve the reporting and operations mechanisms on the buses
- Continue with Metro SubwayLink signal and switches replacement, thereby improving Metro SubwayLink reporting and tracking
- Evaluate best practices and methodologies for measuring OTP on commuter routes and special services, using better data systems to find and troubleshoot performance issues

PERCENT OF VEHICLE MILES TRAVELED (VMT) IN CONGESTED CONDITIONS ON FREEWAYS/EXPRESSWAYS AND ARTERIALS IN MARYLAND DURING EVENING PEAK HOUR (5-6PM)

This measure tracks MDOT SHA and MDTA performance in reducing congestion on the State Highway system. This is an indicator of congestion and the people/vehicles impacted by congestion.



Target: Freeway Target: 28% by 2020, Arterial Target: 17% by 2020

* 2017 Freeway data changed from previous report.

** 2018 data is preliminary and subject to change.

Why Did Performance Change?

- A growing economy and historic low unemployment rates resulted in higher usage of major corridors in peak hours
- Peak hours has a non-linear effect on congestion (i.e., even though peak hour demand grew by a smaller percentage, congestion impacts were disproportionately higher)
- A whole host of system preservation projects and capital projects lead to additional delay in work zones and the surrounding network

What Are Future Performance Strategies?

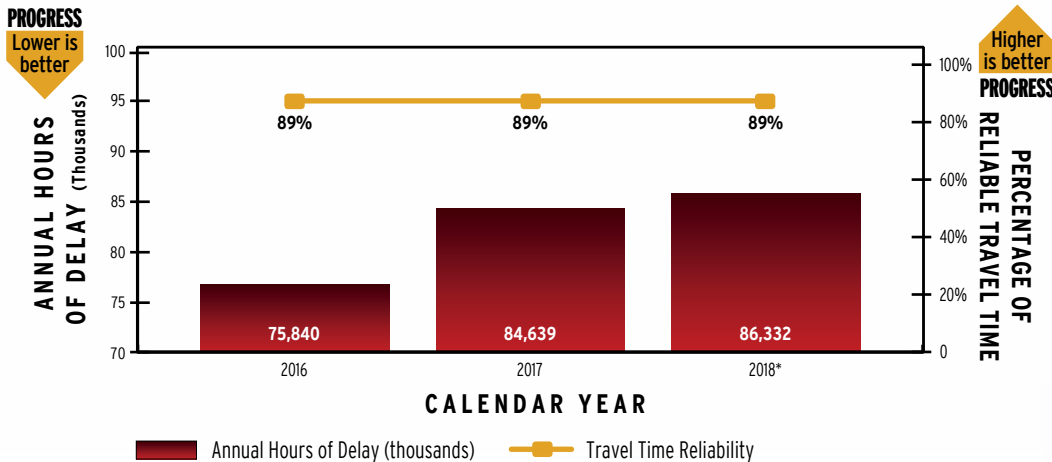
- MDOT SHA and MDTA are developing major projects through the Governor's TRP that will reduce congestion
- MDOT is pursuing a balanced approach to address transportation demands including the construction of the Purple Line transitway project, fleet improvement, and providing dedicated funding for WMATA
- MDOT's Commuter Choice Maryland will promote alternatives to driving alone such as Rideshare/Carpool, Vanpool, Biking, Walking, Telework, Maryland Commuter Tax Credit and Guaranteed Ride Home
- MDOT SHA is developing Transportation Systems Management and Operations (TSMO) solutions that provide active traffic management and integrated corridor management capabilities

ANNUAL HOURS (THOUSANDS) OF DELAY AND TRAVEL TIME RELIABILITY ON THE MDOT HIGHWAY NETWORK



This measure tracks MDOT SHA and MDTA performance in reducing congestion on the State Highway system. Reducing congestion and increasing mobility are priorities for MDOT SHA and MDTA, and many projects, programs and policies aim to meet the goal of reducing delay. This measure is an indicator of overall congestion and the number of people/vehicles affected by delay on the Maryland highway network.

Improving travel time reliability allows MDOT customers to better plan their trips using the Maryland transportation network. MDOT uses a planning time index (PTI) to measure reliability. Any roadway segment that has a PTI less than 1.5 is defined as reliable, and MDOT uses the PTI threshold to determine the percentage of travel time reliability. This understanding allows MDOT to determine if and when system changes need to be made.



Target: 95,250 thousand hours of delay in 2021, 88% Travel Time Reliability in 2021

* 2018 data is preliminary and subject to change.



OBJECTIVE:

Apply enhanced technologies to improve communications with the transportation system users and to relay real-time travel information

CUSTOMER SATISFACTION WITH THE ACCURACY OF REAL-TIME INFORMATION SYSTEMS PROVIDED



Real-time information systems are installed throughout the transportation network, offering the most accurate information available to help customers plan their trips and manage their time. Understanding customer satisfaction with the system allows MDOT TBUs to understand where improvements can be made and where they have been successful in conveying accurate information.

MDOT MTA Customer Satisfaction with Helpfulness and Accuracy of Information (For CY 2018)

Core Bus Tracker System



Light Rail Next Train Arrival System



MARC Next Train Arrival System



Commuter Bus Tracker System



CHART (MDOT SHA & MDTA), DMS CY 2018



MDOT MVA Wait Time Website 02 CY 2018



Why Did Performance Change?

- MDOT SHA and MDTA's Dynamic Messaging Signage (DMS) receives over 95% customer satisfaction with both usefulness and accuracy of those systems
- MDOT MTA offers real-time information systems for most of its modes of transportation and, due to ongoing improvement efforts, surveys on helpfulness and accuracy indicate a significant increase in customer satisfaction over the previous year
- MDOT MTA launched a partnership with Transit app, allowing customers to receive accurate location and arrival information for CityLink, LocalLink and ExpressBusLink in the BaltimoreLink fleet
- CHART provides real-time traffic conditions notifications to drivers along major routes
- MDOT MAA provides real-time next shuttle arrival information for travelers accessing the long-term parking lots
- MDOT MVA was able to use customer feedback to improve the reporting time for real-time information systems

What Are Future Performance Strategies?

- MDOT MTA will switch to a new system for the shuttle bus next vehicle arrival operation, resulting in conveying more timely and accurate information to shuttle customers and will continue to improve the Transit app to ensure accurate location and arrival information is conveyed to MDOT MTA customers
- MDOT MTA will begin implementation of a \$26 million Federal Transit Administration (FTA) grant for "Beyond the Bus Stop", a program that will include installing real-time signage at transfer hubs throughout Baltimore City and Anne Arundel County and will continue to improve the Transit app to ensure accurate location and arrival information is conveyed to MDOT MTA customers
- CHART will continue to expand DMS, websites and telecommunication efforts to operate the existing transportation system more efficiently
- MDOT MAA will replace its 15 year old fleet and replace it with 50 new state of the art buses that will provide real time arrival information at shuttle stops and by an app
- Increased usage of website by truckers and Beneficial Cargo Owners (BCOs) for release information to reduce customer service time



Goal: Ensure Environmental Protection and Sensitivity

Deliver sustainable transportation infrastructure improvements that protect and reduce impacts to Maryland's natural, historic and cultural resources

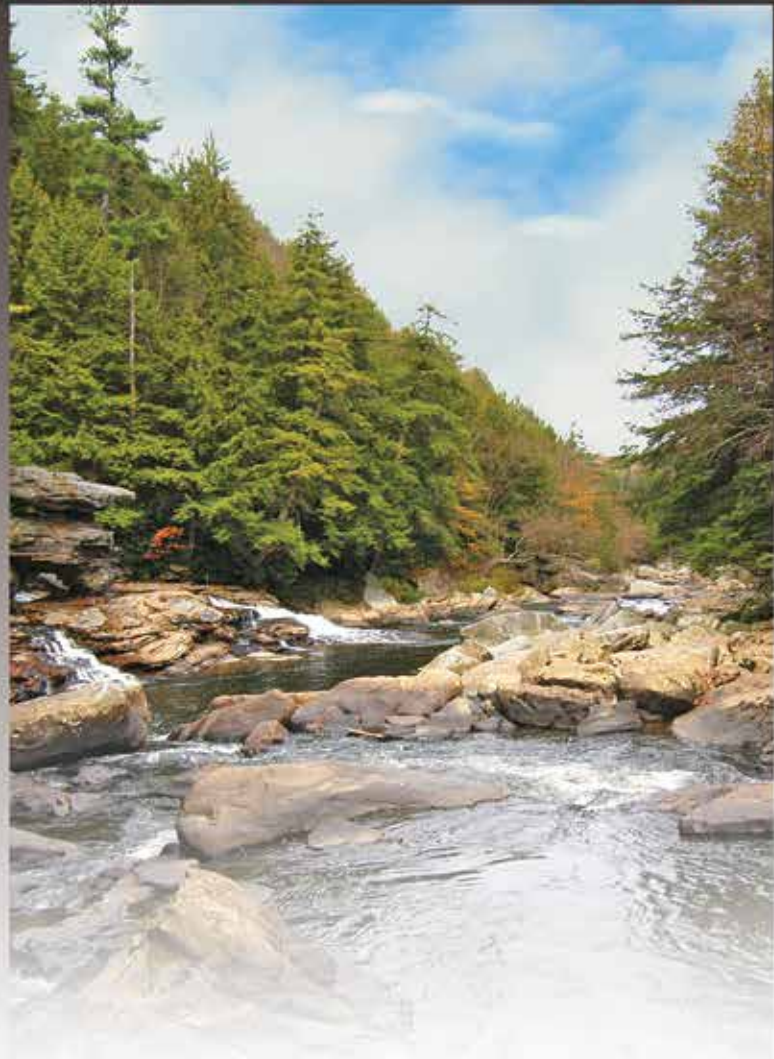
OBJECTIVES:

- **Protect and enhance the natural, historic and cultural environment through avoidance, minimization and mitigation of adverse impacts related to transportation infrastructure, including support for broader efforts to improve the health of the Chesapeake Bay**
- **Employ resource protection and conservation practices in project development, construction, operations and maintenance of transportation assets**
- **Implement initiatives to reduce fossil fuel consumption, mitigate Greenhouse Gas (GHG) and improve air quality**

In implementing its policies, programs and projects, MDOT has shown continued commitment to minimizing adverse impacts on the environment, conserving natural resources and integrating sustainability into various aspects of transportation systems. MDOT and its TBUs recognize that the protecting of natural resources and conducting business in an environmentally responsible manner are among the core elements of their overall mission. Among the ways to reduce effects of transportation and the built-environment include effective planning, interdisciplinary approaches to project development, sustainable operations and maintenance procedures.

MDOT's commitment to environmental protection influences a wide variety of plans, projects and initiatives and is present in the day-to-day operations of the TBUs. Examples of the far-reaching environmental initiatives of the Department include the MDOT MPA Innovative and Beneficial Reuse of Dredged Material Initiative, the Port of Baltimore Dray Truck Replacement Program, MDTA's Police Headquarters Shoreline Cleanup and MDOT SHA's tracking of Bay Restoration projects.

MDOT's TBUs often work in close coordination on environmental projects to comply with various laws and ensure a successful outcome of the planned projects. One such project, which won the



MDOT's 2018 Environmental Excellence Award, is the Broad Creek Stream Restoration project, which was a unique collaboration between MDOT SHA, MDOT MVA and the South River Federation. The project was designed and built to offset the impacts of impervious surfaces in the watershed through restoration of three outfalls and 2,800 linear feet of stream channels.

Interagency coordination efforts, including Maryland's Green Infrastructure Plan and Chesapeake Bay Restoration priorities, have successfully facilitated coordinating transportation with land use, natural features and other components to help ensure that transportation improvements have minimal or mitigated impacts to the environment.

MDOT is demonstrating leadership and vision by installing solar photovoltaic systems on sites owned by MDOT's TBUs that are being considered for development. MDOT is the first State DOT to establish a comprehensive solar program looking at all of its facilities for potential installation of solar. MDOT makes a continued commitment to environmental compliance, continuous improvement of its environmental performance through established processes and adherence to sustainable practices, while maintaining outreach and communication about its environmental activities with the public.

