

2040 Maryland

TRANSPORTATION PLAN

**Connecting You to
Life's Opportunities**


DRAFT
September 2018

MEDOT
MARYLAND DEPARTMENT
OF TRANSPORTATION

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Introduction

The 2040 Maryland Transportation Plan (MTP) sets a long-range course for investing in the State's transportation system that will help ensure Maryland remains a great place to live, work and do business.

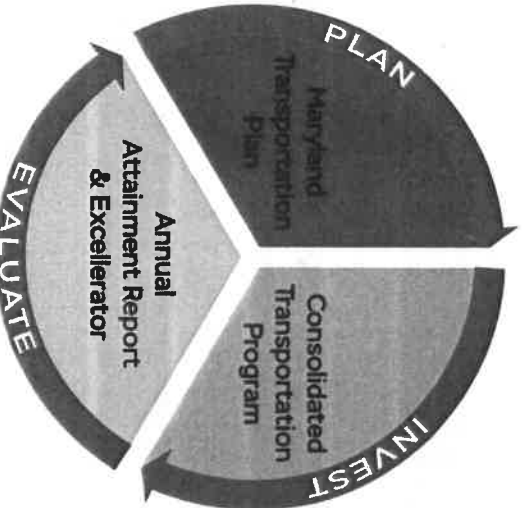
The MTP examines the State's most critical transportation needs and challenges and provides a framework of statewide goals, objectives and strategies for meeting them. The Maryland Department of Transportation (MDOT) updates the MTP every five years. It is performance-based, which means it uses measures to help gauge progress toward the goals and objectives. These measures are developed in tandem with the MTP as part of MDOT's annual Attainment Report (AR). The MTP's 20-year vision informs Maryland's six-year Consolidated Transportation Program (CTP), which programs funding for individual transportation investments.



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.”

MDOT assesses its performance in meeting its goals and customer needs through the annual AR and the quarterly MDOT Excelsior performance management system and participates in the State's annual Managing for Results (MFR) budget process which is designed to ensure measurable results, accountability, efficiency, and continuous improvement for all State programs.



MDOT EXCELLERATOR TANGIBLE RESULTS:

1. Provide exceptional customer service
2. Use resources wisely
3. Provide safe and secure transportation infrastructure
4. Deliver transportation solutions and services of great value
5. Provide an efficient, well-connected transportation experience
6. Communicate effectively with our customers
7. Be fair and reasonable to our partners
8. Be a good neighbor
9. Be a good steward to our environment
10. Facilitate economic opportunity in Maryland

MTP GOALS

The 2040 MTP sets a long term foundation for MDOT's performance management and project programming and activities over the next five years.

Ensure Environmental Protection and Sensitivity

Provide Better Transportation Choices and Connections

Ensure a Safe, Secure, and Resilient Transportation System

A+
Maintain a High Standard and Modernize Maryland's Multimodal Transportation System

Facilitate Economic Opportunity and Reduce Congestion in Maryland through Strategic System Expansion

Promote Fiscal Responsibility

Improve the Quality and Efficiency of the Transportation System to enhance the customer experience



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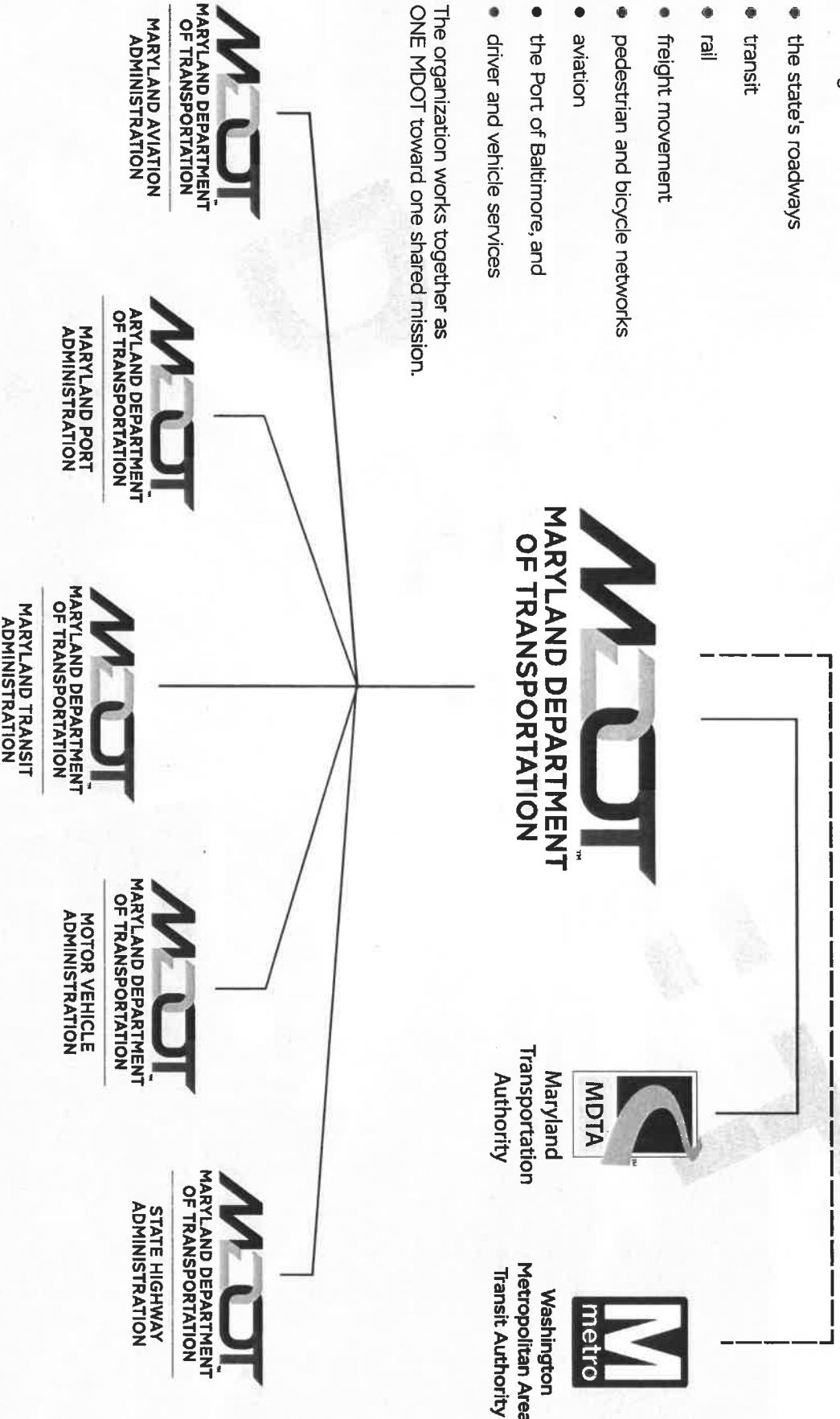
What is MDOT?

