



## 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

Every day, millions of people drive a vehicle, ride a bus or train, walk, bike, and use every aspect of Maryland's transportation system. It is vital for MDOT and its Transportation Business Units (TBUs) to ensure they are continually meeting the needs of all users and providing efficient, quality service. MDOT continues planning for the Maryland Traffic Relief Plan (TRP). The I-495 and I-270 Public-Private Partnership (P3), which aims to reduce congestion in the National Capital Region by partnering with the private sector on improvements on both I-495 and I-270, held twelve public workshops in 2019 to present information on National Environmental Policy Act (NEPA) study, and pre-NEPA activities covering the two corridors and seek the public's input. The 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<sup>SM</sup> (ETL) and the I-695 Transportation Systems Management and Operations (TSMO) projects. Since May 2018, all Maryland residents are able to acquire an *E-ZPass*<sup>®</sup> transponder with no upfront cost. MDTA also unveiled its new *E-ZPass*<sup>®</sup> Maryland mobile-friendly website in 2018, making it easier for customers to access their accounts. MDOT MVA continues to improve customer service and customer wait times, as it has done

for the past several years, in alignment with the Governor's Customer Service Plan. In 2019, the average customer wait time statewide was 25.1 minutes, up from the previous year but down from 28.1 minutes in 2014. This was achieved through the combination of increased appointments and the use of Alternative Service Delivery (ASD) systems that do not require face-to-face interactions. Customers can conduct many MDOT MVA-related tasks online, such as appointment scheduling, registration renewal, or use any one of the more than 50 self-serve kiosks at MDOT MVA locations across the State.

In order to continue to improve customer experience and efficiency, MDOT looks to utilize new tools and technologies. MDOT SHA is utilizing software that adjusts the timing of traffic signals to synchronize an entire corridor based on real-time traffic conditions using artificial intelligence to keep traffic moving. MDOT MVA created a REAL ID Lookup Tool that allows residents to check online to see if they are REAL ID ready, or if an action is needed, then links them to the appropriate information to schedule an appointment. MDOT MVA is participating in a Driver Alcohol Detection System for Safety pilot. As a part of the pilot program, several sensors have been installed on MDOT MVA fleet vehicles. The sensors automatically analyze the alcohol in a driver's breath and, if the driver is impaired with a breath alcohol concentration at or above the legal limit, the vehicle will not move. Maryland is the first state in the nation to test this technology.



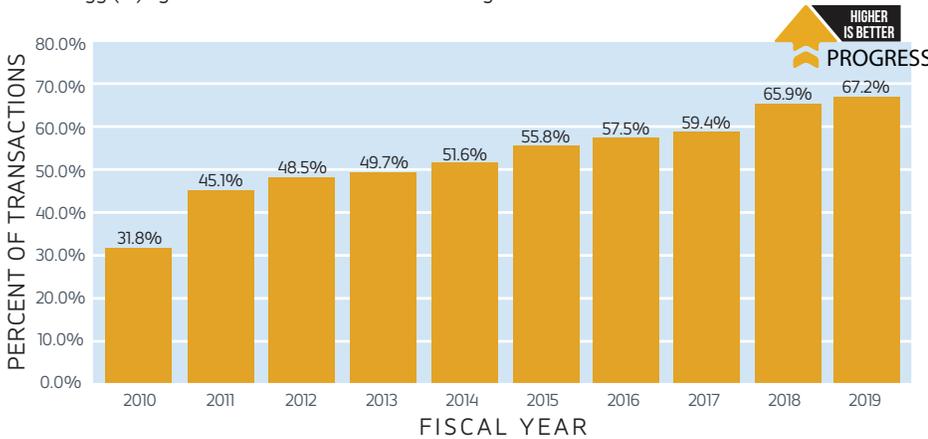
## OBJECTIVE:

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

### MDOT MVA ALTERNATIVE SERVICE DELIVERY (ASD) TRANSACTIONS AS PERCENT OF TOTAL TRANSACTIONS



Alternative services allow MDOT MVA to operate more efficiently by providing reliable and convenient service delivery to customers without requiring a transaction in-person. These services include web transactions, self-serve kiosks, mail-in options, and others. In order to be successful, alternative services must be adopted in conjunction with the development of new information technology (IT) systems and customer behavior changes.



