



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 technologies, 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

A well-maintained system ensures the safety of its users, efficient movement of goods, and timely delivery of services. MDOT is committed to maintaining the statewide transportation system in order to foster economic development and a high quality of life for residents. In the FY 2020-FY 2025 CTP, \$2.315 billion is set aside for projects related to congestion reduction, safety, highways, and bridges.

Generally, \$512.0 million of major system preservation projects were completed as of 2019. The FY 2020-FY 2025 CTP lays out \$296.6 million in minor system preservation projects that address rehabilitation and resurfacing of highway and bridge segments throughout Maryland, safety and crash prevention, and 76 more general intermodal rehabilitation projects.

For MDOT SHA and MDTA in particular, \$1.447 billion is allocated in the FY 2020-FY 2025 CTP for the resurfacing of roadways and construction and rehabilitation of bridges. As of 2018, 89% of Maryland roadways were up to acceptable overall pavement condition. In 2019, MDOT SHA and MDTA completed several significant maintenance and modernization projects. In FY 2019, MDOT SHA spent \$165.1 million on construction to replace, rehabilitate, and preserve structures. MDOT SHA and MDTA continue to upgrade Maryland's roadways so that the State can remain competitive and connected.

MDOT MTA continues to maintain and upgrade transit facilities throughout the State, particularly the Light RailLink system. MDOT MTA has set aside approximately \$5.0 million for Light RailLink track emergency repairs, and continues to monitor transit infrastructure for assets that may be nearing a midpoint or end in their useful life. Beyond that the FY 2020-FY 2025 *draft* CTP sets aside funds for MDOT MTA to completely overhaul and replace at least 171 MARC coaches and at least 48 locomotives. Other MARC facility improvements are also outlined in the CTP, including station improvements, positive train control technology, and general improvements along three major lines.



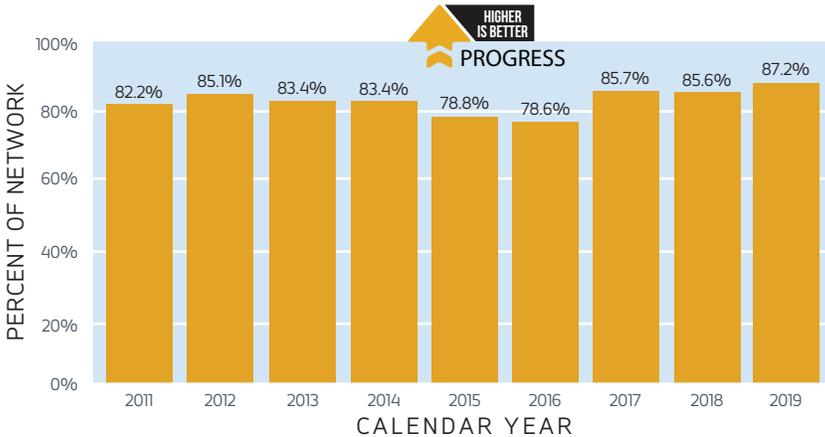
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PERCENTAGE OF THE MDOT SHA NETWORK IN OVERALL PREFERRED MAINTENANCE CONDITION



The overall condition of the network is indicative of the positive effect that asset management strategies have on existing highways. Effective asset management strategies ensure continued usability, quality, and safety along Maryland's roadways.



Target: 85% Annually



Why Did Performance Change?

- Made small, incremental progress over the past three years to improve the level of service after a significant increase in the level of service from 2016-2017
- For a third straight year, the winter weather has been relatively light or average, which minimizes damage to assets and allows maintenance work crews to perform additional preventive maintenance work, such as line striping, pavement markings, delineator replacement, lighting maintenance, and drainage work