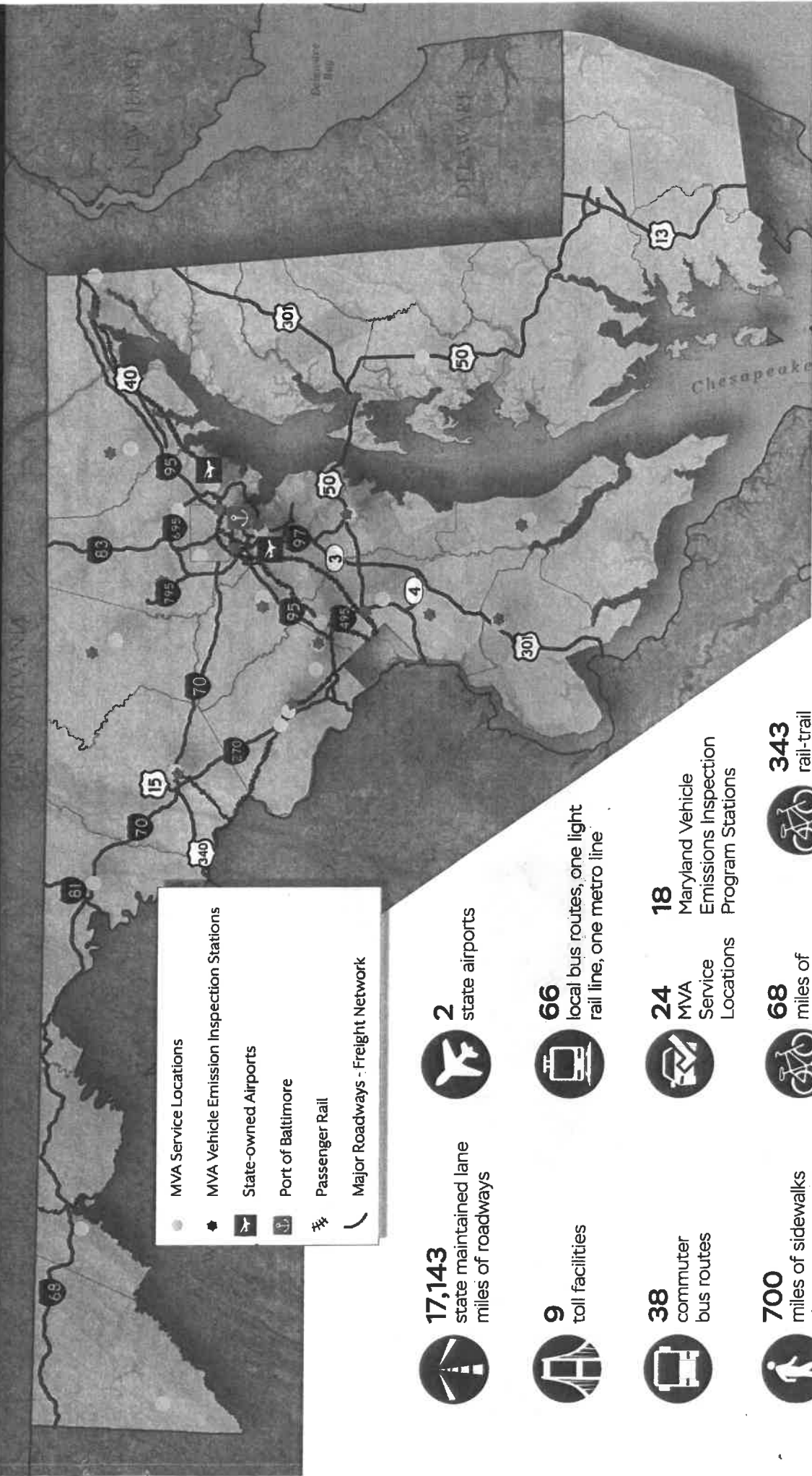
The Maryland Department of Transportation (MDOT) has six multimodal Transportation Business Units (TBUs). MDOT's Secretary is the Chairperson of the Maryland Transportation Authority (MDTA), and MDOT financially supports the Washington Metropolitan Area Transit Authority (WMATA).


MDOT is responsible for statewide transportation planning across all modes including:














- the state's roadways
- transit
- rail
- freight movement
- pedestrian and bicycle networks
- aviation
- the Port of Baltimore, and
- driver and vehicle services

The organization works together as ONE MDOT toward one shared mission.





