



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**

Maryland is committed to Zero Fatalities on the transportation system. Every day, transportation and safety agencies throughout the State are enacting programs and projects, and leading communications efforts to ensure people arrive safely at their destinations. The combination of partnerships, dedicated resources, and an institutional commitment to positively impact the safety culture translated into downward trends in fatalities and serious injuries. The goal now is to keep momentum moving toward zero fatalities through a multidisciplinary approach.

Enforcement of safety laws is one of the most effective solutions to eliminating unsafe driving behaviors. MDOT, MDTA, the MDOT MVA Maryland Highway Safety Office (MHSO), and the Maryland State Police (MSP) continue to commit significant resources to reduce impaired, aggressive, unbelted, and distracted driving and keep vulnerable users safe, including bicyclists, pedestrians, and motorcyclists. The State Police Impaired Driving Effort (SPIDRE), now in its seventh year, uses crash data to target and remove impaired drivers. Since its inception, they have taken more than 3,000 drivers under the influence off the road. At the local level, officers utilize high visibility campaigns to target unsafe behaviors on higher risk corridors. Along I-83, aggressive and distracted driving enforcement resulted in over 130 citations. This systemic and targeted enforcement approach is being implemented statewide to improve safety trends.

Innovations in Maryland are being advanced to address safety. MDOT launched Driven to Protect, a pilot program to reduce drunk driving in Maryland using in-vehicle technology. The Driver Alcohol Detection System for Safety was installed in eight MDOT MVA fleet vehicles. The Driver Alcohol Detection System for Safety utilizes sensors to analyze breath molecules, preventing vehicles from starting when the driver is intoxicated. This technology, when implemented in all vehicles, has the potential to reduce drunk driving fatalities by up to 60%. Efforts like this demonstrate Maryland's commitment to zero fatalities through new approaches.

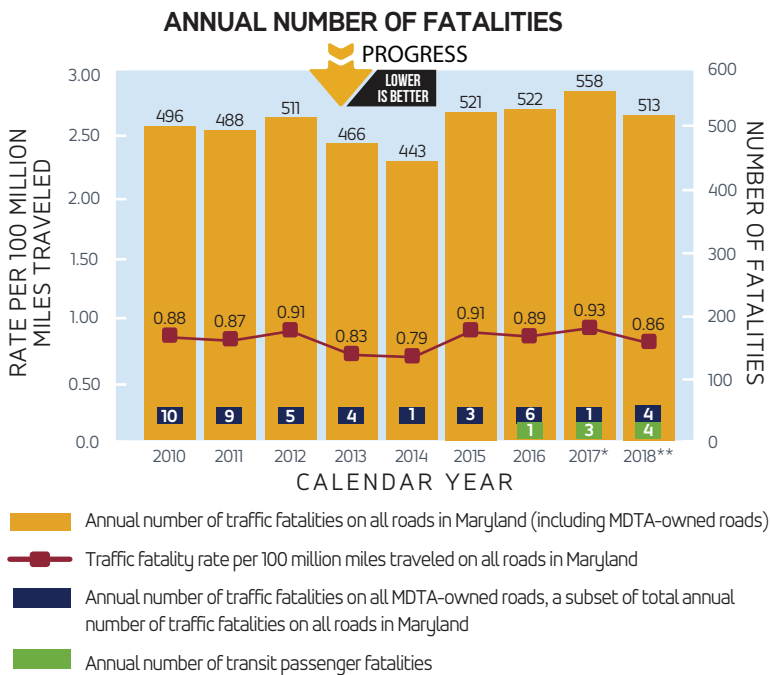
Proactive safety planning, furthered by the implementation of proven policies, programs, and infrastructure projects has also helped Maryland make progress toward its safety goals and commitment to Vision Zero. MDOT's 2016-2020 Strategic Highway Safety Plan (SHSP) continues to serve as the statewide framework for solutions to lower fatalities and serious injuries. However, crashes occur on all roads, in all parts of the State. Maryland's jurisdictions are developing local road safety plans or Vision Zero plans to understand local safety issues and address them in coordination with the SHSP. Harford County was the first to adopt a SHSP and Montgomery County has been a leader making safety its highest priority for all roadways. They have implemented a significant number of safety policies and improvements from their two-year Action Plan, targeting a 35% reduction in severe and fatal collisions by the end of 2019. Other jurisdictions, most recently Prince George's County, are working to develop similar plans that identify education, enforcement, and engineering solutions.