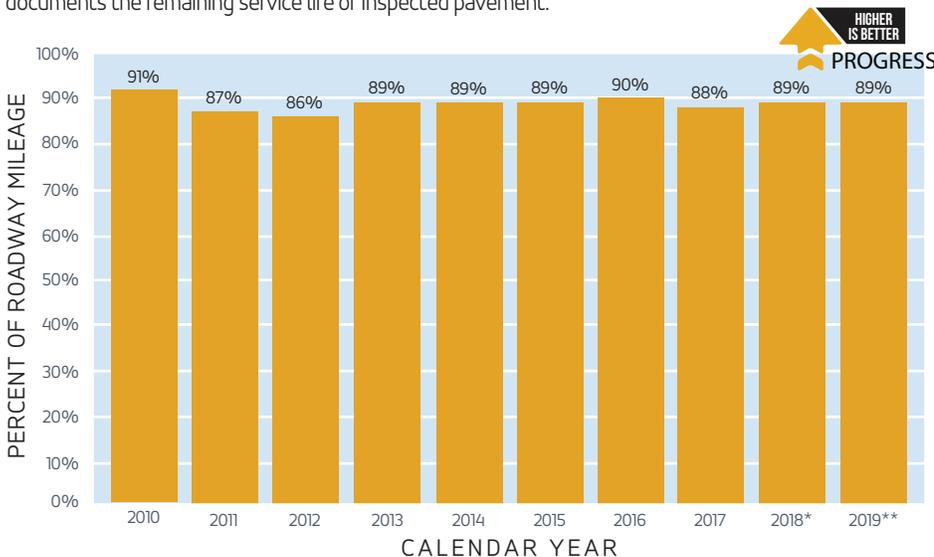
What Are Future Performance Strategies?

- Invest in road repair projects, such as sign modernization, lighting replacement, repaving, and foliage maintenance while ensuring adequate contract resources that support these activities
- Collaborate with finance and procurement and contract management offices within MDOT to secure funding for further system preservation and modernization
- Evaluate the efficiency and effectiveness of many of the maintenance programs and policies

OVERALL ACCEPTABLE PAVEMENT CONDITION



Overall pavement condition is based on remaining service life, measured on a scale of 0 to 50 years to describe pavement condition. Ride quality, functional cracking, structural cracking, and rutting data are collected utilizing Automated Road Analyzer (ARAN) vehicles; friction data is collected using skid trucks. Pavement condition can affect safety, efficiency, mobility, and accessibility to services and goods throughout Maryland. To assess pavement quality, MDOT inspects its roads annually and documents the remaining service life of inspected pavement.



Target: 90% Annually

*2018 data is revised from previous report
**2019 data is preliminary and subject to change.

Why Did Performance Change?

- MDOT SHA focused on preparing for future federal rulings on nationwide pavement performance measures introduced through the Moving Ahead for Progress in the 21st Century Act (MAP-21) legislation
- Continued increased use of non-traditional and innovative pavement preservation treatments, where appropriate, to extend the service life of MDOT SHA roadways at the lowest possible cost

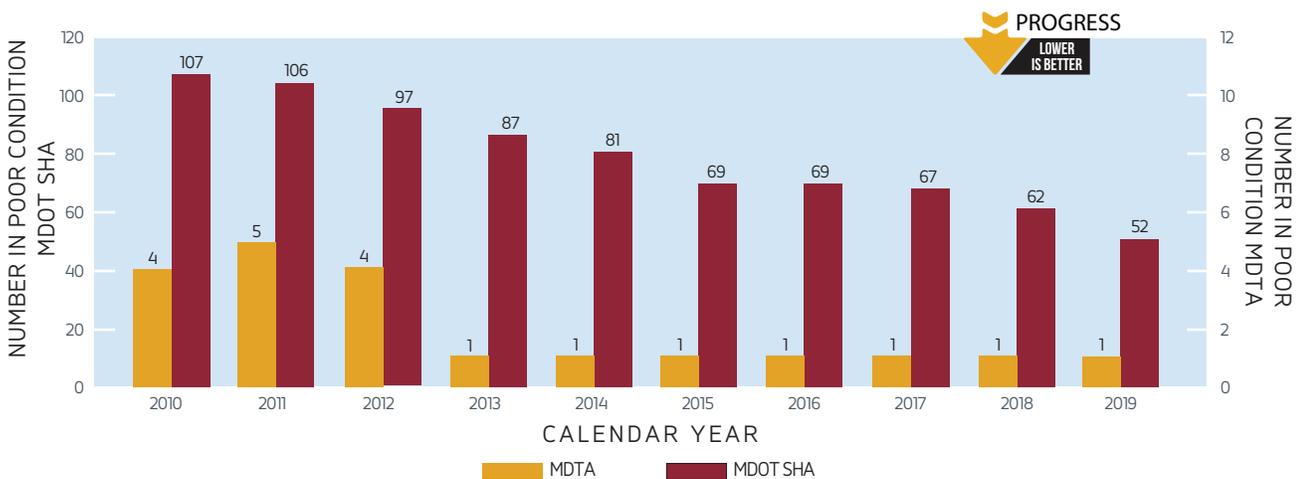
What Are Future Performance Strategies?