MDOT ENVIRONMENTAL INITIATIVES

- **MDOT MAA:** MDOT MAA is investing in clean and innovative technology, including the procurement of 20 new electric buses for shuttle bus operations at the BWI Marshall Airport.
- **MDOT TSO:** MDOT's Renewable Energy Master Contract for sites owned by MDOT business units is to be considered for photovoltaic system development. More than 874 facilities, including agency buildings, parking garages and parking lots can potentially be considered for solar installation. MDOT TSO issued six Master Services Agreements (MSA) for qualified contractors to design, construct, commission, finance, operate and maintain renewable energy facilities at MDOT locations throughout Maryland.
- **MDOT MTA:** As part of MDOT MTA's bus replacement program, the delivery of 172 40-foot clean diesel buses was completed in FY 2017 and an additional 140 buses have been ordered for delivery in FY 2018 and FY 2019 for its transition to cleaner fuel vehicles and improved air quality.
- **MDTA:** MDTA continues to implement an active environmental management program through the deployment of Electric Vehicle (EV) charging stations.
- **MDOT MPA:** With a Diesel Emissions Reduction Act (DERA) grant from the U.S. Environmental Protection Agency, MDOT MPA continues to replace dray trucks, and helped the Canton Railroad install idle-reduction technology in six switcher locomotives that operate at the Port, thereby reducing emissions from transportation in and around the terminals.
- **MDOT MVA:** MDOT MVA continues its energy conservation efforts including management of its carbon footprint, mitigation of emissions and reducing facility energy consumption by 20% by FY 2020, while providing comfortable cooling and heating temperatures aligned with Maryland's Energy Code.
- **MDOT SHA:** MDOT SHA completed a statewide coastal vulnerability assessment. Data from the vulnerability assessment is being integrated into planning and programming to ensure resilient and reliable transportation. Vulnerability assessment data is available for counties to utilize and has been incorporated into county reports that will provide roadway vulnerability information for all state and locally maintained roads. The completed data is available in a viewer with free access for county planners and emergency services, and is being integrated into asset management systems and project planning. Pilot studies were completed to determine methodology for assessing vulnerability to flooding in non-coastal locations and is being implemented in FY 2019. National Environmental Policy Act (NEPA) review for MDOT SHA projects now includes screening for locations subject to future sea level inundation. MDOT SHA achieved its highest percentage of recycled asphalt pavement usage in asphalt mix in CY 2017, using 455,554 tons in MDOT SHA construction projects.



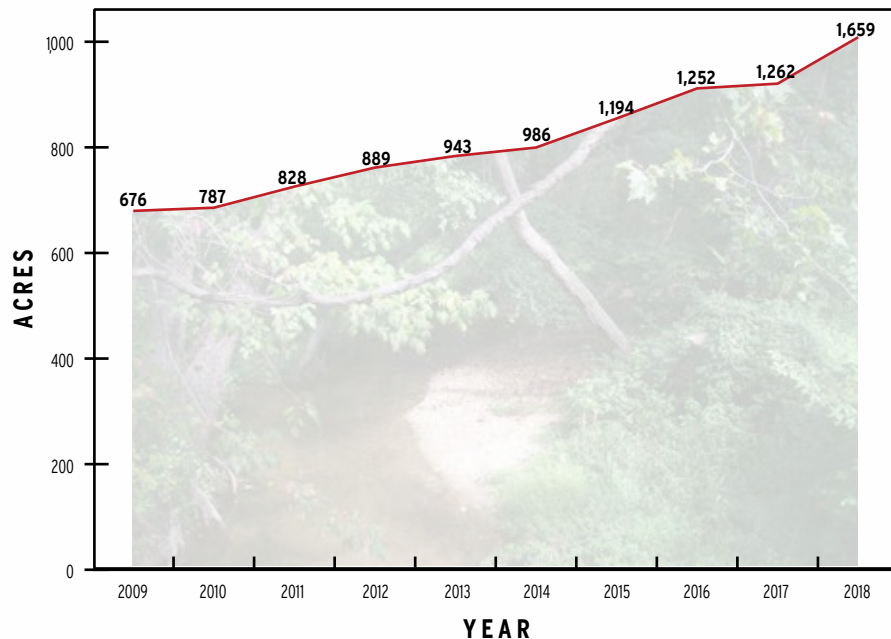
OBJECTIVE:

Protect and enhance the natural, historic and cultural environment through avoidance, minimization and mitigation of adverse impacts related to transportation infrastructure, including support for broader efforts to improve the health of the Chesapeake Bay

ACRES OF WETLANDS OR WILDLIFE HABITAT CREATED, RESTORED OR IMPROVED*



MDOT agencies are in compliance with the various permits that are granted to construct projects needed to improve the transportation system on land and offshore.



* This measure now includes data provided by MDOT MPA, MDOT SHA and MDTA.

Why Did Performance Change?

- MDOT SHA and MDTA create wetlands to mitigate the unavoidable environmental impacts from transportation projects that impact sensitive areas, consistent with compliance requirements
- MDOT MPA made significant progress in improving water quality by installing engineered stormwater treatment technologies that remove a variety of stormwater pollutants at cargo terminals

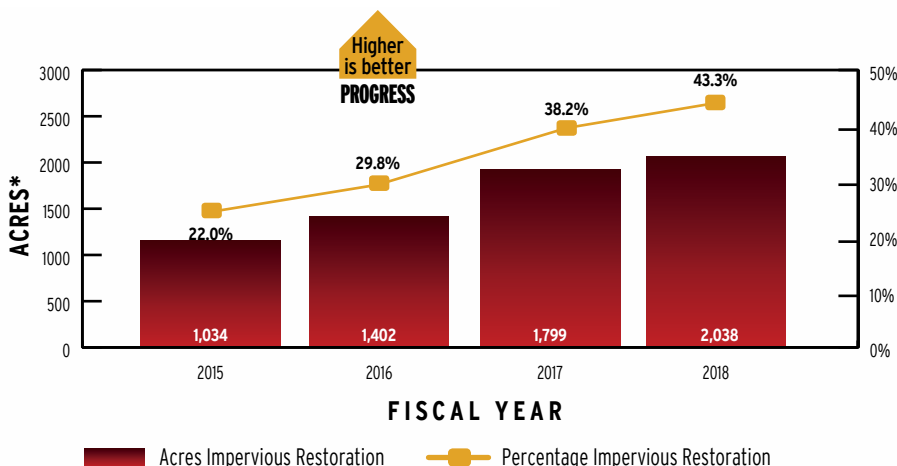
What Are Future Performance Strategies?

- Long term mitigation efforts include Hart-Miller Island North Cell restoration, Masonville's eastern uplands and the Poplar Island Expansion
- The Environmental Strategic Plan will drive future programs and initiatives such as including developing a clean air strategy for the terminal based on emerging technologies and programs; implementing a "trash-free port" pilot program
- Award a stormwater improvements contract to remove a variety of stormwater pollutants at four terminals: Seagirt, Masonville, Fairfield and South Locust Point

WATER QUALITY TREATMENT TO PROTECT AND RESTORE THE CHESAPEAKE BAY



This measure tracks MDOT SHA compliance with achieving impervious surface reduction as required by the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit. This measure reports the acres of impervious surface treatment associated with Bay restoration projects to determine overall progress toward the 20% goal during their five-year permit term.



Target: 4,709 Acres by October 2020
* Number of Acres each year are rounded.

Why Did Performance Change?

- MDOT SHA treated a cumulative 9% of MDOT's impervious surface not previously treated
- Continued implementation of stormwater management and total maximum daily load (TMDL) improvements to reduce pollution entering local waterways and ultimately the Chesapeake Bay

What Are Future Performance Strategies?

- MDOT SHA's Full Delivery Stream Restoration projects will deliver over 150,000 linear feet of stream restoration (1,500 MS4 restoration credit acres) when completed
- MDOT SHA is using a contracting approach to increase efficiency across the project implementation activity spectrum

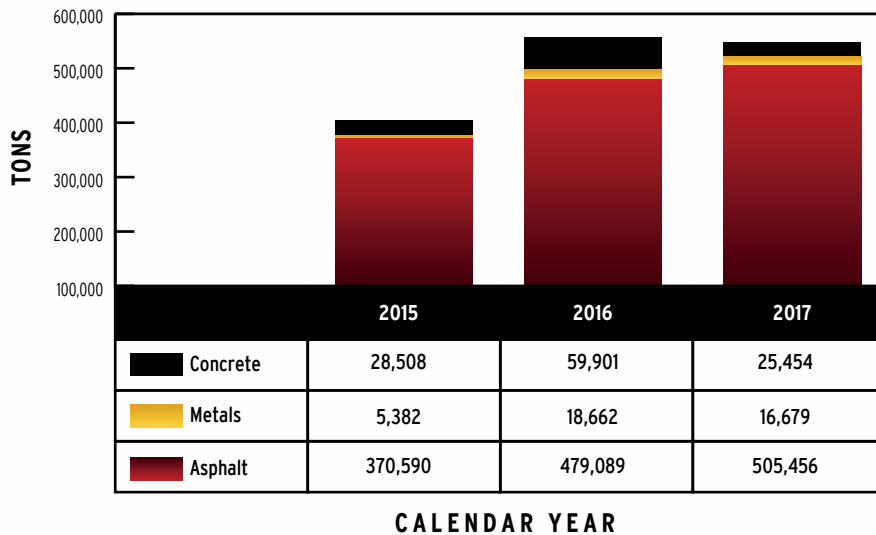
OBJECTIVE:

Employ resource protection and conservation practices in project development, construction, operation and maintenance of transportation assets

RECYCLED/REUSED MATERIALS FROM MAINTENANCE ACTIVITIES AND CONSTRUCTION/DEMOLITION PROJECTS*



Maryland's Department of the Environment (MDE) has established a "Zero Waste" Action Plan. This measure tracks the reduction of the TBU's impact on solid waste landfill through recycling/reuse of metal, asphalt and concrete. Due to the number and type of construction/demolition activities and projects, we recognize that there may be variability among reporting periods and TBUs.



Why Did Performance Change?

- MDOT SHA achieved the highest percentage of Recycled Asphalt Pavement (RAP) usage in asphalt mix in CY 2017
- MDOT SHA contractors can now choose recycled concrete-graded aggregate base (RC-GAB) instead of conventional GAB material provided the material specifications are met

What Are Future Performance Strategies?

- MDOT SHA will partner with the aggregate industry to devise methods and plans to encourage production and use of more RC, and will coordinate with the pavement design group to recommend increasing recycling road projects where applicable
- The TBUs established plans to recycle and/or reuse their solid waste metal, asphalt and concrete and will establish central data collection mechanisms and procedures, requiring contractors to segregate, collect, weigh and recycle these materials

* Due to the number and type construction/demolition activities and projects, there is variability among reporting periods and TBUs.

UTILITY ELECTRICITY USE & RENEWABLE ENERGY GENERATION

MDOT is committed to reducing electricity consumption through efficiency measures and renewable energy sources to help Maryland reach its clean energy and GHG reduction goals. Reducing energy consumption and generating renewable energy can save Maryland taxpayers money, generate revenue and decrease harmful air emissions. MDOT measures both the consumption of utility energy and the amount of renewable energy generated by MDOT.

Why Did Performance Change?

- TBUs completed a comprehensive Energy Plan that details its energy-consuming facilities, existing and future energy conservation strategies, and future energy conservation goals
- Continued to implement energy conservation measures that upgrade lighting, HVAC units, windows and roofs
- MDOT contractors will design, construct, commission, finance, operate and maintain photovoltaic (PV) facilities at MDOT locations throughout Maryland

What Are Future Performance Strategies?

- MDOT's Energy Managers Workgroup continues to meet bimonthly to discuss current trends and challenges, share best practices and determine ways to responsibly leverage MDOT resources
- Continue to increase capacity for renewable energy generation by constructing new solar PV facilities

MEGAWATT HOURS IN THOUSANDS (FY)	2013	2014	2015	2016	2017
Electricity Use	396	393	383	384	364
Renewable Energy Generation	1.88	1.525	1.759	1.998	1.629



OBJECTIVE:

Implement initiatives to reduce fossil fuel consumption, mitigate greenhouse gases and improve air quality

TRANSPORTATION-RELATED EMISSIONS BY REGION



MDOT plans, programs and projects continue to meet federal and State requirements for air quality. MDOT efforts also result in GHG emissions reductions, which assist the State in meeting its GHG goals.

PERFORMANCE MEASURE	REGION	CALENDAR YEAR				% CHANGE 2005-2014
		2008	2011	2014	2017	
Volatile Organic Compound (VOC) Tons per Day	Baltimore	52.8	45.5	41.3	25.9	-51%
	Washington	44.2	39.2	35.4	23.9	-46%
	Other	25.8	20.7	21.1	13.4	-48%
Nitrogen Oxide (NOx) Tons per Day	Baltimore	107.8	89.5	79.5	53.7	-50%
	Washington	84.0	74.4	63.3	45.3	-46%
	Other	52.7	44.4	44.2	32.8	-38%
Carbon Monoxide (CO) Tons per Day	Baltimore	541.9	445.1	431.8	365.0	-33%
	Washington	433.4	363.6	352.6	335.5	-23%
	Other	273.2	202.4	229.1	180.1	-34%
Particulate Matter (PM2.5) Tons per Day	Baltimore	4.6	3.5	3.4	2.2	-52%
	Washington	3.6	2.9	2.7	1.9	-48%
	Other	1.9	1.4	1.5	1.1	-44%

* All emission estimates developed as part of the USEPAs National Emissions Inventory (NEI). The NEI is published every three years.

** 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.

Why Did Performance Change?

- MDOT MAA procured 20-60' articulated shuttle buses powered by Compressed Natural Gas (CNG) for transportation between the BWI Marshall Airport terminal and the Consolidated Rental Car Facility
- MDOT continued to invest in projects promoting alternative methods of transportation; in 2018, \$17 million was set aside for 43 bicycle and pedestrian projects
- MDOT MTA and Locally Operated Transit Systems (LOTS) continue to update and renew their bus fleets to maintain the average age of the fleet, resulting in reduced emissions, fuel consumption and noise
- Coordinated with local businesses, public stakeholders and rideshare companies to address diverse emissions reductions strategies such as telecommuting, carpool lot locations and congestion mitigation
- With DERA grants, replaced more than 173 dray trucks that routinely call at the Seagirt Marine Terminal

What Are Future Performance Strategies?