-  MVA Service Locations
-  MVA Vehicle Emission Inspection Stations
-  State-owned Airports
-  Port of Baltimore
-  Passenger Rail
-  Major Roadways - Freight Network

	17,143 state maintained lane miles of roadways		2 state airports
	9 toll facilities		66 local bus routes, one light rail line, one metro line
	38 commuter bus routes		24 MVA Service Locations
	700 miles of sidewalks along state roadways		68 miles of shared-use paths
	171 miles of short line freight rail and Maryland Area Regional Commuter (MARC) commuter rail service		7 State-owned public cargo terminals
			343 rail-trail miles
			1 international cruise terminal at the Port of Baltimore
			18 Maryland Vehicle Emissions Inspection Program Stations

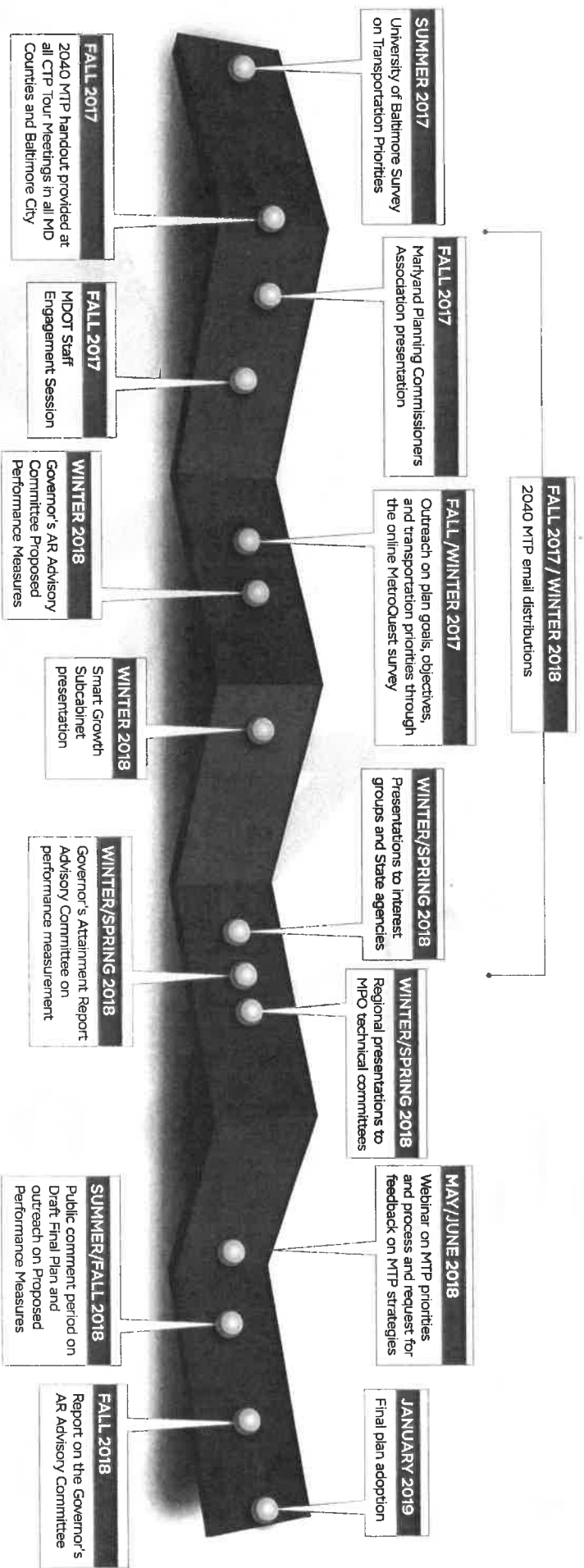
MDOT also supports 33 public use airports in the State through federal grant programs, provides technical assistance for transit systems in 23 counties, and is a funding partner of the regional Washington Metropolitan Area Transit Authority (WMATA).

Engagement Process

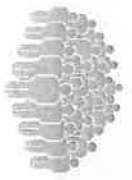
MDOT conducted extensive engagement both internally throughout MDOT and externally with its local, state, and regional planning partners and the wider public. Throughout the MTP development process, MDOT discussed key

milestones with the MDOT Planning Council, which is comprised of planning directors from each of the TBUs. MDOT also coordinated with partners and the public via a project website (www.mdot.maryland.gov/mntp), email

updates, social media posts, a project web video, an online survey, a phone survey, and presentations to groups throughout Maryland. The timeline below illustrates the engagement process for the 2040 MTP.



Online survey in English and Spanish live for one and a half months



5,927 online survey participants



4,341 comments



Participants from all five regions of the State



66 MDOT employees from all 6 TBUs and MDOT The Secretary's Office participated in one full day Engagement Session

The top three priorities identified in the online survey are:

