



Larry Hogan
Governor
Boyd K. Rutherford
Lt. Governor
James F. Ports, Jr.
Secretary
Tim Smith, P.E.
Administrator

**J00B01 MDOT State Highway Administration
FY 2023 Operating Budget
Response to the Department of Legislative Services Budget Analysis**

Senate Budget and Taxation Committee
Public Safety, Transportation, and Environment Subcommittee
Senator Cory McCray
March 4, 2022

House Appropriations Committee
Transportation and the Environment Subcommittee
Delegate Marc Korman
March 7, 2022

**J00B01 MDOT – STATE HIGHWAY ADMINISTRATION
MDOT RESPONSE TO DLS ANALYSIS
FY 2023 BUDGET**

DLS Budget Analysis Issues

2. Should Use of Congestion Pricing in Maryland be Expanded? (Page 25)

MDOT should comment on how congestion pricing could be used throughout the State to mitigate traffic congestion.

MDOT Response:

A key purpose of congestion pricing is to manage congestion - raising the toll rate during periods of high traffic volumes to reduce the number of vehicles using the roadway, which keeps the highway relatively congestion-free and provides motorists with reliable travel times. The concept of congestion pricing – essentially pricing based on supply and demand – is used in many industries, including airline ticket pricing and hotel room rates. You can expect to pay much more for a two-bedroom condo in Ocean City in July than for the same condo in February. Congestion pricing on roads utilizes that same concept.

As noted in the DLS analysis, congestion pricing includes variable pricing based on time of day or dynamic and cordon pricing that charges drivers entering a specific area. Congestion pricing can be utilized on certain lanes or an entire facility. Time of day pricing is currently utilized on the Intercounty Connector and I-95 Express Toll Lanes and effectively manages traffic given current traffic patterns. Dynamic pricing will be utilized on the Op Lanes project given the levels and duration of severe traffic that requires more frequent changes based on then-current traffic conditions. Dynamic pricing allows the toll to adjust on a real-time basis to ensure the facility meets the approved operational metrics of travel speed and traffic volume.

MDOT should provide a listing of existing roads/facilities/areas to which congestion pricing could be added under the State's authority.

MDOT Response:

Congestion pricing on lanes or full facilities would be most beneficial on controlled access highways where there are specific entrance and exit points to allow better control and management of the demand on the facility. The effectiveness of congestion pricing also depends on the availability of nearby alternate routes. Access controlled highways that could benefit from congestion pricing include those that are routinely in the MDOT SHA Mobility Report's Most Congested Freeway/Expressway Sections, such as I-495, I-270, I-95, I-695, I-895, MD 295, and US 50. Under current State law, the Maryland Transportation Authority (MDTA) is the only entity that can set, collect, and enforce tolls in Maryland. Since many of the highways noted above are owned and operated by MDOT SHA, which is a separate legal and financial entity from MDTA, issues like operations and maintenance, the funding for the facility, and the disposition of revenues from the facility would have to be addressed.

**J00B01 MDOT – STATE HIGHWAY ADMINISTRATION
MDOT RESPONSE TO DLS ANALYSIS
FY 2023 BUDGET**

DLS Budget Analysis Issues (continued)

MDOT should identify changes to State law that would be required to enable the use of congestion pricing for existing roads and facilities.

MDOT Response:

Maryland law already allows the MDTA to use several different tolling strategies, including fixed-price tolling like at the Bay Bridge and Harbor Tunnel, and congestion pricing via time of day or dynamic pricing. Maryland law and regulations also establish a robust process for the setting of toll rates including a multi-step process of public comment periods and consideration by the MDTA Board.

MDTA is the only agency that can set, collect, and enforce tolls in Maryland. Facilities tolled by MDTA are required to be designated as “transportation facilities projects”, which requires MDTA to have an ownership interest in the facility. Thus, for MDTA to toll facilities that are owned and operated by other entities, including MDOT SHA, a contractual arrangement addressing certain key issues would need to be in place. A legislative change would be required for any other agency to set and fix tolls. If tolling were to cross jurisdictional boundaries (such as Maryland and DC), a compact may need to be established.

MDOT should indicate facilities for which congestion pricing is prohibited under federal laws and regulations and whether the State could apply for a waiver of any federal law or regulation.

MDOT Response:

Under federal law ([Title 23 USC 301](#)), all highways constructed under Title 23 shall be free from tolls except for certain exceptions as noted in [Title 23 USC 129](#). Most MDOT SHA highways fall under the provisions of Title 23.

The exceptions under federal law allow the following:

- Interstate System Highways
 - Tolling is allowed on all new Interstate System highways, bridges, and tunnels.
 - Existing Interstate System bridges and tunnels may be converted to toll facilities if reconstructed or replaced.
 - Added lane capacity on existing Interstate System highways may be tolled
 - High-occupancy vehicle (HOV) lanes may be converted to high-occupancy toll lanes.
 - The number of non-HOV toll-free lanes on the Interstate System must be maintained. These lanes may not be tolled even if reconstructed unless through an approved pilot program (such as the Value Pricing Pilot Program).

**J00B01 MDOT – STATE HIGHWAY ADMINISTRATION
MDOT RESPONSE TO DLS ANALYSIS
FY 2023 BUDGET**

DLS Budget Analysis Issues (continued)

- Non-Interstate Federal-Aid Highways [Highways on the National Highway System (other than Interstate System Highways) and all other public roads not classified as local roads and rural minor collectors]
 - All lanes of an existing toll-free non-Interstate System federal-aid highways, bridges, or tunnels may be converted to a toll facility if they are reconstructed.
 - Tolling is allowed on all new federal-aid highways, bridges, and tunnels. Added lane capacity on existing highways may be tolled if the existing toll-free lanes count remains the same. However, toll-free lanes may be converted to tolling as part of a project to reconstruct them.

While there is no “waiver” to the federal laws noted above, there are federal tolling pilot programs, such as the Value Pricing Pilot Program, that states may apply for that would allow for congestion pricing on existing roads (such as existing Interstate highways) that are not exceptions under federal law.

It is important to note that there may also be limitations on how toll revenues are used. Federal law limits the usage of toll revenues. Additionally, MDTA’s existing Trust Agreement with its bondholders further limits the use of MDTA toll revenues to be used only for the construction, operation, and maintenance of MDTA facilities. For MDTA’s existing facilities, the usage of toll revenues is also limited by Section 129 agreements already in place with the Federal Highway Administration, which may further limit the use of revenues on certain toll roads.

MDOT should identify policy considerations that should be addressed in implementing congestion pricing on a wide scale.

MDOT Response:

Congestion pricing is a tool that can be used to help manage congestion and provide more reliable travel times; however, depending on travel patterns and the level of and reason for congestion on a facility, other traffic management solutions may be more effective. For example, MDOT SHA’s Innovative Congestion Management project on I-270 utilizes ramp metering, auxiliary lanes between interchanges, extensions of acceleration and deceleration lanes, and restriping of existing lanes to reduce congestion by optimizing traffic operations.

Congestion pricing implemented on roadways that are not already tolled may require study under the National Environmental Policy Act and coordination with the Federal Highway Administration. Additionally, ongoing monitoring may be required after implementation to monitor any alternative routes to ensure congestion reduction is being achieved.

**J00B01 MDOT – STATE HIGHWAY ADMINISTRATION
MDOT RESPONSE TO DLS ANALYSIS
FY 2023 BUDGET**

DLS Budget Analysis Issues (continued)

To the extent that congestion pricing is utilized on a roadway that is not already tolled, the introduction of a new user fee may impact existing commuters that must travel at specific times to get to and from work. To the extent that congestion-priced toll lanes can be utilized alongside general purpose (non-tolled) lanes, this provides drivers the option of whether or not to use the tolled lanes. This scenario allows each driver to determine for each trip whether or not the driver values the time savings that can be achieved through the use of “express toll lanes” as greater than the toll rate being charged at that time. Drivers who choose not to use the tolled lanes still benefit from the reduction of vehicles on the general purpose lanes, which reduces congestion and improves travel time.

The use of congestion pricing generates toll revenues. Toll revenues must ensure that the roadway is operated and maintained in good condition so that the facility can continue to operate and generate revenues. Federal law and MDTA’s Trust Agreement impact how toll revenues may be used.

**J00B01 MDOT – STATE HIGHWAY ADMINISTRATION
MDOT RESPONSE TO DLS ANALYSIS
FY 2023 BUDGET**

DLS Budget Analysis Issues (continued)

3. Phase I of the Managed Toll Lanes Project Progressing (Page 26)

MDOT should update the committees on the status of the bid protest, the likely timing for MDOT consideration of and determination on the elements of the protest ruled by the court to be timely, if the court ruling has any immediate impact on the work being done under the phase development agreement that is the subject of the protest, and whether the project schedule will be modified to allow for the resolution of the protest before moving forward with procurement of the construction for Phase 1 South.

On February 18, 2022, the Montgomery County Circuit Court ordered MDOT (Secretary's Designee) to adjudicate Capital Express Mobility Partners' bid protest, except for MDOT's decision to approve Transurban and Macquarie as lead contractors. Under that order, MDOT (Secretary's Designee) must hold a hearing on the merits of the remaining three bases of protest within 75 days from February 18, 2022 and issue a final decision within 20 days of the first day of hearing. On February 25, 2022, Capital Express Mobility Partners noted an appeal of the Circuit Court decision for the portion of the order concerning the substitution in lead contractors.

MDOT, in collaboration with the Office of the Attorney General, is evaluating next steps based on the Circuit Court ruling. At the same time, predevelopment work is advancing under the agreement approved by the Board of Public Works on August 11, 2021. It would be premature to speculate on impacts to the project schedule until there is a hearing on the merits of the bid protest and a final determination from MDOT on the outcome of the protest. At this time, we continue to move forward with the project as scheduled.

**J00B01 MDOT – STATE HIGHWAY ADMINISTRATION
MDOT RESPONSE TO DLS ANALYSIS
FY 2023 BUDGET**

Operating Budget Recommended Actions

1. Concur with Governor's allowance. (Page 32)

MDOT Response:

The Department concurs with the DLS recommendation.

PAYGO Budget Recommended Actions

1. Concur with Governor's allowance. (Page 32)

MDOT Response:

The Department concurs with the DLS recommendation.



MARYLAND DEPARTMENT
OF TRANSPORTATION™

STATE HIGHWAY ADMINISTRATION

Budget Briefing Presentation

Fiscal Year 2023

Larry Hogan, *Governor*
Boyd K. Rutherford, *Lt. Governor*

Jim Ports, *Secretary*
Tim Smith, *Administrator*

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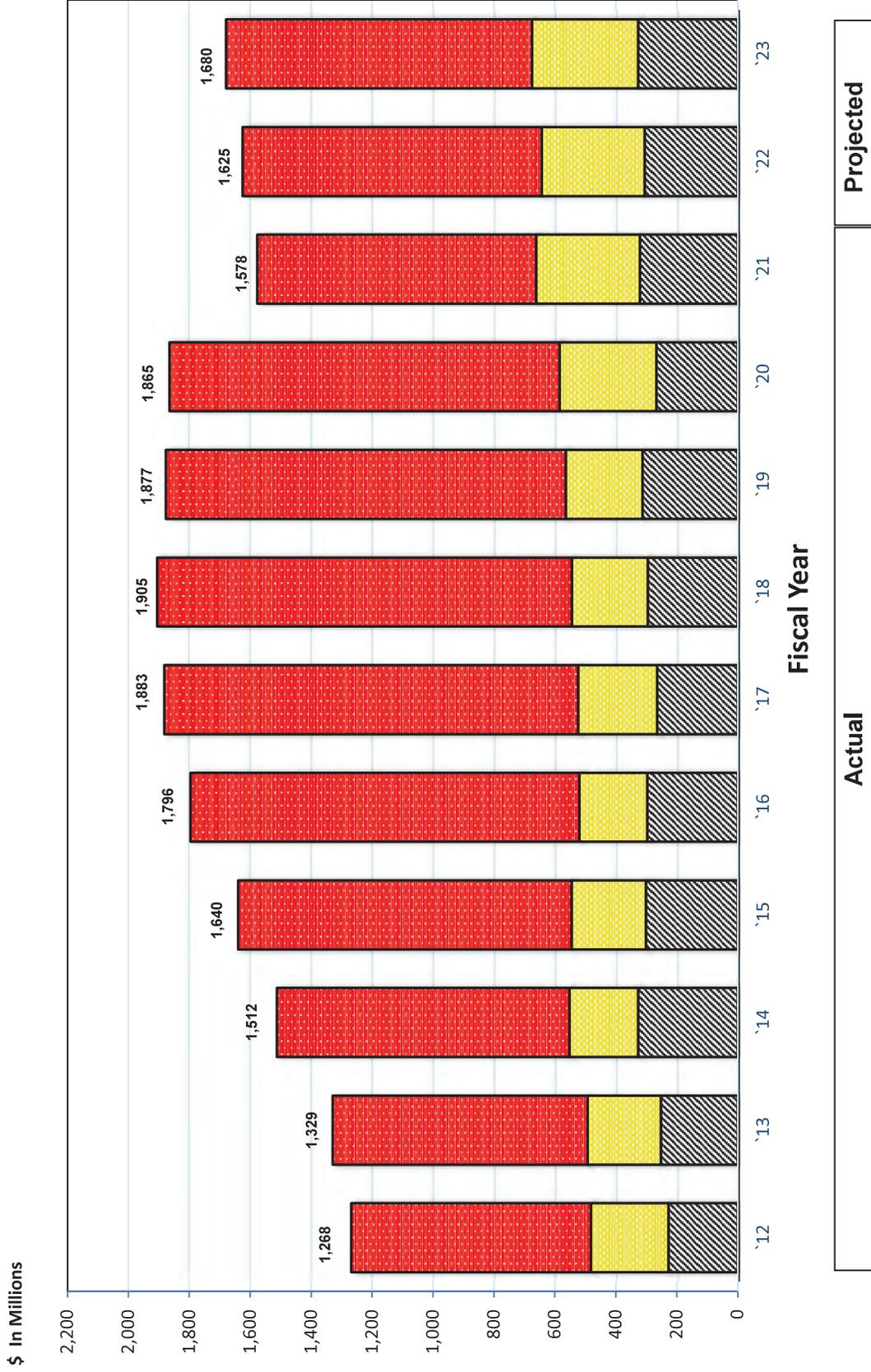
MDOT SHA Year-In Review Fiscal Year 2021

Budget Overview

(\$In Millions)

Funding	2021	2022	2023
	Actual	Working	Allowance
TOTAL BY PROGRAM			
SHA			
Capital	\$ 911.3	\$ 976.9	\$ 999.5
Major IT Development	4.9	4.7	4.8
Maintenance	305.3	289.7	311.6
Safety	16.0	15.5	15.5
Subtotal - SHA	1,237.4	1,286.8	1,331.4
County & Municipality			
County & Municipality - Capital	80.0	71.9	71.9
County & Municipality - Operating	260.2	266.3	276.5
Subtotal - Cty & Municipality	340.2	338.2	348.4
TOTAL	\$ 1,577.6	\$ 1,625.0	\$ 1,679.8
TOTAL BY FUND SOURCE			
State	\$ 852.5	\$ 823.6	\$ 857.4
Federal	640.1	751.4	795.2
Federal - CRRSAA	75.0	50.0	27.2
Federal - ARPA	10.0	-	-
TOTAL	\$ 1,577.6	\$ 1,625.0	\$ 1,679.8