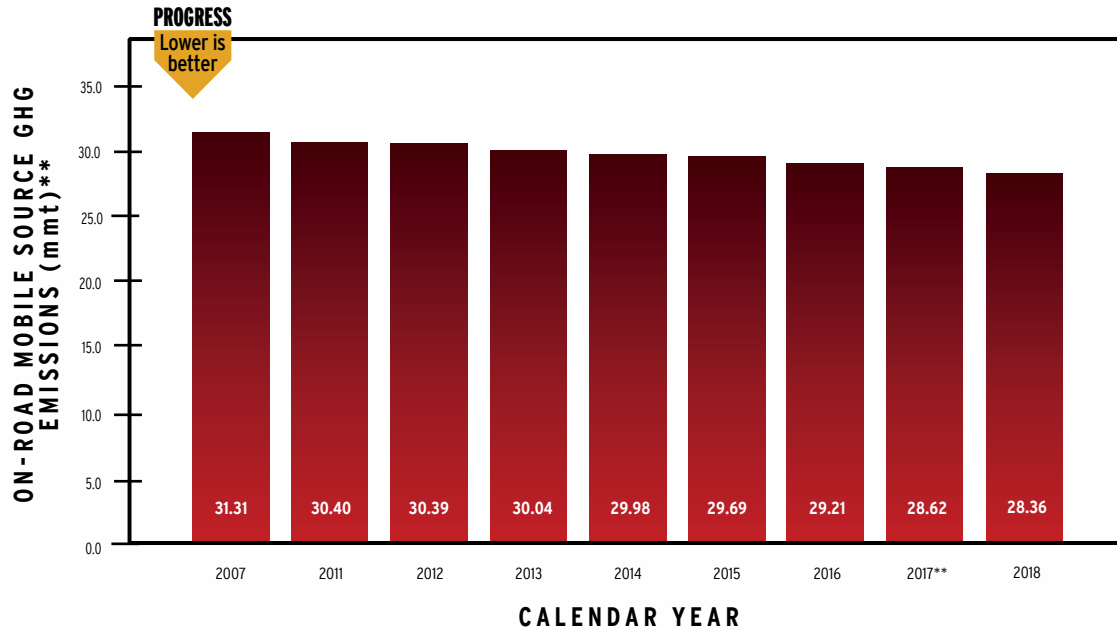
- The FY 2018–FY 2023 CTP set aside \$3.310 billion for transit projects that will increase transit reliability and contribute to emissions reductions, including two recent successful Transportation Investment Generating Economic Recovery (TIGER) grant recipients for Bus Rapid Transit (BRT)
- The MDOT MTA has developed and awarded the first few statewide Transit Innovation Grants aimed at incorporating innovative transit-related investments to modernize Maryland's transit
- MDTA will continue to update its toll facilities to be all-electronic and reduce the amount of time spent idling in payment lines
- MDOT developed a Corridor Priority Tool to evaluate truck volumes, freight density, intermodal connections and bottlenecks to identify Maryland's critical urban and rural freight corridors and to prioritize freight-related projects
- MDOT MAA is looking to procure inductive electric shuttle buses using the Volkswagen settlement grant opportunity



TRANSPORTATION-RELATED GHG EMISSIONS



Maryland has made substantial progress in combating air pollution and GHG emissions, with transportation policies and investments playing a key role in these improvements. MDOT programs supporting fuel and vehicle technology improvements, transportation demand management (TDM), transit and projects that reduce roadway congestion, all support air quality goals.



Target: 25% below 2006 emissions by 2020. For on-road transportation, the goal equals 23.5 mmt CO₂e in 2020 and 40% below 2006 emissions by 2030*

* The MDOT selected GHG emission reduction goal is consistent with the statewide target set in the 2009 Greenhouse Gas Reduction Act and the subsequent 2016 Greenhouse Gas Reduction Act reauthorization.

** MMT CO₂e stands for million metric tons of carbon dioxide equivalents, the standard unit of measurement for GHG emissions. Emissions are calculated using the most recent data and version of EPA's MOVES model available at time of analysis. MOVES2014a is used for analysis year 2016, 2017, and 2018. 2017 annual VMT revised to reflect actual MDOT SHA reported 2017 HPMS VMT.

Why Did Performance Change?

- On-road transportation GHG emissions continue to decrease in Maryland as the efficiency of the on-road vehicle fleet improves even as vehicle miles traveled (VMT) growth continued in 2017 and 2018
- MDOT SHA's Coordinated Highways Action Response Team (CHART) program continues to yield substantial GHG reductions associated with the efficient management of incidents, traveler information and other on-road infrastructure technologies that reduce delay
- MDOT's design-build approach to improve reliability and reduce congestion along the I-270 corridor will utilize innovative technology to manage congestion and reduce GHG emissions
- As part of its continued effort to refine its TDM approach, MDOT, in 2017, initiated a listening campaign of commuters and residents and held interviews of large employers to understand motivating factors and barriers to maximizing the use of TDM options

What Are Future Performance Strategies?

- MDOT MPA will initiate a study to determine carbon sequestration in the created wetland/coastal ecosystems at Hart Miller Island
- MDOT SHA completed a statewide coastal vulnerability assessment; pilot studies to determine methodology for assessing vulnerability to flooding in non-coastal locations were completed, which are being implemented in FY 2019
- MDOT is leading implementation of the bicycle and pedestrian priority area (BPPA) program, supporting localities in designating areas and developing plans leading toward implementation of network improvements in these areas



OBJECTIVE:

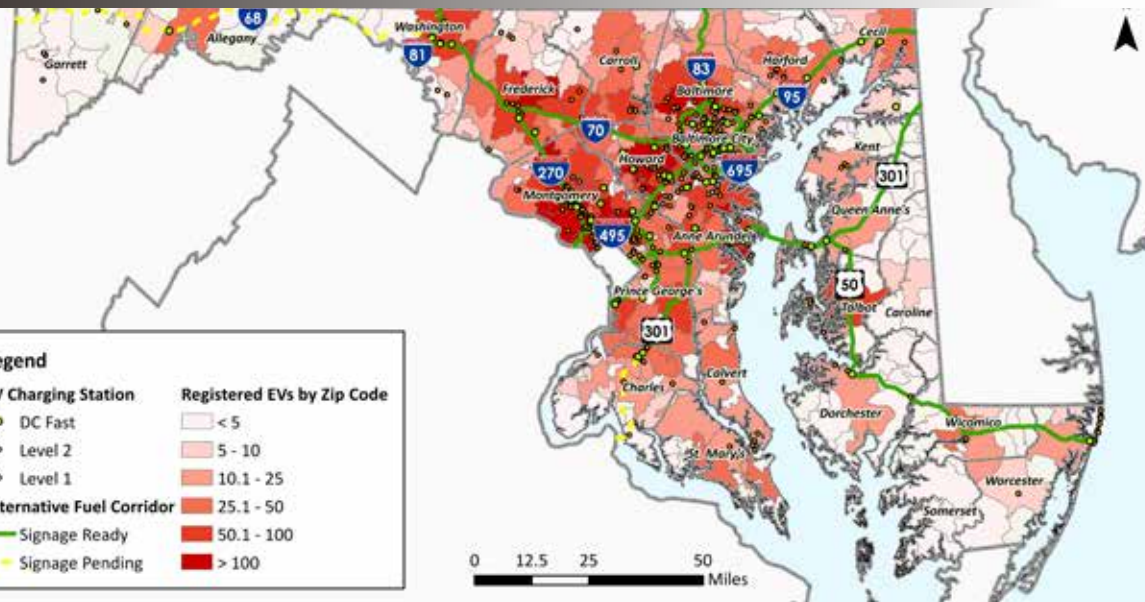
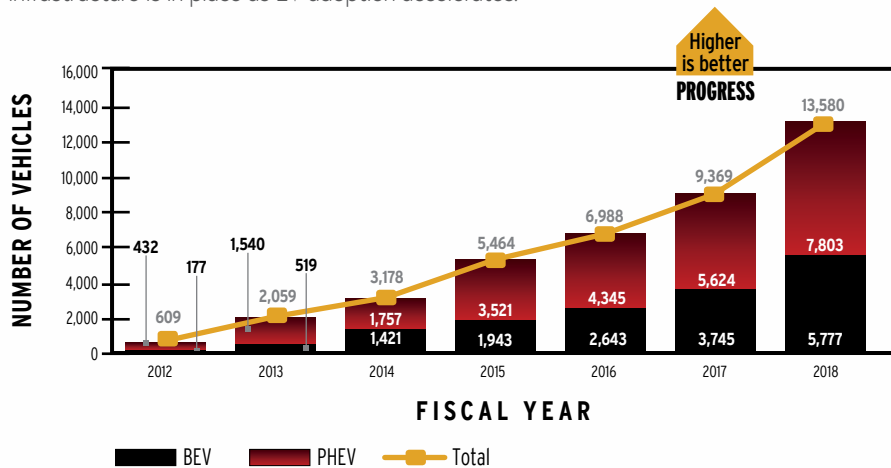
Implement initiatives to reduce fossil fuel consumption, mitigate greenhouse gases and improve air quality

TOTAL ELECTRIC VEHICLES (EVs) REGISTERED IN MARYLAND AND TOTAL PUBLICLY AVAILABLE EV CHARGING INFRASTRUCTURE



Maryland has a goal of 60,000 EV registrations in the State by 2020 and 300,000 by 2025. These goals represent a key component of ensuring that Maryland meets our GHG emission reduction goal of 40% from 2006 levels by 2030.

Drivers in Maryland are encouraged to buy EVs through tax benefits and rebates, leading to an increase in EVs across the state. The installation of electric vehicle supply equipment (EVSE) will continue to be critical in addressing range-anxiety and ensuring that adequate EV charging infrastructure is in place as EV adoption accelerates.



Why Did Performance Change?

- The Maryland EV Excise Tax Incentive was renewed during the 2017 Legislative Session, making EVs more financially accessible to more Maryland residents by offering a tax rebate of up to \$3,000 for the purchase of an EV
- MDOT successfully submitted and received additional designation of alternative fuel/electric vehicle corridors under the Fixing America's Surface Transportation (FAST) Act; the new corridors include US 301, I-83, I-81, and I-695 and were added to the four existing corridors I-95, US 50, I-270 and I-70/I-68
- MDOT continued a direct EV outreach campaign throughout 2018 and has engaged 3,600 Marylanders across 12 Counties. The outreach campaign is designed to educate Marylanders on the benefits/advantages of EVs and to dispel any commonly held misbeliefs surrounding EVs and EVSE

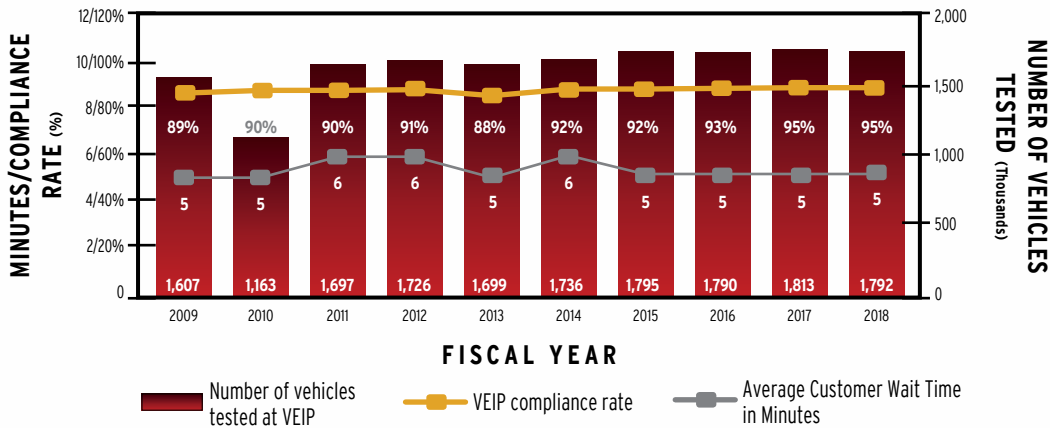
What Are Future Performance Strategies?

- MDOT will continue to lead the Electric Vehicle Infrastructure Council (EVIC) to promote and incentivize EV adoption and EVSE installation
- Maryland will continue to participate in State and region-wide efforts to install signage along our EV charging corridors

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. In 2018, MDOT MVA implemented a recommendation from the Governor's Regulatory Reform Commission's 2016 report, extending initial VEIP inspections for new vehicles by one year, saving Maryland taxpayers money while maintaining critical environmental protections.



