

# Strategic Asset Management Plan





# Message from the Secretary

It is an exciting time for transportation in Maryland and I am honored to be a part of Maryland Department of Transportation's (MDOT's) ongoing efforts to serve the public through the guidance of our mission statement.



## MISSION STATEMENT

“The Maryland Department of Transportation is a customer-driven leader that delivers safe, sustainable, intelligent, and exceptional transportation solutions in order to connect our customers to life's opportunities.”

The development of the 2040 Maryland Transportation Plan (MTP), the annual Attainment Report (AR) and Maryland's first Strategic Asset Management Plan (SAMP) will continue to guide transportation decision-making and investments in the future.

The implementation of the SAMP will enable MDOT to strategically manage its assets through a comprehensive approach based on sound asset management practices. The success of the SAMP relies on collaboration of MDOT's business units through the ONE MDOT approach. Developing individual transportation business unit asset management plans to maintain and preserve MDOT's assets through the strategies identified in the SAMP will provide MDOT with the tools, knowledge and culture to maintain a high level of customer service while utilizing resources wisely.



**Pete K. Rahn**

*Transportation Secretary and Maryland Transportation Authority Chairman*

This Strategic Asset Management Plan includes:

**Introduction** and overview of the SAMP development and purpose (p. 4)

Description of **MDOT's assets** (p. 6)

An understanding of “**What is asset management?**” (p. 8)

**MDOT's Department Asset Management Policy** for the Transportation Business Units and the Maryland Transportation Authority (p. 9)

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# Introduction

The Maryland Department of Transportation's (MDOT) Strategic Asset Management Plan (SAMP), developed through coordination with MDOT's Asset Management Working Group, is intended to guide the Asset Management Program for MDOT, its five Transportation Business Units (TBUs) and one authority.

The basis for MDOT asset management is the Department Asset Management Policy and Principles adopted by MDOT in 2017, through coordination with MDOT's TBUs and MDTA.

The purpose of the plan is to define MDOT's goals for asset management activities and milestones; identify and prioritize key initiatives that support the delivery of MDOT's asset management policy; and provide a high-level overview of resource and timelines for implementation. MDOT wants to ensure success of its asset management program by adopting the following four concepts. These concepts create a customer-focused "One-MDOT" Risk-Based Approach with data driven decisions, and will be utilized in the MDOT approach based on the consensus of the Asset Management Working Group.



## MAINTAINING A "ONE-MDOT" APPROACH

MDOT's composition of five TBUs and one authority provides the ability to coordinate asset management activities across asset types. MDOT uniquely positions its TBUs and MDTA to collaborate, and share knowledge and best practices relative to asset management. While a common goal of improved asset management exists within MDOT, actual asset management programs in each TBU and MDTA will differ in scope, speed of implementation and the use of dedicated asset management due to the differing missions and federal requirements. This should not, however, impede their ability to collaborate on the action plans to reduce the work required of each TBU and MDTA.



## MAINTAINING A CUSTOMER-FOCUSED APPROACH

MDOT routinely focuses on customers and has performance management goals and objectives demonstrating its importance to the organization. Asset management requires MDOT to understand the needs and expectations of stakeholders relative to assets. Determining stakeholder needs and expectations requires proactive communication methods as well as methods to collect feedback from MDOT communications.





### **MAKING DATA-DRIVEN DECISIONS**

MDOT's Excellerator program, the annual Attainment Report (AR) and Maryland's Managing for Results (MFR) has demonstrated the organization's and the State's commitment to performance management and data-driven decision-making. Asset management information such as stakeholder requirements, asset conditions, and asset performance are necessary to make systematic asset management decisions. Data can be obtained from diverse sources — including both internal and external — such as stakeholders, contractors, regulators, partners, and key suppliers.



### **ADOPTING A RISK-BASED APPROACH**

The legislative, regulatory, and financial environment MDOT operates in is challenging and contains inherent risks which are constantly evolving. A risk-based approach supports using MDOT's limited resources wisely by balancing risk and opportunities, as well as cost and performance. This includes incorporating asset related risks into the organization's overall risk management processes.