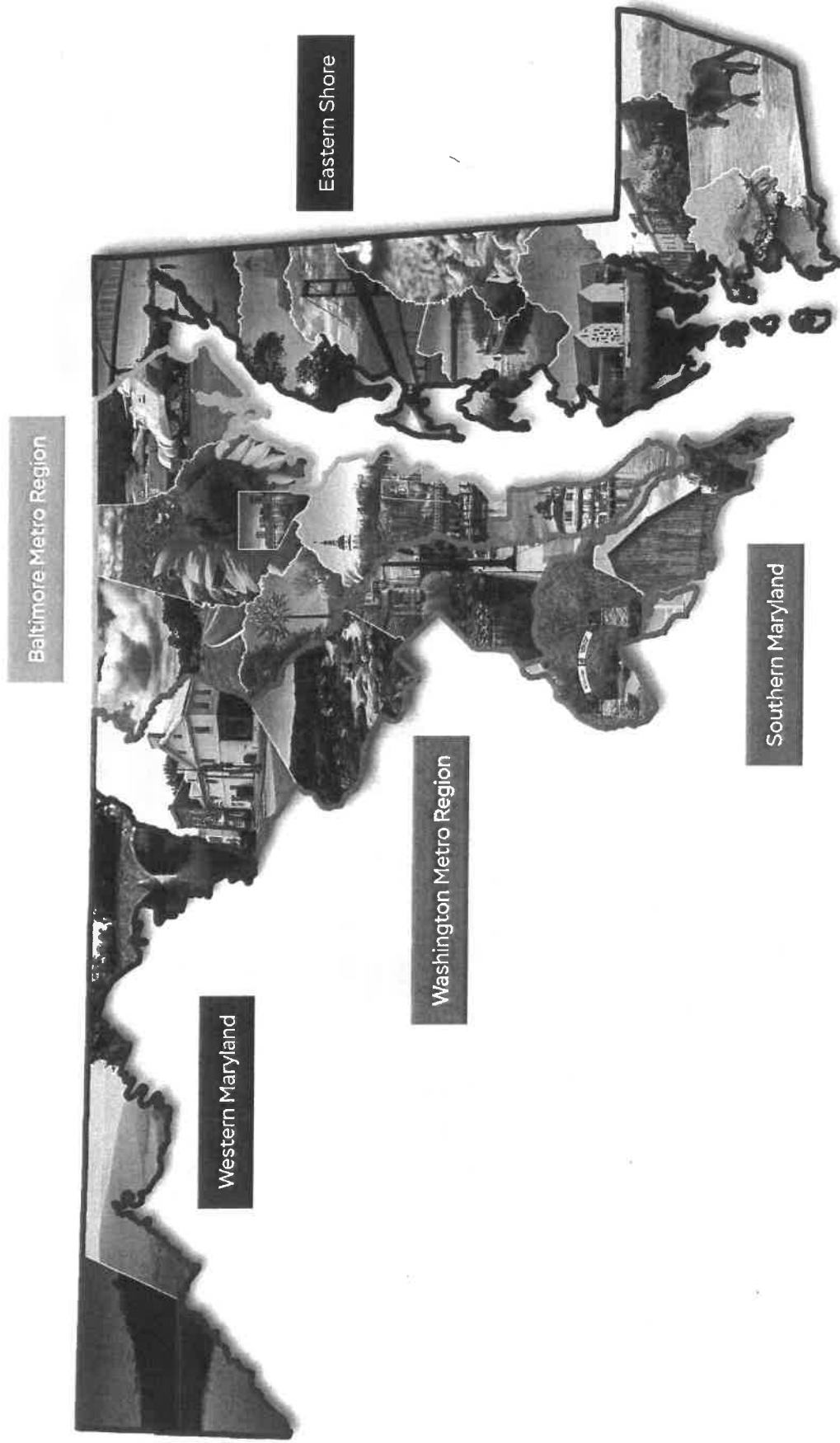
A+ Travel reliability

B System maintenance

C Safety and security

Maryland's Five Regions

Though Maryland is the ninth smallest state, it contains a remarkable degree of geographic diversity. Reflecting that diversity, Maryland is divided into five regions - Eastern Shore, the Baltimore Metro Region, the Washington Metro Region, Southern Maryland, and Western Maryland. Each of the regions has its own character, distinct needs, and associated transportation system.

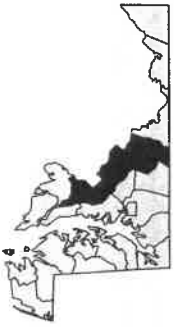




WESTERN MARYLAND

- Mostly rural
- Characterized by forested mountain ridges, some agriculture, small towns, and the cities of Hagerstown and Cumberland
- State's least populous region
- Eastern portion of Western Maryland faces development pressures as people search for newer development at lower cost, but still within commuting distances of Washington, D.C.

● Population:
252,000 (2016)
297,000 (2040) ▲18%



WASHINGTON METRO REGION

- Suburban counties outside Washington, D.C.
- Primarily suburban with newer dense urban nodes and transitions into medium-to-low density suburban areas

- City of Frederick has a moderately dense historic town center
 - Rapid suburban growth along the I-270 corridor, especially in southern Frederick County
- Population:
2.2 million (2016)
2.5 million (2040) ▲14%



BALTIMORE METRO REGION

- Baltimore City and its surrounding counties, includes Annapolis, the State capital
- Land use is varied with dense historic urban cores in Baltimore and Annapolis

- Transitions into medium-to-low density suburban areas
 - Becomes progressively more rural as one moves towards the periphery of the region
- Population
2.7 million (2016)
3 million (2040) ▲9%



SOUTHERN MARYLAND

- In terms of percent growth, projected to be the fastest growing region in Maryland
- Rapid, low-density suburbanization is a key land use feature

- Growth attributable to expansion of employment opportunities within the region and influx of people who work in the Washington, D.C. region
- Population:
361,000 (2016)
474,000 (2040) ▲31%



EASTERN SHORE

- Relatively flat and predominately rural
- Thriving agriculture industry including large poultry farms
- City of Salisbury is a center of agriculture industry

- Tourism is also important on the Eastern Shore; especially for the beach town of Ocean City
- Population:
454,000 (2016)
562,000 (2040) ▲24%

Trends and Considerations

Demand for travel is directly tied to population, employment, density, and demographics. Population and employment growth adds daily trips that the transportation system needs to accommodate. Where people live, how they travel to work, and their stage of life, all influence travel demand in Maryland.