Total Budget



Actual Projected

Maintenance/Operation
 County & Municipality
 Capital

Capital Program Federal and State



Fiscal Year

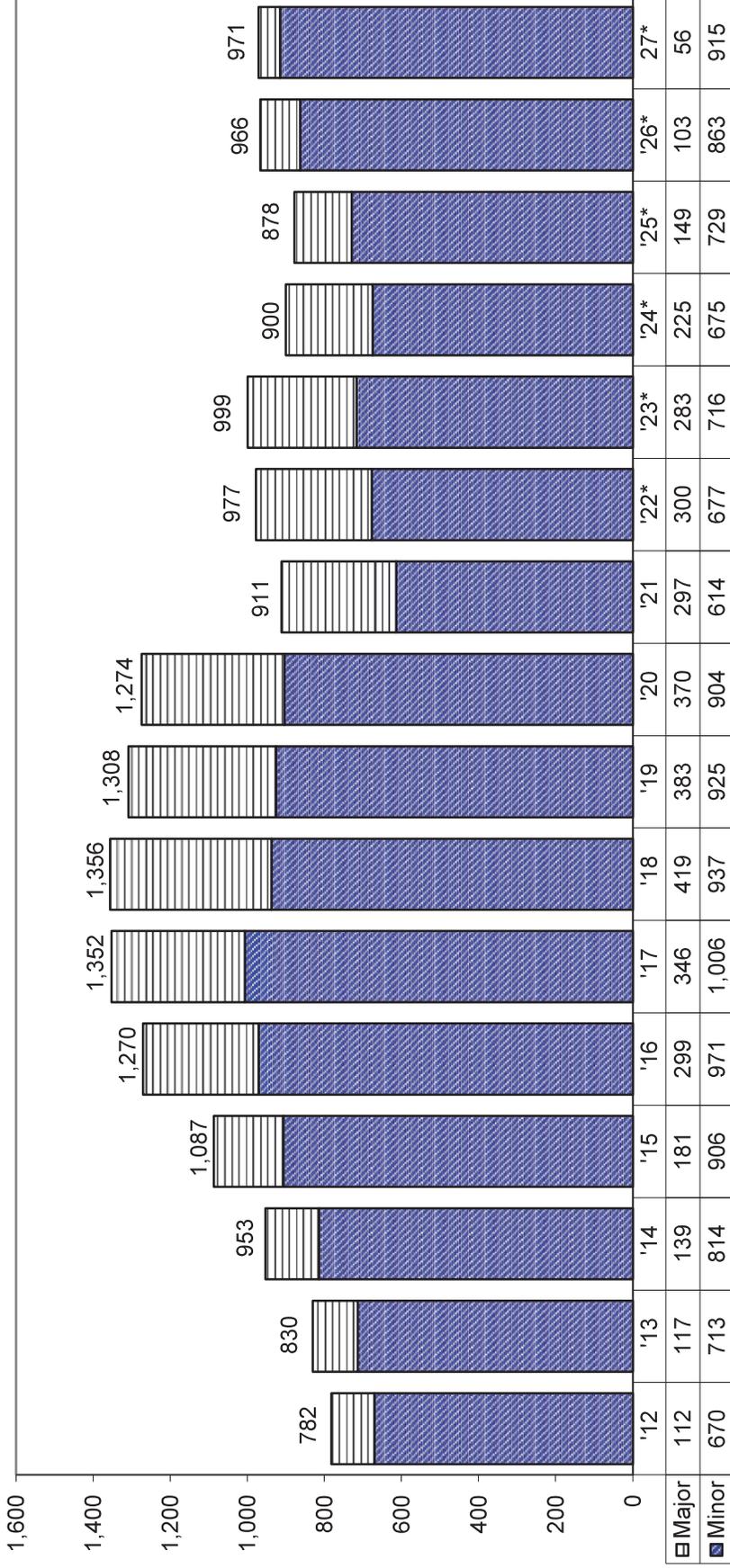
Actual

Projected

*The Capital Program is based on the FY2022-2027 Final CTP submission less Program 3 (County and Municipality Program), Program 5 (County and Municipality-Highway User Revenue), and Program 8 (IT Major Projects). Minor consists of Safety, Congestion Relief, Community Enhancement, Highway and Bridge Preservation and Other. Reimbursables are reflected in the minor category.

Capital Program Projects by Type

\$ In Millions



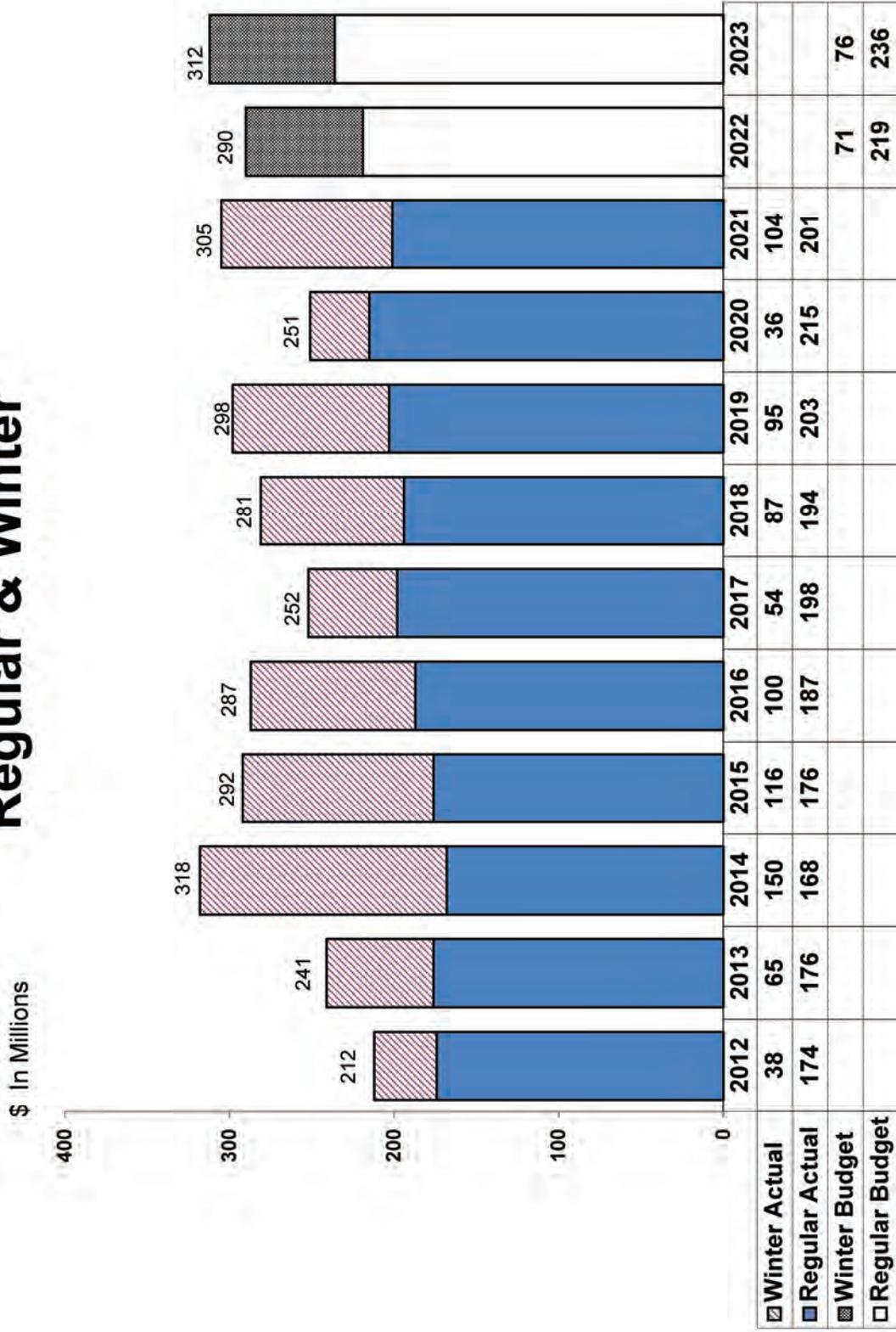
Fiscal Year

Actual

Projected

*The Capital Program is based on the FY2022-2027 Final CTP submission less Program 3 (County and Municipality Program), Program 5 (County and Municipality-Highway User Revenue), and Program 8 (IT Major Projects). Minor consists of Safety, Congestion Relief, Community Enhancement, Highway and Bridge Preservation and Other. Reimbursables are reflected in the minor category.

Maintenance Program Regular & Winter



YEAR IN REVIEW 2021



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SHA'S VISION & VALUES

MDOT SHA'S VISION

To provide a safe, well-maintained, reliable highway system that enables mobility choices for all customers and supports Maryland's communities, economy and environment.

INTEGRITY

We do the right thing even when it is not easy.

INCLUSION

We respect, collaborate with, and listen to each other.

TEAMWORK

We work together to advance solutions for the organization.

COMMITMENT

We do what we say we are going to do.





MESSAGE FROM THE GOVERNOR

For seven years, Maryland has been leading the nation on rebuilding infrastructure and for years, I have been urging leaders in Washington to take action to rebuild, repair and modernize the country's crumbling infrastructure. As chairman of the National Governors Association, I launched a national infrastructure initiative pre-COVID "Infrastructure: Foundation for Success" that focused on repairing and modernizing the country's infrastructure in ways that would drive long-term economic growth while addressing short-term recovery needs and encourage innovation and efficient approaches to delivering projects that build transportation networks of the future.

When the COVID-19 pandemic unfolded, our nation's and Maryland's focus temporarily shifted. But with vaccines becoming readily available and millions of Marylanders rolling up their sleeves, this year transitioned from a state of emergency into a public health management response. We renewed our focus on investing and building our infrastructure—critical to creating jobs, expanding economic opportunities and improving the lives of all who live in this great state and all that travel through.

Taking a balanced, all-inclusive approach to infrastructure in Maryland that harnesses the full potential of financing and leveraging private sector partnerships, we currently have more than 800 road, bridge and tunnel projects under construction in every jurisdiction totaling \$9 billion. This is far more than any other administration in Maryland's history has invested.

With the passing of our historic Traffic Relief Plan to ease congestion on the Capital Beltway, build a new American Legion Bridge and deliver more transit services throughout the region, we are advancing one of the most significant infrastructure projects in the last 50 years, and one of the largest public-private partnerships in the world.

Investing in infrastructure is critical as we bring people back to work and build a sustainable economic recovery in Maryland and across our country. I couldn't be prouder of the resiliency of all Marylanders and of the men and women in transportation who are committed to rebuilding, preserving and modernizing our roadways, bridges and tunnels and ultimately making every mode of travel better and safer for all users.



MESSAGE FROM THE

SECRETARY

When Governor Hogan took office, he made a commitment to make Maryland's transportation system one that meets the needs of our citizens, visitors, and businesses, and supports economic development to change Maryland for the better.

As Maryland's Transportation Secretary, I am actively involved in ensuring that Governor Hogan's transportation vision becomes a reality. During the last five decades, the Maryland Department of Transportation has undergone a remarkable transformation from an agency charged with operating and maintaining roads to a department that has expanded its role in financing new revenue-producing transportation projects, become a leader in public-private transportation partnerships, and delivered major construction projects and initiatives that have taken the department to new heights.

Our team is working hard to provide an innovative and affordable transportation system that meets our customers' needs each and every day. We will continue to employ the newest technology, business practices, and community partnerships to help ensure continued success -- and challenge our employees to build relationships and think outside of the box to make it happen.

The last two years have been challenging, and despite operating during a pandemic health crisis, our transportation team has continued to work hard to keep the supply chain moving by land, sea and air. I am so proud of the more than 10,000 MDOT employees and private sector partners who have done a tremendous job delivering outstanding service and meeting our customer's needs during such uncertain times. As the state's economy and transportation network continues to recover, we will look ahead with a focus on preserving what we have, planning for future projects, and building what we can to further support Maryland's economy.

During the past year, MDOT SHA's team has worked hard to complete the I-270 Innovative Congestion Management Project, the I-695 Southwest Outer Loop, and the I-95/I-495 Bridges over Suitland Road, among others. Thank you to the men and women working on these projects for their determination and dedication during such challenging times so that we could continue to deliver transportation projects and solutions that have improved our roads, bridges, transit systems, airports, and Maryland's Port of Baltimore.

As you will see in this Year In Review, we are fortunate to have a dedicated and enthusiastic team committed to supporting this mission to connect our customers to life's opportunities.



MESSAGE FROM THE

ADMINISTRATOR

Last year, I wrote about how we never stopped working through the pandemic, making progress, or completing important projects and initiatives. With budget constraints, we focused on continuing our maintenance and construction activities. The same holds true today. Maintaining our highway system in a state of good repair for our customers is our highest priority. Good repair means regular maintenance, and our asset management program applies early, modulated repairs that extend the service life of our roads and bridges.

As the Maryland Department of Transportation State Highway Administration (MDOT SHA) continues to deliver projects that preserve Maryland's existing system, we are looking ahead, building a shelf of projects that will benefit residents and businesses for future generations. We are focusing on three main areas: asset management, accessibility, and mobility.

Asset management uses a system-preservation philosophy and looks toward long-term solutions in our day-to-day decisions while seeking to gain the best return on investment to ensure a sound transportation infrastructure for the next generation. Accessibility ensures pedestrians, bicyclists, scooter riders, and motorists have safe and appropriate access to life's opportunities. And mobility is about taking advantage of technology and data-driven systems to improve the efficiency of our existing footprint. We apply Transportation Systems Management and Operations (TSMO) to planning, engineering, operating and maintaining facilities to maximize their full-service potential with the goal of improving our transportation network.

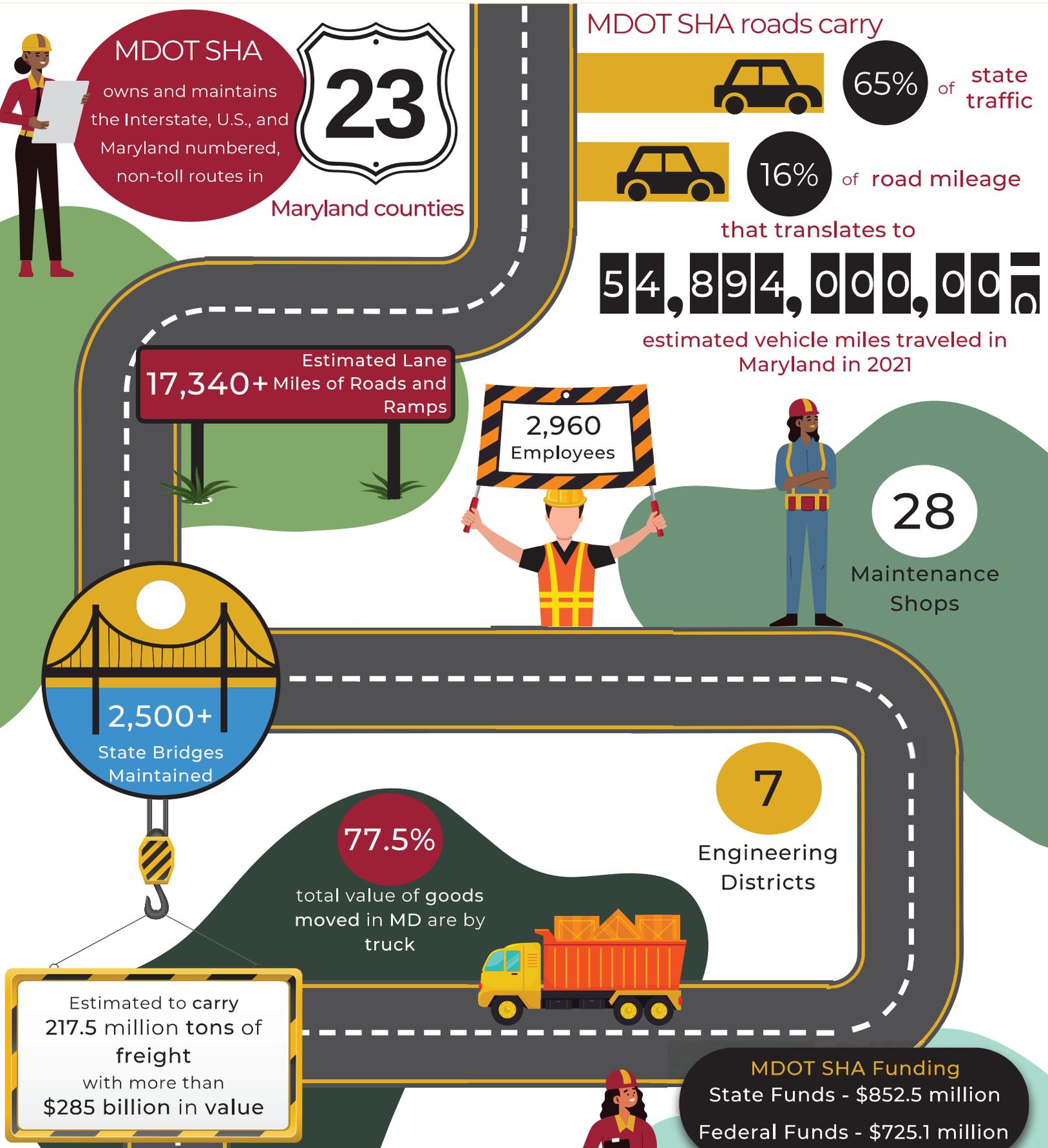
We continue to look at ways to use data, smart devices, and technology more efficiently in the projects we deliver in the future. Back in 2019, MDOT SHA's Context Driven Guide was completed. Along with best practices and design tools, this guide provides a process to help strike the appropriate balance between access needs and mobility needs for all users to change how we deliver projects. It enables flexibility-in-design solutions to address major issues of safety and accessibility for all road users while still considering the transportation needs of our vulnerable users.