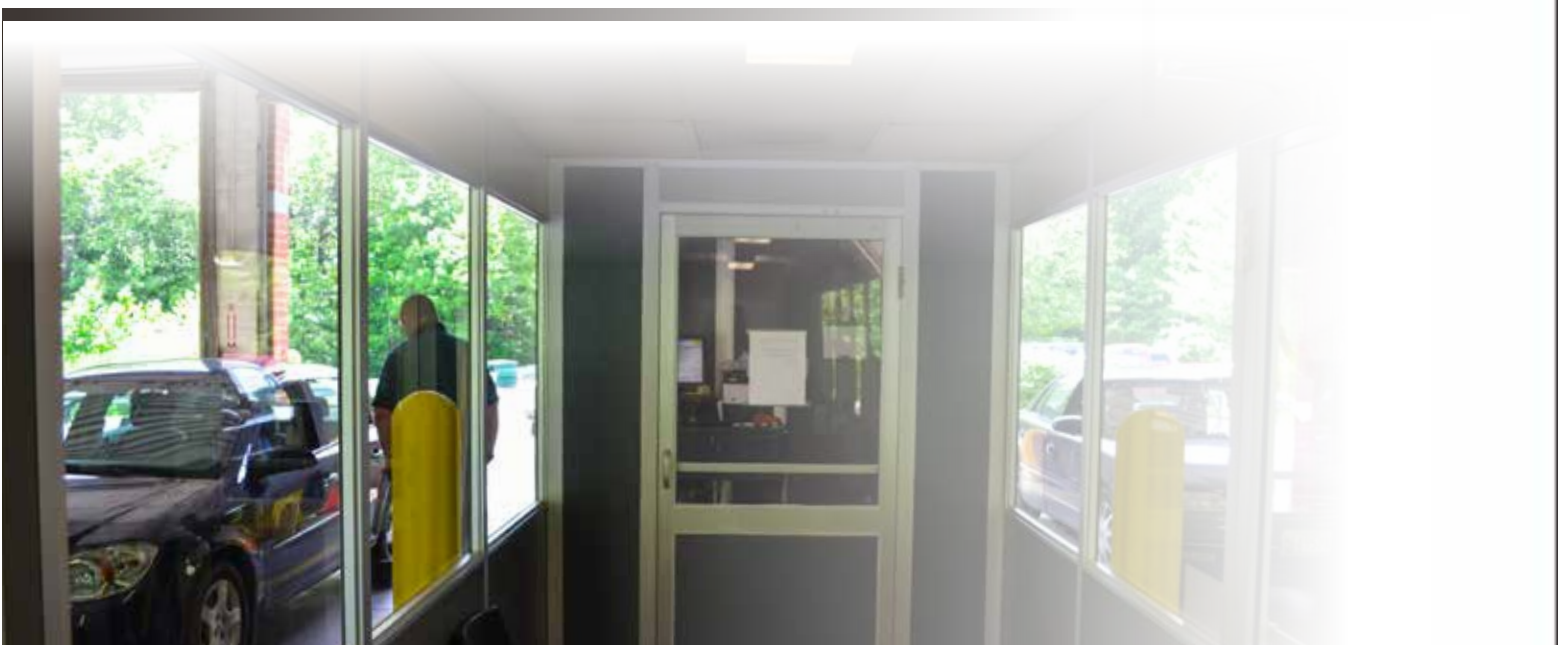
* 2018 data is preliminary and subject to change. 14 counties offer VEIP tests: Anne Arundel, Baltimore, Baltimore City, Carroll, Harford, Howard, Queen Anne's, Cecil, Washington, Calvert, Charles, Frederick, Montgomery and Prince George's.

Why Did Performance Change?

- MDOT MVA sent e-mails to customers needing to have their vehicle's emissions inspected
- MDOT MVA modified VEIP kiosk screens for more flexibility to accept late fee payments and process VEIP test for vehicles beyond their expiration date
- MDOT MVA coordinated with VEIP kiosk support to secure two dedicated technicians who were allowed to access the system remotely and auto correct software

What Are Future Performance Strategies?

- Continue to monitor performance of the installed vehicle emissions self-serve kiosks and research emerging technologies for future changes to the program
- Add a cable to the On Board Diagnostics (OBD) device at the VEIP kiosk to improve connectivity
- Install Spanish language option at select VEIP kiosks





Goal: Promote Fiscal Responsibility

Ensure responsible investment and management of taxpayer resources to add value and deliver quality transportation improvements through performance-based decision making and innovative funding mechanisms and partnerships

OBJECTIVES:

- Accelerate project completion through improved and efficient use of alternative project delivery methods and strategic partnerships
- Provide transportation services and solutions that maximize value
- Ensure a consistent revenue stream and ample financing opportunities

Maryland's transportation system is a product paid for by the people who choose to live, visit and do business in the state. Therefore, it is MDOT's job to responsibly maximize its transportation investments, while accounting for the needs of all who operate within the state. Fiscal responsibility can be innovative project delivery methods, funding reallocation, customer service improvement and beyond. MDOT seeks to responsibly manage allotted funds while providing the highest degree of service to transportation network users. Beginning in 2018, the Vehicle Emissions Inspection Program (VEIP) test regulations changed. New vehicles do not have to be tested until after three years instead of two and pre-1996 light-duty vehicles will not have to be VEIP tested again, exempting about 24,000 motorists from the VEIP test all-together. In addition MDOT MVA opened ten self-serve VEIP kiosks that are available twenty four hours a day, seven days a week (24/7), and the price for a VEIP test was reduced from \$14 to \$10. MDOT MVA and MDOT MTA teamed up to allow customers to purchase a CharmCard through MDOT MVA's website and self-serve kiosks, and MDOT MVA expanded its Transportation Security Administration (TSA) Precheck® and Transportation Worker Identification Credential (TWIC) card services to the Glen Burnie branch office.

MDOT SHA continues to use an efficient cost plus time approach, known as A+B bidding, in order to deliver projects. This method minimizes travel disruptions, addresses safety considerations



and delivers projects faster than a traditional low-bid method. The projects yield better value and are a long-term investment of taxpayer dollars. MDOT SHA also utilizes the Design-Build project delivery method, a method that incorporates both design and construction. In all, MDOT SHA seeks to maximize its allocated funding to ensure an efficient system with minimal downtime.

Public-Private Partnerships (P3s) are another way that MDOT seeks to remain fiscally responsible. P3 agreements are in effect for several large projects that could otherwise be cost inefficient or provide extensive service disruptions. Their projects include the massive P3 to add managed lanes to I-495 and I-270 in Montgomery, Prince George's and Frederick counties, and the \$5.6 billion P3 for the Purple Line between Montgomery and Prince George's counties. These types of partnerships allow more funding flexibility than traditional vehicles, meaning more savings for system users.

MDOT actively seeks out discretionary grants to supplement its guaranteed funding. These discretionary grants are competitive and require that applicants meet certain eligibility criteria. While some are limited to state agencies, more grants are open to regional and local agencies. These regional and local agencies are encouraged to coordinate with MDOT in order to put together the most competitive grant application package. The Purple Line's approximately \$900 million funding agreement is an example of this type of discretionary grant funding.

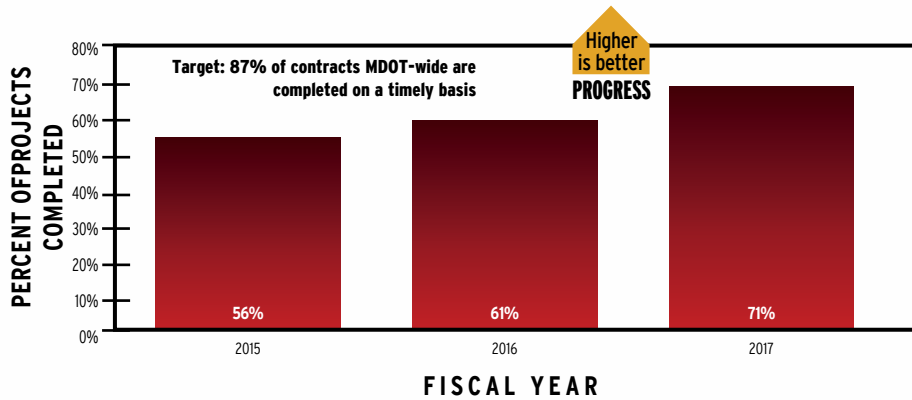
OBJECTIVE:

Accelerate project completion through improved and efficient use of alternative project delivery methods and strategic partnerships

PERCENT OF PROJECTS COMPLETED BY ORIGINAL CONTRACT DATE



This performance measure reports on how efficiently MDOT is managing and delivering contracts and services by determining if contracts are completed by the established commitment date/project completion date. Project completion is based on when stakeholders start receiving "beneficial use" from the project.



Why Did Performance Change?

- Changing criteria for completion from financial completion to beneficial use (project open for service)
- Adopting strategies such as A+B Bidding which factors both price and time in evaluating bids
- Utilizing Time of Year Letting strategies, which foster economies of scale
- Reviewed active projects on an ongoing basis for adherence to completion schedule

What Are Future Performance Strategies?

- Require completed projects to undergo a lessons-learned process
- Receive administrator input and approval on design changes
- Review the design process to ensure all project obstacles are considered when project scope is defined
- Ensure that prior to contract award the schedule has been coordinated with third parties (e.g., utilities)



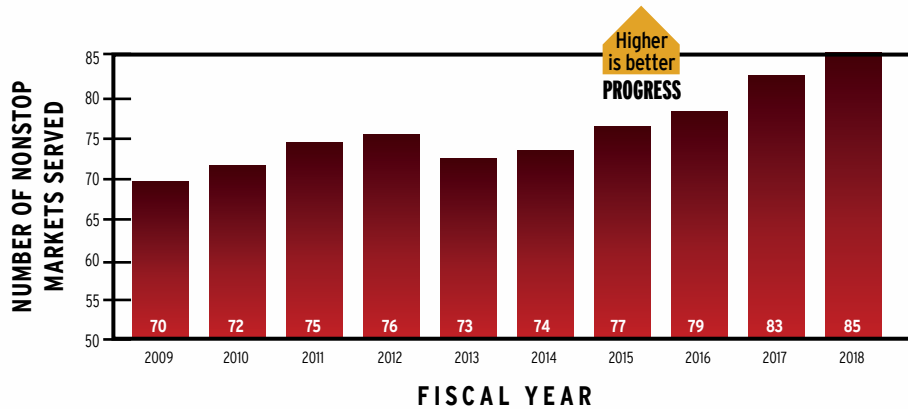
OBJECTIVE:

Provide transportation services and solutions that maximize value

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 Airport as the airport of choice in the region and reflects the success of MDOT MAA's marketing efforts to increase the competitiveness of BWI Marshall Airport for business and leisure travel.



Target: 73

Why Did Performance Change?

- Loss of two Spirit and Allegiant markets in mid-2018 and the uncertainty of continued Federal Essential Air Service funding possibly affecting six markets

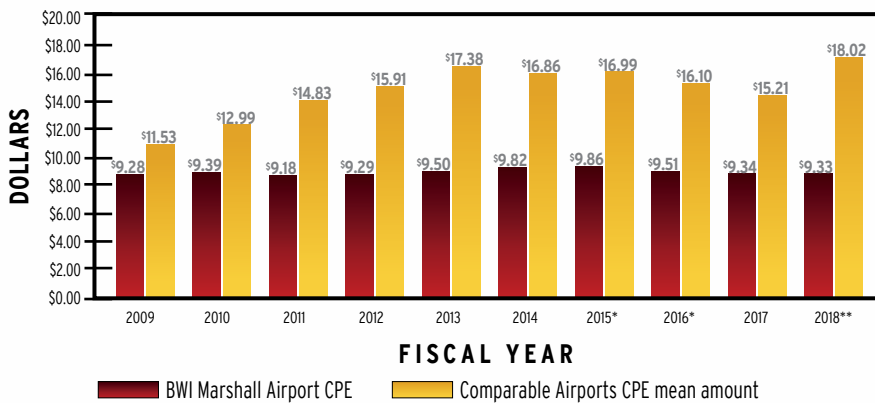
What Are Future Performance Strategies?

- Continue to meet with both potential new entrants and current carriers to promote potential new air service opportunities to BWI Marshall Airport
- Focus BWI Marshall Airport advertising and awareness campaigns on passengers, emphasizing 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 Airport as the "Easy Come, Easy Go" gateway to Washington D.C.

AIRLINE COST PER ENPLANED PASSENGER (CPE)



Airline costs to operate at an airport (e.g. landing fees, airside usage charges, fuel flowage fees, terminal rents) allow BWI Marshall Airport to remain competitive in a region that is unique because it has four proximate airports – Ronald Reagan Washington National, Washington Dulles International and Philadelphia International. The CPE at BWI Marshall Airport continues to be the lowest in the mid-Atlantic region and is well below the mean of comparable airports.



Target: BWI Marshall Airport CPE below the mean CPE of comparable airports***

* 2015 and 2016 Comparable Airports data revised from previous reports.

** 2018 data is preliminary and subject to change.

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

Why Did Performance Change?

- Passenger growth at BWI Marshall Airport during FY 2018 was slightly higher than airline cost growth which lead to a reduction in CPE for 2018

What Are Future Performance Strategies?