Asset management allows MDOT to understand the condition of its assets and plan for the future through investment strategies to preserve the important transportation infrastructure that move people and goods across the State everyday. The basis of the strategies and priorities for MDOT asset management are the goals, objectives, and policy strategies identified in the 2040 MTP. The MTP, Department Asset Management Policy, SAMP, and TBU and MDTA Transportation Asset Management Plans are aligned to reinforce the importance of asset management activities to MDOT's overall mission and provides a clear connection between the goals, strategies, asset management plans, and asset condition performance. The performance measures and targets tracked in the AR provide status of the condition of MDOT's assets.

Maryland Transportation Plan  
(Organizational Strategic Plan)

MDOT Asset Management Policy

MDOT Strategic Asset  
Management Plan (SAMP)

TBU and MDTA Transportation  
Asset Management Plans (TAMPs)

# MDOT's assets

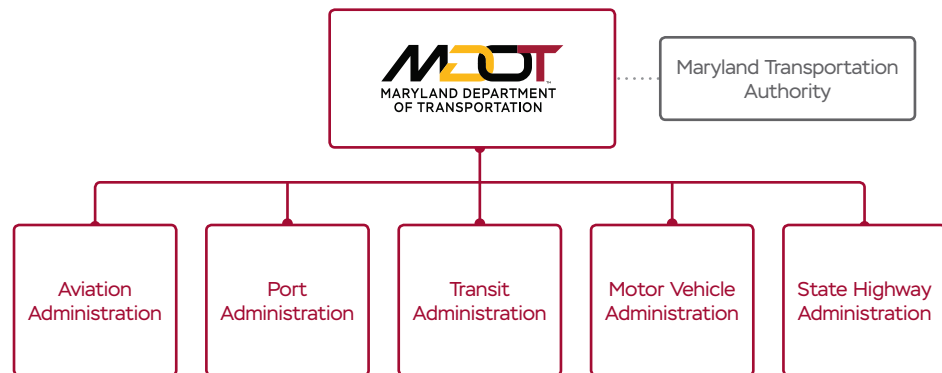
MDOT is unique among state department of transportations in its ability to deliver a comprehensive transportation system and experience to the people and businesses it serves. MDOT houses all of the State's transportation agencies in one organization, ensuring the interconnectivity of the State highways, toll facilities, transit, aviation, ports, and motor vehicle and driver services.

## ORGANIZATION OVERVIEW

The organization is **one MDOT** instead of six separate entities; one Department with everyone working together toward one mission. MDOT is responsible for all aspects of transportation within the State. MDOT is comprised of five Transportation Business Units and the Maryland Transportation Authority (MDTA) and brings together all of the State's transportation agencies into one organization, ensuring that the State's highway systems, toll facilities, transit, aviation, ports, and motor vehicle and driver services work together seamlessly and leverage one another's strengths.

The MDOT Secretary serves as chairman of the MDTA which owns, operates, and maintains the State's nine toll facilities. MDOT manages the State Transportation Trust Fund, which gives Maryland the flexibility to fund priority transportation needs that support a balanced statewide multimodal transportation system. This capability provides economic benefits to the entire State, creating jobs, expanding opportunities, and advancing transportation plans, programs, and projects that will improve our transportation system and the quality of life for Marylanders. MDTA is funded through toll revenues, not through the Transportation Trust Fund nor General Funds.

In the FY 2019 – FY 2024 Consolidated Transportation Program (CTP), Maryland will invest \$16.4 billion in transportation projects across the State, ranging from connecting Maryland with expanded transit options, addressing congestion, optimizing waterways for trade, and expanding and renovating the Baltimore/Washington International Thurgood Marshall (BWI) Airport to support additional passenger traffic. Within that six-year plan, MDOT also continues to ensure its transportation infrastructure is well maintained and preserved. Annually, MDOT allocates almost \$1 billion towards system preservation highlighting the importance of preserving MDOT's existing assets.