Safety is always at the forefront of everything we do. Using the processes outlined in the Context Driven Guide, coupled with a Vision Zero philosophy, we strive to make our roadways safer for all users. MDOT SHA continues to maintain a safer, interconnected system for Marylanders, our visitors, and future generations. Part of our fiscal responsibility is ensuring our agency uses our internal resources efficiently. We continue to examine our business processes to ensure our core functions support our mission in the most effective way.

All of us at MDOT SHA are truly dedicated to improving our highways, relieving congestion, increasing safety for our vulnerable users, and responding to Marylanders and their travel needs. We currently have 109 construction projects across the state in either the planning, design or construction phase, including work in Prince George's County on a \$50 million project to widen and add bicycle lanes and new sidewalks on US 1 in College Park. In Montgomery County, our \$132 million I-270 Innovative Congestion Management Improvements include 14 focused infrastructure and technology improvements that will result in more predictable and consistent commutes for hundreds of thousands of commuters each day. And out in Allegany County, crews are working to stabilize slopes along MD 135 to make roadways safer for all users. The \$3.6 million project is expected to be completed in the summer of 2022. We will continue to develop new technology and approaches to advance our transportation system for generations to come through these projects and future ones.

YOUR MDOT SHA BY THE NUMBERS

A safe, well-maintained highway system is crucial to a strong economy, enabling mobility, and access for people and goods from and throughout the state of Maryland, keeping people safe as they travel, and improving the quality of life of Maryland's citizens.

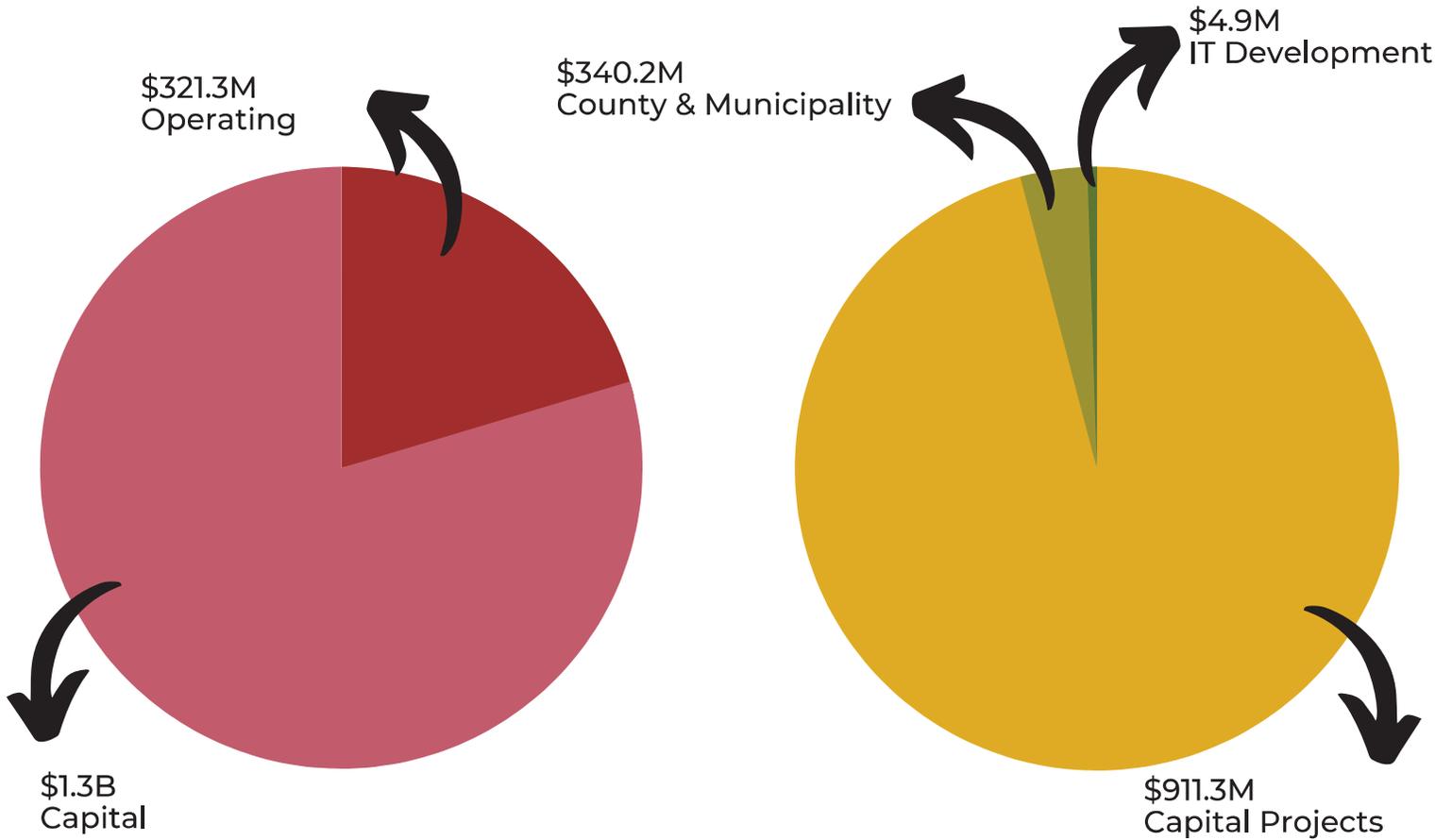


*Source: U.S. Department of Transportation Freight Analysis Framework (FAF 5) Version 5.2. Calendar year 2020 values forecasted by the Federal Highway Administration (FHWA) from 2017 base year FAF data.

FUNDING

FOR FY 2021

MDOT SHA USE OF FUNDING FOR CAPITAL FY 2021

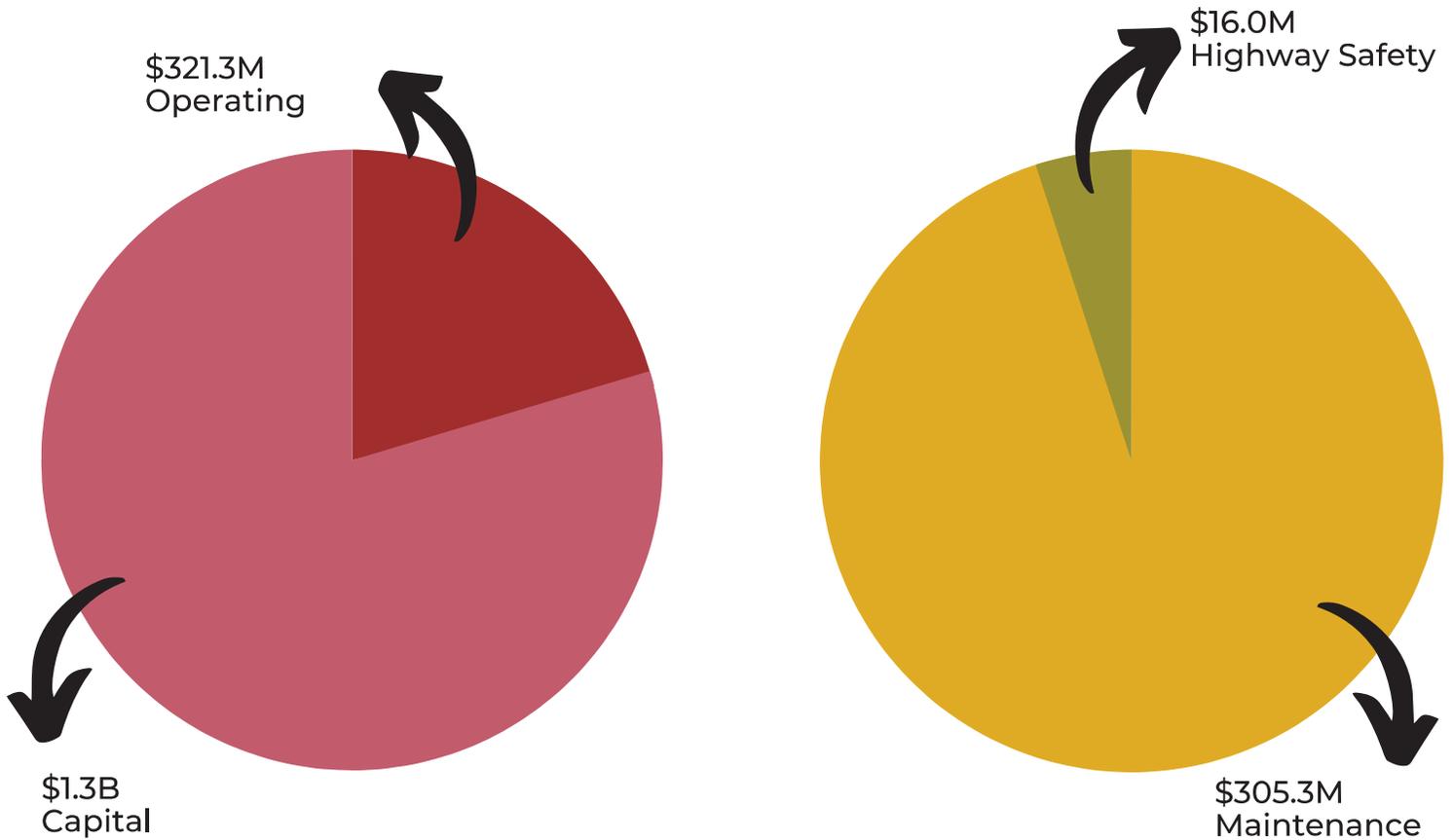


CAPITAL PROJECTS FUNDS SPENT	FY 2021
Major Projects (planning, design, right of way, and construction phases)	\$296.7 M
Bridge Rehabilitation Projects	\$166.4 M
Pavement Resurfacing/ Rehabilitation Projects	\$162.6 M
Safety-Related Infrastructure Projects	\$63.1 M
Multimodal Access Projects	\$40.0 M
Traffic Management	\$43.4 M
Environmental Projects	\$46.0 M
Facilities, Equipment, Research	\$56.0 M
Reimbursable Expenses, Other	\$37.1 M
TOTAL	\$911.3 M

FUNDING

FOR FY 2021

MDOT SHA USE OF FUNDING FOR OPERATING FY 2021



OPERATING MAINTENANCE FUNDS SPENT	FY 2021
Routine Maintenance	\$130.0 M
Bridge Maintenance	\$3.4 M
Environmental Design and Compliance	\$5.8 M
Traffic/ OTMO Operations	\$29.5 M
Winter Operations	\$104.4 M
Electricity	\$8.7 M
Maintenance Support	\$16.8 M
Other	\$6.7 M
TOTAL	\$305.3 M

ACCOMPLISHMENTS

of 2021

1 Managing Highway Assets Better

An ounce of prevention is worth a pound of cure. With that storied wisdom in mind, MDOT SHA established its Asset Management Office (AMO) to raise preventive maintenance to a new level.

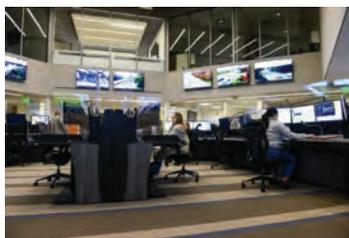
AMO guides MDOT SHA assets toward optimal performance, using risk-based resource allocation to maintain all roadway assets in a good state of repair. MDOT SHA maintains more than 75 transportation assets across 14 critical classes with a total replacement value of more than \$39 billion.

This program continually prioritizes asset needs based on age, condition, criticality and risk. It implements standards, improves systems and data, fosters collaboration and strengthens institutional knowledge.

2 Improving Statewide Operations Center

In 2021, MDOT SHA completed the \$5.6 million renovation and reimagining of its Statewide Operations Center (SOC). The original SOC, one of the first such centers in the nation, opened and served for 25 years. The new layout nearly doubles the original footprint, with stations for eight operator positions and two supervisor stations. It features an innovative concept called the “operations football,” with operators sitting closer together and not directly facing a central video wall.

This concept improves communication and collaboration between team members during traffic incidents, emergencies and storms. Technological advances include the operator's ability to highlight dashboards, weather maps and web pages on wall monitors, enabling operators to focus on the day's most essential emergencies, such as severe weather and major traffic incidents. The new consoles also provide each workstation with an additional monitor to manage critical situations.



3 Managing Traffic Better

The Office of Transportation Mobility and Operations (OTMO) keeps Marylanders moving on the roadways through the expertise, hard work and dedication of its multiple divisions and staff.

Using Intelligent Transportation Systems (ITS) technologies, Advanced Traffic Management Systems (ATMS) and partnerships, we monitor traffic, clear incidents, assist stranded motorists on our highways and provide real-time traveler information to our customers.

We leverage emerging technologies and implement innovative strategies to maximize the use of our existing transportation infrastructure. OTMO is preparing for a connected and automated future using data and a performance-driven approach to plan future ITS, telecommunications and decision-support systems.

4 Protecting Pedestrians

The evolving Pedestrian Safety Action Plan (PSAP) is an actionable, strategic framework that allows MDOT SHA to improve safety for vulnerable road users, including pedestrians and bicyclists.

These overarching goals will inform improvements and measurable objectives developed based on a review of other states and local agencies' PSAPs prepared by departments of transportation throughout the United States.

ACCOMPLISHMENTS

of 2021

5 Metering Ramps, Reducing Congestion

As part of Governor Larry Hogan's Traffic Relief Plan and Innovative Congestion Management, MDOT SHA activated ramp-metering systems at 23 ramps on 18 interchanges along southbound I-270 in Montgomery County.

Ramp metering is a part of the I-270 Innovative Congestion Management (ICM) project to improve safety, reduce congestion and save drivers up to 30 minutes on their morning commutes between Frederick and I-495 (Capital Beltway).

ICM uses traffic signals and sensors to manage traffic flow entering the highway. The system balances highway demand and capacity, maintains optimal highway operation, and reduces congestion for safer, more efficient travel.

The ramp metering signals can operate between 4 a.m. and 11 p.m. daily and should be active during peak traffic hours and when I-270 experiences traffic delays.



7 Making a Vacation Destination Safer

To remind visitors and residents of Ocean City to walk smart, drive smart and bike smart when traveling around Maryland's most populated beach town, MDOT SHA captured important roadway safety information from its OC Walk Smart! campaign in the new book "Cheswick the Crab and the Smart Summer." Published last June as part of the safety campaign that was developed in 2013 together with our partners—the Town of Ocean City, Ocean City Police Department, Maryland Highway Safety Office, Peninsula Regional Medical Center and local businesses — the book's Cheswick the Crab mascot and safety ambassadors distributed 1,000 copies of the book to families visiting Ocean City's boardwalk. Additional books were distributed to four area visitor centers and the five branches of the Worcester County Library.

Cheswick the Crab was named as a tribute to Matthew Cheswick, who was struck and killed by a vehicle while walking along Coastal Highway. Christopher Cheswick, Matthew's father, wrote the book. An online copy is available at www.oceancitymd.gov/oc/walksmart/.