- Target low surface friction locations on MDOT SHA roadways and expand the use of recycled materials (e.g., concrete, asphalt) in MDOT SHA roadway projects in a responsible manner
- Continue to implement the Federal Highway Administration (FHWA) and MDOT SHA Pavement Preservation Program to strategically utilize system preservation activities
- Focus on higher-priority prevention and maintenance and monitor high demand roadway degradation

NUMBER OF BRIDGES AND PERCENT THAT ARE IN POOR CONDITION



The poor condition rating (also referred to as structurally deficient) is an early warning sign for engineers to initiate the rehabilitation or replacement process and is used when prioritizing and recommending system preservation funding. Bridge condition rating is based on a federal scale. This scale ranges from 0 (closed to traffic) to 9 (relatively new), and applies to three key parts of a bridge. The bridge is made of a deck (riding surface), superstructure (main deck support), and substructure (support of the superstructure and deck). If any of these elements is rated as a four or less, the bridge is considered structurally deficient per federal standards. A bridge is not considered unsafe if it is structurally deficient; unsafe bridges are closed. Bridges not in good repair can restrict mobility, contributing to congestion and increased travel time, leading to increased wear on roadways.



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, and creating plans to replace bridges rated as poor that cannot be repaired
- MDOT SHA efficiently and economically used all funding received; as a result, MDOT recorded 52 MDOT SHA bridges rated as poor condition (also known as structurally deficient), the lowest level since tracking began and one of the lowest percentages of any state DOT in the nation
- MDTA continued to utilize its overhauled and enhanced 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 continued aggressive system preservation improvements to all facilities and assets in need of major rehabilitation or replacement before the conditions worsen. This program resulted in significant improvements to the MDTA infrastructure

What Are Future Performance Strategies?