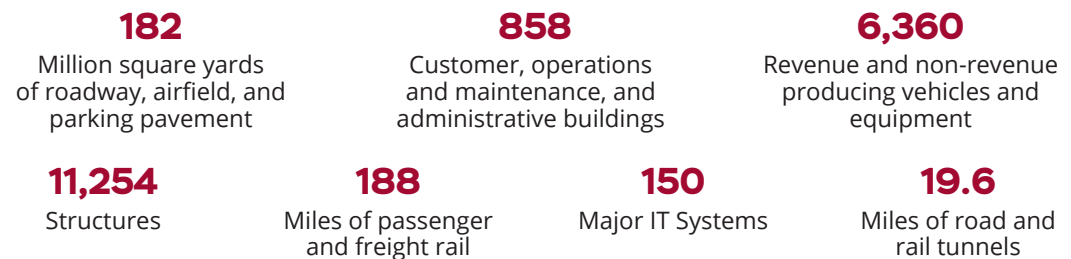
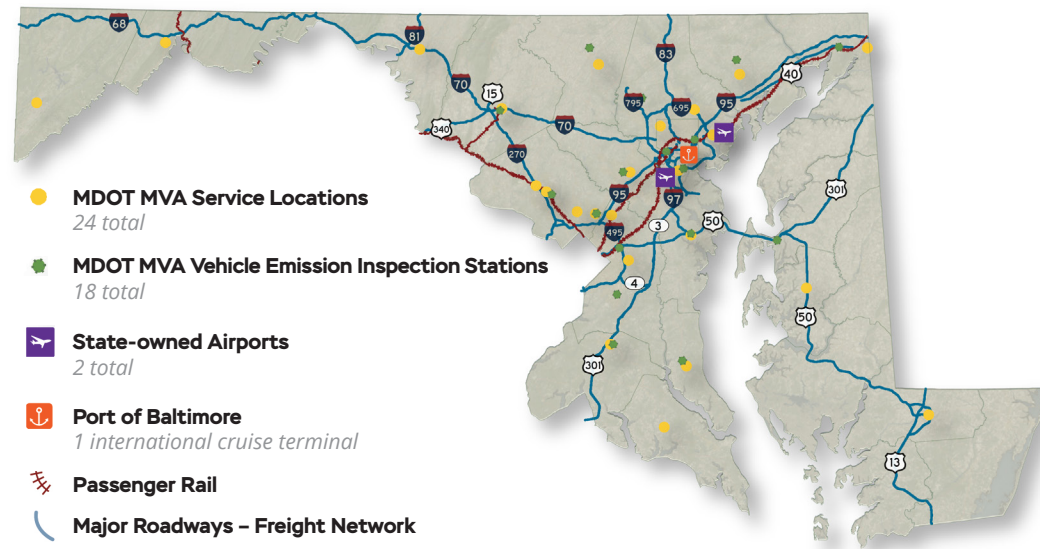
## KEY ASSETS

MDOT manages a wide range of asset classes that make up the infrastructure base to provide services to Maryland's residents and businesses, along with those traveling to or through the State. The SAMP's goals and strategies are centered on addressing seven critical Department assets. Those assets are (1) facilities, (2) pavement, (3) structures, (4) tunnels, (5) rail, (6) vehicle fleet and equipment, and (7) major information technology (IT) systems. MDOT's transportation system contains complex facilities including major interstates, highways, tunnels, and bridges; a transit system that includes bus, light rail, heavy rail, commuter rail services; a major port, and major airport. In addition to this extensive transportation system, MDOT operates complimentary IT systems that support MDOT Motor Vehicle Administration (MDOT MVA) and law enforcement operations throughout the State.

These assets were identified as 'key assets' for the purpose of the SAMP by the Asset Management Working Group because of their enterprise nature across the TBUs and MDTA as well as their role of providing the most critical services and funding needs of the Department. As the Asset Management Program develops and matures, the scope of the strategies will expand to other Department assets.

The SAMP's goals and strategies focus on addressing seven critical DOT assets: facilities, pavement, structures, tunnels, rail, vehicle fleet and equipment, and major information technology (IT) systems.

## MARYLAND DEPARTMENT OF TRANSPORTATION'S SYSTEM



# What is asset management?

Asset management is considered an integrated set of processes to minimize the lifecycle costs of infrastructure assets, at an acceptable level of risk, while continuously delivering established levels of service.

Asset management is a holistic approach of balancing costs, opportunities, and risks against the desired performance of assets.