6 Improving Traffic in Western Maryland

The US 219 (Chestnut Ridge Road) highway realignment in Grantsville, Garrett County, is complete. This three-year, \$63 million project includes a new four-lane section of US 219 between I-68 (National Freeway) and Old Salisbury Road.

The project is part of Governor Hogan's \$1.97 billion investment in highways and bridges and has been a top priority in Garrett County for decades. Before the project, this section of US 219 was a two-lane highway serving residents and businesses in the community.

As development increased in the region, improvements in the corridor became critical to spurring economic growth and providing safe connectivity.

The new 1.5-mile section of US 219 provides additional space for through-truck traffic along US 219 Business, allowing improved separation from local traffic. The new four-lane highway has two 12-foot lanes, an 8-foot inside shoulder, and a 10-foot outside shoulder in each direction. The highway also includes two roundabouts, turn lanes connecting to US 219 Business and a new median.



8 Paving Less Slippery Roads for Truckers

MDOT SHA applied a new technique to give drivers, notably truckers, better surface friction on turns, especially during inclement weather. MDOT SHA treated the pavement on the outer loop of I-495 (Capital Beltway) between MD 185 (Connecticut Avenue) and MD 191 (Bradley Boulevard).

The pavement treatment improves safety by reducing tractor-trailer crashes. This technique involves propelling steel spheres directly at the pavement surface at a high velocity.

The impact of the spheres creates a random surface texture that enhances friction and surface drainage. These treatments make it easier for vehicles to stop and reduce the likelihood of hydroplaning.

MDOT observed friction and drainage improvements of approximately 70% in a research study.

ACCOMPLISHMENTS

of 2021

9 Partnering with County Government

In November, then-MDOT Secretary Gregory Slater and Anne Arundel County Executive Stuart Pittman announced a partnership to design critical roadway improvements along key corridors in the county.

The county set aside funds in its capital improvements program to design MDOT SHA projects along MD 2, MD 3, and MD 214:

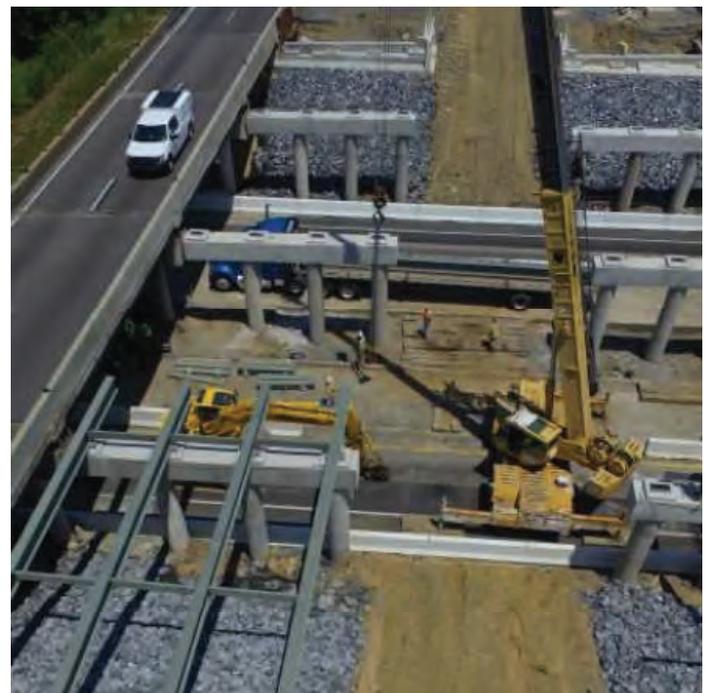
- MD 2 – The county will contribute \$200,000 to advance 30% of the design portion of a project to add a third northbound lane along MD 2 between US 50 and Arnold Road. The project will include new sidewalks and a connection to the B&A Trail. MDOT SHA will contribute \$800,000 for the design phase and manage the design.
- MD 3 – The county will contribute \$160,000 to advance 30% of the design for a project to add a third lane in both directions along MD 3 between Waugh Chapel Road and MD 175. This project will also include a shared-use path, sidewalks and crosswalks. MDOT SHA will contribute \$640,000 for the design phase and manage the design.
- MD 214/Mayo Peninsula – The county will contribute \$800,000 for 100% of the design of a project to add capacity and bicycle and pedestrian improvements on MD 214 between MD 468 and Loch Haven Road. MDOT SHA will manage the design.

10 Bridging the Potomac between Maryland and West Virginia

In February, MDOT SHA completed the new I-81 (Veteran's Memorial Highway) Bridge over the Potomac River in Washington County. The four-year, \$104.6 million project improves safety and mobility, accommodating higher commercial truck volumes and capacity for travel into Washington County and West Virginia. The project is part of Governor Hogan's \$1.97 billion investment in highways and bridges.

I-81 is the primary travel route between Maryland and West Virginia and an essential link in the region's supply chain. The original bridges were built in 1965. In 2016, when construction began, traffic volume in the corridor was 63,400 vehicles a day – more than double compared to two decades earlier – with trucks accounting for 28% of that volume.

By 2035, daily I-81 volumes are projected to increase to 91,850 vehicles. The completed work is the first of a four-phase project to upgrade and widen I-81 from the Potomac River/West Virginia State line to Pennsylvania. The project is an example of the work MDOT SHA accomplished during the COVID-19 State of Emergency while focusing on the health and safety of customers and work crews.



PRIORITY PROJECTS

I-270 Innovative Congestion Management (ICM) Project – Montgomery and Frederick counties

In 2016, Governor Larry Hogan announced the I-270 ICM Project, providing congestion relief and improving travel times throughout the 34.4-mile I-270 corridor from I-70 to I-495. This \$132 million safety-improvement project is aimed at easing 14 bottlenecks and saving drivers up to 30 minutes on their morning commute between Frederick County and the Capital Beltway in Montgomery County.

Ramp metering is one component of the overall ICM infrastructure and technology improvements that will result in more predictable and consistent commutes for hundreds of thousands of commuters. Ramp metering uses traffic signals and sensors to manage traffic flow entering the highway and uses queue detection to ensure ramps don't back up onto arterial roadways. The system balances highway demand and capacity, maintains optimal highway operation and reduces congestion, resulting in safer, more efficient travel.

In August and September of 2021, MDOT SHA activated 23 ramp meters on roadways leading to southbound I-270. MDOT SHA plans to turn on 22 ramps to northbound I-270 in 2022, for a total of 45 ramps at 18 interchanges. While a first for Maryland, ramp meters have been used elsewhere and are a proven, cost-effective tool to help address congestion and safety.

Other ICM elements include additional auxiliary lanes between interchanges, extension of acceleration and deceleration lanes, and reconfiguration and restriping of existing lanes to optimize traffic operations. The project's anticipated completion time is year-end 2022.



MD 273 (Telegraph Road) Bridge Over Big Elk Creek – Cecil County

A vital commuter and public safety link for northeastern Cecil County and our neighbors in Pennsylvania and Delaware, the MD 273 bridge over Big Elk Creek opened in spring 2021. The original bridge was constructed in 1964 and had outlived its useful service life. The bridge stretches 140 feet across a popular hiker/biker/equestrian trail in the 5,600-acre Fair Hill Natural Resources Management Area. The \$7 million project was part of Governor Larry Hogan's \$1.97 billion investment in highways and bridges and featured staged construction of a two-lane bridge with wide shoulders for safety, and widening of roadway shoulders, drainage and water quality improvements, and reconstruction of two park trail segments. MDOT SHA worked closely with the Department of Natural Resources to coordinate work phases and communicate trail impacts with park users.

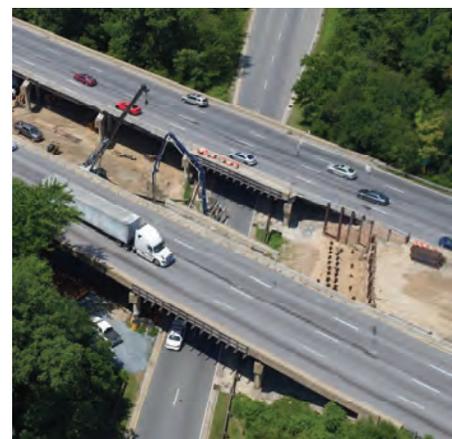
PRIORITY PROJECTS

US 1 College Park Corridor Improvement Project – Prince George’s County

Construction continues on the \$50 million project to improve traffic operations, pedestrian and bicyclist circulation and safety along 1.4 miles of US 1 in College Park. The project is one of Governor Hogan’s and Prince George’s County’s top priorities. It will not only produce a safer, more attractive and less congested gateway to the University of Maryland; it will also spur economic development and recovery in one of the region’s most important corridors. Improvements include widening the roadway and adding a raised median, adding pedestrian enhancements including Americans with Disabilities Act (ADA)-compliant sidewalks and ramps, new intersection lighting, upgraded drainage and stormwater management facilities and signage and pavement markings. The project, which kicked off in spring 2020, is anticipated to be complete in 2023.

I-95/I-495 (Capital Beltway) Bridges over Suitland Parkway – Prince George’s County

MDOT SHA continues work on the Capital Beltway bridges over Suitland Parkway. The original bridges were built in 1963 and outlived their useful service lives. Work includes bridge replacement, an additional one-foot clearance for Suitland Parkway, upgraded pedestrian lighting and drainage improvements. The new bridges will provide a safe, reliable and efficient transportation network for those who travel along this stretch of the Beltway in Prince George’s County. The \$41 million project’s completion is expected in 2022.



I-95/I-495 (Capital Beltway) Bridges over Suitland Road – Prince George’s County

Just south of the Capital Beltway bridges over Suitland Parkway lies the \$36 million project to replace the aging I-95/I-495 bridges over Suitland Road. This 1.85-mile project replaced two parallel bridges with new steel girder bridges that include 25-foot, 6-inch-wide inside shoulders. Each new one-span bridge was raised to provide additional under clearance above Suitland Road. New lighting and stormwater management facilities also were constructed. This project was completed in December 2021.

I-95/I-495 (Capital Beltway) Bridges over MD 214 (Central Avenue) – Prince George’s County

MDOT SHA has completed construction to replace the Capital Beltway bridges over MD 214 in Largo. In addition to bridge replacement, this \$33 million project includes additional capacity under the structures, a new lane on westbound MD 214 between interchange ramps, a bicycle-compatible shoulder on eastbound MD 214 between the interchange ramps, replacement of a 54-inch water main at the interchange and reconstruction of the concrete median barrier



PRIORITY PROJECTS

I-83 (Baltimore-Harrisburg Expressway) Bridges over Padonia Road – Baltimore County

Originally constructed in 1950, the dual bridges carrying northbound and southbound I-83 traffic over Padonia Road were nearing the end of their useful service lives and needed replacing. In addition to bridge replacement, work on this \$25.8 million project includes construction of a dedicated left-turn lane for motorists traveling from eastbound Padonia Road to northbound I-83, improvements to two ramp movements from southbound I-83 to Padonia Road, and culvert widening. The northbound I-83 bridge is part of Governor Hogan's 2015 commitment to address bridges needing repair or replacement. The project began in summer 2018 and is expected to wrap up in spring 2022.



MD 140 (Reisterstown Road) from Painters Mill Road to Garrison View Road – Baltimore County

In January 2021, MDOT SHA completed widening and resurfacing northbound Reisterstown Road to break the bottleneck on this important arterial route in Owings Mills. The MD 140 project also added safety features, including a new bicycle-compatible shoulder and ADA-compliant sidewalks. The approximately \$19 million project began in spring 2018 and supports residential communities, institutions and business development.

US 40 (Pulaski Highway) Bridges over Big and Little Gunpowder Falls – Baltimore/Harford County line

Work to rehabilitate the superstructure and widen the decks of dual bridges along US 40 between White Marsh in Baltimore County and Joppatowne in Harford County continues. Once this \$32 million project is complete in summer 2022, the new bridge decks will have two lanes in each direction and new 10-foot outside shoulders to match the width of the existing outside shoulders. The new shoulders will enhance safety for bicyclists and motorists.

US 1 (Washington Boulevard) Bridge over CSX Transportation – Baltimore County

In fall 2018, MDOT SHA initiated this \$34.7 million project to replace the 91-year-old Washington Boulevard Bridge over the CSX Transportation rail line in Halethorpe. The original bridge was safe for travel but had outlived its useful service life. The new structure will be 120 feet longer and 4 feet higher to allow for future rail lines, a rail service road and double-stacked freight cars. The new bridge structure will include wider shoulders, and a new left-turn lane from northbound US 1 to Clarke Boulevard, new retaining walls along US 1 and reconstruction of the Clarke Boulevard intersection. Work is expected to be complete in fall 2022.

PRIORITY PROJECTS

I-695 Southwest Outer Loop from US 40 to MD 144 – Baltimore County

This safety and mobility project, which was slated for completion in late 2021, included reconstructing and widening 1.44 miles on the Beltway Southwest Outer Loop. Improvements also included replacing the Edmondson Road and Ingleside Avenue bridges over I-695, adding new retaining walls and sound barriers, realigning the ramp to MD 144 and reconstructing Ingleside Avenue beneath I-695.



MD 5 (Point Lookout Road) between Camp Brown Road and the Lake Conoy Causeway – St. Mary's County

To improve MD 5 safety and better accommodate vehicles traveling to and from Point Lookout State Park, MDOT SHA is constructing a \$24 million project that will upgrade and widen 2.2 miles of MD 5 between Camp Brown Road and the Lake Conoy Causeway. The MD 5 project also will include bicycle and pedestrian accommodations along this historic route that provides direct access to Point Lookout State Park. The project is scheduled to be completed in summer 2022.



MD 5 at Abell and Moakley Streets Intersection Improvements – St. Mary's County

This \$14 million intersection improvement project in Leonardtown supports existing and planned development. Improvements include adding bicycle-compatible shoulders in each direction that will also accommodate travel needs of the Amish community. Additional work includes reconstructing sidewalks and pedestrian ramps, adding left-turn lanes at the St. Mary's Hospital entrance, resurfacing and restriping, drainage, stormwater management, landscaping and stream work. The project is scheduled to be completed in summer 2022.

MD 56 (Big Pool Road) Bridge Over I-70 – Washington County

In August 2021, MDOT SHA saw early completion of the \$4.5 million project to rehabilitate the aging MD 56 bridge crossing I-70 (Dwight D. Eisenhower Highway). MD 56 serves as a primary travel route in this part of Washington County and repairs were vital to moving people and goods in support of Maryland's economy. Originally constructed in 1964, the bridge deck surface was nearing the end of its useful service life. If this project had not been completed, truck weight restrictions would have been needed to ensure safety, resulting in a significant impact on the local economy and movement of traffic. Bridge rehabilitation also will save money on future maintenance spending. It supports MDOT SHA's goal of maintaining the transportation network in a state of good repair.



PRIORITY PROJECTS

US 219 North from I-68 to Old Salisbury Road – Garrett County

In May 2021, MDOT SHA opened this new 1.5 mile dualized and realigned highway between I-68/US 40 north and Old Salisbury Road. Work resulted in a new I-68 interchange that includes new ramps and roundabouts. Garrett County's top transportation priority, the \$64 million project is expected to enhance accessibility and promote economic development.