In addition to a safe system, Maryland is committed to achieving a secure and resilient system. In early 2019, the Port of Baltimore was awarded the U.S. Coast Guard's highest security ranking for the tenth consecutive year. In addition, they received close to a million dollars to strengthen access control points and cybersecurity efforts to protect inbound and outbound cargo. The safety of assets is also a priority. The Maryland Commission on Climate Change, Adaptation, and Resiliency Working Group, developed new priorities for their 2019 Work Plan to mitigate the causes of and prepare for the consequences of climate change on the transportation system. MDOT MVA's work with Real ID resulted in Maryland being the first state in the nation to be recertified by the Department of Homeland Security for REAL ID compliance. Since January 2019, 418,000 REAL ID customers have been served and more than half of Marylanders are REAL ID compliant.

OBJECTIVE:

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

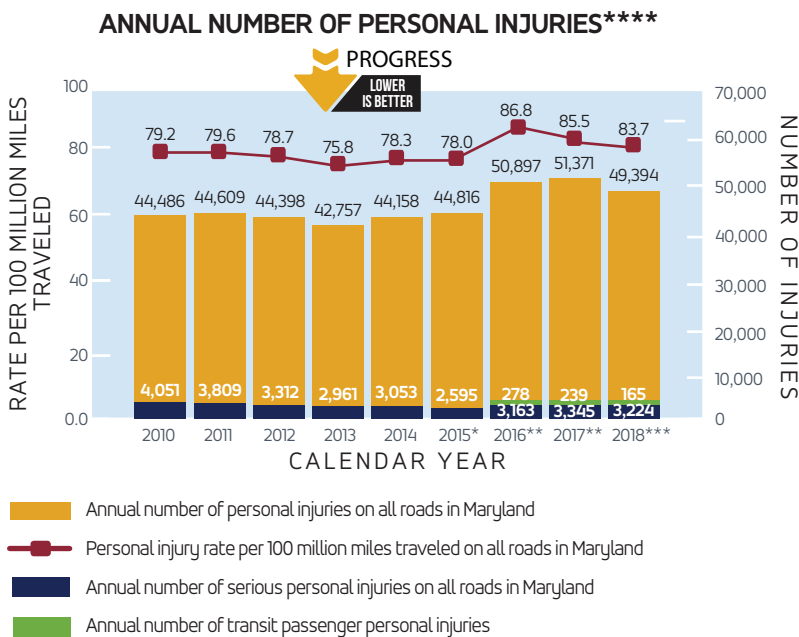
ANNUAL NUMBER OF TRAFFIC FATALITIES AND INJURIES ON ALL ROADS IN MARYLAND AND ON TRANSIT FACILITIES



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 fatalities on all state-owned roads per year by 12/31/2020

* 2017 data is revised from previous report.

**2018 data is preliminary and subject to change.



Target: ≤ 5.23 serious personal injury rate on all roads in Maryland by 12/31/2020, ≤ 5.073 serious injury rate of transit passengers on all facilities 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 and 2017 data has been revised from previous report.

*** 2018 data is preliminary and subject to change.

**** 2016 - 2018 transit passenger injuries data has changed from previous report; previous data represented injury claims, updated data represents confirmed injuries.

Transportation system users of all ages, abilities, and modes should be able to safely travel to and from every destination. Ultimately, Maryland's long-term goal is zero deaths on its transportation system, and measuring the trends in injuries and fatalities for traffic, bicycle, pedestrian, and transit passengers will help Maryland determine the best investments and strategies to move toward this long-term goal.

Why Did Performance Change?

- Continued to focus on behavioral programs and infrastructure projects outlined in the 2016-2020 SHSP to reach zero fatalities on Maryland's roadways, in accordance with MDOT's Toward Zero Deaths goal
- Focused on best practice approaches to maintaining safe roadways including implementing the 4Es of highway safety (Engineering, Enforcement, Education, and Emergency Medical Services)
- Continued to improve training for MDOT MTA operations staff to ensure safe driving practices and up-to-date training for drivers as well as awareness of where preventable accidents are most likely to occur

What Are Future Performance Strategies?