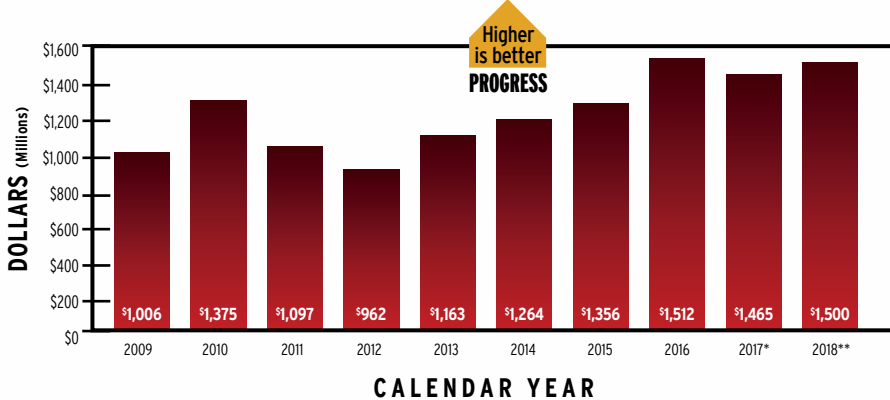
- Continue to review the cost effectiveness of capital projects before moving forward with design and construction
- Continue to closely monitor all airport costs in order to keep BWI Marshall Airport rates competitive with other regional airports



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 Maryland state and interstate roadways) reflects the tangible benefits of the Coordinated Highways Action Response Team (CHART) incident management program.



Target: \$1,500 million annually

* 2017 data revised from previous report.

** 2018 data is preliminary and subject to change.

What Are Future Performance Strategies?

- Evaluate the CHART patrol program to determine continuing improvements to reduction in roadway delays and user cost savings
- Collaborate with and support the Maryland State Police (MSP) to develop and implement an Unmanned Aerial System (UAS) Program for crash reconstruction
- Complete an Integrated Freeway and Arterial Master Plan for the deployment of Transportation Systems Management and Operations (TSMO) projects
- Draft and collaborate on legislation to limit liability for tow companies to clear disabled vehicles and cargo from the travel lanes
- Provide SHRP2 TIM training to partner organizations in Maryland

Why Did Performance Change?

- Reached a milestone of 1,000,000 CHART responses since the inception of the program
- Coordinated 62 Strategic Highway Research Program (SHRP2) Traffic Incident Management (TIM) Responder training sessions statewide, of which CHART directly facilitated 26, training 1,093 responders in the sessions
- Conducted a Train-the-Trainer session, certifying 14 new TIM instructors, bringing the total trained in Maryland to 6,436 since the program began in July 2013
- Handled 152,482 events, including incident responses, assistance with disabled vehicles and traffic management operations, for special and weather-related events
- Implemented a modernized Maryland 511 service to be more efficient, save money and enhance future service to customers
- Implemented Work Zone Impacts and Strategies Estimator (WISE)

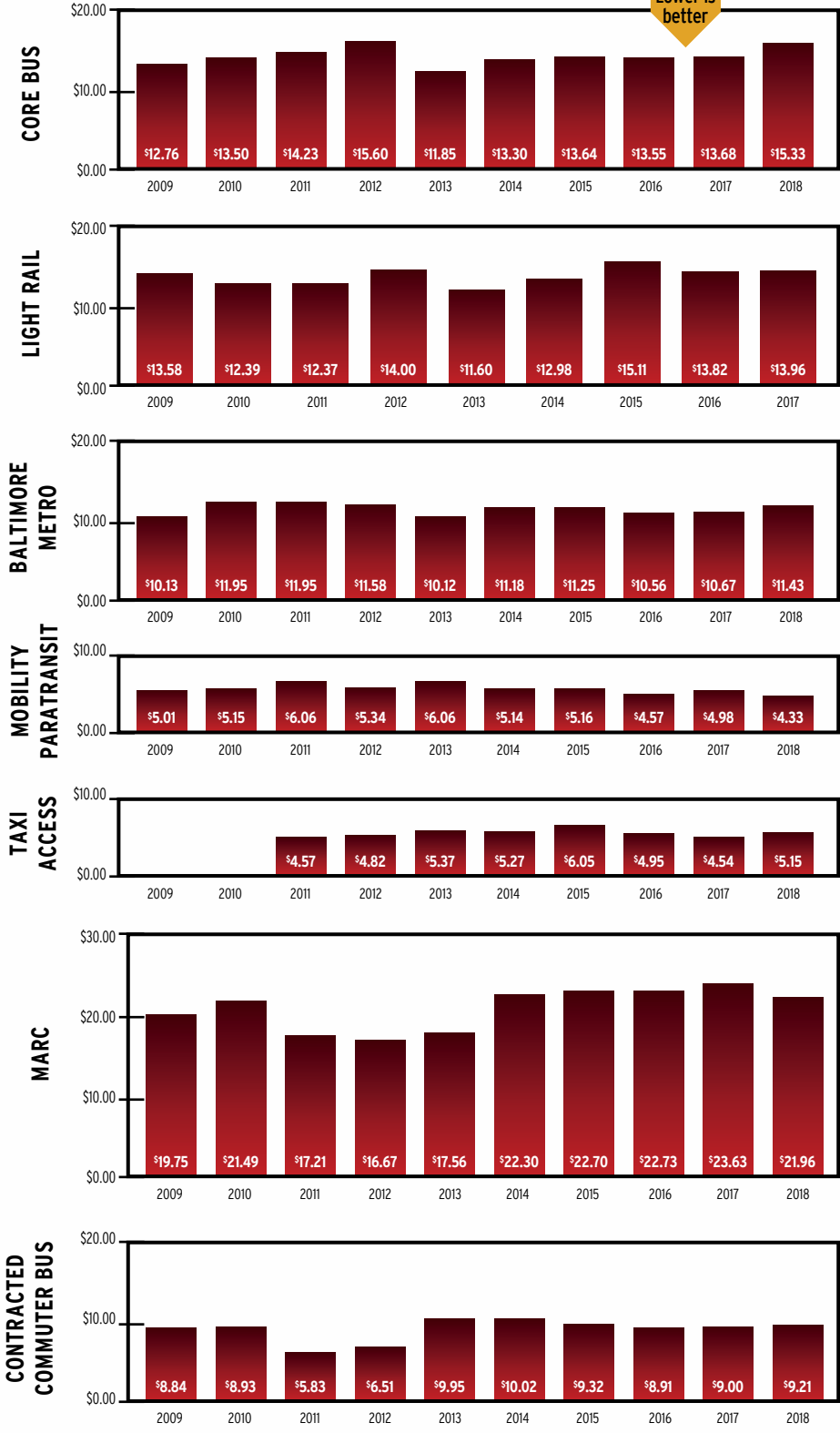


OPERATING COST PER REVENUE VEHICLE MILE



ON TRACK

PROGRESS
Lower is better



Why Did Performance Change?

- The cost to operate transit services increased and was disproportionately greater than the vehicle revenue mile increases
- Cost-per-trip increased for all modes from FY 2017 to FY 2018, except for mobility paratransit and MARC, due to newly established services and routes, contract increases and general inflation
- An increase in overtime hours drove up the operating cost
- Across all modes the costs per revenue vehicle mile increased by 5%

What Are Future Performance Strategies?

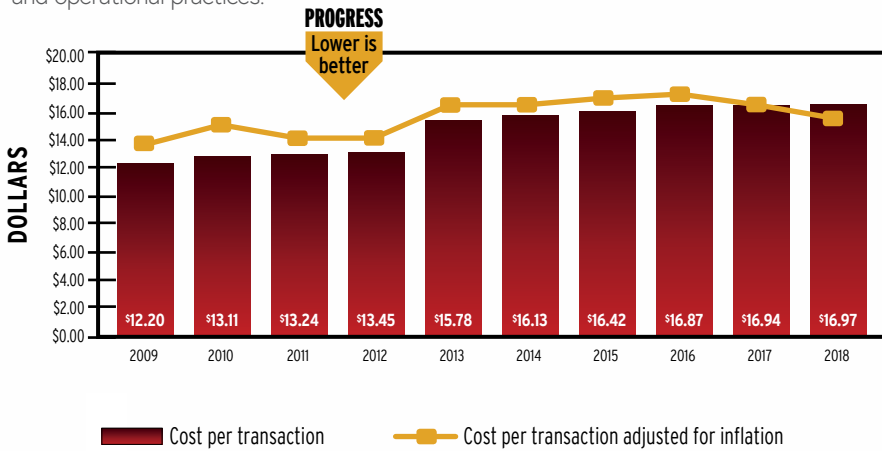
- Continue to increase system reliability to improve on time performance (OTP), making transit service more reliable for customers
- Increase the accuracy of the real-time passenger information on MDOT MTA's transit services to provide the best possible information to and for customers
- Implement mobile ticketing
- Use Rate-Your-Ride app data to identify areas of improvement and implement selected customer suggestions to improve transit service
- Pursue increased marketing techniques to educate potential customers about MDOT MTA services
- Utilize better signage and wayfinding in transit stations and facilities to improve the customer experience



MDOT MVA COST PER TRANSACTION*



Cost per transaction is used as an indication of whether MDOT 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).

Why Did Performance Change?

- MDOT MVA modified the calculation of cost per transaction to reflect only costs that immediately result from a transaction; administrative costs are excluded from this calculation

What Are Future Performance Strategies?

- Continue to promote the "Anytime, Anywhere, MVA Online" campaign and continue to add more MDOT MVA services and transactions available online or through other alternative means
- Continue to improve the MDOT MVA Customer Call Center hours to more efficiently serve customers prior to visiting a branch
- Launch system modernization to enhance our capabilities and customer interactions



OBJECTIVE:

Ensure a consistent revenue stream and ample financing opportunities

MDOT actively seeks out discretionary grants to supplement its guaranteed funding. These discretionary grants are competitive and require that applicants meet certain eligibility criteria. While some are limited to state agencies, more grants are open to regional and local agencies. These regional and local agencies are encouraged to coordinate with MDOT in order to put together the most competitive grant application package. The Purple Line's approximately \$900 million funding agreement is an example of this type of discretionary grant funding. Maryland also received two Better Utilizing Investments to Leverage Development (BUILD) discretionary grants from the U.S. Department of Transportation: a \$20 million grant for the Belvidere Road Interchange Project in Cecil County, and a \$6.6 million grant for the Seagirt Marine Terminal to deepen a second container berth to allow the Port to handle two supersized container ships simultaneously.

The Purple line is also an example of a Public-Private Partnership (P3), a method for delivering public infrastructure projects, such as highway and transit improvements, with an agreement between a public owner (such as MDOT) and a private entity. The private entity, known as a concessionaire or developer, performs functions under a single agreement that are normally completed through multiple contracts and/or with public resources. These types of partnerships allow more funding flexibility than traditional vehicles, meaning more savings for system users. Another example of a P3 project in Maryland is the massive project to add managed lanes to I-495 and I-270 in Montgomery, Prince George's and Frederick counties.



Goal: Provide Better Transportation Choices and Connections

Improve transportation connections to support alternative transportation options for the movement of people and goods

OBJECTIVES:

- Enhance, through statewide, regional and local coordination, transportation networks to improve mobility and accessibility
- Increase and enhance multimodal connections to improve movement of people and goods within and between activity centers
- Inform and educate customers on transportation options and benefits

MDOT's transportation network is becoming increasingly multimodal, with a variety of options for traveling to and from popular destinations. MDOT's investment in improving mobility for all transportation modes enhances the accessibility for residents and visitors by improving the connectivity to key destinations and reducing the time spent in congestion. Planning and building infrastructure for bicycling, walking or taking transit improves mobility for all users, regardless of individual income or ability. Subsequently, multimodal options improve overall transportation efficiency by shifting travel from congested roadways to other transportation modes, increasing the mobility for vehicles and freight goods while providing safe and comfortable infrastructure for pedestrians, bicyclists and transit users. These efforts can be enhanced through support of Transit-Oriented Development (TOD), and by creating communities near transit that improve access to jobs, services, retail and housing.

On a statewide level, MDOT has supported multimodal programs by providing construction funding, coordination and planning resources through a variety of programs. An example of MDOT's multimodal coordination is the MDOT MTA's Intercounty Connector (ICC) Bus, which makes several stops between Gaithersburg and BWI Marshall Airport, utilizing the MDTA ICC/MD-200. Other recent multimodal improvements include construction funding for the installation of Bikeshare stations in the National Harbor area and expanding the Bethesda Trolley



Trail Bikeshare network through the Maryland Bikeways Program. MDOT has also designated Bicycle and Pedestrian Priority Areas (BPPAs) to help coordinate planning and goals for areas with a high potential for bicycling and walking, such as the Bethesda Central Business District and the Village of Tilghman. MDOT's future multimodal investments are underway, including a 4.5-mile hiker-biker trail along MD 413, which is funded through the Transportation Alternatives (TA) Program, and planning and designing North Avenue Rising, a multimodal investment to improve walking, bicycling and transit access while supporting local economic development in Baltimore.