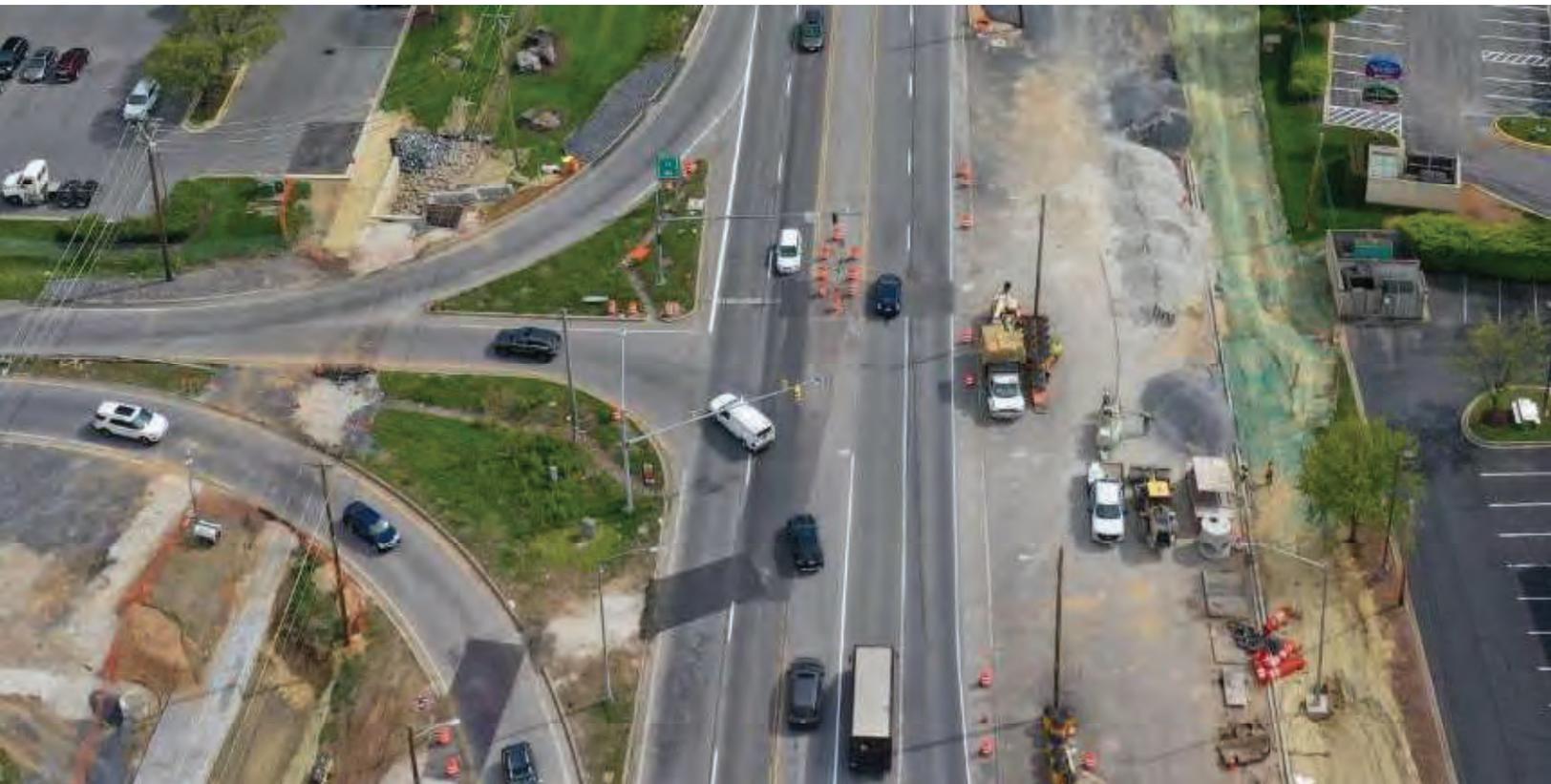


MD 32 Phase 2 Widening between Linden Church Road and I-70 – Howard County

MDOT SHA continues Phase 2 of the 6.6-mile MD 32 widening project between Linden Church Road and I-70. The project, anticipated to be complete in summer 2022, will result in two additional 12-foot travel lanes with shoulders and a median, a two-lane access road west of MD 32 from Vistaview Drive to MD 144 and replacement of the Triadelphia Road Bridge over MD 32, which opened in summer 2020. The \$127 million project began in June 2019 and is scheduled to be completed in summer 2022.

I-270/MD 85 Interchange – Frederick County

This \$89 million project reconstructs and widens .8 miles of MD 85 between Spectrum Drive and Crestwood Boulevard, replaces the functionally obsolete I-270 bridges and reconstructs interchange movements to improve traffic flow and safety. Construction is anticipated to wrap up in spring 2023.



COMPLETED PROJECTS



District 1

Wicomico County	Amount
US 13 BUS Drainage Improvements from North of South Boulevard to North of Calvert Street, Salisbury	\$7.6 Million
Bridge on US 50 over the Nanticoke River	\$1.9 Million
MD 413 Bike Path from South of Hinman Lane to South of Davis Lane	\$4 Million

District 2

Cecil County	Amount
MD 272 from South of US 40 to Rogers Road	\$5.9 Million
MD 272 over Amtrak rails	\$30.7 Million
MD 273 (Telegraph Road Bridge) over Big Elk Creek	\$10.4 Million

Kent and Queen Anne's Counties	Amount
Town of Millington Urban Revitalization	\$6.2 Million

District 3

Montgomery County	Amount
I-495 (Capital Beltway) Seminary Road Bridge	\$9 Million
MD 355 (Frederick Road) intersection at West Old Baltimore Road	\$9 Million
MD 355 (Frederick Road) Bridge over Little Bennett Creek	\$16.7 Million

Prince George's County	Amount
I-95/I-495 (Capital Beltway) Bridges over Suitland Parkway	\$36 Million
I-95/I-495 (Capital Beltway) Bridges over Suitland Road	\$36 Million
I-95/I-495 (Capital Beltway) Bridges over MD 214 (Central Avenue)	\$33 Million

District 4

Baltimore County	Amount
I-695 Outer Loop from MD 144 to South of US 40	\$60 Million
MD 45 from North of Padonia Road to Wight Avenue	\$14 Million
I-695 (Baltimore Beltway) at Cromwell Bridge Road	\$8 Million
MD 150 (Eastern Avenue) from Back River Bridge to Riverside Drive	\$5 Million
MD 695A Maryland Avenue Intersection extending East of Ralls Avenue Intersection	\$3 Million
MD 146 over Drainage Ditch	\$1 Million

COMPLETED PROJECTS



District 5

St. Mary's County	Amount
MD 5 (Point Lookout Road) between Camp Brown Road and the Lake Conoy Causeway	\$24 Million
MD 5 at Abell and Moakley Streets Intersection Improvements	\$14 Million

District 6

Allegany County	Amount
MD 831C over Jennings Run	\$2.4 Million
MD 135 Slope Stabilization	\$4 Million

Garrett County	Amount
US 50 Safety and Resurfacing	\$4 Million
US 219 North between I-68/US 40 North and Old Salisbury Road	\$61.4 Million

Washington County	Amount
Sideling Hill Wastewater Treatment Plant	\$3.9 Million
MD 56 over I-70 Bridge (Big Pool)	\$4.5 Million
I-70 over MD 65	\$6.4 Million
I-70 Safety and Resurfacing East of Boyd Road to Ashby Road	\$4.7 Million

District 7

Carroll County	Amount
MD 86 Bridge over South Branch of the Gunpowder Bridge	\$5.5 Million

Frederick County	Amount
MD 26 at Old Annapolis Road	\$2.6 Million
Israel Creek at MD 550 Wetland Replacement	\$7.1 Million
MD 32 at Johnsville Road	\$2 Million

Howard County	Amount
MD 32 at Dorsey Run Road	\$2.3 Million

OP LANES MARYLAND PROGRAM UPDATE

Op Lanes Maryland

In 2021, the I-495 & I-270 Public-Private Partnership (P3) Program was renamed Op Lanes Maryland and has achieved many of its most important milestones.

The new name reflects the program's four-year evolution and progress toward achieving Governor Larry Hogan's vision for a new American Legion Bridge and providing Marylanders with new options and opportunities for more reliable travel in the National Capital Region.

Starting with environmental planning, MDOT SHA and the Federal Highway Administration (FHWA) kicked off the year by identifying Alternative 9, or two high occupancy toll (HOT) lanes, as the Recommended Preferred Alternative (RPA) under the I-495 & I-270 Managed Lanes Study (MLS). By spring — after months of collaboration with agencies, public officials, and stakeholders on the RPA — MDOT SHA and FHWA announced the Study's Preferred Alternative would focus solely on building a new American Legion Bridge and delivering two HOT lanes in each direction only in Phase 1 South, American Legion Bridge I-270 to I-370, with no action at this time on I-495 east of the I-270 east spur to MD 5.

In October 2021, MDOT SHA and FHWA published a Supplemental Draft Environmental Impact Statement (SDEIS) to share new information and seek public input, including holding a virtual public hearing on the Preferred Alternative's updated traffic, engineering and environmental impacts, which were significantly reduced. The Preferred Alternative completely avoids all residential or business relocations; numerous significant public parks and historical sites, including Morningstar Cemetery; and it substantially reduces impacts to National Park Service property, including Plummers Island.

In Phase 1 South, all existing general-purpose lanes would remain free for everyone to use; transit buses, motorcycles and vehicles with three or more occupants could travel the new HOT lanes for free; and other vehicles could choose to pay a dynamically priced toll when they need quicker, more reliable travel. The SDEIS' public comment period was extended from 45 to 60 days and garnered more than 2,000 comments. All comments will be considered, and substantive comments will be addressed in the Final Environmental Impact Statement (FEIS) scheduled to be published in late spring 2022.

In a concurrent solicitation process, MDOT and the Maryland Transportation Authority (MDTA) awarded a Phase P3 Agreement to Accelerate Maryland Partners LLC (AM Partners) to be the developer responsible for predevelopment work on Phase 1. As part of this work, AM Partners joined MDOT SHA to conduct robust collaboration with residents, stakeholders, and local agencies to further reduce impacts, develop multi-modal benefits and enter a Section P3 Agreement for final design, construction, financing, operations and maintenance for Phase 1 South. The Section P3 Agreement is expected to be presented to the Board of Public Works in late 2022.



OP LANES MARYLAND PROGRAM UPDATE

Op Lanes Maryland continued

Throughout the year, as COVID-19 restrictions eased and regional traffic rebounded to near pre-pandemic levels, Op Lanes Maryland continued to ramp up public outreach and engagement. In announcing its new name in September, the program also launched its own new social media channels.

In its first two months, Op Lanes Maryland gained approximately 250 followers across all social media channels. Throughout the year, the team held dozens of meetings with stakeholders and homeowner/community associations and attended many community and environmental justice pop-up events throughout Frederick and Montgomery counties. These events led to almost 800 new contacts with the public.



Opportunity MDOT

Opportunity MDOT, a Maryland Department of Transportation program to empower businesses throughout the state, working in conjunction with AM Partners, held multiple engagements throughout the year to maximize Maryland business and workforce participation in Phase 1.

In October 2021, Opportunity MDOT and AM Partners invited small-, minority- and women-owned businesses to attend a virtual DBE Networking & Matchmaking Event to meet the AM Partners team, learn about the project, understand the Design & Construction (D&C) procurement process, and meet the D&C shortlisted contractors. The event included one-on-one meetings with the D&C shortlisted teams for matchmaking sessions.

CONTEXT DRIVEN

Access & Mobility for All Users

SUBURBAN

With a moderate to low diversity of uses, the **Suburban** context typically contains primarily single-family residential development on lot sizes ranging from one-eighth of an acre to one-acre. Office parks and small commercial strip retail are scattered throughout the area, along with neighborhood-level civic and cultural facilities. Developments are typically larger in the area and are single-use, discouraging non-automobile trips. Buildings are primarily oriented toward parking, which is usually provided off-street. This context represents approximately 21% of the land area in the State.

ACCESS **MOBILITY**

Suburban

The configuration of the roadway network offers increased mobility in Suburban context, while these areas have fewer destinations accessible by foot or bike.

Example Locations in Maryland

- Pasadena
- Fallston
- Joppatowne
- North Laurel

CONTINENTAL CROSSWALK STRIPING

Promotes the highest driver compliance and is the most visible of all crosswalk markings!

ROUNDABOUT

Reduces total crashes by 37% and injury crashes by 51%!

SHARED-USE PATH/SIDE PATH

Maryland crash data indicates a 37% reduction of on-street bicycle crashes.

MEDIAN REFUGE

Reduces pedestrian crashes by up to 56%!

SAMPLE SCENARIO COUNTERMEASURES

SAMPLE SCENARIO SAFETY AND OPERATIONAL CHALLENGES

The Suburban context is peppered with housing that lacks pedestrian connectivity. Trails provide great opportunities to close gaps and create separate spaces for multiple modes.

PROJECT AREAS of need

- TRAFFIC OPERATIONS
- SAFETY
- CONNECTIVITY
- QUALITY OF SERVICE

SAMPLE SCENARIO COUNTERMEASURES AND BENEFITS

The four-lane roadway had both operational and safety issues due to vehicle demand generated from a new mixed-use development located directly east of the corridor. The section of roadway was also the missing segment in a regional trail system. Improvements were designed to reduce crashes, improve traffic operations, and improve walking and bicycling comfort by providing connectivity to the trail system via a shared-use path.

MDOT SHA's Context Driven approach considers the appropriate balance between two priorities: access and mobility, based on the needs of all users - drivers, pedestrians, bicyclists and transit riders. In 2021, MDOT SHA continued implementing Context Driven projects statewide.

Roadway, bicyclist and pedestrian facilities and usage vary across different contexts and across Maryland. The Context Driven approach allows MDOT SHA to tailor designs to six different contexts – urban core, urban center, traditional town center, suburban activity center, suburban and rural.

In 2021, MDOT SHA focused primarily on suburban and suburban activity center contexts, where more serious injuries and fatalities occur. In 2021 alone, MDOT SHA completed 60 improvements, bringing the total number of completed active Context Driven projects to more than 250 since the beginning of 2019.

In 2021, the MDOT SHA Office of Planning and Preliminary Engineering, in consultation with MDOT SHA's District 3 office, conducted a comprehensive needs analysis for MD 185 (Connecticut Avenue) between Chevy Chase Circle/Western Avenue at the state boundary with Washington DC, and MD 193 (University Boulevard) in the Town of Kensington.

CONTEXT DRIVEN

Access & Mobility for All Users

This Needs Analysis outlines a multi-modal vision for the corridor by identifying strategies to address pedestrian and bicycle network needs, enhance safety and improve travel conditions along the corridor. It also provides a road map to deliver improvements based on MDOT SHA's Context Driven - Access & Mobility for All Users Guide, a planning and design resource centered on establishing safe and effective multi-modal transportation systems.

It weighs the needs of pedestrians, bicyclists and drivers in the context of the surrounding environment and targeted strategies that overcome deficiencies and improve safety and mobility to the network.

MDOT SHA recognizes that data collection and evaluation are required to make informed, systematic changes to Maryland's transportation network to improve safety for all users. In the spring, MDOT SHA initiated the state's first Pedestrian Safety Action Plan (PSAP) to address the needs of the most vulnerable users on the road.

The PSAP, guided by principles established in Maryland's Strategic Highway Safety Plan and MDOT SHA's Context Guide, will identify areas of need and recommend safety countermeasures by employing a systematic approach to project planning and design.

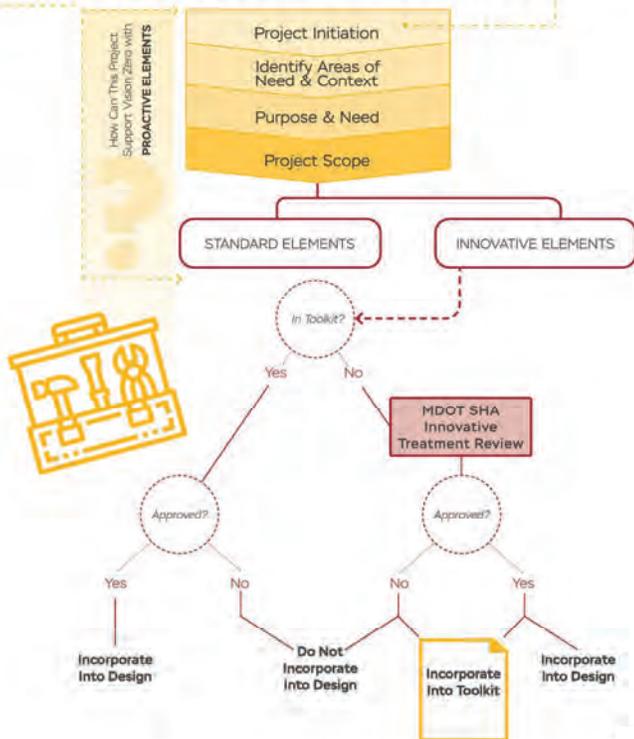
MDOT SHA hosted virtual public meetings, performed targeted outreach and held open comment periods throughout the year – with remote participation for safety during the COVID-19 pandemic – to share data and seek input on existing conditions, areas of need, and priority corridors. The final plan is anticipated to be complete in spring 2022.