PORT OF BALTIMORE
FOREIGN CARGO TONNAGE
31.8M ∇ 3.0%
2016 CY (2010-2016)

MVA TRANSACTIONS
11.1M \blacktriangle 0.8%
2016 FY (2010-2016)

LICENSED DRIVERS
4.3M \blacktriangle 4.8%
2016 FY (2010-2016)

REGISTERED VEHICLES
5.1M \blacktriangle 4.9%
2016 FY (2010-2016)

EMPLOYMENT
3.6M \blacktriangle 6.2%
2015 CY (2010-2015)

POPULATION
6.0M \blacktriangle 4.4%
2016 CY (2010-2016)

AIR CARRIER EMPLOYMENTS
25.1M \blacktriangle 14.6%
2016 CY (2010-2016)

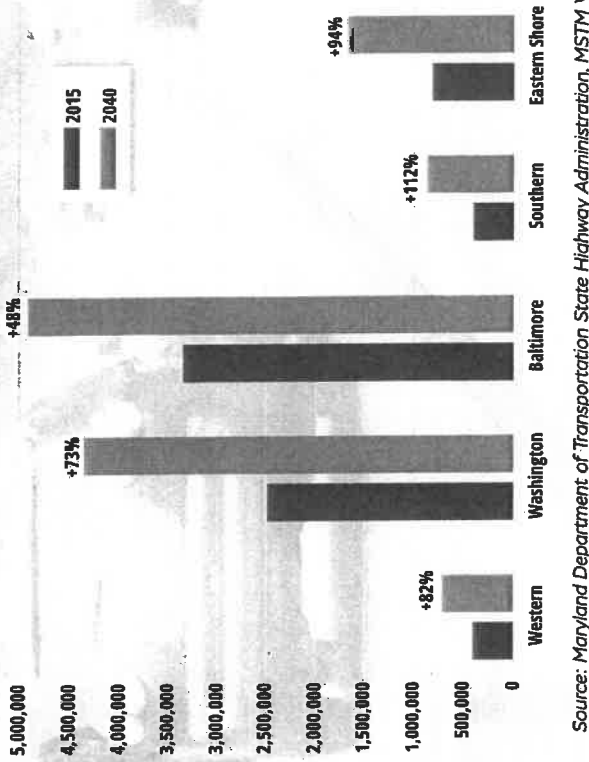
ANNUAL TRANSIT RIDERSHIP
260.8M ∇ 8.6%
2016 FY (2010-2016)

ANNUAL VMT PER CAPITA
9,802 \blacktriangle 0.9%
2016 FY (2010-2016)

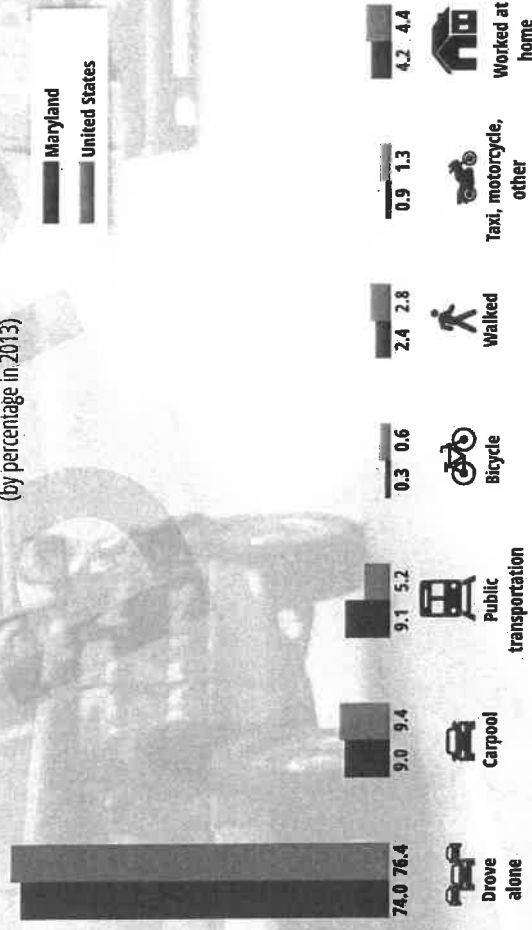
ANNUAL VEHICLE MILES TRAVELED (VMT)
58.9B \blacktriangle 4.9%
2016 CY (2010-2016)

ELECTRIC VEHICLE REGISTRATIONS
6,788 \blacktriangle 1014.6%
2016 CY (2012-2016)

Vehicle Hours of Travel (by Region)



How Marylanders Get to Work (by percentage in 2013)



Source: State Transportation Statistics, 2015, prepared by the US Department of Transportation Bureau of Transportation Statistics

Source: Maryland Department of Transportation State Highway Administration, MSTM V1.1