Target: 72.4% by 2020



### Why Did Performance Change?

- ASD has continued to increase year over year and specifically has increased from FY 2018 to FY 2019, even with the increase in walk-in customers that were previously ASD eligible due to Real ID compliance regulations
- The increase in ASD has been sustained with technology enhancements and policy interventions on the vehicle side: vehicle tags are now eligible to be returned using branch office mobile tablets and disability placards are eligible for renewal using ASD

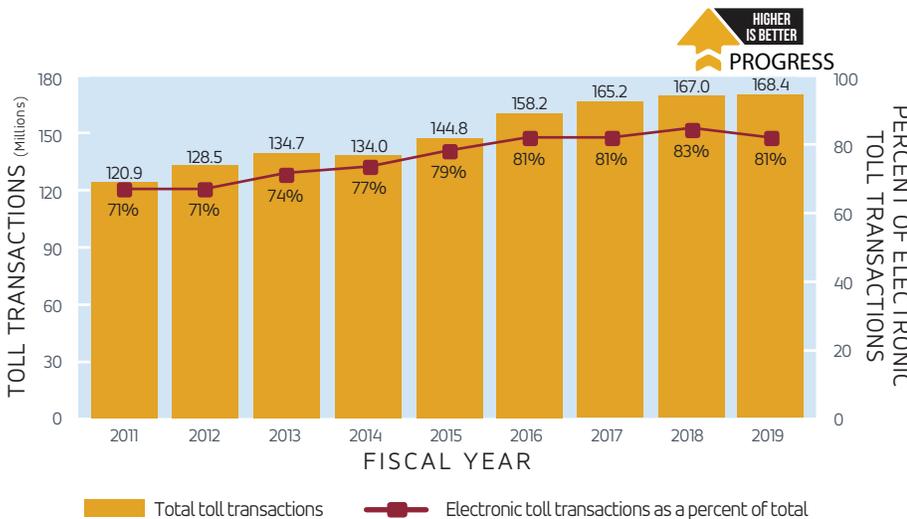
### What Are Future Performance Strategies?

- Increase Real ID compliance for all customers and encourage the use of ASD eligible services
- Continue the use of email notifications of customer services and requests and encourage use of ASD-based transactions when eligible
- Periodically review the MDOT MVA website for customer content and ease of use
- Development and implementation of Customer Connect, an enterprise-wide software platform that provides a 360-degree view of customer vehicle and driver services

### 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.



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

\*Toll collections are paid as cash, ticket, or electronic transaction. ETC includes Transponder Tolls and Video Tolls which might be processed with or without an account (with an account Video Tolls are referred to as I-tolls).

### Why Did Performance Change?

- The number of *E-ZPass*® accounts increased due to an increase in total traffic and a public outreach campaign to encourage *E-ZPass*® use

### What Are Future Performance Strategies?

- The "Free Transponders" program is expected to continue to facilitate increased electronic toll collection
- MDTA is working with our new vendor to revamp the MD *E-ZPass*® website
- Cashless toll collection began in October 2019 at the Francis Scott Key Bridge (I-695) in Baltimore and the Thomas J. Hatem Memorial Bridge (US 40) in Harford and Cecil counties
- MDOT will implement new tolling options to save Marylanders more than \$28.0 million over five years, the third round of toll relief in the State resulting in a cumulative savings of \$344.0 million

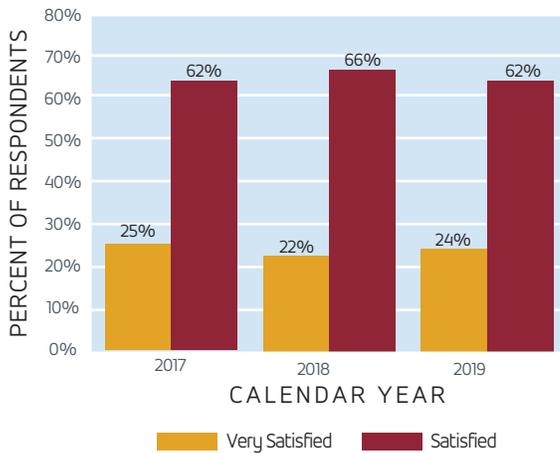
## OBJECTIVE:

Enhance customer satisfaction with transportation services across all modes of transportation

### OVERALL SATISFACTION WITH MDOT



Customer satisfaction surveys provide MDOT with direct feedback from customers to help MDOT measure its success in providing exceptional customer service. With these surveys, MDOT and its TBUs can identify their major successes and challenges and develop new investment prioritizations to maintain and grow their customer bases.