Finally, MDOT SHA is advancing other components of its Context Driven approach — developing a Context Driven Toolkit and setting the stage for future Context Driven case studies.

The administration conducted internal training and consulted with regional stakeholders as local government partners developed Complete Streets, Vision Zero and comprehensive plans that echo the safety principles emphasized in Context Driven and the state's Strategic Highway Safety Plan.

For more information on Context Driven, visit www.roads.maryland.gov/contextdriven or contact shacontextguide@mdot.maryland.gov.

EXPANDING THE TOOLKIT OF INNOVATIVE TREATMENTS



NORTHBOUND STRATEGIC PLAN



In 2021, MDOT SHA leadership continued to conceptualize the agency's new Northbound Strategic Plan, setting goals and standards and forming action teams to implement them. The difference a year makes is incredible, as the Northbound Ten teams are blazing ahead to define and tackle their specific issues.

MDOT SHA is traveling Northbound towards modernization with a five-year plan that includes the following 10 goals and initiatives—The Northbound Ten—that will guide and challenge the agency, its leaders and staff to think differently while all moving in the same direction.

- Formalize operational infrastructure asset management
- Fill the capital shelf with system packages
- Enhance internal and external communications
- Advance Highway Maintenance 2.0
- Create a culture of inclusiveness
- Deliver the I-495 & I-270 Op Lanes Maryland program
- Develop a plan for optimizing funding, stability and flexibility
- Implement a dynamic HR process
- Establish an Office of Alternative Project Delivery
- Implement the Vision Zero safety plan

MDOT SHA's mission, vision and values combined with its foundational principles - Innovation, Modernization, Communication and Customer Experience - provide direction in unifying and coordinating efforts that deliver The Northbound Ten.

Each initiative is led by a Navigator and supported by team members or Trailblazers. The teams work to clearly define their short-term and long-term benchmarks, also known as 'Road Maps.'

These road maps will serve as guidelines to help the teams stay true to their course. The road maps for all 10 teams were completed and submitted fall 2021 to the Northbound Council, which includes MDOT SHA's administrator and senior management team.

With the road maps approved, the teams look forward to delivering the next generation of MDOT SHA projects.

TRAC PROGRAM



In 2021, when COVID-19 safety steps still restricted in-person school attendance, the Maryland Transportation and Civil Engineering (TRAC) Program for middle school and high school students, run in collaboration with The American Association of State Highway and Transportation Officials (AASHTO), demonstrated success despite limitations. Some highlights from the past year include:

- April 2021: In Laurel, Chesapeake Math and IT (CMIT) North High School hosted the first annual Chesapeake Lighthouse Foundation (CLF) Bridge Builder Invitational, where students competed individually to test the important strength-to-weight ratio. Due to the impacts of COVID-19, the National AASHTO Bridge Competition did not take place in 2021.
- June 2021: CMIT North High School dedicated its engineering lab to the late Aaron Jones; it is now named the “Aaron Jones Engineering Lab.” MDOT SHA’s Aaron Jones was the heart and soul of the Maryland TRAC Program; he put tireless efforts into making TRAC available to as many teachers and students as possible.
- September 2021: MDOT SHA visited Patterson High School in Baltimore City and introduced the Connected Automated Vehicle (CAV) Module, which is a part of the TRAC Program curriculum. MDOT SHA since provided them with a module set of their own. The students are currently working on the CAV activities.
- November 2021: MDOT SHA purchased and delivered TRAC module kits to schools whose leaders elected to participate in the 2021-2022 school year program.

The 2022 regional CLF Bridge Builder Invitational will be held to select Maryland teams in January. The 2022 AASHTO National Bridge Competition will be held on May 9 and 10 in New Orleans. Maryland currently has 16 teams in three grade-based divisions registered for the competition.

If selected, those teams will travel to the national competition to challenge schools from across the nation to test the strength-to-weight ratio of the model bridges that they carefully designed to withstand heavy loads.



MDOT SHA CARES

MDOT SHA Recognized by Governor Hogan



At the October 2021, Board of Public Works Meeting in Annapolis, Governor Larry Hogan honored 32 MDOT SHA employees with outstanding customer service citations for their steadfast dedication to the health and safety of Marylanders during the COVID-19 pandemic.

Nominated by MDOT Assistant Secretary Mark Crampton, who was tasked with being the logistical liaison between MDOT and the Maryland Department of Health for the state's response to the COVID-19 pandemic, the employees went over and above the call of duty throughout the COVID-19 pandemic.

"The herculean team efforts of our MDOT SHA employees do not surprise me as these are professionals that take customer service to the next level," said MDOT SHA Administrator Tim Smith. "I am proud that we were called into service to help the tens of thousands of Maryland citizens."

Staff from multiple MDOT SHA district offices and maintenance shops provided traffic control plans and daily support to guide thousands of Maryland residents to the state's 11 mass vaccination sites and testing facilities. This included deploying portable display message signs, activating overhead highway message signs, and providing cones and barrels to the statewide effort.

Additionally, a team from three MDOT SHA's District 4 maintenance shops transported 65 much-needed hospital beds and equipment from a temporary warehouse in Baltimore County to MedStar St. Mary's Hospital in Leonardtown. The six-truck caravan was part of a statewide effort to ensure Maryland had the hospital facilities and equipment to respond to the pandemic.

In addition to pandemic support from these offices, the MDOT SHA Sign Shop stepped into action by manufacturing approximately 300 signs to guide tens of thousands of citizens to the state's 11 mass vaccination sites and the Annapolis COVID-19 testing facility. The sign shop also manufactured Maryland Department of Health panels outfitted on a trailer with their signage that continues to be used as part of the mobile testing and vaccination efforts.

"We were called upon to step into action and rapidly manufacture guide signs that helped Marylanders receive life-saving COVID-19 vaccines and testing," said MDOT SHA Sign Operations Manager David "Todd" Jones. "We are all fighting this deadly virus together."

MDOT SHA Raises More Than \$50K for Charity



MDOT SHA outdid itself in 2021, exceeding its goal to raise \$50,000 for Maryland nonprofits. Every year MDOT SHA participates in the Maryland Charity Campaign, which marshals employees across all state agencies to support worthy causes around holiday time. More than 1,000 charities in the state reached out to Maryland state employees in a campaign that ended 10 days before Christmas.

MDOT SHA held events throughout its offices and shops, including a book sale with popular novels, music, and DVDs, and a craft bazaar showing off the artistic skills of MDOT SHA employees. Campaign organizers even created a cookbook with two dozen recipes – it was sent as a bonus gift to all staff who donated.



MDOT SHA CARES

Community Events

With community events starting again in mid-2021, MDOT SHA returned to the communities we serve to showcase our initiatives and to support their programs.



District 1

On Maryland's Eastern Shore, the District 1 construction project engineer and Cheswick the Crab participated in the 2021 Trunk or Treat at Prince Street Elementary School.

They greeted more than 1,000 children and talked about safety while handing out Cheswick the Crab keychains.

District 6

In Western Maryland, the Keyser's Ridge shop worked with the Laurel Mountain Garden Club on the Blue Star Memorial Dedication. They worked with them to install the marker, attended the program and worked with the garden club. The Blue Star Marker is located at the Friendsville Rest Stop on I-68. It is the only marker along I-68.



District representatives attended a special needs summer camp on Emergency Responder Day and brought along snowplow trucks that were quite a hit with the campers. To show their appreciation, campers made MDOT SHA attendees thank-you cards.

Thirteen years ago, Cindy Bane, Executive Administrator at District 6, started the Season of Sharing and Caring. Staff throughout the district participate in the event. In October, employees from the shops and district office collected clothing, household and personal-health item donations, including coats, pillows, towels and washcloths for the Allegany County Union Rescue Mission. In November, Oak Park Church/Feast of the Heart Food Pantry in Garrett County was selected as the benefitting charity. Throughout the month, employees collected boxed and canned food and a van load of food was delivered at the end of the month.

For December, the charity selected was the Washington County Humane Society. Employees donated toys, food, towel, blankets and other requested items. Cindy Bane has been the driving force behind this program and District 6 is proud to have her on the team making a difference in the community.

Additionally, District 6 staff participated in the Back-to-School Supply Drive held by MDOT and the Boys and Girls Club to collect essential school supplies and monetary donations to help students in need get off to a good start to the 2021-2022 academic school year. The district's donations were delivered to a new Boys and Girls Club that recently opened in the area.



MDOT SHA CARES

District 6 continued

Maintenance staff also participated in several school, camp and community programs that featured MDOT SHA's "Big Yellow Trucks." The attendees of all ages enjoyed meeting district employees, sitting inside some of the large vehicles and learning about the equipment that were brought to the program.

District 6 is always happy to participate in community programs and works to be much more than just roadworkers to our neighbors.



District 7

District 7 staff in the Frederick area participated in the Myersville Elementary Walk to School Day. Bringing work trucks for children to pose with for photos, they also distributed pedestrian and bike safety materials to the students.

At Music on the Main in New Windsor, district representatives interacted with the community, providing pedestrian and bike safety tip sheets for children about safely crossing streets, and answering parents' questions about careers, projects and equipment.

The district also supported local National Night Out events, bringing trucks for photo opportunities and distributing giveaway items to the attendees.

MDOT SHA PRIORITIES:

INNOVATION

MDOT SHA is finding creative ways to build on our shelf of projects while maintaining infrastructure. Keeping the buildings and equipment in tip-top shape during the stay-at-home-order to preventing rockslides in Western Maryland and using creative methods to work around a national equipment shortage, we continue to build a culture of innovation.



COVID-19

The pandemic required agencies to get creative with their resources and MDOT SHA was no exception. Knowing idle vehicles can get flat tires and that equipment like radios, security devices and onboard computers can drain batteries, the auto repair team continued to report to their stations in Hanover during the pandemic and were able to keep a fleet of 400 cars and trucks in working order when they were not driven regularly.

Just as teleworkers saved commuting time during COVID, many inspectors saved time traveling back and forth to their offices. Requests for repairing breakdowns from overuse went down but calls to deal with idle vehicles increased. The auto repair team sent a mechanic to the 707 headquarters building to jump-start vehicles a few days a week.

Similarly, the Hanover complex and the 707 and 211 buildings in Baltimore faced the challenge of being empty for so long.

When the buildings were filled with employees, there was always someone around to alert the Office of Maintenance (OOM) about a broken pipe or faulty water fountain. When the COVID-19 pandemic scaled back the number of employees during the workday, OOM saw this as an opportunity to make short- and long-term repairs.

The building's lower occupancy allowed the team to paint, service the heating and ventilation system and address larger projects such as installing a new cooling tower, all during regular business hours. This allowed the team to avoid overtime costs. Still they remained committed to responding at a moment's notice to after-hours power outages, plumbing leaks and critical equipment failures, making OOM the unsung heroes of MDOT SHA.

MDOT SHA PRIORITIES:

INNOVATION



Accessing Resources from Within

The nationwide materials shortage has put many of our items in short supply and steel poles are no exception. In District 7, our crews could save a project while working collaboratively with the Office of Traffic Safety (OOTs).

This summer, crews began working on intersection improvements to MD 108 (Clarksville Pike) at Centennial Lane in Howard County. The first phase involved the installation of two new, upgraded light poles, which were necessary for the project to stay on schedule and keep in the sequence of construction.

The limited number of steel poles available had already delayed another project in Carroll County, so the construction team had to get creative to keep the project on track.

The District 7 Construction Inspection Division reached out to OOTs, which did have some spare light poles. The problem was that these were 40-foot poles that required a tractor and a trailer to travel the six miles between OOTs' yard in Hanover to the subcontractor in Harmans.

Fortunately, District 7's Dayton Shop could help. Staff found a trailer that could make the job and arrangements were made to have the poles inspected, loaded onto a trailer and safely delivered.



Aiming High

In mountainous Western Maryland, crews had their heads in the sky working on the MD 135 Slope Protection Project. This was a proactive approach to reduce rockslides and make the road safer along MD 135 at six locations from the Garrett County line to US 220/McMullen Highway in Allegany County. Contractor Access Limited, which focuses on rappelling, had workers climbing the mountain and installing slope stabilization devices.

In the past, rockslides led to the closure of MD 135, which caused District 6 to contract out for emergency repairs. Local contractors were unable to reach the mountainside using traditional equipment.

With this new effort, specialists climbed the mountainside and installed stabilization devices that included steel wire mesh, shotcrete, rock dowels, grading, drainage and soil nails. The work began in spring 2021 and concluded eight months early, by year-end.

MDOT SHA PRIORITIES:

MODERNIZATION

At MDOT SHA, we use every tool in our toolbox to build and maintain a safe highway system for all roadway users. We upload roadway images into the Mapillary system, implement Maryland's first ramp metering system, create an interactive dashboard with crash data and upgrade our culvert clearing in sections of the state.



Alleviating Congestion

No one likes sitting in traffic, and we are in the process of alleviating that in Montgomery and Frederick counties. This is part of our Innovative Congestion Management (ICM) project, which reduces congestion, improves safety, and saves drivers up to 30 minutes commuting along I-270 between Frederick and I-495 in Montgomery County.

One aspect of the project is ramp metering on the ramps that stretch along with both directions of I-270. The system uses traffic signals and sensors to manage traffic entering I-270. Motorists traveling on a ramp see a traffic signal that will guide them into the highway by flashing red for stop or green for go. The ramp metering signals operate between 4 a.m. and 11 p.m. daily and can be activated during peak traffic hours or when I-270 is experiencing congestion.

This past fall, we began activating the 23 ramps along southbound I-270. Our crews will move to northbound I-270 in 2022. We expect to have ramp metering on 45 ramps and 18 interchanges by the end of the year.

The ramp metering system is a first for Maryland; ramp meters have been used in other states as a cost-effective tool to improve safety and efficiency and reduce congestion.

A New Tool for Roadway Research

We constantly examine the condition of our highway system thanks to our Automatic Road Analyzer (ARAN) images. An additional asset for MDOT SHA has been Mapillary, which collects real-time road information captured by users. The Office of Information Technology (OIT) is currently determining if these roadway images can be uploaded automatically into the Facebook-owned platform.

These crowd-sourced photos can be beneficial to our crews. Those who need to inspect a culvert in a congested area can examine it through Mapillary instead of risking their safety or closing a road. Additionally, managers can help maintenance crews identify potential repairs to a specific roadway without leaving the office.

MDOT SHA PRIORITIES:

MODERNIZATION

A New Tool for Roadway Research continued

Some additional benefits of Mapillary include:

- Maximizing data collection efficiency.
- Rapidly capturing and inventorying improvements to roadways.
- Coordinating an image capture with MDOT SHA's OIT Unmanned Aerial Systems (UAS)/drone program.



Interactive Tool Provides More Crash Datapoints

Our engineers have been studying roadway risks to pedestrians, bicyclists, and other roadway users. Now they are working with the Maryland Transportation Institute (MTI) and the University of Maryland Shock Trauma Center to create an interactive tool that will provide even more data-driven information.

The new Vulnerable User Density Exposure Dashboard records data points for volume and exposure to transportation safety risks. The information can be sorted by region, season and time of day. Using that data, the dashboard can identify various patterns about crashes, like vulnerable intersections, time of day and season.

The value that this provides our agency is exceptional. The data could potentially allow district traffic engineers to verify the riskiest roads in their counties and identify locations that hadn't previously appeared as problems.

This dashboard is the first of its kind in America publicly available. A pilot version used 2019 vulnerable roadway user volume and crash data. A new version using more recent data is being developed.

Clearing Culverts

Our goal has always been to build upon what is already great. In District 7, in the Frederick area, that meant moving to a new hydro excavation truck that is more powerful than the previous one. The new vehicle is equipped with two water tanks that can hold nearly 1,000 gallons of water and a debris tank that can hold up to four cubic yards. Its waterjet action and vacuum enable a four-person crew to efficiently clean and open clogged pipes and culverts.