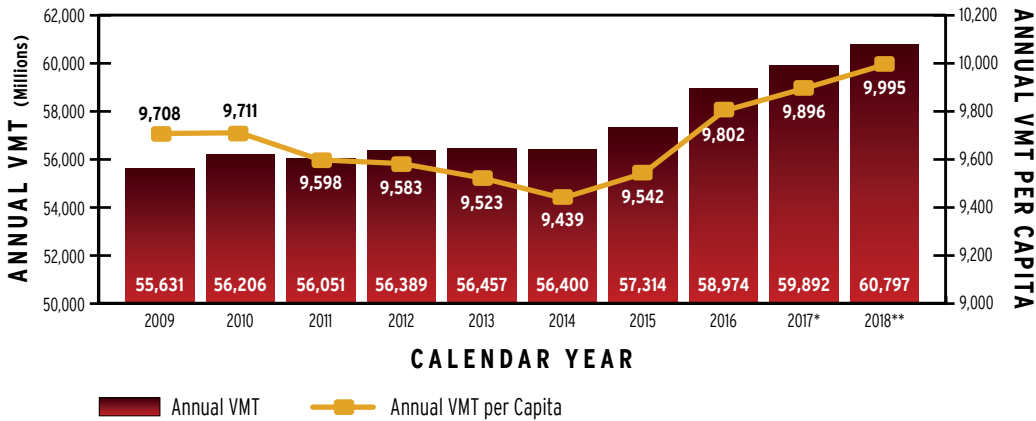


OBJECTIVE:

Enhance, through statewide, regional and local coordination, transportation networks to improve mobility and accessibility

TOTAL VEHICLE MILES TRAVELED (VMT) AND VMT PER CAPITA

Economic and population growth increase the demand for transportation facilities and services. Past trends indicate that as these demands increase, it can be expected that total VMT will also increase. MDOT anticipates this demand and responds with investments in capital projects, operational improvements and other strategies to ensure multimodal networks and services remain efficient, viable and safe. MDOT provides alternatives to driving alone, such as walking, bicycling, riding transit or carpooling to support mobility options that do not increase total VMT or augment congestion, as well as promoting teleworking and flexible work hours. MDOT is also aware that as it makes investments in transportation to improve services and increase capacity, travelers are naturally drawn to new facilities that are expected to improve the travel experience.



* 2017 VMT data revised from previous report.
** 2018 data is preliminary and subject to change.

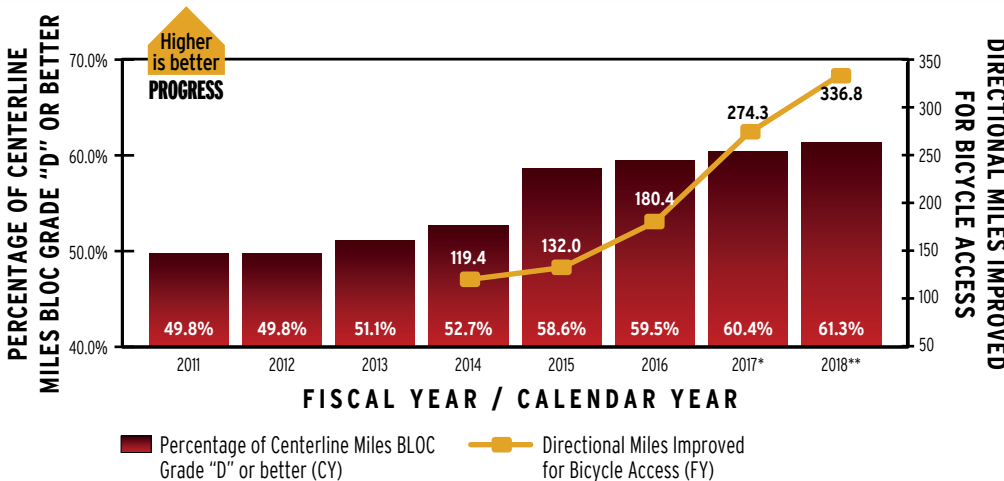
Why Did Performance Change?

- Commuter Choice Maryland program to promote alternatives to driving alone
- The BaltimoreLink transit system was designed to provide more people with access to jobs and services in the region and helped improve on time performance (OTP), making transit a more attractive travel option

What Are Future Performance Strategies?

- MDOT has committed \$166.9 million to improving bicycle and pedestrian safety and access across the state and will identify new bicycle and pedestrian goals and priorities in the Bicycle and Pedestrian Master Plan Update
- Commuter Choice Maryland will continue to promote alternatives to driving alone
- Complete the Purple Line, a 16-mile Light Rail line

NUMBER OF DIRECTIONAL MILES IMPROVED FOR BICYCLE ACCESS | PERCENTAGE OF STATE-OWNED ROADWAY CENTERLANE MILES WITH A BICYCLE LEVEL OF COMFORT (BLOC) GRADE "D" OR BETTER***



Target: 59% BLOC Grade "D" or Better, 2% Directional Miles Improved per Year

* 2017 BLOC data revised from previous report.
** 2018 BLOC data is preliminary and subject to change.
*** This measure will be replaced by a new measure based on traffic level of stress metrics.

Why Did Performance Change?

- Implemented statewide, multi-jurisdictional bicycle routes that will serve as the most comfortable routes between regionally significant points of interest
- Spent nearly \$1 million for construction of the missing link of the Bethesda Trolley Trail along MD 187 and invested \$3.8 million in FY 2019 to design and construct dedicated bicycle retrofit projects

What Are Future Performance Strategies?

- Develop the bicycle spine network to identify priority routes for bicycle improvements and update of the MDOT bicycle access policy to focus bicycle improvements on supporting state, regional and local master plans or bicycle plans
- Begin construction of the link of the Westminster Community Trail along MD 27 in FY 2019
- Develop a programmatic objective statement to assist in identifying and prioritizing critical bicycle infrastructure projects
- Support bikeway projects along State Highways (\$18.1 million for the Bicycle Retrofit Program in the FY 2019–FY 2024 CTP)

MDOT MTA AND WMATA RIDERSHIP



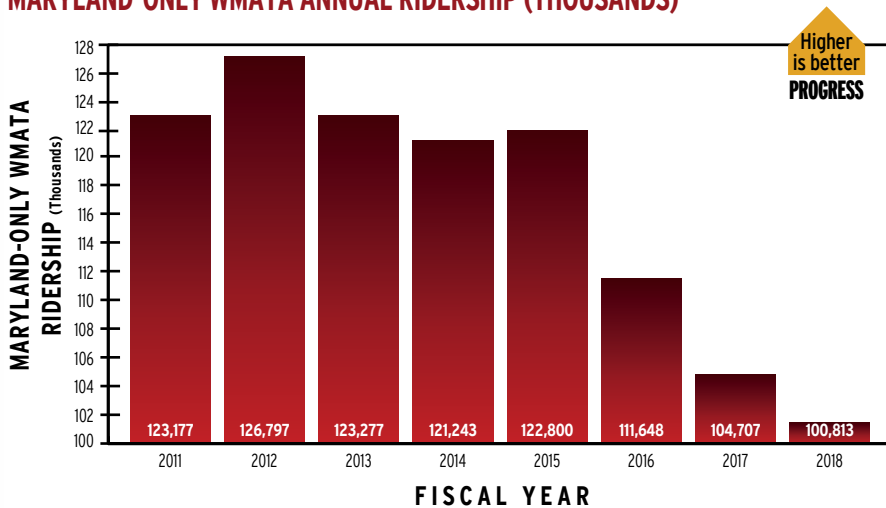
MDOT MTA and local transit partners provide transit options for residents and visitors in both urban and rural parts of the state. MDOT continues to strategically invest in its transportation infrastructure as shown in the FY 2019–FY 2024 CTP. To improve transit access, MDOT MTA launched BaltimoreLink (June, 2017), the complete and transformative rebranding and system overhaul of Baltimore's interconnected bus system. Future projects include the Purple Line, a 16.2 mile Light Rail line extending from Bethesda in Montgomery County to New Carrollton in Prince George's County, ongoing improvements to the MARC and Light Rail systems in Baltimore, and funding of Locally Operated Transit Systems (LOTS) with an investment of \$35.2 million in capital projects in FY 2020.

MDOT is a key partner, along with neighboring jurisdictions, in providing funding for the Washington Metropolitan Area Transit Authority (WMATA), supporting an extensive transit network that spans the National Capital Region. Residents and visitors depend on WMATA to provide key connections to regionally significant activity centers and many local and regional transit modes throughout Maryland, including MARC, Commuter Bus, Amtrak, Montgomery County Ride On and Prince George's County's TheBus. More than 100 million passengers used the WMATA Metro SubwayLink, Metrobus and MetroAccess system in Maryland.

FISCAL YEAR	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018*
TRANSIT RIDERSHIP—MDOT MTA DIRECT-OPERATED SERVICES (THOUSANDS)										
CORE BUS	75,694	74,926	78,390	79,535	80,071	75,780	78,697	75,619	69,587	63,730
BALTIMORE METRO	13,567	13,364	14,588	15,364	15,208	14,632	13,901	12,222	10,960	8,738
LIGHT RAIL	8,644	8,158	8,655	8,540	8,647	8,106	7,657	7,431	7,414	7,401
TRANSIT RIDERSHIP—CONTRACTED SERVICES AND LOTS (THOUSANDS)										
MARC	8,021	8,096	8,233	8,452	9,062	9,168	9,246	8,962	9,185	9,322
CONTRACTED COMMUTER BUS	3,974	3,859	4,097	4,290	4,187	4,017	4,034	3,928	3,866	3,841
MOBILITY PARATRANSIT & TAXI ACCESS	1,450	1,481	1,660	1,900	2,084	2,289	2,495	2,556	2,746	2,941
LOTS	45,635	45,700	40,243	40,908	40,281	42,500	39,441	38,476	39,818	41,096

* 2018 data is preliminary and subject to change.

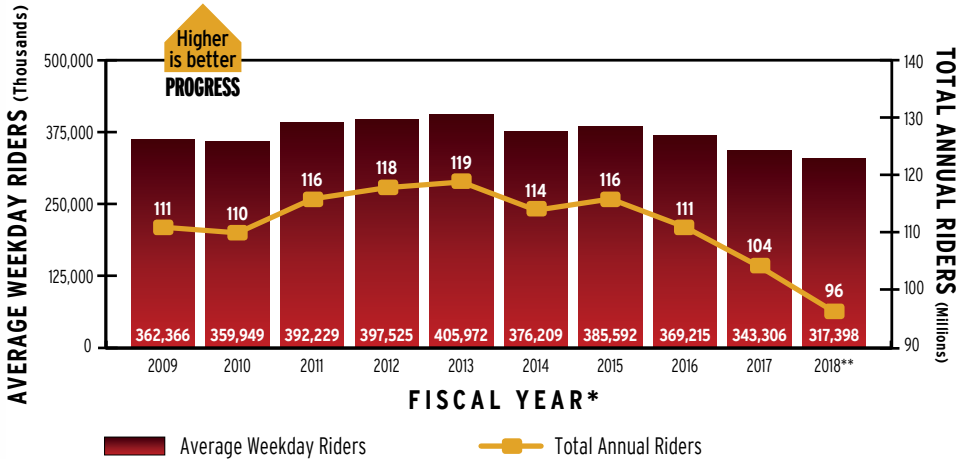
MARYLAND-ONLY WMATA ANNUAL RIDERSHIP (THOUSANDS)



MDOT MTA TRANSIT RIDERSHIP

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

MDOT MTA AVERAGE WEEKDAY TRANSIT RIDERS (THOUSANDS) AND TOTAL ANNUAL TRANSIT RIDERS (MILLIONS)



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

** 2018 data is preliminary and subject to change.

Why Did Performance Change?

- The low cost of fuel and economic growth contributes to VMT, as potential riders opting to drive instead of ride transit
- Per the U.S. Census Bureau, Baltimore City lost approximately 6,000 residents last year; many of these residents of the City were frequent transit riders
- The rapid increase in the use of ridesharing services like Lyft and Uber are replacing some transit trips; the Institute of Transportation Studies at the University of California at Davis survey reports this is a national trend

What Are Future Performance Strategies?

- Continue to increase system reliability to improve OTP making transit service more reliable for the customer
- Increase the accuracy of the real-time passenger information on MDOT MTA's transit services including the use of the Transit app, to provide the best possible information to and for customers, and use Rate-Your-Ride app data to identify areas of improvement and implement selected customer suggestions to improve transit service
- Implement CharmPass mobile ticketing
- Pursue increased marketing techniques to educate potential customers about MDOT MTA services
- Utilize better signage and wayfinding in transit stations and facilities to improve the customer experience
- Commuter Choice Maryland will promote alternatives to driving alone to support transit ridership on Direct operated and contracted services



OBJECTIVE:

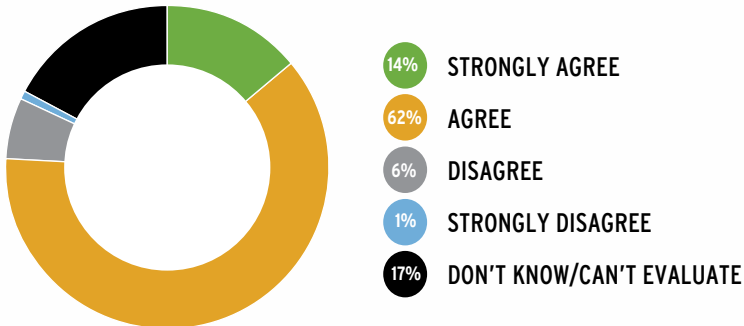
Increase and enhance multimodal connections to improve movement of people and goods within and between activity centers

MDOT SURVEY – PERCEPTIONS OF MULTIMODAL CONNECTIVITY

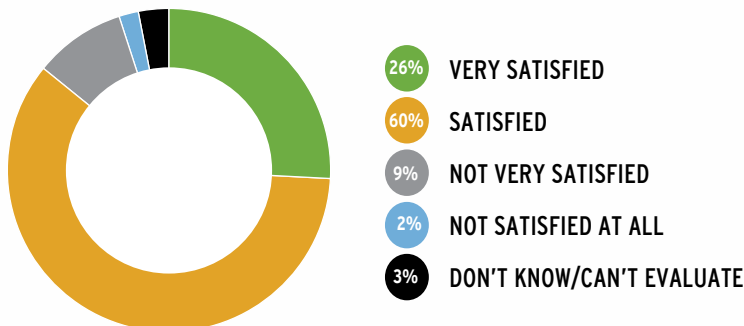


MDOT and its TBUs aim to provide the ability to reach key destinations through a variety of modes. This survey measures the public's perception of connectivity, highlighting where MDOT and the TBUs have succeeded and where improvements are needed either in infrastructure or outreach.