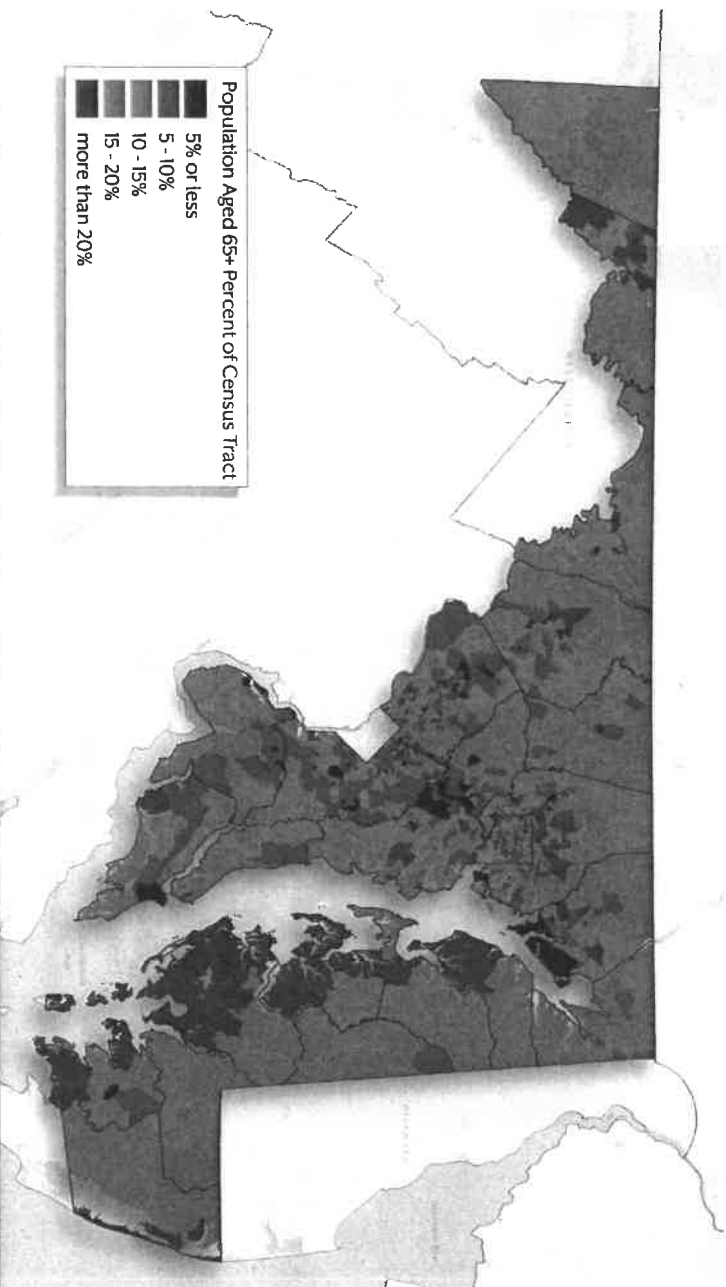
MARYLAND POPULATION DENSITY BY CENSUS TRACT, 2015

- Population is concentrated in central Maryland along the I-95 corridor and along radial lines extending out from Washington, D.C.
- More than 82 percent of the State's population live in the Baltimore and Washington Regions



MARYLAND POPULATION AGED 65+, 2010

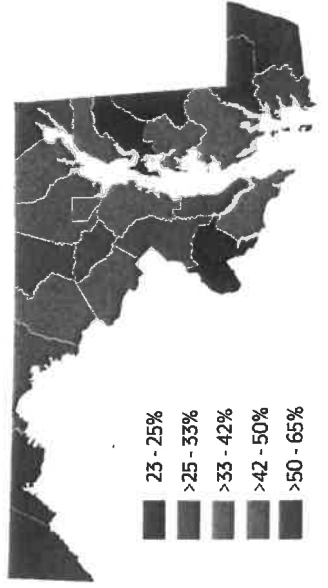
- Maryland's population is getting older
- 65+ population grew by 24% between 2010 and 2016
- Rural areas have higher concentrations of older residents



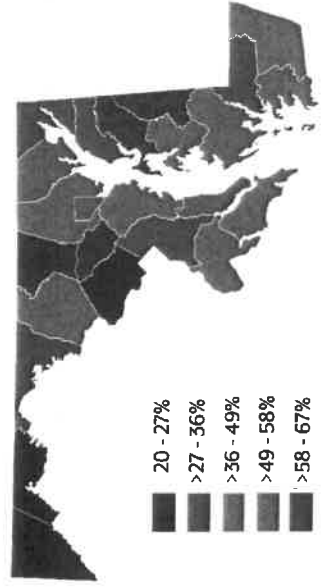
Average Commuting Times and Destinations by County