Asset management practices are interwoven into all facets of the organization from procurement, design, construction, operations and maintenance (O&M), and finance. Asset management requires structured processes and procedures to capture, maintain, and leverage asset information and performance data throughout the decision-making processes. Implementing asset management principles and policies into an organization provide for improved financial performance, informed and defensible asset investment decisions, managed risk, improved customer service, and organizational sustainability.

Within the context of Maryland State Government, there are expectations of asset management from customers, stakeholders, and regulators. In some cases, those expectations are driven by private sector clients in the case of Ports and Aviation; in others they are mandated by the US Department of Transportation (USDOT) and outlined in Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials (AASHTO), and Federal Transit Administration (FTA) requirements.

The 2012 Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21) called upon the Secretary of Transportation to establish systems for monitoring and managing transportation assets to improve safety, increase reliability, reduce costs, and improve lifecycle performance, including the establishment of measures to monitor asset management performance. The 2015 Fixing America's Surface Transportation Act (FAST) reaffirmed this requirement. Subsequent rules developed by the FHWA and FTA lay out the specific asset management requirements with which state highway agencies and providers of public transportation (transit) services must comply.

MDOT has looked to build off the existing State and Federal requirements and industry best practices to move the Department toward a set of practices and policies that drive better asset management.



# Department Asset Management Policy

The MDOT Department Asset Management Policy establishes an effective asset management approach to maximize the return on the investments in Maryland's transportation system. Within MDOT, there are expectations of asset management from customers, stakeholders and regulators.

In some cases, such as maritime and aviation, expectations are driven by private sector clients; in others, such as highways and transit, they are mandated by federal legislation. Customer expectations include but are not limited to system preservation, reduction of fatalities and serious injuries, congestion relief, and facilitation of efficient freight movement.

MDOT recently updated the MTP and developed seven goal areas with associated objectives through the planning process. MDOT's mission statement and the priorities identified through stakeholder and public involvement in the MTP helped to shape the seven MTP goal areas.



## MISSION STATEMENT

**“The Maryland Department of Transportation is a customer-driven leader that delivers safe, sustainable, intelligent, and exceptional transportation solutions in order to connect our customers to life's opportunities.”**

## 2040 MTP GOALS

The seven goal areas identified in the 2040 MTP process set a long term foundation for MDOT's performance management and project programming activities over the next five years. The 2040 MTP Goals are:

-  Ensure a **safe, secure & resilient** transportation system
-  Facilitate **economic opportunity & reduce congestion** in Maryland through strategic system expansion
-  Maintain a **high standard and modernize** Maryland's multimodal transportation system
-  Improve the **quality and efficiency** of the transportation system to enhance the customer experience
-  Ensure **environmental protection & sensitivity**
-  Promote **fiscal responsibility**
-  Provide better transportation **choices and connections**

MDOT's Strategic Asset Management Plan focuses on the 2040 MTP long term goals related to ensuring a safe, secure and resilient transportation system, maintaining a high standard and modernizing the multi-modal system, improving the quality and reliability of the system to enhance the user experience, and promoting fiscal responsibility.

## DEPARTMENT ASSET MANAGEMENT POLICY

The Department Asset Management Policy provides policy direction to MDOT TSO, the TBUs, and MDTA as they work together to implement the SAMP. MDOT will strategically manage its assets through a comprehensive approach based on sound asset management practices aligned with the Department's overall strategic direction. The MDOT Asset Management Program, will rely on cross-functional collaboration of knowledgeable staff from each TBU and MDTA. The program will support MDOT's goals of system preservation, safety and security, quality of service and fiscal responsibility by committing appropriate resources to asset management. The program will further MDOT's commitment to its customer-focused approach through the establishment and management of levels of service.