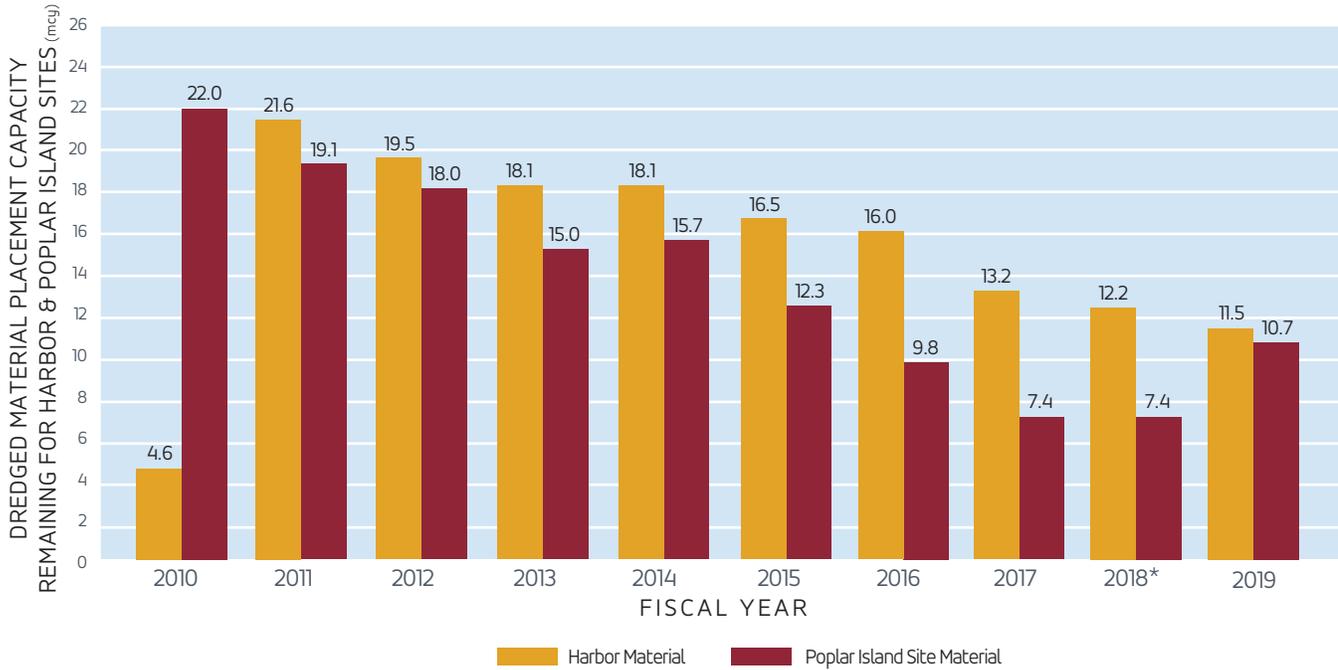
- Continue to perform immediate structural evaluations, including scour evaluations, on water crossings after local storm events in the area of the storm
- Continue to deliver high-priority projects, such as: multi-facility structural steel painting projects, deck, superstructure and substructure rehabilitation of various bridges, the I-895 Bridge replacement, deck rehabilitation of the Westbound Bay Bridge, cleaning and painting of structural steel of the Westbound Bay Bridge, suspension span rehabilitation on the Bay Bridge, replacement of deck and superstructure of Bridge over Patapsco Flats
- Continue to expand the current system preservation program to include preventative maintenance activities, which will prolong the life of the existing infrastructure such as newly-implemented facility-wide bridge deck washing and on-call painting and deck sealing programs
- Continue utilization of the design and construction contract schedule to perform structural repairs in the high-priority category of the annual inspection, existing preventative maintenance programs, implementation of standardized schedules, and MDTA-wide best practices
- Address over 300 bridges annually with MDOT SHA's Bridge Preservation Program with the goal of bringing the State's structures to a state of good repair



DREDGED MATERIAL PLACEMENT CAPACITY REMAINING FOR HARBOR SITES AND POPLAR ISLAND



MDOT MPA maintains shipping channels by obtaining and managing dredged material placement sites. These sites ensure that the Port remains accessible and safe.



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
 *2018 data is revised from previous report

Why Did Performance Change?

- Initiated the permitting and design for a second 50-foot deep berth at Seagirt Marine Terminal due to increasing containerized cargo growth
- Continued to refine Harbor dredged material placement capacity and dredging needs
- FY 2018 Harbor dredged material capacity remaining was decreased by 0.7 mcy as a result of the removal of the Kurt Iron Slip, which will be developed for future terminal use
- Construction of the first lift of the base dike necessary for the Stage 1 expansion of the Cox Creek Dredged Material Containment Facility was initiated in FY 2019
- The State’s Dredged Material Management Program (DMMP) continued to support the U.S. Army Corps’ Federal DMMP, which was updated and approved in FY 2018
- Safety and mobility efforts to ensure unimpeded shipping access to the Port have been effective; the Port of Baltimore compares extremely well with the other fully functioning U.S. East Coast ports with 50-foot deep channels

What Are Future Performance Strategies?

- Continue construction of the base dike widening, complete construction of the Operations and Maintenance Complex, complete the remediation associated with demolition of Building 201, and advance the design and permitting for the dike raising to elevation +60 feet
- Continue to explore acquisition of the property adjacent to Cox Creek, now owned by Tronox
- MDOT MPA will continue construction of the next increment of dike raising for Masonville to reach its planned capacity and is scheduled for completion in FY 2020
- The FY 2020-FY 2025 CTP includes \$432.1 million to implement the Governor’s Strategic Plan for Dredged Material Management, which will help maintain shipping channels



TRANSIT ROLLING STOCK WITHIN USEFUL LIFE BENCHMARK



Useful life is a metric that gauges the condition of transit vehicles. Each asset type has a unique useful life. An asset reaching its useful life will need to be replaced or repaired. This measurement tells agencies when to expect repairs and replacement.

