The 22nd Annual Maryland Concrete Conference

March 22, 2022

MDOT SHA
Asset Management (AM) Program

Subrat Mahapatra, Director

MDOT SHA Asset Management Office (AMO)

MDOT SHA Asset Portfolio

- 75 Asset Types under 15 Asset Classes
- $39 Billion in Replacement Value
- About $600 M for Annual State of Good Repair Activities

14 Critical Asset Classes

TRAFFIC CONTROL DEVICES (SIGNALS)

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)
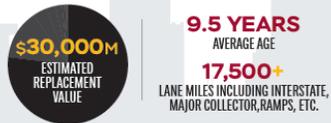
PAVEMENT MARKINGS

LIGHTING

BIKE AND PEDESTRIAN

TRAFFIC BARRIERS

*Additional asset classes include in the STATE OF GOOD REPAIR (SGR) FUNDING NEED & FORECASTED FUNDING GAP in Section 9, Capital Renewal Plan

State of the Infrastructure Snapshot

Asset Classes →

PAVEMENT MILES
$30,000M ESTIMATED REPLACEMENT VALUE
9.5 YEARS AVERAGE AGE
17,500+ LANE MILES INCLUDING INTERSTATE, MAJOR COLLECTOR, RAMPS, ETC.

BRIDGE STRUCTURES
$5,190M ESTIMATED REPLACEMENT VALUE
15 YEARS AVERAGE AGE
2,550+ INCLUDING BRIDGES, SMALL STRUCTURES, ETC.

DRAINAGE
$1,500M ESTIMATED REPLACEMENT VALUE
15 YEARS AVERAGE AGE
205,000+ INCLUDING DITCHES, PIPES, DAMS, SWM FACILITIES, ETC.

FACILITIES
$962M ESTIMATED REPLACEMENT VALUE
35 YEARS AVERAGE AGE
730+ INCLUDING DISTRICT OFFICES, MAINTENANCE FACILITIES, REST AREAS, ETC.

NOISE BARRIERS
$725M ESTIMATED REPLACEMENT VALUE
19 YEARS AVERAGE AGE
270+ INCLUDING CONCRETE, TIMBER, GROUND MOUNTED, ETC.

SIGN STRUCTURES
$287M ESTIMATED REPLACEMENT VALUE
28 YEARS AVERAGE AGE
2,400+ INCLUDING CANTILEVER, OVERHEAD, BRIDGE MOUNTED, ETC.

FLEET
$239M ESTIMATED REPLACEMENT VALUE
6 YEARS AVERAGE AGE
2,400+ INCLUDING PASSENGER, HEAVY TRUCKS, CONSTRUCTION, ETC.

IT SYSTEMS
$31M ESTIMATED REPLACEMENT VALUE
13 YEARS AVERAGE AGE
30+ INCLUDING FINANCE, OPERATIONS, CUSTOMER SYSTEMS, ETC.

Estimated replacement values are based on the latest inventory and condition data available in 2020 and will be refined as additional information is available.
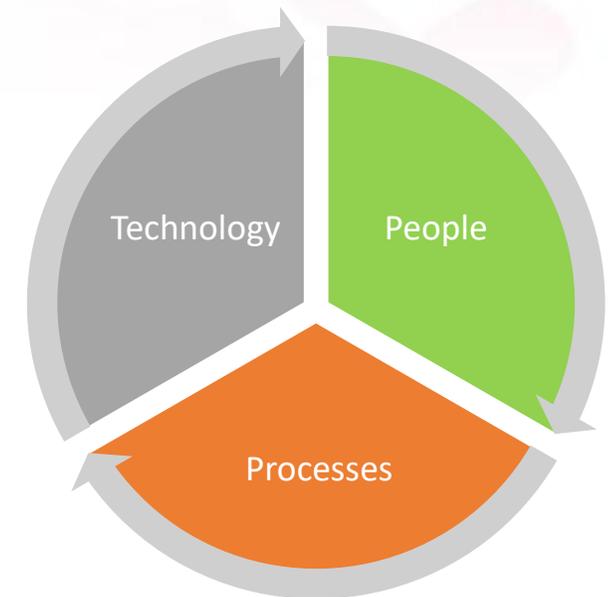
https://www.roads.maryland.gov/OPPEN/MDOT_SHA_Asset_Management_2021.pdf