MDOT is committed to the following principles for managing its assets:

<b>USING RESOURCES WISELY</b>	Strategically manage and proactively maximize return on investment in terms of overall Departmental goals	<b>LEADERSHIP AND SUPPORT</b>	Ensure MDOT TSO senior leaders and TSO staff provide TBUs and MDTA with tools and resources to conduct good asset management practices
<b>OPTIMIZED RISK-BASED APPROACH</b>	Balance asset-related risks with expected customer levels of service	<b>CONTINUAL IMPROVEMENT</b>	Review asset management system and staff's professional competencies to advance program at sustainable pace and minimize impacts to operations
<b>A HOLISTIC APPROACH TO OPERATIONS ASSET MANAGEMENT</b>	Recognize the importance of effectively deployed and trained staff, monitoring systems, and physical equipment necessary to support mobility, safety, security, and system reliability	<b>ACCESSIBLE AND INTEGRATED INFORMATION SYSTEMS</b>	Facilitate collection, storage, and communication of asset information for decision making purposes
<b>DATA-DRIVEN DECISION MAKING</b>	Leverage MDOT's performance management program	<b>QUALITY ASSET INFORMATION</b>	Reliable and appropriately detailed to support decision making
<b>CLEAR RESPONSIBILITIES, AUTHORITIES AND ACCOUNTABILITY</b>	Managing assets that are documented and communicated throughout the Department	<b>EFFECTIVE COMMUNICATION</b>	Share desired information with customers and stakeholders and provide feedback to Department related to performance and management of assets

## SCOPE

The asset management program will be responsive to the regulatory environment in which MDOT operates. This includes requirements established in federal and state legislation as well as requirements established by Maryland's Department of Budget and Management and Department of General Services. It also includes specific contractual relationships the TBUs and MDTA have with stakeholders, such as MDTA's Trust Agreement.

Asset management will support other established MDOT programs including risk management, performance management, and capital planning. The asset management program will directly provide data and information for signature MDOT programs such as the Accelerator, the MTP, the AR and the CTP.



## ASSET MANAGEMENT SYSTEM GOVERNANCE

The asset management principles expressed in this policy require leadership and coordination across the Department. Each TBU and MDTA will have an asset management coordinator responsible for the implementation of this policy within the TBU and MDTA. Additionally, this policy establishes two functional groups.

### **Asset management Senior Steering Committee**

Comprises of a cross-functional group consisting of senior leaders from throughout the Department. The Committee will provide leadership and strategic direction for the Department's asset management program.

### **Asset management Working Group**

Comprises asset management coordinators, planners, engineers, operational staff, and asset owners representing each TBU and MDTA. The Working Group will coordinate asset management activities across the TBUs and MDTA, develop implementation plans, policies, procedures, and make recommendations to the Steering Committee. This working group will have sub groups for each of the seven critical assets to provide more specific direction and coordination across the asset class owners.

# MDOT asset management goals and objectives

MDOT formed the Asset Management Working Group to develop both a Department Asset Management Policy and five goals to help focus MDOT's Asset Management Program over the next several years. The five asset management goals identified in this process will build from one another and will progress over time:



## Define and record the assets we own

Conduct asset inventory for all major assets annually (or more frequently)

Establish guidelines for how to estimate the replacement value of assets



## Determine the condition of our assets

Conduct condition assessments and develop a program for ongoing condition assessments that recognizes similarities and differences across TBU and MDTA asset types

Track maintenance activities and major modifications conducted on assets



## Establish a plan for maintaining a State of Good Repair (SGR)

Determine the criticality of each asset with an initial focus on highly critical/high risk assets

Document and maintain a plan to establish SGR needs



## Commit to asset management practices

Develop knowledgeable in-house asset management (AM) staff

Establish AM principles that filter from the top to the bottom of the Department

Utilize Excellerator program to embed continuous improvement practices



## Develop framework and guidance for asset management software

Define minimum data standards for assets (purchase, install date, basic descriptions, etc.)

Identify where software integration is underway and/or makes sense

Develop an asset management system map to show who is using what software and how it is being used