Already, the truck has made some strides on a section of US 40 north of Frederick in a wooded, mountainous area near Gambrill State Park. They used the truck's waterjet and hose to snake the culvert, washing out rocks, litter, dirt, and tree roots. The vehicle was beneficial when workers found a cluster of tree roots growing into a pipe under the westbound lane, causing an obstruction. It took just a few blasts from the waterjet, and the pipe was cleared.

MDOT SHA PRIORITIES:

ENHANCING THE CUSTOMER EXPERIENCE



Great Allegheny Passage Trail Receives Needed Light

Light has come to the Borden Tunnel, along a popular West Maryland hiker trail.

The Borden Tunnel Off-Grid Lighting Project, sponsored by Allegany County, received \$146,400 in Recreational Trails Program funding in 2019. The Borden Tunnel is one of two tunnels in Allegany County on the Great Allegheny Passage (GAP), which is part of the Potomac Heritage National Scenic Trail. The 150-mile GAP trail connects to the 184.5-mile C&O Canal Towpath to create an uninterrupted 334.5-mile route from Washington, DC to Pittsburgh, PA.

The Borden Tunnel, a highlight of the Maryland segment of the GAP, is 955 feet in length and was unlit. Numerous crashes occurred near the tunnel's center, where it was dark and disorienting. This project was designed to address this safety issue in an environmentally friendly and innovative way.

The lighting project included the installation of 10 LED high bay lighting fixtures on the ceiling of the tunnel. The tunnel is one mile from the nearest connection point with the local electric utility, and conventional utility power was not feasible. To resolve this issue, the lighting fixtures were powered by a ground pedestal mounted, a six-panel solar array that includes a maintenance-free battery system, a 4kW 240VAC standalone inverter and a heavy-duty, free-standing inverter/battery house.

The solar panel array and battery house is located on the south side of the tunnel within the county-owned right of way. The battery bank provides approximately four reserve days of energy for average daily use of the trail. The lighting is automatically activated via occupancy sensors located at each fixture location, controlled by an astronomic time clock so the lighting circuits are only active during daylight hours.

Recalling the Stormy Winter Weather of '20-21

The 2020-2021 winter season – actually the seemingly unremitting February 2021 series of storms – brought out the best in snowplow operators, contractors, managers and responders. It also induced fatigue, then relief late in the month when temperatures climbed comfortably above freezing.

MDOT SHA PRIORITIES:

ENHANCING THE CUSTOMER EXPERIENCE

Recalling the Stormy Winter Weather of '20-21 continued

The previous year MDOT SHA recorded five winter events statewide in comparison to the 2020-2021 season, when there were 11 by late February.

Western Maryland's District 6 had 28 district events by late February with Garrett County on winter alert the entire month, with a Lake Erie effect bringing Midwestern snow to linger over Maryland's mountains with heavy snowfall.

The MDOT SHA response was strong, with crews putting in 12-hour shifts and more to prep the roads and then plow to keep the highways safe. The demand was high, and management worked hard to schedule workers to have time off between long shifts. Plow trains were formed, often with an MDOT SHA truck leading six or seven contractor trucks along Maryland's roadways. Video and photos of their hard work were highlighted on the agency's social media platforms.



The public noticed. Governor Hogan recorded a video thanking MDOT and MDOT SHA; legislators shared with Administrator Tim Smith how impressed they were with the winter operations efforts. And one former Marylander living through the monstrous 2021 winter storm in Texas wrote how he missed the efficiency of MDOT SHA crews.

The most challenging part for management, said Office of Maintenance Director Michael Michalski, was planning given uncertain weather forecasts. "Not knowing whether there will be rain, sleet or snow adds layers of difficulty when you're trying to plan staffing, decide when to bring people in, how many contractors and when," he explained.

For crews, the toughest part was the arrival of one storm after another, making it almost impossible for workers to rest for a couple of days before the next snowstorm arrived. That much snow also stressed the supply of salt for treating and pretreating. As more snow fell, MDOT SHA had to compete with counties, municipalities and other states to keep enough salt on hand. That made life hard for salt vendors, too.

The contrast in salt usage was clear: MDOT SHA used just 39,000 tons of salt the previous year. By February 23, 2021, MDOT SHA had already used 225,000, more than the 210,000 tons expended in the relatively normal winter season of 2018-19.

MDOT SHA PRIORITIES:

ENHANCING THE CUSTOMER EXPERIENCE

Recalling the Stormy Winter Weather of '20-'21 continued

Protecting the environment from salt that drains into fresh water is an important factor to consider. During the last decade MDOT SHA officials have worked to protect the state's waterways by limiting salt usage as much as possible and reminding staff and contractors to use judgment before applying.

MDOT SHA does a balancing act, applying enough salt to ensure that drivers and passengers are safe while protecting the Chesapeake Bay, rivers and lakes. Through all the storm response, there was worker pride.

"I've heard people say that when they lower the plow and then look in the rearview mirror to see that the highway is safer than before they came – that's their favorite part," said Michalski. "What's satisfying is the visual progress – you don't always get that in the workplace."

Spring Pothole Season Light Last Year

The start of spring for MDOT SHA shop workers usually means one inescapable thing—pothole season—the time of year when customers file numerous reports of small and large potholes that can damage vehicles and their tires.

Last year, pothole reports were manageable. Maryland didn't have the freeze and thaw cycle that the state usually gets in late winter and early spring where water seeps under pavement during the day, then freezes and breaks sections of pavement overnight.

In Fiscal Year 2019, there were 3,828 potholes on MDOT SHA roads. In FY 2020, by contrast, the number fell to 2,402.

Pothole repairs are driven by customer outreach. To repair hazardous potholes, crews apply short-term cold asphalt patches during cold months and repair them with a hot mix, a longer-term solution when outdoor temperatures remain warm, allowing the material to settle properly.



MDOT SHA PRIORITIES:

ENHANCING THE CUSTOMER EXPERIENCE

MDOT SHA Archaeologists Make Important Find Related to Harriet Tubman

Knee deep in mud and muck, MDOT SHA's archaeologists reveal a rich history among the ruins along the Eastern Shore of Maryland.

In spring 2021, after months of researching and digging, the 18th Century home of Harriet Tubman's father, Ben Ross, was discovered in Dorchester County.

In fall 2019, MDOT SHA Chief Archaeologist Dr. Julie Schablitsky and her team began excavating an area in the Blackwater National Wildlife Refuge in Dorchester County, also known as "Harriet Tubman Country." The property, now owned by the U.S. Fish and Wildlife Service, was once home to the most famous Underground Railroad conductor and her family.

The archaeology team found bricks, dish fragments, and personal artifacts linked to Tubman's father.

"The importance of discovering Ben Ross' cabin here is the connection to Harriet Tubman; she would've spent time here as a child but also she would've come back and been living here with her father in her teenage years, working alongside of him," said Dr. Schablitsky. "This was the opportunity she had to learn about the wetlands and the woods, and how to survive and navigate through here. And we believe this experience was able to benefit her when she began to move people to freedom."

In April 2021, working in partnership with the Lt. Governor's Office and the U.S. Fish and Wildlife Service, MDOT SHA announced the confirmation of the findings near Cambridge.

"This was a historic moment for the Maryland Department of Transportation State Highway Administration," said Tim Smith, MDOT SHA Administrator. "The discovery of the Ben Ross cabin is a culmination of the years-long efforts of our amazing archaeology team."

The discovery of the home and artifacts will be added to the Harriet Tubman Underground Railroad Byway, a 125-mile self-guided drive that includes more than 30 sites attributed to the legacy of Harriet Tubman. This site will eventually be open to visitors and added to this drive.

The MDOT SHA archaeology team will continue to monitor and examine the site for more artifacts while they also rush against the clock to save critical pieces of American history from being washed away by rising sea levels.



Delivering Every Day for Our Customers

Focus on Safety



Pedestrians, bicyclists, work zone crews, and motorists and their passengers deserve to return home safely every day.

Alarming patterns – motorists speeding 100 mph and higher on roads like MD 210 (Indian Head Highway), motorists not moving over for first responders and highway workers working roadside, commercial truck drivers continuing at posted speeds or higher when driving in inclement weather, and pedestrians crossing busy roadways mid-block at night - have led to needless injuries and casualties.

MDOT SHA works with numerous federal, state and local partners to keep the state's highways safe.

Spike in Freight Crashes Launches Safety Outreach Campaign

Although fewer vehicles were on our roadways early last year due to COVID-19, MDOT SHA saw a significant increase in truck turnovers and crashes along a portion of the I-495 Capital Beltway in Montgomery County. Where there are typically one or two turnovers per year, there were already a dozen reported by the beginning of December 2020.

Knowing there would be a significant increase in the volume of trucks on the roads delivering holiday packages, MDOT SHA's Connected and Automated Transportation System (CATS) Division partnered with the Office of Communications (OC) and the Office of Transportation Mobility and Operations (OTMO) just before the 2020 holiday season to launch an outreach plan to freight operators to prevent crashes in these high-incident corridors.

An email was sent from OTMO to freight stakeholders, including the Maryland Motor Truck Association, alerting them of the problem and reminding them not only are lives at risk, but when a crash occurs on a thoroughfare used for moving freight, the highway shuts down for hours and delays goods from being delivered on time.

MDOT SHA reached out to truck drivers who travel on Maryland roadways, urging them to stay alert, travel at the posted speed limits and reduce their speeds when traveling during inclement weather.

A robust social media campaign also ran in December and continued throughout 2021, reminding truck drivers to follow the rules of the road and telling passenger vehicle drivers to stay alert when driving near trucks, paying special attention when commercial vehicles are braking and turning.

Delivering Every Day for Our Customers

Hybrid Wreckers Improve Safety, Offer Extra Storage

When Coordinated Highway Action Response Team (CHART) drivers find a vehicle stalled in a highway lane with cars driving past at 65 mph, they feel just a little safer if they can stand on the side of the road and use remote controls to connect their truck to the automobile.

CHART's new, heavy-duty utility wrecker trucks provide this safety feature that is an advantage over the past model.

"You can be 20 feet off the road in a safe location connecting the car to the tow," explains Highway Operations Technician IV Eric Meredith. "That's a major safety improvement."

CHART Division Chief Timothy Peck explained, "Our new heavy-duty utility is a wrecker (tow truck) and HD Utility all in one. It is a Ford F-550 extended cab truck with a utility body and an open bed. The truck is equipped with a hideaway tow stinger that doubles as the truck's rear bumper. These trucks can lift 4,000 lbs. and tow 8,000 lbs."

Early last year the fleet included three new trucks and three more were scheduled for delivery. The trucks are equipped with a diesel engine that has a longer life than the old gas-powered trucks.

"I love the new truck," says CHART driver Barry Stonestreet. "It has room to carry more equipment – a cutoff saw, hand tools, a pry bar. It handles the road great and does well in the snow."



Help Thy Neighbor: MDOT SHA Assists MSP and W VA Police with Truck Pileup

One night in February 2021, during a month of ice and snowstorms that led to numerous crashes, the Western Region Traffic Operations Center got a call about a crisis just across the Maryland/West Virginia border.

Maryland State Police (MSP) received a report that 15 tractor trailers and several cars had piled up in a massive chain-reaction crash on I-81 just south of the Potomac River Bridge in West Virginia. First responders said the highway was "a sheet of ice," and MDOT SHA was asked to assist.

MDOT SHA crews and equipment in Hagerstown were positioned to answer the call, but had to problem-solve to reach the scene. Due to the crash, snowplows and salt trucks couldn't turn around at the first exit in West Virginia because the roadway was blocked with cars and trucks.

MSP and MDOT SHA forces resolved the issue by allowing MDOT SHA trucks to travel southbound in the northern lanes to reach the scene and salt the icy roadway.

Delivering Every Day for Our Customers

Help Thy Neighbor: MDOT SHA Assists MSP and W VA Police with Truck Pileup continued

A CHART emergency response supervisor also drove to the scene and escorted heavy-duty wreckers from Maryland. He was able to help West Virginia State Police relocate numerous vehicles so that light and heavy-duty wreckers could unpack the tangled cars and trucks. He released trapped traffic by guiding frustrated drivers along the right shoulder.

“Western region staff have vested many hours building and maintaining partnerships with multiple internal and external players and built a trust among them all,” said CHART Division Chief Timothy Peck. “This incident shows the arsenal of resources that can be brought to bear in a multi-jurisdictional and multi-state trust and partnership. I believe it will help us continue to add allies to our cause in strengthening these relationships both within MDOT, Maryland and beyond.”



Surface Treatment on Capital Beltway Applied to Reduce Crashes

To help reduce tractor trailer crashes that were occurring on the Outer Loop of the Capital Beltway along a 7-mile stretch of 30 lane miles between Connecticut Avenue and MD 191, MDOT SHA crews performed an innovative technique last February and applied a friction-surface treatment on the roadway.

The technique involved propelling tiny metal spheres directly onto the road surface at a high velocity. The impact of the spheres created a random surface texture that enhanced friction and surface drainage allowing motorists, including truck drivers, to stop easier even on wet surfaces.

Said Assistant District Engineer William Gover, “In theory it will stop trucks from flipping over because there will be better traction and less of the kind of hydroplaning that happens in bad weather.”

Watching the installation is a sight to behold. “A self-contained unit impacts the roadway with these bb’s at a high rate of speed,” explains Area Engineer Mike Little. Amazingly, they don’t scatter everywhere. “

It recycles them using magnets and air, so they only lose 3% of them. That means they can utilize the materials for long stretches of roadway.

“What they’re doing is sandblasting the roadway without damaging it. They don’t use a lot of equipment, so they keep the cost down.”

A preliminary study showed that the treatment improved friction and drainage by 70%. An added benefit to the application is it can lengthen the life of the roadway. Drivers typically don’t notice the change.

“Everyone was worried that it would be a rough ride,” said Little. “I drove on it, and you can’t tell that we did anything to the road.”

Delivering Every Day for Our Customers

MDOT SHA Publishes Cheswick the Crab Safety Book

When Ocean City's busy vacation season is underway, there is never a better time to remind visitors and residents to walk smart, drive smart and bike smart when traveling around Maryland's most populated beach town. As part of its OC Walk Smart! campaign, MDOT SHA captured important roadway safety information in the "Cheswick the Crab and the Smart Summer" book.

The Cheswick the Crab mascot and safety ambassadors distributed almost 1,000 copies to families visiting Ocean City's boardwalk this past summer; additional books were disbursed to four area visitor centers and to the five branches of the Worcester County Library.

With colorful illustrations depicting familiar sites in Ocean City, the book teaches the importance of roadway safety basics in a beach-friendly, family-fun manner. Although it is geared toward young children, parents reading the book to their kids will be reminded of the rules of the road.

Developed back in 2013 by MDOT SHA and its partners, including the Town of Ocean City, Ocean City Police Department, Maryland Highway Safety Office, Peninsula Regional Medical Center and other agencies and local businesses, the OC Walk Smart! campaign featuring Cheswick the Crab harnessed the four "Es" of safety: engineering, education, enforcement and EMS to turn the tide on the increase of pedestrian-involved crashes in Ocean City.



When the campaign began in 2013, Cheswick was known as "Crab the Lifeguard." After holding an online naming contest, the crab was renamed Cheswick as a tribute to Matthew Cheswick, who was struck and killed by a vehicle while walking along Coastal Highway.

Written by Christopher Cheswick, Matthew's father, and illustrated by family friend Krissy Baxter, an online copy of Cheswick the Crab and the Smart Summer is available at www.oceancitymd.gov/oc/walksmart/.

Signal Protects AA County Youngsters Returning to School

As fall approached and classrooms finally opened to in-person learning, many young people made their way to school in an old-fashioned way - foot.

In August, MDOT SHA officials in southern Maryland reinforced the agency's commitment to safety by reconstructing sidewalks and ramps for Americans with Disabilities Act (ADA) compliance and installing a new part-time traffic signal to guide motorists approaching the area near Crofton Middle School and High School in Anne Arundel County.

Delivering Every Day for Our Customers

Signal Protects AA County Youngsters Returning to School continued

The project team added the part-time signal at the entrance to Crofton High School, installed new crosswalks at the MD 424 intersection and reduced speed limits within the newly expanded zone that includes both schools.