### Why Did Performance Change?

- MDOT MVA expanded hours of operation, opened additional offices in high-demand areas, and greatly increased ability for customers to schedule appointments
- Expanded Parkville and Columbia branch office services to meet the demands of customers requesting REAL ID services
- MDOT MPA added new check-in stations, carpeting, restrooms, a VIP lounge, traffic flow, and a public address system for customer comfort at the Cruise Maryland Terminal
- MDOT MTA began construction of the Purple Line, which runs through Montgomery and Prince George's Counties, and will better connect Marylanders to the Washington Metropolitan Area Transit Authority's (WMATA) Orange, Green and Red Metrorail lines, MARC Train's Brunswick, Camden and Penn lines, and Amtrak at New Carrollton
- An increased number of destinations served by nonstop flights, to more than 90 destinations from BWI Marshall Airport, further secured the Airport's majority market share in the Washington-Baltimore region



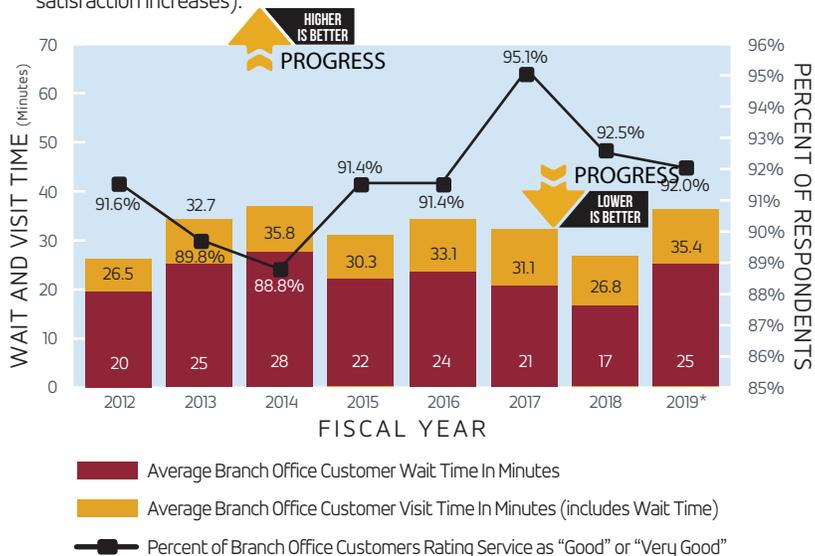
### What Are Future Performance Strategies?

- MDOT SHA will install smart signals to improve traffic operation and ease congestion on 14 major corridors across the State and MDOT MTA will install transit signal priority (TSP) traffic signals along select corridors in Baltimore City which will enhance pedestrian, transit, and driving experiences while improving transit reliability
- MDOT MTA is leading development of a new Regional Transit Plan for Central Maryland that will provide a 25-year vision of mobility and define public transportation goals for Central Maryland
- MDOT MVA will continue to provide quick and efficient service to ensure all Marylanders have the information to become REAL ID compliant by the October 1, 2020 deadline
- MDOT MAA is embarking on terminal expansion projects to meet the growing customer demand, including expanding Concourse A, reconfiguration of the Concourse A/B Connector, design of a new C/D Connector and baggage handling systems, reconfiguration of the federal inspection services area, and renovated restrooms
- MDOT SHA will explore options to improve customer service training and will hold regular classes with their Customer Care Management System
- MDOT MAA will launch a new, robust Wi-Fi system to better enhance the customer experience and is developing a new Airport-wide customer service training program for all BWI Marshall Airport employees

## 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).



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

\* 2019 data is preliminary and subject to change.

### Why Did Performance Change?

- MDOT MVA implemented the Real ID LookUp Tool to help customers determine their Real ID compliance and added additional appointments to serve Real ID customers
- MDOT MVA has seen a significant increase in the number of customers that must visit a branch office to provide documentation and become Real ID compliant due to Real ID compliance requirements
- MDOT MVA has extended branch office hours on Thursdays and Saturdays and opened ancillary offices to meet the increased demand for branch services

### What Are Future Performance Strategies?

- MDOT MVA will continue to offer extended branch office hours and increase capacity at branch offices with ancillary offices to process customers
- Continue to allow scheduling of branch office appointments to better serve customers in a pre-scheduled system
- Maintain additional staffing to accommodate the satellite areas to the branch office and reduce the down time for employees

### 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	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Core Bus*	87%	85%	83%	82%	81%	81%	85%	77%	68%	69%
Light Rail	97%	98%	96%	97%	96%	97%	98%	96%	94%	95%
Baltimore Metro	95%	97%	96%	97%	96%	95%	96%	96%	94%	94%
MARC	89%	89%	93%	93%	92%	92%	94%	91%	91%	87%
Mobility Paratransit & Taxi Access	91%	89%	90%	89%	91%	88%	92%	93%	93%	86%

\* 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?