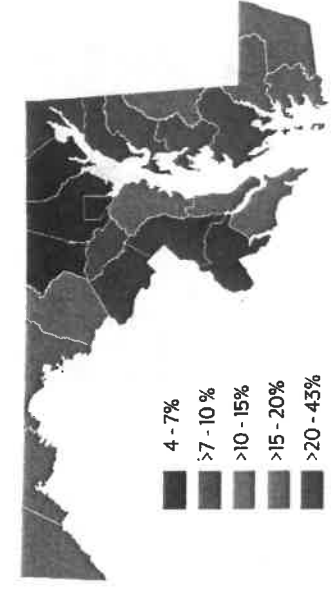
PERCENT COMMUTING WITHIN COUNTY



PERCENT COMMUTING TO ANOTHER COUNTY

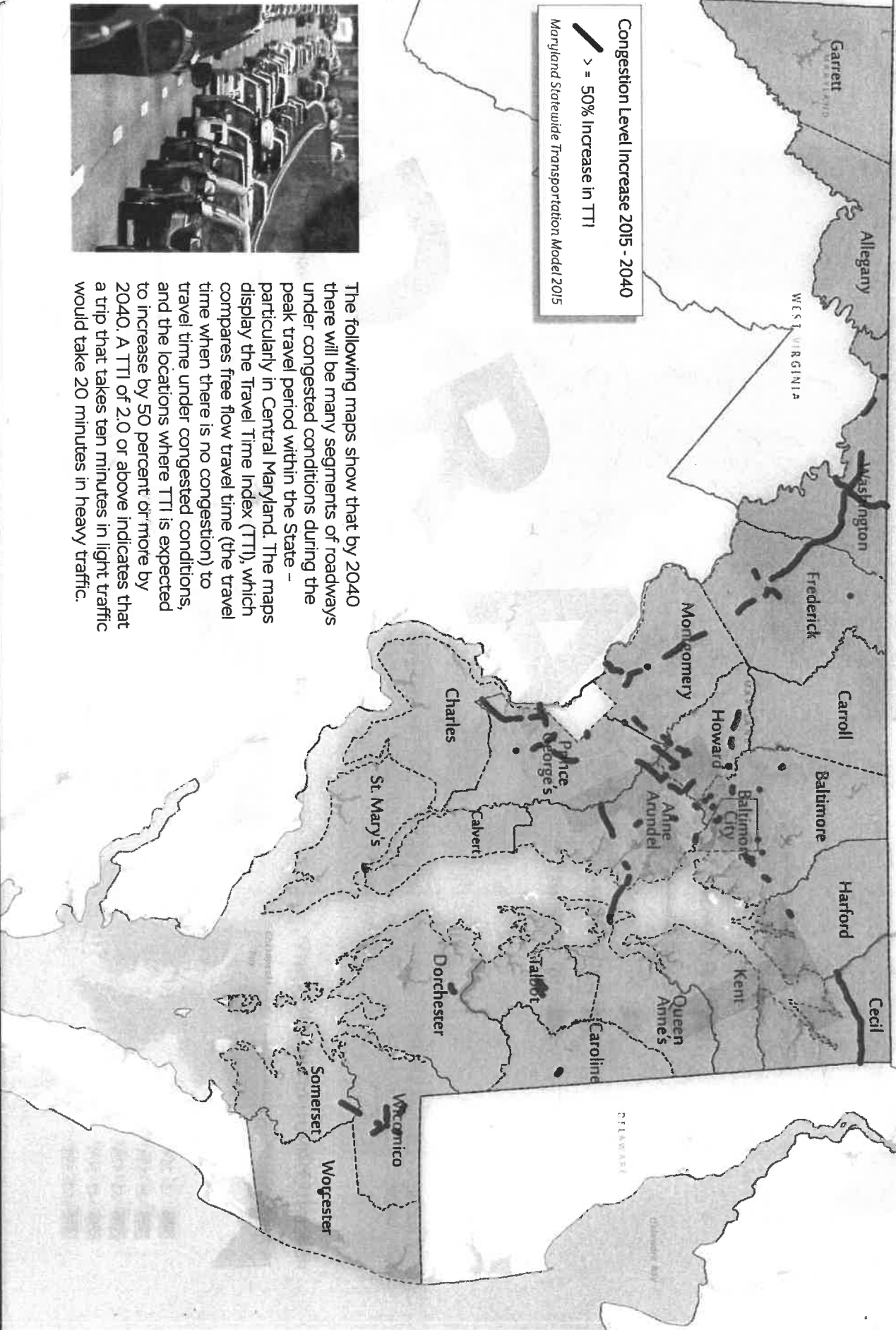


PERCENT COMMUTING OUT OF MARYLAND

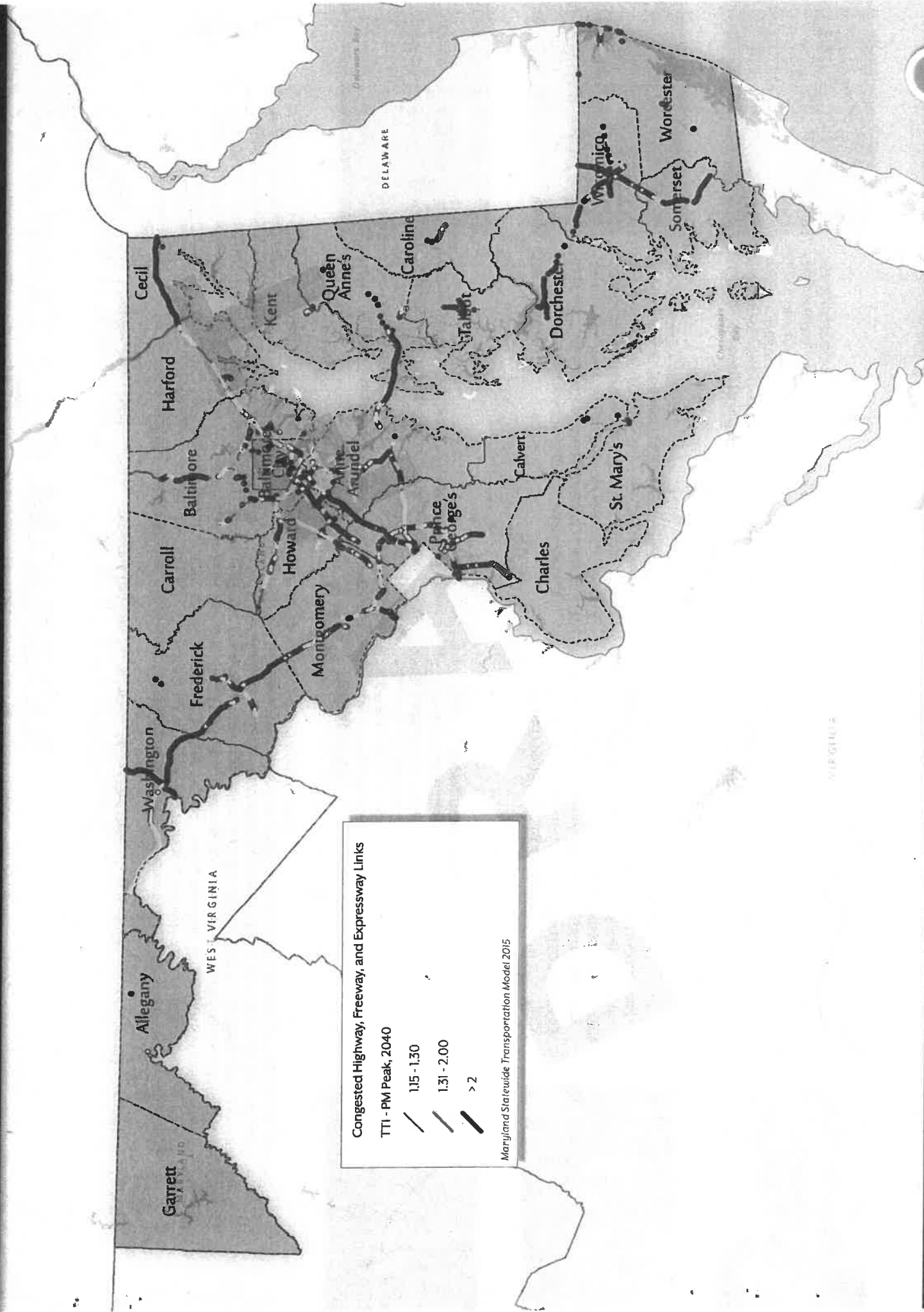




Congestion Level Increase 2015 - 2040
 / > = 50% Increase in TTI
 Maryland Statewide Transportation Model 2015