MDOT
MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

ASSET MANAGEMENT

Our MDOT SHA Asset Management Program

> *"Asset management is a **long-term commitment**. Our team is focused on embracing **proactive strategies** that deploy **data-driven decisions**, apply **life-cycle cost analysis** and deliver **prioritized investments** to **cost-effectively** meet our **service-level goals.**"*
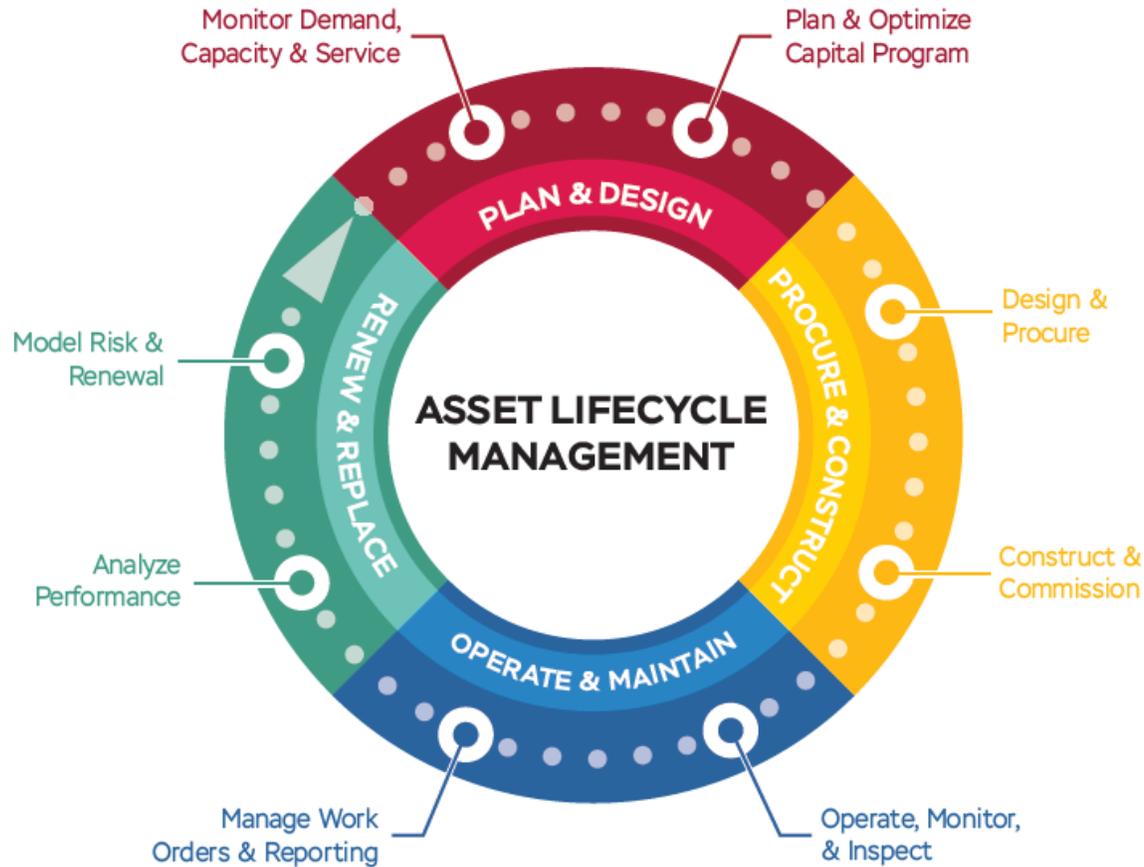>
> *- Tim Smith*
> *MDOT SHA Administrator*