- MDOT MTA continued to advertise partnership with Transit app for accurate real-time arrival data of buses and trip planning
- Adjusted BaltimoreLink trips and schedules to improve reliability and continued to publicize and improve CharmPass, a mobile ticketing application released in 2018
- Moved the Commuter Bus and MARC Operations Control Center (OCC) to new facility and changed the methodology for measuring Commuter Bus OTP using an intelligent transportation management platform (Saucon)

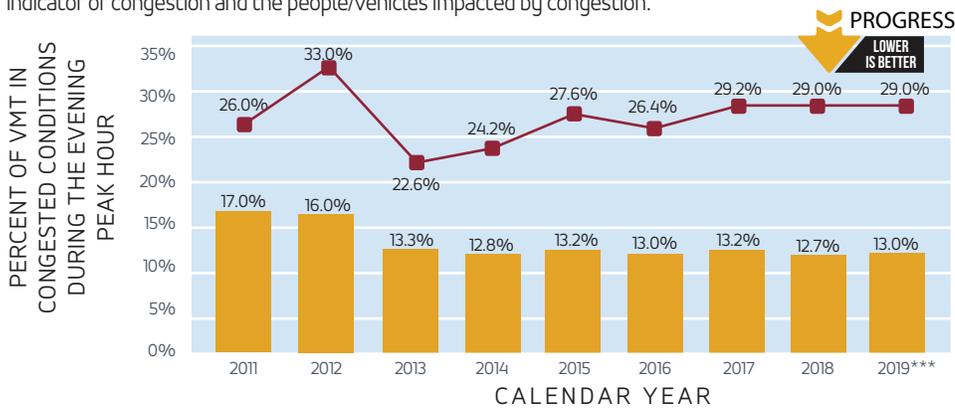
### What Are Future Performance Strategies?

- Implement new technology to allow for better service reliability through understanding vehicle and operator behaviors
- Increase technology to allow for faster ticketing transactions through the use of mobile ticketing
- MDOT MTA will use new data to maximize schedule performance and reliability
- Continue to schedule major track maintenance activities during periods of low ridership, minimizing the effect of this work on riders

# 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 performance in reducing congestion on the State Highway system. This is an indicator of congestion and the people/vehicles impacted by congestion.



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

**Target:** Freeway Target: 30.0% by 2023, Arterial Target: 13.5% by 2023

\*In 2017, MDOT SHA moved to ESRI Roads and Highways System; this caused a system-wide shift in the numbers, which are now reported with one decimal to more clearly indicate system performance.

\*\* 2013 through 2018 data changed from previous report.

\*\*\* 2019 data is preliminary and subject to change.

## Why Did Performance Change?

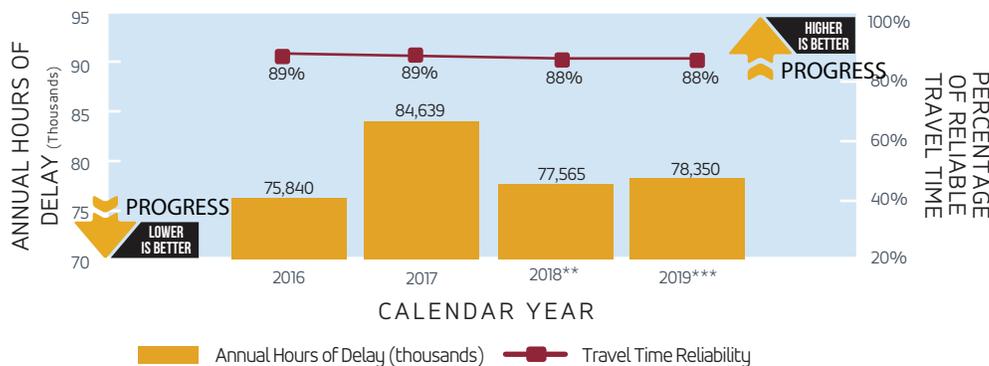
- A steadily growing economy and low unemployment rates has resulted in a slightly increasing VMT, but any increases in usage of major corridors at peak hours have been proportional to VMT increases
- The additional demand during peak hours has a non-linear effect on congestion statistics like annual hours of delay for autos and trucks (i.e., even though peak hour demand grew by a smaller percentage, the congestion impacts were disproportionately higher)
- MDOT SHA's Coordinated Highways Action Response Team (CHART) handled 151,955 events, including incident responses, assistance with disabled vehicles, and traffic management operations for special and weather-related events, and coordinated 56 Strategic Highway Research Program (SHRP2) Traffic Incident Management (TIM) Responder training sessions statewide, of which CHART directly facilitated 21 with 827 responders trained in these sessions

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



As the Baltimore and Washington regions continue to grow in population and jobs, more customers will continue to add demand and congestion on much of the transportation system that already operates at or over capacity at peak hours. This measure is an indicator of overall congestion and the number of people/vehicles affected by delay on the Maryland highway network.