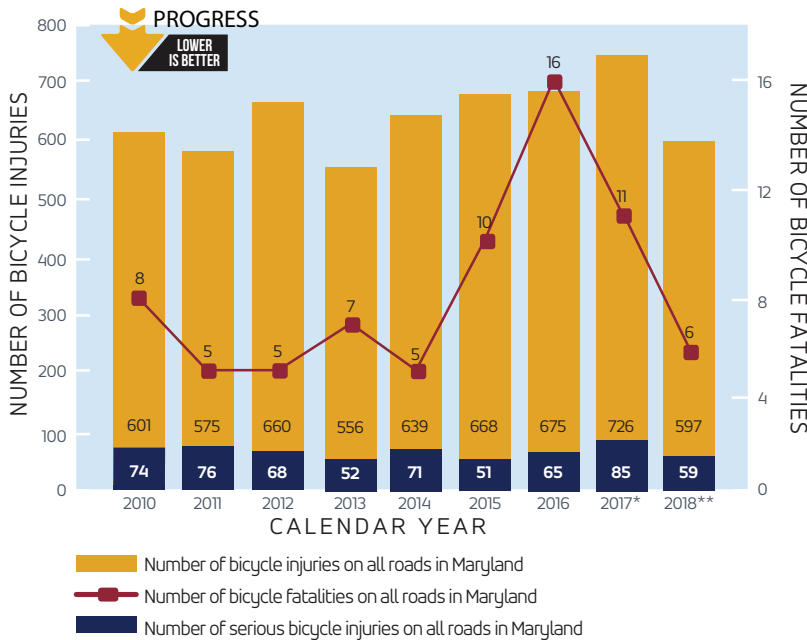
- MDOT is currently working with many jurisdictions to support the development of local strategic highway safety plans that are reflective of and contribute to the statewide SHSP; reductions in crashes and injuries and fatalities at the local level will improve the overall statewide outcomes
- Implement new Federal Transit Administration (FTA) Safety Management Systems (SMS) policies targeted towards reducing preventable accidents and implement new safety policies, procedures, and subsequent training
- Promote and support legislation and adjudication to reduce aggressive, distracted, and impaired driving
- Enhance and improve enforcement of adult and child occupant protection laws
- Identify intersections where the Crash Severity Index is high and implement safety improvements



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



NUMBER OF BICYCLE FATALITIES AND INJURIES



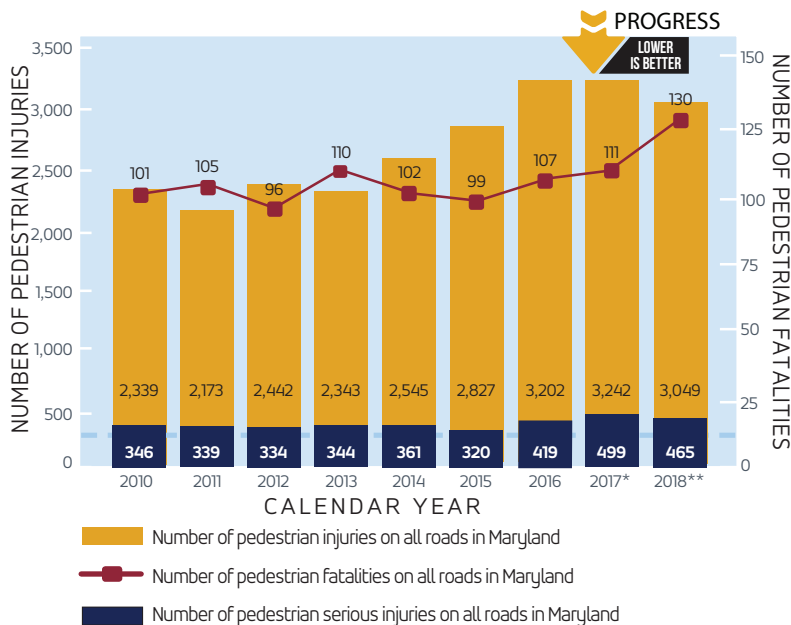
Why Did Performance Change?