TRANSIT VEHICLES	2019 PERCENT OF VEHICLE STOCK WITHIN USEFUL LIFE	TARGETS
Baltimore Metro	0%*	11%
MARC	100%	100%
Light Rail	100%	100%
Paratransit	41%	99%
Core Bus	83%	95%

*78 new rail cars will be delivered between January 2021 and January 2023.

Why Did Performance Change?

- MDOT MTA has an approved agency-wide plan and a group plan for locally operated Tier II transit systems
- Completed pilot Asset Management Program at Eastern Bus garage including visually collecting inventory data and conducting condition assessments on sample inventory; this will ensure a proper asset hierarchy and a complete inventory
- Recently completed the update on inventory and TERM Analysis, reflecting changes in the asset base over the past year, and improving the asset details

What Are Future Performance Strategies?

- MDOT MTA is replacing 78 Baltimore Metro cars in the 2021-2023 time frame that will replace the original Metro cars purchased in the 1980s; although the cars exceed the Federal Transit Administration (FTA) definition of useful life, they have received overhauls and regular maintenance to extend their life and to operate safely and reliably
- Continue to purchase 70 new buses each year
- Continue overhauling 63 MARC Train passenger cars and Light RailLink railcars
- Continue replacement of Mobility Link paratransit vehicles

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 inform Port officials and logistics coordinators of Port efficiency and product availability. Turn times are a critical part of goods delivery not only within Maryland, but nationwide and globally as well. Shorter turn times translate to higher throughput capacity and environmental benefits in the long term.

Truck turn times are measured using a truck's radio-frequency identification (RFID) tag. When a truck enters Seagirt, the RFID is read by a scanner at the gate. Aside from providing additional security, this scanner measures the amount of time a truck spends in Seagirt and that final number is the turn time for the truck. In 2019, the average truck turn time was 78 minutes improved from 89 minutes in 2018.

Why Did Performance Change?

- Enhancements to the Terminal Operating System (TOS) have facilitated handling of larger volumes and minimized down time
- Improved terminal layout (e.g. reefer racks) expanded container storage areas
- Enhancements to truck drive lanes improved safety and efficiency
- Increased inbound truck gate lanes from 8 to 13 and utilized four additional rubber-tired gantry (RTG) cranes in the yard resulting in improved handling times for import loads to truckers
- Increased usage of website by truckers/Beneficial Cargo Owners (BCOs) for release information and reduced time in customer service
- Improved planning in order to maintain adequate staffing levels on heavy days
- Improvements to the Transportation Worker Identification Credential (TWIC) program facilitate a balance of security and commerce

What Are Future Performance Strategies?