As MDOT improves travel time reliability, customers are able to utilize more realistic expectations of their total trip time. 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:** 81,450 hours of delay in 2023; 87% travel time reliability in 2023

\*Beginning in 2016, the network definition changed to cover the entire MDOT Highway Network (freeways and major arterials). Performance data prior to 2016 pertains to a different network definition and is no longer presented with the MDOT Highway Network (freeways and major arterials) performance.

\*\*2018 is revised from previous report.

\*\*\*2019 data is preliminary and subject to change.

## What Are Future Performance Strategies?

- Draft and collaborate on legislation to limit liability for tow companies to clear disabled vehicles and cargo from the travel lanes
- Complete development and engineering design of the US 1 Innovative Technology Corridor Pilot Project and advertise a contract for its construction and implementation
- Major projects developed through the Governor's TRP will significantly reduce congestion on Maryland's highways and provide roadway users with travel options
- MDOT SHA is preparing TSMO solutions for active traffic management and integrated corridor management capabilities
- Modernize transportation infrastructure by incorporating Intelligent Transportation System (ITS) technology
- Evaluate the CHART patrol program to determine continuing improvements in reduction in roadway delays and user cost savings and develop a common operating platform for MDOT operations as part of the One MDOT Multimodal Incident Management effort

## 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



#### MDOT CUSTOMER SATISFACTION WITH HELPFULNESS AND ACCURACY OF INFORMATION (for CY 2018 or CY 2019)\*

MDOT MAA NEXT VEHICLE ARRIVAL SYSTEM CY 2018



Core Bus Tracker System CY 2018



Light Rail Next Train Arrival System CY 2018



MARC Next Train Arrival System CY 2018



Commuter Bus Tracker System CY 2018



CHART (MDOT SHA and MDTA), DMS CY 2019\*\*



MDOT MVA Wait Time Website 02 CY 2019



\*CY 2019 data was not collected for the MDOT MAA Next Vehicle Arrival System, Core Bus Tracker System, Light Rail Next Train Arrival System, MARC Next Train Arrival System, MARC Next Train Arrival System, or Commuter Bus Tracker System. CY 2018 data is shown for these systems.

\*\*It is possible that an increasing number of drivers are obtaining motorist information from other sources (such as cell phones), and thus don't depend on Dynamic Message Signs (DMS) to the extent they once did

Real-time information systems, installed throughout the transportation network and available via web interfaces and mobile devices, provide the most accurate information for customer trip planning and time-management. By surveying customer satisfaction for each real-time information system, MDOT TBUs can observe which systems are utilized most successfully and which systems require improvements.

### Why Did Performance Change?

- In summer 2019, MTA launched Realtime OTP for Commuter Bus
- MDOT MAA installed wait time display screens at all four of the security checkpoints to inform customers of the current wait times at each and to provide alternate checkpoint options when available
- CHART, a joint program of MDOT SHA, Maryland State Police (MSP), and MDTA, assists motorists 24 hours a day, 7 days a week, in the Baltimore, Washington, D.C., and Frederick metropolitan areas; CHART saved drivers \$1.312 billion in delay costs and reduced travel delay by 32.8 million vehicle-hours
- MDOT MAA completed installation of a new Airport Noise and Operations Management System, which includes 24 new noise monitors throughout local communicates and online WebTrak system to provide the public with historic and real-time flight tracking and noise level data
- CHART provides real-time traffic images and conditions on CHART's website through camera feeds from cameras located throughout the State
- Customer satisfaction with the accuracy of the travel time information provided via Dynamic Message Signs (DMS) by CHART increased to 97% in 2019

### What Are Future Performance Strategies?

- MTA is working to launch real-time feeds for all modes in 2020
- MDOT MAA is installing interactive wayfinding kiosks in the BWI Marshall Airport terminal to replace the static light box maps
- CHART will continue to expand DMS, web and telecommunications infrastructure efforts to operate the existing transportation system more efficiently
- MDOT MAA will be replacing the current Red Light Green Light system in the garages to continue providing quick access to available parking spaces
- Biometric entry and exit system will be installed at BWI Marshall Airport to speed international flight processing for U.S. Customs and Border Protection