MDOT Survey question: I believe I can easily connect with other transportation services to reach my destination?



MDOT Survey question: When it comes to getting where you need to go, how satisfied are you with the range of options you have?



What Are Future Performance Strategies?

- MDOT is constructing the Purple Line Light Rail
- MDOT MTA will provide funding to Paratransit operators throughout the state to meet expanding demand
- MDOT will improve biking and walking accessibility for all transit facilities and will leverage strategic investment in safe, low-stress, connected routes

Why Did Performance Change?

- MDOT MTA launched BaltimoreLink, delivering more efficient bus service by creating a grid of high frequency routes that connect to other modes including the subway, Light Rail and MARC
- MDOT MTA partnered with Zipcar to provide car-sharing options at Light RailLink, expanding mobility options for transit riders
- MDOT installed 36 new and replacement bike racks at MDOT MTA rail stations, added 30 new MARC cars to accommodate bicycles and increased the number of Bikeshare stations at transit stations statewide



MARYLAND TRANSIT ORIENTED DEVELOPMENT (TOD) BENEFITS

MDOT's TOD strategy creates mixed-use development opportunities near transit, supporting the goals of decreasing traffic congestion, improving air quality and improving the quality of life. These developments are planned communities within a half-mile of a transit station, designed where people can enjoy easy access to jobs, housing and activity centers. It is also a method to support economic development and improve the efficiency of transportation infrastructure. MDOT collaborates with local jurisdictions and partners by providing TOD technical assistance, planning studies, financing tools and coordination across several other state agencies. For more information please visit: <http://www.mdot.maryland.gov/newMDOT/Planning/TOD/index.html>.

Economy

- Enhances economic opportunity by linking residents with employment and service destinations
- Leverages investment in transportation infrastructure to improve return on public investment
- Supports local community development goals by creating new development and jobs

Community

- Creates pleasant places to live, work and play in walkable communities
- Increases transportation options and reduces time spent in traffic
- Can lower household costs for transportation through reduced need to own, drive and park vehicles

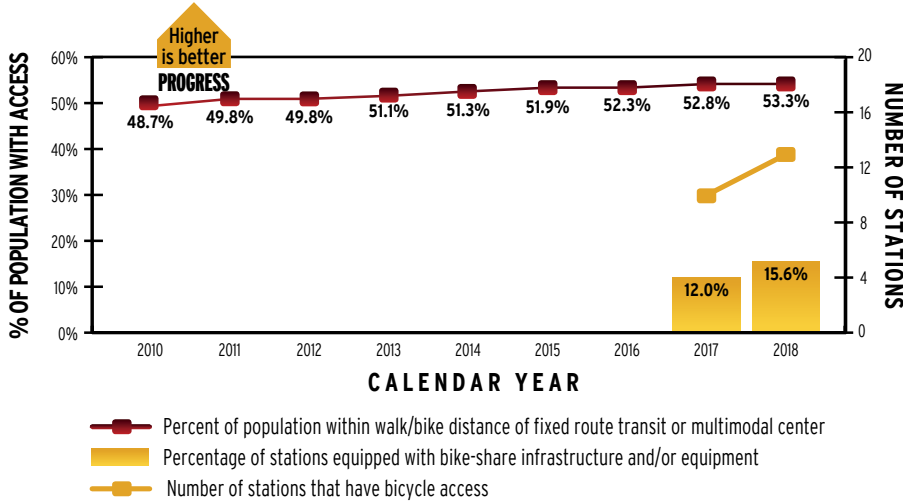
Environment

- Contributes to improved air quality by facilitating use of transportation alternatives with lower emissions.
- Can reduce amount of impervious surface needed for parking, thereby improving water quality
- Creates new opportunities for natural resource preservation and open space by promoting more efficient land use

ACCESS TO TRANSIT AND BICYCLE ACCESS TO TRANSIT



Access to transit measures how many Maryland customers are within a quarter mile of a fixed-route transit station, which is an estimate of how many people can walk or bike to a fixed-route transit or multimodal transit center. Bicycle access to transit measures how many Maryland customers can bike to a fixed-route transit (such as Light Rail or MARC) or a multimodal transit center.



Why Did Performance Change?

- Used origin destination studies for MARC, Light RailLink, and Metro SubwayLink to better understand consumer patterns and needs and used customer satisfaction survey feedback to improve service
- BaltimoreLink increased transit connectivity in the Baltimore region

What Are Future Performance Strategies?

- Continue implementing service modifications to provide increased and improved services to a greater range of people
- MDOT MTA will work with local jurisdictions to better connect bike routes with transit, and will install new bike racks at light rail and Metro SubwayLink facilities
- MDOT MTA will expand the bike racks in MARC cars, from 17 cars that are equipped currently to a total of 39 cars by early 2019

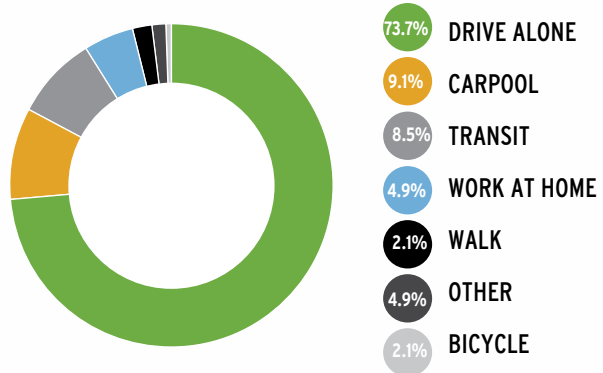
OBJECTIVE:

Inform and educate customers on transportation options and benefits

TRANSPORTATION DEMAND MANAGEMENT (TDM) AND COMMUTE MODE SHARE*

Commuter Choice Maryland is the Maryland Department of Travel Demand Management (TDM) Program. Travel Demand Management offsets vehicle congestion by promoting alternatives to driving alone such as taking transit, carpool, vanpool, walking, biking, teleworking, Maryland Commuter Tax Credit, and Guaranteed Ride Home. Commuter Choice Maryland can provide options to maximize travel choices and deliver solutions that can reduce congestions, conserve energy, facilitate economic opportunity, and enhance the life of all Marylanders. Visit CommuterChoiceMaryland.com to learn more today!

Also, in the Washington, D.C., Metropolitan Region, Commuter Connections is a regional network of transportation organizations that offer a host of free services and programs to assist employers and commuters with making smart choices about their commuting needs. Visit: <https://www.commuterconnections.org/>



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Drive Alone	73.2%	73.4%	73.0%	73.3%	73.4%	73.9%	73.9%	73.8%	73.8%	73.7%
Carpool	10.8%	10.0%	10.7%	10.1%	9.8%	9.0%	9.3%	8.9%	9.0%	9.1%
Transit	8.5%	8.8%	8.6%	9.2%	8.9%	9.2%	9.0%	9.0%	8.5%	8.5%
Work at Home	3.8%	4.1%	4.3%	4.1%	4.2%	4.2%	4.1%	4.4%	4.7%	4.9%
Walk	2.3%	2.6%	2.3%	2.3%	2.5%	2.4%	2.3%	2.6%	2.5%	2.1%
Other	1.0%	0.7%	0.7%	0.9%	0.9%	0.9%	1.1%	0.3%	1.2%	1.3%
Bicycle	0.3%	0.4%	0.2%	0.3%	0.4%	0.4%	0.3%	1.0%	0.3%	0.4%

* Commute mode share is based on data from the American Communities Survey (U.S. Census).





PROGRAM	PROGRAM DESCRIPTION	DAILY REDUCTION IN VEHICLE TRIPS*	DAILY REDUCTION IN VMT*
COMMUTER CONNECTIONS TRANSPORTATION EMISSIONS REDUCTION MEASURES**			
Guaranteed Ride Home	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	6,398	181,335
Employer Outreach	Supports marketing efforts to increase employee awareness and use of alternatives to driving alone to work every day	102,625	1,841,429
Integrated Rideshare	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	1,779	51,340
Commuter Operations and Ridesharing Center	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	19,949	401,327
Telework Assistance	Provides information to employers in Maryland on the benefits of telecommuting and assists in setting up new or expanded telework programs for employers	14,839	361,204
Mass Marketing	Promotes and communicates the benefits of alternative commute methods to single-occupant vehicle commuters through the media and other wide-reach communications	10,133	163,250
MDOT MTA TRANSPORTATION EMISSION REDUCTION MEASURES			
MDOT MTA College Pass	Offers a subsidized monthly transit pass to full- or part-time students enrolled in greater Baltimore metropolitan area colleges or universities	1,247	9,847
Transit Store in Baltimore	Provides customer access to transit information and for purchases of transit passes. Some 15-20% of total transit pass sales occur through this outlet	3,376	56,959
MDOT MTA and SHA Park-and-Ride*		51,845	874,629

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

** 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 MTA data is collected every five years.

Why Did Performance Change?

- Reduction in VMT savings increased due to park-and-ride 52% average weekly usage, up from 51% average weekly usage reporting in FY 2017
- Commuter Choice Maryland promoted options to support alternatives to driving alone in 2018 such as Guaranteed Ride Home, Outreach to employers, promotion of the Maryland Commuter tax Credit, Outreach for Ridesharing, and transit, and telework
- MDOT SHA lost the use of 24 park-and-ride spaces in 2018 due to construction of pedestrian and bus circulation improvements at the I-95/I-495 lot in Prince George's County
- Post-recession low-fuel cost continues to impact the usage of park-and-ride lots

What Are Future Performance Strategies?

- Commuter Choice Maryland will continue to promote options to support alternatives to driving alone
- Expand the promotion of Guaranteed Ride Home services, park-and-ride lots, ridesharing, real-time rideshare services and bicycling and/or Bikeshare systems
- Look for opportunities to construct park-and-ride lots while planning major projects along interstate and principal arterials and to improve the appearance of existing and new park-and-ride lots
- MDOT SHA will construct 642 spaces and finalize design of 286 spaces in the coming year
- MDOT SHA and MDOT MTA will coordinate to provide bus service to park-and-ride lot where feasible; historically, added bus service has greatly increased usage