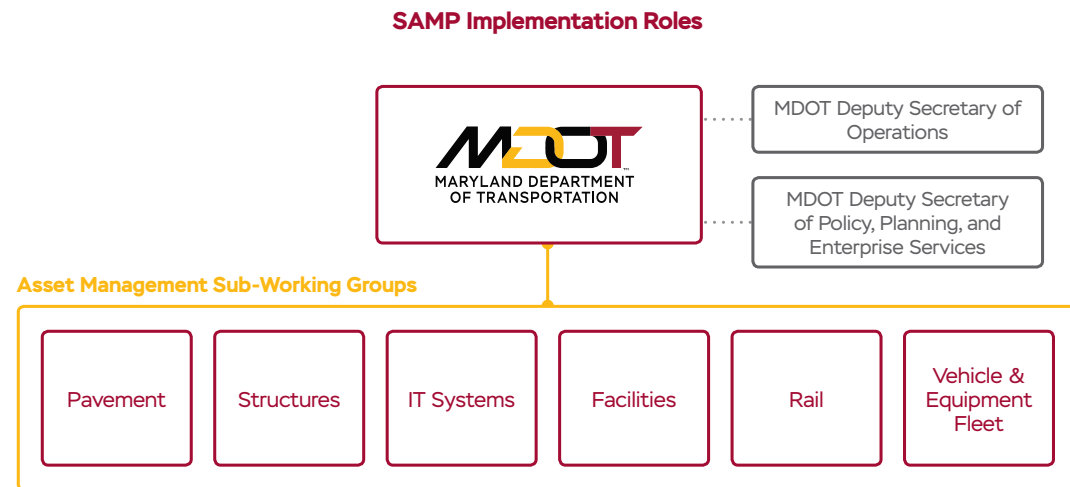
Identify a Business Intelligence (BI) tool that would aggregate asset data warehouse

# SAMP implementation and monitoring

To implement the asset management program, the Department has prioritized objectives and strategies. Short-term is defined as less than one year, medium-term is one to three years and long-term is three to five years.

To accomplish these strategies MDOT has enacted a governance structure to maintain and embed asset management culture into the decision making and operations of the Department. The Department has designated staff and support services help in developing and implementing the SAMP strategies. Financial resources have been dedicated and budgeted through the next several years to achieve these goals.

The SAMP will be implemented by the Department's Office of Planning and Capital Programming (OPCP) with the joint Executive Leadership of MDOT's Deputy Secretary of Operations and Deputy Secretary of Policy, Planning and Enterprise Services. Through the Asset Management Sub-Working Groups for each asset class, the TBUs and MDTA will play a very active role in the development and implementation of processes and procedures to achieve the SAMP strategies. OPCS will provide the support and resources to the TBUs and MDTA to implement the practices.





### Define and record the assets we own



### Determine the condition of our assets



### Develop a plan for maintaining SGR

#### SHORT-TERM

- Establish minimum data standards for each asset class (i.e. decide what level of data needs to be collected for each asset)
- Develop baseline inventories

- Establish protocols for measuring condition — in some cases dictated by regulators, in some cases established internally
- Define what is assessed and at what frequency so that there is a consistent approach for similar assets

- Develop guidelines on criticality for conducting risk assessments

#### MEDIUM-TERM

- Develop processes for adding or removing assets from the inventories so that constant updates occur — ideally it would be integrated with work order system.
- Differentiate between high value and lower value assets to focus on high value assets first.

- Identify resources and expertise required to execute condition assessments for all major asset classes
- Identify in-house resources available for the assessments, as well as potential consultant needs (explaining why not all needs can be met by in-house staff and/or what impacts that would have on other agency functions)

#### LONG-TERM

- Execute condition assessments

- Evaluate assets' risk of failure
- Evaluate assets' risk to the Department in carrying out the mission
- Identify needs using available data and additional predictive modeling tools
- Implement a risk-based approach that prioritizes funding needs to maintain SGR
- Track progress and update/maintain the plan



### Commit to asset management practices

- Develop communication plans identifying stakeholders' and employees' roles for implementing AM practice
- Document asset management structure within each TBU and MDTA
- Utilize Steering Committee to develop and communicate principles
- Identify communication process between TBUs and MDTA for experiences and best practices

- Provide in-house coordinators for each TBU and MDTA and establish a forum for their coordination
- Provide a mechanism to periodically assess employee knowledge or AM principles
- Establish, evaluate, and/or update AM processes (or standard operating procedures when necessary)



### Develop a framework and/or guidance for asset management software

- Define minimum data standards for assets
- Identify where software integration is underway and/or makes sense

**SHORT-TERM**

**MEDIUM-TERM**

**LONG-TERM**

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