Establishing the AM Plan (Strategic Business Plan)

- Vision, Purpose, Goals, Objectives, Strategies and Action Items

- Organization Structure with AM Office, AM Council, Working Groups/ Task Forces

- Leadership Buy-in and collaboration with Districts and Offices

- Partner and Stakeholder Collaboration

Technology | People | Processes

ASSET MANAGEMENT

Asset Life-Cycle Management & Performance

Goals

- Maximize Budget Usage
- Optimize Asset Life Cycles
- Meet Regulatory Standards
- Improve System Performance

$ = Preventive Maintenance
$$ = Minor Rehabilitation
$$$ = Major Rehabilitation
$$$$ = Full Replacement

MDOT AM, MDOT SHA Northbound and Federal TAMP

Strategic Asset Management Plan

DRAFT NOVEMBER 2018

- ▶ MDOT Asset Management Policy
- ▶ AM Steering Committee, AM Working Groups with all TBUs
- ▶ Conditions, Criticality and Risks
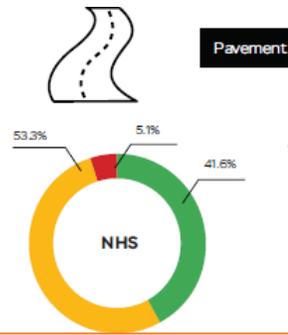- ▶ Funded and Unfunded SGR needs 7 Critical Asset Classes

Northbound
MDOT MARYLAND DEPARTMENT OF TRANSPORTATION
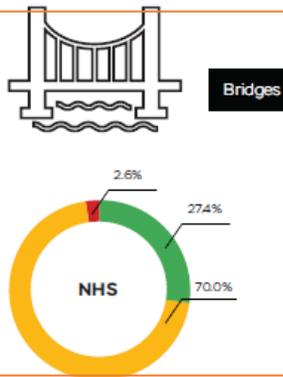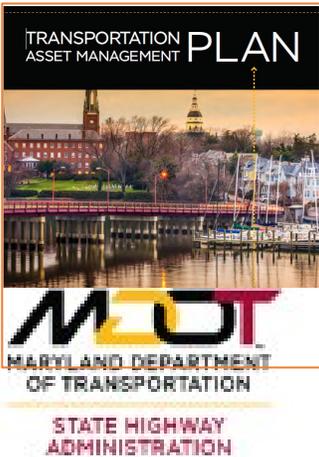STATE HIGHWAY ADMINISTRATION
STRATEGIC PLAN
2020-2025

formalize OPERATIONAL INFRASTRUCTURE ASSET MANAGEMENT

fill CAPITAL SHELF with SYSTEM PACKAGES

DEVELOP PLAN for optimizing FUNDING STABILITY and FLEXIBILITY

ADVANCE HIGHWAY MAINTENANCE 2.0

TRANSPORTATION ASSET MANAGEMENT PLAN

MDOT MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

Bridges

Pavement

2.6%
27.4%
70.0%
NHS

53.3%
5.1%
41.6%
NHS

- ▶ MAP-21/ FAST Act TAMP Requirement for NHS
- ▶ NHS Inventory, Conditions
- ▶ Performance, Life-Cycle Planning and Risk Management
- ▶ Financial Plans and Investment Strategies

ASSET MANAGEMENT

MDOT SHA AM Program - Products & Services

Asset Service Warehouse (ASW)

Providing current & complete asset inventory

Improve easy access to information to support Planning, Design, O&M, Funding decisions

Provide asset lifecycle details on assets performance from installation to decommissioning

Enterprise Asset Management Systems (EAMS)

▶ Technology to support structured asset management process

▶ Core Functionality

Service | Work | Materials | Inspections | Dashboards | Mobile
Requests   Orders   Equipment