- Focused on strategies identified in the SHSP and continued to install bicycle improvements, such as marked bicycle lanes, where feasible
- Continued improving bicycle guidance and policies along MDOT SHA roadways with the MDOT SHA bicycle committee
- Continued to utilize MDOT SHA Pedestrian Road Safety Audits (PRSAs) to identify and implement engineering solutions that improve pedestrian safety in high-incident locations
- Invested in the new statewide education and outreach campaign, "Look Alive," which reminds drivers, pedestrians, and bicyclists to share the road and make safer decisions that could save lives
- MDOT SHA is releasing a draft Context Driven - Access and Mobility For All Users guide to address issues of safety and accessibility for pedestrians and non-motorized users while still considering vehicle movement

What Are Future Performance Strategies?

- Implement safety-related strategies identified in the 2040 Maryland Bicycle and Pedestrian Master Plan
- Focus on geospatial analysis of crash data to identify high-risk curves and screen candidate locations for high-friction surface treatments
- Coordinate with local governments to strengthen planning efforts and to identify locations for sidewalks, shared use paths, and innovative bicycle treatments approved by the Federal Highway Administration (FHWA) and MDOT SHA, such as green pavement, protected bicycle lanes, bicycle signal heads, and other bicycle treatments
- Identify and target pedestrian and bicycle safety issues, populations, and locations of concern through the collection, analysis, and evaluation of data and information; promote safe behaviors of all road users through education and enforcement initiatives
- 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
- Improve the pedestrian and bicycle safety culture in Maryland, including the promotion and implementation of legislation and training of professionals and stakeholders about best safety practices
- Promote and improve roadway environments for safe walking and bicycling through implementation of engineering treatments, land use planning, and system-wide countermeasures
- Streamline the MDOT SHA PRSA reporting; develop a data management program to integrate seamlessly with GIS portal to develop recommendations that more readily integrate into existing MDOT SHA funding programs

NUMBER OF PEDESTRIAN FATALITIES AND INJURIES



Target: ≤ 78 pedestrian fatalities per year by 12/31/2020 (2016-2020 average),
 ≤ 293 pedestrian serious injuries per year by 12/31/2020 (2016-2020 average)

* 2017 data has been revised from previous report.

** 2018 data is preliminary and subject to change.

OBJECTIVE:

Provide for the secure movement of people, goods, and data

With each new technology that Maryland enlists to help make processes and experiences more efficient in the long run for users, cybersecurity must also be prioritized to protect customers' data and privacy. In August 2019, the Department of Homeland Security recertified MDOT MVA for its compliance with federal REAL ID requirements, which made Maryland the first state to achieve that designation. The recertification affirms that Maryland has all documentation and security procedures in place that are required to make the State's REAL ID driver's licenses and identification

cards compliant with Federal law. Information technology (IT) improvements are moving forward in Network Maryland and the Center for Internet Security Multistate Information Sharing and Analysis Center (MS-ISAC). IT will also continue to upgrade security infrastructure such as closed-circuit television (CCTV), security cameras, and other technology on the multimodal transportation system.

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

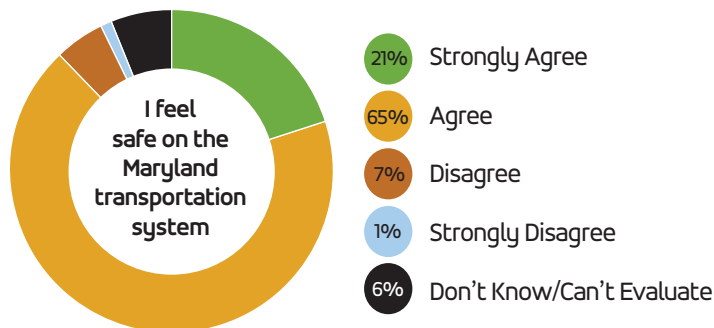


MDOT regularly surveys its customers to measure how successful it is in making transportation system users feel safe. The sense of safety that users feel while driving, riding transit, flying into or out of BWI Marshall Airport, or utilizing any other part of the transportation system can indicate how likely they are to continue using the transportation system. The survey indicates the perception of safety and experience with crime for users of the Maryland transportation system.