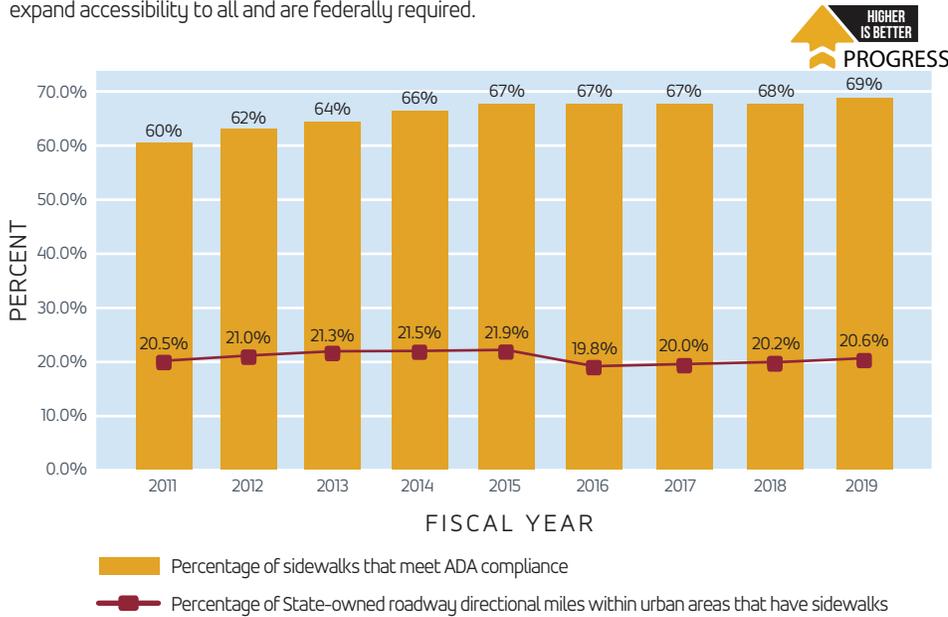
- Continue implementing Phase Two of the Seagirt Marine Terminal Modernization project to provide a second 50-foot deep berth at Seagirt
- Widen and straighten the marine access channel to Seagirt Marine Terminal
- Continue the Quality Cargo Handling Team (Q-CHAT) to further improve containerized cargo handling
- Evaluate business processes to ensure gate and terminal processes are not adversely impacted by existing and proposed commercial improvements



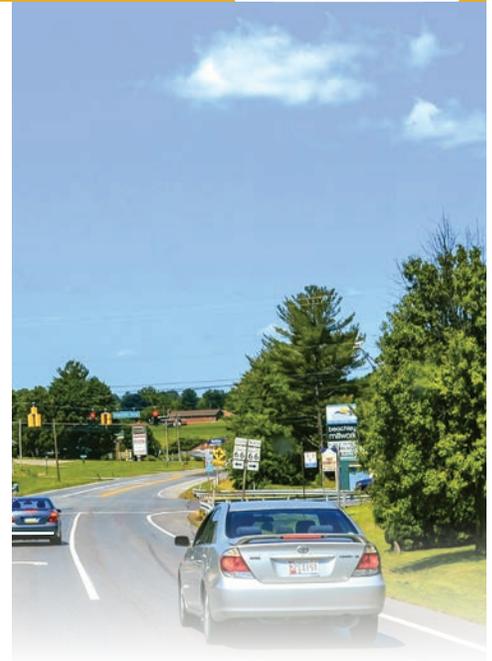
PERCENTAGE OF STATE-OWNED ROADWAY DIRECTIONAL MILES WITHIN URBAN AREAS THAT HAVE SIDEWALKS AND PERCENT OF SIDEWALKS THAT MEET AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANCE



Sidewalks facilitate pedestrian movement and general accessibility. ADA-compliant sidewalks expand accessibility to all and are federally required.



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



Why Did Performance Change?

- Invested \$3.6 million in FY 2019 to design and construct new sidewalks, including the construction of new directional miles of sidewalk in MD 424 in Anne Arundel County
- Invested \$6.8 million in FY 2019 to design and construct sidewalk improvements to address ADA accessibility, including the reconstruction of sidewalk to ADA compliance along MD 27 in Carroll County and MD 331 and MD 334 in Caroline County
- Developed a programmatic objective statement to assist in identifying and prioritizing critical ADA compliance projects

What Are Future Performance Strategies?

- Collaborate with urban counties and local governments to identify new sidewalk and shared use path projects based on prioritized missing links, local requests, and identified needs for safety and access
- Support safe pedestrian access along State Highways for the New Sidewalk Construction for Pedestrian Access Program and the Sidewalk Reconstruction for Pedestrian Access Program (ADA Compliance) in the FY 2020-FY 2025 CTP

OBJECTIVE:

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

MDOT continues to optimize asset management by gathering industry best practices and identifying opportunities to improve asset management policies, operation, and software. Sustaining the transportation infrastructure and assets also requires preventative maintenance. MDOT has implemented many new initiatives related to capturing better asset data to inform better data decision making. In addition it has developed a strategic asset management plan with five key goals and over a dozen strategies that are underway to implement asset management practices.