“The safety of our next generation is vital, and awareness is particularly important as students make their way back to school,” said MDOT SHA Administrator Tim Smith. “Drivers should always stay alert and watch for pedestrians, especially around schools and playgrounds.”

The signal – which only operates during school hours – controls traffic queues and enhances safety at the Davidsonville Road/Ed Dosek Way intersection. Audible pedestrian signals provide pedestrian-activated buttons. New crosswalks traverse Ed Dosek Way and the southern MD 424 crossing intersection. In anticipation, MDOT SHA placed the signals on flash beforehand and set electronic message signs on MD 450 to provide advance notice to pedestrians and motorists that the signal would be fully operational by late August 2021.

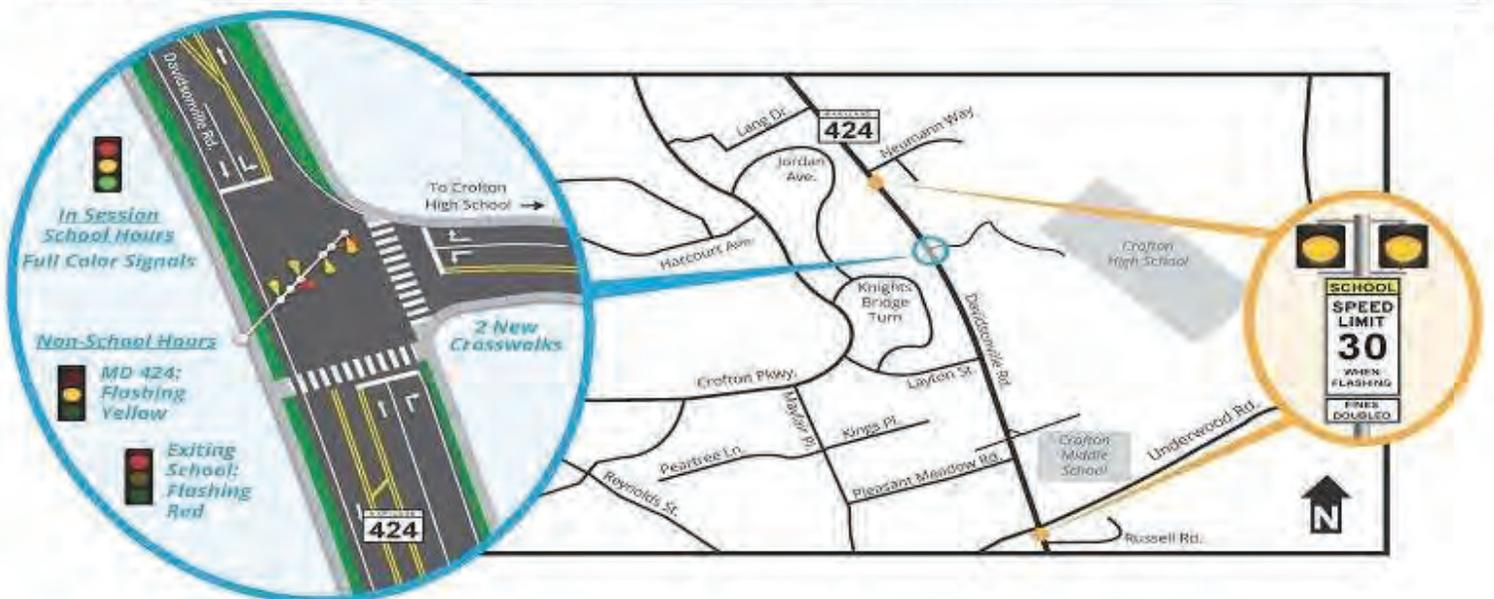
The signal provides designated left-turn movements for entering and exiting the school. Video detection cameras manage traffic queues along MD 424. Advanced hazard identification beacons (HIBs) are being installed near Neumann Way and Russell Road to increase driver awareness of the new crossings and signals.

Audible pedestrian pushbuttons allow pedestrians to activate the pedestrian “WALK” phase to cross the selected direction. When the “WALK” phase is activated, it starts an audible countdown.

The \$177,000 safety enhancements reduce the speed limit in the expanded school zone. When signal flashers are active, speed limits are reduced from 35 mph to 30 mph.



MARYLAND **424** MD 424 (Davidsonville Road) Signals at Crofton High School



Pursuit of Excellence

MDOT SHA Wins Multiple Awards from Maryland Quality Initiative

MDOT SHA was recognized for a major DC-area interchange, an innovatively constructed Eastern Shore bridge and a Western Maryland project in Keedysville that reenergized a historic town at the Maryland Quality Initiative (MdQI) annual meeting held virtually on February 9-11, 2021.

“MdQI continues to embrace innovation and partnership,” said MDOT SHA Administrator Tim Smith. “These award-winning projects represent the professionalism, ingenuity, and dedication of our MDOT SHA team members and private-sector colleagues. It’s an honor to be recognized by our industry partners.”

MdQI, a consortium of agencies and associations representing Maryland's transportation industry, was founded by MDOT and private-sector representatives in 1993.

The \$110 million interchange project at I-270 and Watkins Mill Road in Gaithersburg received three awards—the Subcontractor Award to the engineering and construction contractor who performs high-quality work on an MDOT SHA project, the Partnering Award over \$10 million, and the Modal Award for the highest quality in design and construction.

The project fostered economic growth and assisted Maryland in its recovery from the COVID-19 pandemic. It included a new bridge over I-270 and ramps connecting Watkins Mill Road with the interstate and is part of Governor Larry Hogan’s investment of \$1.97 billion in state highways and bridges.

Montgomery County contributed \$4.9 million for design and engineering.

The Urban Reconstruction project on MD 845-A Main Street in Keedysville, near the Antietam Civil War battlefield was honored with the Partnering under \$5 million and Modal awards.

The project became a model for the careful reconstruction of a historic town and included rehabilitation of the existing roadway, sidewalk enhancements and upgrades of ramps, on-street parking, and drainage improvements.

The MD 845-A Keedysville Urban Renewal Project in Washington County, an award winner, brought major improvements, at a cost of \$4.5 million, to the main street of a historic town.

In the Innovation category, the MD 213 Bridge over Old Mill Stream Branch, a \$5.2 million project in Queen Anne’s County, utilized an Accelerated Bridge Construction technique of lateral sliding, to build a new bridge structure over Old Mill Branch. Combined, MDOT and its transportation business units were honored with 20 awards during the ceremony.



D7 Projects Garner MD Asphalt Association Awards

The 2020 Maryland Quality Asphalt Pavement Awards, announced by association President G. Marshall Klinefelter in January 2021, went to the following District 7 projects:

- MD 550 - Browns Quarry Rd. to Washington County Line
- MD 140 - Cedarhurst Rd. to Old Westminster Pike
- MD 91 - Bloom Rd. to the Baltimore County Line

The Maryland Asphalt Association is an association dedicated to the leadership, development, and advancement of quality hot mix asphalt pavement construction.

MDOT SHA Organizational Development Wins Top 100 Award for Second Year in Row

In February 2021, MDOT SHA announced that it was named to Training Magazine's Top 100 for the second consecutive year.

"We are honored to receive this recognition for the dynamic training and development programs we offer to our team members," Administrator Tim Smith said. "We are committed to ensuring that our employees, from those who build and maintain the highways to executives who provide direction and leadership, are exposed to the same quality training."

The Training Top 100 Award winners are organizations worldwide with the most successful learning and development programs. Newly rebranded from the Training Top 125 to the Training Top 100, the premier learning industry awards program has been honoring industry leaders for more than 20 years.

MDOT SHA's Organizational Development Division provides various opportunities that include mentoring and continuing education. Initiatives such as the Leadership Education and Development program (LEAD), Professional Enrichment Program (PEP) and Advanced Leadership Program (ALP) take participants through an instructor-led curriculum that focuses on career development.

MDOT SHA was the only government agency to receive this award, presented during the virtual ceremony.



Office of Materials Technology Wins Asphalt Award for I-270

In March 2021, the Office of Materials Technology (OMT) was named a recipient of The Asphalt Pavement Alliance's 2020 Perpetual Pavement Award (PPA) for a 66-year-old, nine-mile section of northbound I-270 Northbound in Frederick County.

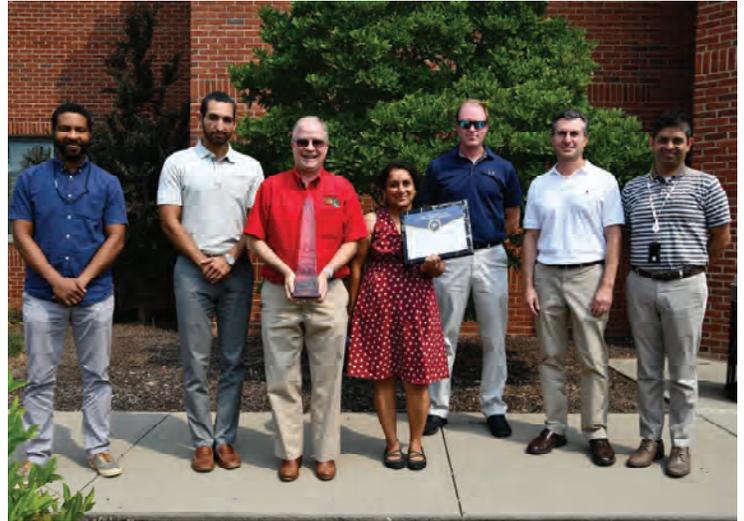
The 2020 Perpetual Pavement Award recognizes asphalt pavements that have been designed and built with outstanding care and exceptional quality. Northbound I-270 between the Doctor Perry Road overpass and the westbound I-70 underpass, received the recognition. This is MDOT SHA's fifth PPA award.

"We are honored to receive this award for I-270, one of our heavily traveled routes," MDOT SHA Administrator Tim Smith said. "Earning the 2020 Perpetual Pavement Award further demonstrates our continued commitment to thinking long-term about transportation infrastructure in our daily decisions now."

As a regional connector between I-495 (Capital Beltway) and I-70 with frequent freeze-thaw cycles, I-270 continues to demonstrate value. An average of 92,500 motorists traveled along I-270 in 2020 with trucks making up nine percent of the traffic volume.

The Asphalt Pavement Alliance developed the Perpetual Pavement Award to recognize long-life asphalt pavements around the country and honor those with outstanding design and construction.

Engineers from the National Center for Asphalt Technology (NCAT) at Auburn University evaluate projects based on the performance of asphalt in environmental and soil conditions, traffic, construction and maintenance record.



Streetscape Project Wins Award

Last year, the Maryland Municipal League (MML) awarded the Town of Hampstead the Achievement Award in the medium-size municipality category for an MDOT SHA project, the Hampstead streetscape on MD 30 Business (Main Street).

MML cited the project as an excellent example of 2021's theme "Working Together to Get Things Done," which honors cities and towns that have successfully used collaborative approaches to address community challenges.

The \$35 million project included new sidewalks, streetlights, curbs and gutters, upgraded drainage systems, new traffic signals and a new roadway surface.

PRSA Awards Best in Maryland to MDOT SHA

The Maryland Chapter of the Public Relations Society of America recognized MDOT SHA's Office of Communications with three Best in Maryland awards. A Highway to History: MDOT SHA Archaeologists Discover Home of Harriet Tubman's Father won Best in Maryland for Media Relations. This discovery was made by MDOT SHA's team of archeologists, who stretch our work beyond roadways to preserve history and share it with communities worldwide.

The Office of Communications related the compelling story in a series of events, interviews, videos and press releases that resulted in national and global coverage by the New York Times, NPR, the UK's Daily Mail and other major media.

- MDOT SHA won Best in Maryland for Social Media for utilizing its Facebook and Twitter platforms to bring awareness to motorists about the dangers faced in work zones. MDOT State Highway Administration regularly reminds motorists to comply with the state's [Move Over Law](#) when approaching worksites and emergency vehicles.
- The MDOT SHA Year in Review for 2020 won Best in Maryland for Annual Reports. This report provides critical information to the Maryland General Assembly to support MDOT SHA's yearly funding requests.

ROADS.MARYLAND.GOV

DIAL #77 FOR ROADSIDE ASSISTANCE

SLOW DOWN, MOVE OVER



STATE HIGHWAY
ADMINISTRATION



707 North Calvert Street
Baltimore, Maryland 21202

800-323-MSHA | TTY 800-735-2258
roads.maryland.gov

Larry Hogan

Governor

James F. Ports Jr.

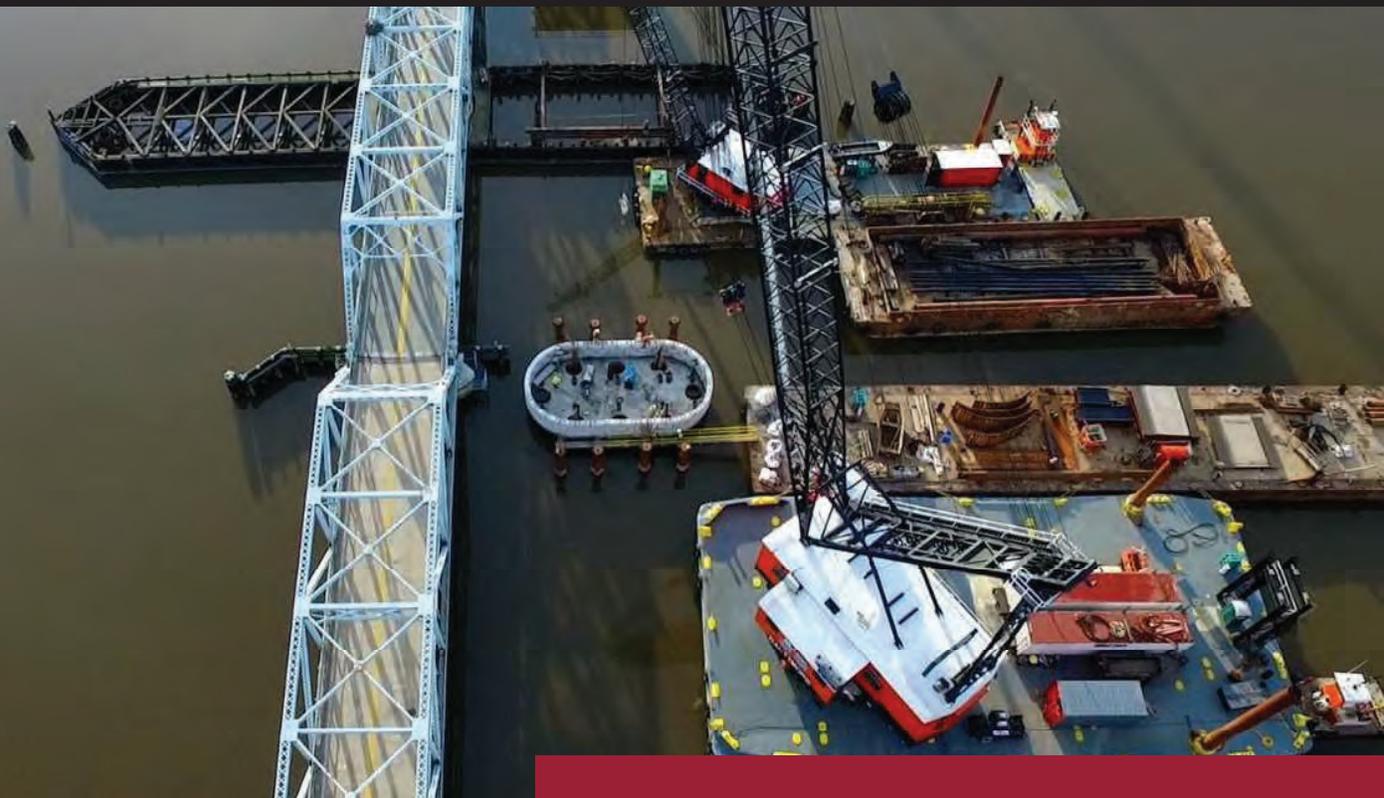
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