PERCEPTION OF SAFETY ON THE MARYLAND TRANSPORTATION SYSTEM

(Including BWI Marshall Airport, Ports, Roads, Transit)

MDOT SURVEY QUESTION



Why Did Performance Change?

- MDOT SHA's Coordinated Highways Action Response Team (CHART) incident management program handled 151,955 events
- MDOT SHA and MDTA achieved bare pavement on primary and interstate highways during winter events in fewer than two hours, on average, for the past four winter seasons
- MDOT MTA began a drone program to monitor areas like tracks and parking lots, and utilized a Mobile Field Force Team (deployable team of offices with special crowd control equipment and training)
- MDOT MTA led an initiative to implement technological safety improvements, such as a bus turn alert system to reduce vehicle-pedestrian crashes and initiated the Light Rail Fare Evasion Prevention Program to reduce crime and fare evasion
- MDOT MVA's REAL ID process was recertified in August 2019 by the Department of Homeland Security. Maryland is the first state to achieve this designation

What Are Future Performance Strategies?

- MDOT has completed 1,069 construction projects totaling nearly \$5.9 billion since 2015 and has 718 projects totaling \$7.2 billion currently underway
- MDOT MVA is piloting the Driver Alcohol Detection System for Safety, making Maryland the first state in the nation to test new technology that automatically analyzes drivers' breath for alcohol impairment
- MDOT SHA and MDOT MVA are working with local jurisdictions to support development of local road safety plans using the Maryland SHSP as a guide
- MDOT MAA will administer \$2.48 million to public-use airports across the State to support infrastructure preservation, safety equipment acquisitions, and environmental compliance activities
- MDOT MPA will construct a second 50-foot-deep vessel berth that will be operational in 2021

PREVENTABLE CRASHES PER 100,000 VEHICLE MILES



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



CALENDAR YEAR	2012	2013	2014	2015	2016	2017	2018	2019	TARGET
PREVENTABLE ACCIDENTS PER 100,000 VEHICLE MILES									
Core Bus	2.43	1.49	1.42	1.43	1.54	1.54	1.44	1.76	1.50
Light Rail	0.24	0.03	0.06	0.14	0.24	0.02	0.03	0.37	0.25
Baltimore Metro	0.06	0.00	0.00	0.00	0.06	0.06	0.02	0.01	0.06
Paratransit/Taxi Access	1.74	1.55	1.10	0.79	1.04	1.04	0.77	1.32	1.00

Why Did Performance Change?

- MDOT MTA purchases 70 new vehicles each year
- Replacement Metro SubwayLink railcars are in production and Light RailLink railcars are undergoing a comprehensive overhaul
- MobilityLink paratransit vehicles are continuously replaced and MARC Train began operating eight new locomotives in 2018

What Are Future Performance Strategies?

- Use efficient and effective training methodologies, including the bus simulator, operator recertification programs, and safe operation awards to give operators the skills they need to perform their duties safely
- MDOT MTA will continue to implement new FTA SMS policies that are targeted towards reducing preventable accidents
- Continue to improve training of MDOT MTA staff and to understand where preventable crashes are most likely to occur

OBJECTIVE:

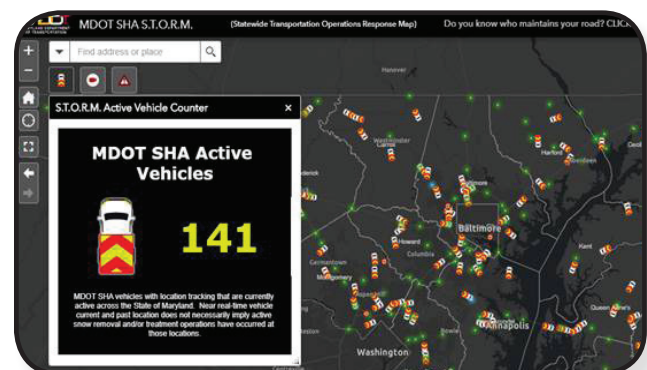
Provide a resilient multimodal system by anticipating and planning for changing conditions and hazards whether natural or man-made

MDOT's transportation network must be resilient and able to adapt to changing conditions, including both environmental and man-made threats, in order to accomplish its long-term goal of safety. Changes in conditions are often unpredictable, but the transportation system is critical to the continued economic vitality, safety, and livelihood of the region, so it must be kept as accessible and safe as possible no matter the disruption. Severe weather and other incidents are inevitable, but a prepared and well-trained transportation agency can ensure these incidents are resolved as quickly and smoothly as possible.