GLOSSARY TERM	DEFINITION
Annual Attainment Report on Transportation System Performance (AR)	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.
Automated Vehicles (AV)	Automated vehicles (AV) have numerous driving automation features, these features allow the vehicle to operate at different levels of automation depending upon the feature(s) that are in place.
Calendar Year (CY)	The period of 12 months beginning January 1 and ending December 31 of each reporting year.
Commuter Choice Maryland	An incentive program designed primarily to encourage Maryland employees who drive to work to switch to transit or vanpools.
Connected Vehicles	Connected vehicles use technologies that will enable cars, buses, trucks, trains, roads and other infrastructure, and our smartphones and other devices to "talk" to one another.
Coordinated Highways Action Response Team (CHART)	CHART is an incident management system aimed at improving real-time travel conditions on Maryland's highway system. CHART is a joint effort of MDOT SHA, MDTA and the Maryland State Police (MSP), in cooperation with other federal, state and local agencies.
Cost Per Enplaned passenger	Cost per enplaned passenger is defined as all landing fees, airside usage charges, fuel flowage fees, terminal rents and other airline payments to airports divided by enplaned passengers.
Consolidated Transportation Program (CTP)	A six-year program of capital projects, which is updated annually to add new projects and reflect changes in financial commitments.
Electric Vehicle (EV)	Cars that are capable of traveling only on electric power supplied by a battery.
E-ZPass SM	An electronic toll collection system utilized to provide a more efficient flow of traffic through MDTA toll facilities. E-ZPass SM toll collection is available at all eight MDTA toll facilities. The benefits of E-ZPass SM membership allow travel from Virginia to Maine and as far west as Illinois, with tolls paid from a Maryland E-ZPass SM account.
Fiscal Year (FY)	A yearly accounting period covering the period between July 1 and June 30 of each reporting year.
Fixing America's Surface Transportation Act or "FAST Act"	On December 4, 2015, the Fixing America's Surface Transportation (FAST) Act was signed into law—to provide long-term funding certainty for surface transportation infrastructure planning and investment. The FAST Act authorizes \$305 billion over FY 2016–FY 2020 for highway, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology and statistics programs.
Intercounty Connector (ICC)/MD 200	All electronic toll-road from I-270 in Montgomery County to U.S. 1
Locally Operated Transit Systems (LOTS)	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.
Maryland Transportation Plan (MTP)	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.
MDOT MPA General Cargo	Foreign and domestic waterborne general cargo handled at the public (MDOT MPA) terminals.
MAP-21	The Moving Ahead for Progress in the 21st Century Act, MAP-21, is a funding and authorization bill to govern U.S. federal surface transportation spending. It was passed by Congress on June 29, 2012 and signed into law on July 6.
Mode	Form of transportation used to move people or cargo (e.g., truck, rail, air).
Port of Baltimore Foreign Cargo	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).
Public-Private Partnerships (P3s)	A method for delivering public infrastructure assets using a long-term, performance-based agreement between a Reporting Agency and Private Entity. Using P3, appropriate risks and benefits can be allocated in a cost-effective manner between the contractual partners; the private entity performs functions normally undertaken by the government though the State may retain ownership and ultimately remains accountable for the public infrastructure asset and its public function.
Shared Mobility	Shared mobility refers to a transportation strategy by which users can access various types of services or products, including bicycles, scooters or ride-sharing on-demand. These offerings provide flexibly in transportation choice.
State Report on Transportation (SRT)	The SRT is prepared annually and distributed to the General Assembly, local elected officials and interested citizens. It consists of two documents, the MTP and the CTP.
Traffic Relief Plan (TRP)	The Traffic Relief Plan (TRP) is a combination of P3 efforts on I-495, I-270 and other innovative projects, such as Smart Signals, I-95 Express Toll Lanes (ETL) and the I-695 Transportation Systems Management and Operations (TSMO) projects. These major projects will reduce congestion on Maryland highways and provide roadway users with travel options.
Transit-Oriented Development (TOD)	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.
Transportation Business Unit (TBU)	MDOT's Transportation Business Units (TBUs) include Maryland Aviation Administration (MDOT MAA); Maryland Port Administration (MDOT MPA); Maryland Transit Administration (MDOT MTA) Motor Vehicle Administration (MDOT MVA); State Highway Administration (MDOT SHA) and The MDOT Secretary also serves as Chairman of the Maryland Transportation Authority (MDTA).
Transportation Infrastructure Investment Act (Transportation Act)	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).
Transportation Network Company	A transportation network company (TNC) (also known as mobility service providers (MSP) or on demand transportation, such as Uber or Lyft), allow potential passengers to use websites and mobile apps to pair with drivers who provide passengers with rides using the driver's non-commercial vehicle.
Travel Demand Management (TDM)	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).
Vehicle Miles of Travel (VMT)	A measurement of the total miles traveled by all vehicles.

APPENDIX: LIST OF PERFORMANCE MEASURES BY GOAL

PERFORMANCE MEASURE	DEFINITION	TBUS	PAGE NUMBER
ENSURE A SAFE, SECURE AND RESILIENT TRANSPORTATION SYSTEM			
Annual Number Of Traffic Fatalities & Injuries On All Roads In Maryland And On Transit Facilities	The annual number of traffic fatalities and personal injuries on all Maryland roads and transit facilities. The fatality and personal injury rate are calculated per 100 million vehicle miles of travel	MDOT SHA, MDOT MVA, MDOT MTA and MDTA	12
Number Of Bicycle & Pedestrian Fatalities & 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	MDOT SHA, MDOT MVA and MDTA	13
MDOT-Wide Overall Perception Of Safety: Crime And Safe Movement	Average score for: Feeling safe while riding, while waiting at stops and stations, and for vehicles left in an MDOT MTA parking lot	MDOT	14
Preventable Accidents Per 100,000 Vehicle Miles	Preventable accidents are accidents in which drivers did not do everything they could to avoid an accident	MDOT MTA	15
Restoring Transportation Services: Average Time To Restore Normal Operations After A Weather Event	Illustrates the efficiency of MDOT SHA and MDTA in reducing the impact of winter weather events by quickly restoring normal operations on primary and interstate roadways	MDOT SHA and MDTA	16
FACILITATE ECONOMIC OPPORTUNITY AND REDUCE CONGESTION IN MARYLAND THROUGH STRATEGIC SYSTEM EXPANSION			
BWI Marshall Airport Total Annual Passengers	Measures number of annual passengers using the BWI Marshall Airport	MDOT MAA	18
International Cruises Using The Port Of Baltimore	Number of international cruises using the Port of Baltimore as a home port	MDOT MPA	18
Jobs Supported by MDOT Capital Program	Economic return from transportation investment is based on the estimated number of jobs created as a result of MDOT investments in capital projects	MDOT	19
Improving Goods Movement: Freight Originating And Terminating In Maryland	Measures the weight and value of goods originating or terminating in Maryland	MDOT	19
Port Of Baltimore Foreign Cargo And MDOT MPA General Cargo Tonnage	Measures the efficiency of truck movements throughout Maryland	MDOT SHA	20
Annual Hours Of Delay For Trucks, And Truck Reliability Index	Measures the efficiency of truck movements on the MDOT highway network	MDOT SHA and MDTA	21
Annual Cost Of Congestion (Billions) On The MDOT Highway Network	The sum of the cost of delay, the cost of extra fuel consumed due to slow operating speeds and the cost of emissions	MDOT SHA and MDTA	21
Annual Revenue Vehicle Miles Of Transit Service Provided	Revenue vehicle miles indicates the level of transit service available to, and in use by, the general public	MDOT MTA	22
MAINTAIN A HIGH STANDARD AND MODERNIZE MARYLAND'S MULTIMODAL TRANSPORTATION SYSTEM			
Percentage Of The MDOT SHA Network In Overall Preferred Maintenance Condition	The overall condition of the network reflects how well asset management strategies, operational improvements and technology have sustained the quality and safety of existing highways	MDOT SHA	24
Overall Acceptable Pavement Condition	Overall pavement condition is based on remaining service life, which is a scale of 0 to 50 years to describe pavement condition	MDOT SHA and MDTA	24
Number Of Bridges & Percent That Are In Poor Condition	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))	MDOT SHA, MDOT MAA and MDOT MVA	25
Dredged Material Placement Capacity Remaining For Harbor Sites And Poplar Island	Monitors existing capacity remaining at Harbor and Poplar Island dredged material placement sites	MDOT MPA	26
Transit Rolling Stock Within Useful Life Benchmark	Used to understand the condition of transit vehicles, the amount of stock within useful life informs the agency of the needs and expected repairs or replacements	MDOT MTA	27
Average Truck Turn Time At Seagirt Marine Terminal	Truck turn times are a measure of the efficiency and operations of the Seagirt Marine Terminal	MDOT MPA	27
Percentage Of State-Owned Roadway Directional Miles Within Urban Areas That Have Sidewalks And Percent Of Sidewalks That Meet Americans With Disabilities Act (ADA) Compliance	Tracking the percent of sidewalks that are ADA compliant helps ascertain whether Maryland's sidewalk program meets federal benchmarks	MDOT SHA	28

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PERFORMANCE MEASURE	DEFINITION	TBUS	PAGE NUMBER
IMPROVE THE QUALITY AND EFFICIENCY OF THE TRANSPORTATION SYSTEM TO ENHANCE THE CUSTOMER EXPERIENCE			
MDOT MVA Alternative Service Delivery Transactions As Percent Of Total Transactions	Transactions by alternative services (services without a visit to an MDOT MVA branch)	MDOT MVA	30
Percent Of Toll Transactions Collected Electronically	Toll collections by <i>E-ZPass</i> and Automatic Vehicle Identification/Total number of toll collections	MDTA	30
Overall Satisfaction With MDOT	An annual survey question on this topic provides information as to if MDOT is succeeding in its efforts to provide exceptional customer service	MDOT	31
MDOT MVA Branch Office Customer Wait And Visit Time Versus Customer Satisfaction Rating	Average visit time plotted against percentage of customers rating their MDOT MVA experience as "good" or "very good"	MDOT MVA	32
Percent Of Transit Service Provided On Time	Indicator of service quality and efficiency and correlates highly with system usage and customer satisfaction	MDOT MTA	32
Percent Of Vehicle Miles Traveled (VMT) In Congested Conditions On Freeways/ Expressways And Arterials In Maryland During Evening Peak Hour	Annual average daily traffic / Number of through lanes	MDOT SHA and MDTA	33
Annual Hours (Thousands) Of Delay	Tracks the delays caused by congestion on the State Highway system	MDOT SHA and MDTA	33
Customer Satisfaction With The Accuracy Of Real-Time Information Systems Provided	An annual survey includes a question about customer satisfaction with real-time information to better understand where improvements can be made and where they have been successful in conveying accurate information	MDOT MTA, MDOT MAA, MDOT SHA, MDOT MVA and MDTA	34
ENSURE ENVIRONMENTAL PROTECTION AND SENSITIVITY			
Acres Of Wetlands Or Wildlife Habitat Created, Restored Or Improved	Cumulative tally of acreage created, restored or improved for wildlife habitat	MDOT MPA, MDOT SHA and MDTA	37
Water Quality Treatment To Protect And Restore The Chesapeake Bay	Reports how well MDOT is achieving compliance with impervious surface restoration as required by the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit	MDOT SHA	37
Recycled/Reused Materials From Maintenance Activities And Construction/ Demolition Projects	Tracks the reduction of the TBU's impact on solid waste landfill through recycling/reuse of metal, asphalt and concrete	MDOT	38
Utility Electricity Use & Renewable Energy Generation	Measures both the consumption of utility energy and the amount of renewable energy generated by MDOT	MDOT	38
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	MDOT	39
Transportation-Related GHG Emissions	GHG emissions primarily include carbon dioxide, methane, nitrous oxide, carbon monoxide, oxides of nitrogen and non-methane volatile organic compounds	MDOT	40
Total Electric Vehicles (EVs) Registered In Maryland And Total Publicly Available EV Charging Infrastructure	Tracks the number of EVs purchased by Maryland drivers and the number of EV charging stations across the state	MDOT	41
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	MDOT MVA	42
PROMOTE FISCAL RESPONSIBILITY			
Percent Of Projects Completed By Original Contract Date	Reports on how efficiently MDOT is managing and delivering contracts and services by determining if contracts are completed by the established commitment date/project completion date	MDOT	44
Number Of Nonstop Airline Markets Served	Nonstop flights are direct to destination without connections	MDOT MAA	45
Airline Cost Per Enplaned Passenger (CPE)	Total airline-related fees / Total enplaned passengers at BWI Marshall Airport	MDOT MTA	45
User Cost Savings For The Traveling Public Due To Incident Management	Cost saving calculated using Coordinated Highways Action Response Team (CHART) incident response data	MDOT SHA and MDTA	46
Operating Cost Per Revenue Vehicle Mile	Operating cost for each mode / Total miles when vehicle is in service (not deadheading or down time)	MDOT MTA	47
MDOT MVA Cost Per Transaction	Operating costs and capitalized costs / Number of transactions	MDOT MVA	48

APPENDIX: LIST OF PERFORMANCE MEASURES BY GOAL

PERFORMANCE MEASURE	DEFINITION	TBUS	PAGE NUMBER
PROVIDE BETTER TRANSPORTATION CHOICES AND CONNECTION			
Total Vehicle Miles Traveled (VMT) And VMT Per Capita	Tracks the demand for VMT and VMT per person	MDOT SHA	50
Number Of Directional Miles Improved For Bicycle Access Percentage Of State-Owned Roadway Centerlane Miles With A Bicycle Level Of Comfort (BLOC) Grade "D" Or Better	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, shoulder width and truck percentage, with the greatest driving factors being shoulder width, speed and truck percentage	MDOT SHA	50
MDOT MTA And WMATA Transit Ridership	Ridership for Core Bus, Light Rail, Baltimore Metro, MARC, Contracted Commuter Bus, and Paratransit & Taxi Access and WMATA	MDOT MTA and WMATA	52
MDOT Survey - Perceptions Of Multimodal Connectivity	An annual survey question measures the public's perception of connectivity, highlighting where MDOT has succeeded and where improvements are needed either in infrastructure, services or outreach	MDOT	53
Access To Transit And Bicycle Access To Transit	Measures how many Maryland customers are within 1/4 mile of a fixed-route transit station and how many Maryland customers can walk or bike to a fixed-route transit (such as Light Rail or MARC) or a multimodal transit center	MDOT MTA	54
Transportation Demand Management (TDM) And Commute Mode Share	Commute mode share tracks how Marylanders travel to work and is based on data from the American Communities Survey (U.S. Census)	MDOT	54
Estimated Annual Regional VMT Reduction Through Terms	Measures the reduction in VMT resulting from Commuter Choice Maryland programs	MDOT	55





We thank the ARAC members for their work on this Committee and ensuring that the performance measures best speak to our customers in showing our performance towards achieving these goals and objectives.

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The Attainment Report Advisory Committee (ARAC) advises MDOT on the selection of the performance measures and how well these measures and supporting data align with the goals of the MTP. This committee is a requirement per Maryland code (Code Transportation Article, sec 2-103.1). MDOT convenes the ARAC with every new development of a long-range transportation plan. Concurrent to the 2040 MTP, the ARAC worked diligently to identify the currently calculated measures that best align with the goals of the 2040 MTP as well as incorporate new performance measures based on new data availability and the 2040 MTP priorities. These performance measures and targets are included in this Attainment Report.



MISSION STATEMENT

“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.

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