The familiarity of emergency personnel with the National Incident Management System (NIMS) and Incident Command System (ICS) is vital for emergency preparedness. 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.

MDOT is developing vulnerability assessment data and resiliency plans to address the current and future impacts of climate change on the transportation network. Data from the vulnerability assessment is available for planning, programming, and project design to ensure that resilient and reliable transportation is available to be utilized by counties. A second pilot study was completed to establish processes that would integrate extreme weather and climate risk into asset management and planning. To prepare for future network disruptions, MDOT utilizes innovative design in new construction and maintenance, relocation, and other protective and adaptive measures.

MDOT has already begun and will continue to plan for resiliency on its highway network of 17,000 lane-miles of roadway and nearly 2,900 bridges. MDOT's Climate Change Vulnerability Viewer tool, developed in partnership with federal, university, and local partners, helps MDOT identify vulnerabilities, prioritize infrastructure assets, and determine solutions to respond to the changing climate. Since its release in 2018, it continues to be updated regularly. This tool allows MDOT to address the most vulnerable roadways and bridges before they become irreparable. It also allows MDOT to work in collaboration with local partners to develop new strategies or support local planning efforts.



S.T.O.R.M. is MDOT SHA's new website where citizens can determine the real-time location of MDOT and contractor snow equipment in the field.

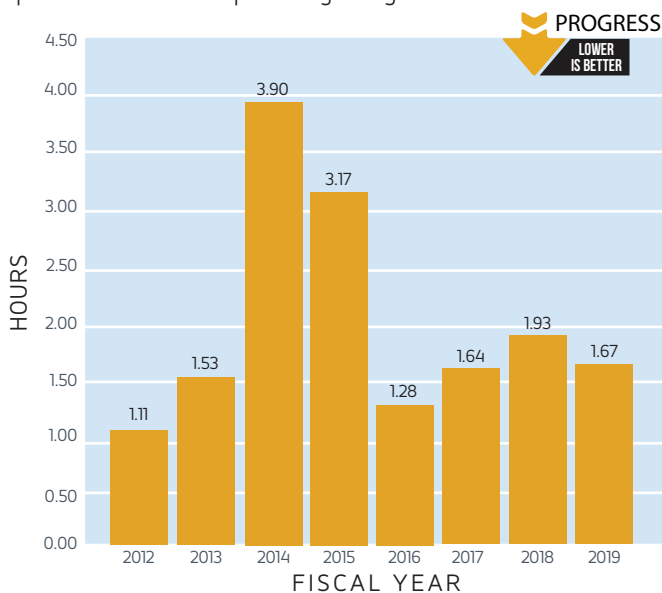
OBJECTIVE:

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



It is imperative that Maryland's transportation system be safe, reliable, and efficient for residents, businesses, and emergency services year-round. When inclement weather disruptions occur, the response by specialized operators to restore all modes of the transportation system should be quick and efficient while preserving safety for all users.



Target: 4 hours or fewer to regain bare pavement

Why Did Performance Change?

- Direct Liquid Application (DLA) operations can deplete brine resources quickly: over the past two seasons, MDOT SHA placed an additional 145,000 gallons of brine storage capacity strategically across the State
- MDOT SHA also expanded its DLA program and now has at least three routes in six of the seven district offices across the State
- MDOT SHA has 45 loader scales as of September 2019, and will continue to expand their use at salt storage facilities to achieve greater accuracy in salt inventory management

What Are Future Performance Strategies?

- Continue to train 20% of MDOT SHA maintenance personnel annually in the required Snow College so that 100% of employees are trained at least every five years
- Continue to ensure adequate supplies of brine storage tanks statewide for DLA operations and increase the number of routes using DLA
- Replace all brine makers with automated units that can produce up to 9,000 gallons of brine per hour, to quadruple the output of current units while producing a perfectly blended solution