The following maps show that by 2040 there will be many segments of roadways under congested conditions during the peak travel period within the State - particularly in Central Maryland. The maps display the Travel Time Index (TTI), which compares free flow travel time (the travel time when there is no congestion) to travel time under congested conditions, and the locations where TTI is expected to increase by 50 percent or more by 2040. A TTI of 2.0 or above indicates that a trip that takes ten minutes in light traffic would take 20 minutes in heavy traffic.



Congested Highway, Freeway, and Expressway Links

TTI - PM Peak, 2040

- 1.15 - 1.30
- 1.31 - 2.00
- > 2

Maryland Statewide Transportation Model 2015

Maryland's Transportation Challenges and Opportunities

Maryland's extensive, multimodal transportation network faces a number of challenges. Some are inherent to the network itself – continuing to ensure the safe and efficient movement of people and goods – while others are related to changing transportation needs associated with technological, societal, demographic, land use, climate, and other environmental changes. An increasing number of residents and employers in the State will generate additional revenue, but they will also demand services, including transportation services, which could require increased spending. The impact of transportation-related technological changes such as connected and automated vehicles (CAV), electric vehicles, and the shared mobility economy is unknown. Under some scenarios they provided profound benefits. In others, they generate lasting damage. As Maryland sets its transportation agenda for the next 20 years, MDT will monitor and evaluate the challenges and develop programs and projects that address these critical challenges and ensure Maryland remains a great place to live, work, and do business.



SAFETY

Maryland's ultimate safety goal is to work Toward Zero Deaths in the long term. Creating a resilient transportation network and preparing for changing conditions, whether environmental or man-made threats is another important safety challenge.



CONGESTION

Much of Maryland's transportation system often operates at or over capacity. Projected job and population growth, particularly in Maryland's Baltimore and Washington regions will add demand on heavily used elements of its transportation system, creating more congestion in the future.



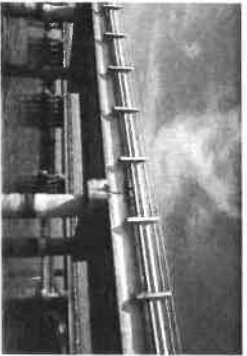
SECURITY

Security of the transportation system has been an important aspect of transportation planning for state DOTs. The introduction of new technologies increases the importance of cybersecurity. The convenience of digital motor vehicle transactions also increases the risk of exposing customer data to cyber-security attacks.



SHARED MOBILITY ECONOMY

Vehicle ownership and transit ridership trends in response to new mobility service providers like Zip Car, Uber, Lyft or city-wide bike share systems, which connect vehicles and riders, can provide cheaper and more immediate service, but the ultimate outcomes are hard to predict.



AGING INFRASTRUCTURE

Maintaining and modernizing Maryland's road and bridge infrastructure requires continuous and significant investment in an asset management program that forms the core of MDT's transportation strategy.



E-COMMERCE

Continued expansion of goods and services purchased through the Internet at the expense of 'brick and mortar' locations may alter the number, type and timing of vehicles on the road and length of trips they make. Fewer individual shopping trips may be offset more delivery truck trips.



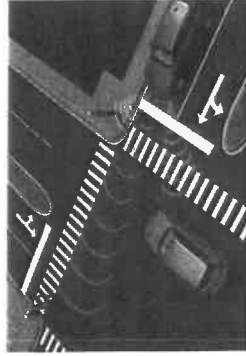
ELECTRIC VEHICLES

Depending on the pace of advances in battery technology, refueling access, electric grid capacity, and oil prices in the future, electric vehicles promise lower transportation costs and a cleaner environment in Maryland, however rapid adoption of electric vehicles will hurt gas tax revenue that pays for most infrastructure.



MILLENNIAL GENERATION

Millennials show a preference for spending their wealth on experiences like entertainment, restaurants, or travel rather than material goods, which has the potential to redistribute non-work trips by time of day and destination; whether this will increase or decrease congestion remains to be seen.



CONNECTED AND AUTOMATED VEHICLES (CAV)

As Connected and Automated Vehicles (CAV) achieve significant fleet penetration, as is widely predicted over the next several decades, crashes caused by driver error may decline while computer-controlled vehicles operating safely at high speed could add capacity to existing highways. Infrastructure investments will be needed to fully realize the benefits of CAVs. On the other hand, the convenience of CAV travel may encourage more VMT and more dispersed work and living locations and different transportation infrastructure needs.



AGING POPULATION

Maryland's population is getting older. The increase in older and non-working transportation users could change travel patterns and travel times and affect public transportation agencies, non-profit transportation providers, and/or private providers.



CLIMATE IMPACTS

Rising seas, more flooding, and hotter temperatures will stress infrastructure differently than today. This will require changes in design specifications to maintain system resiliency.



SUPPORT FOR DISTRESSED ECONOMIC REGIONS

Maryland's largest employment centers are in the Baltimore and Washington regions, but other parts of the State require transportation investments to ensure the continued growth of their economies. Striking a balance between congested and growing areas and slower growth areas in need of investment is an important policy challenge facing Maryland.



DEVELOPMENT PATTERNS

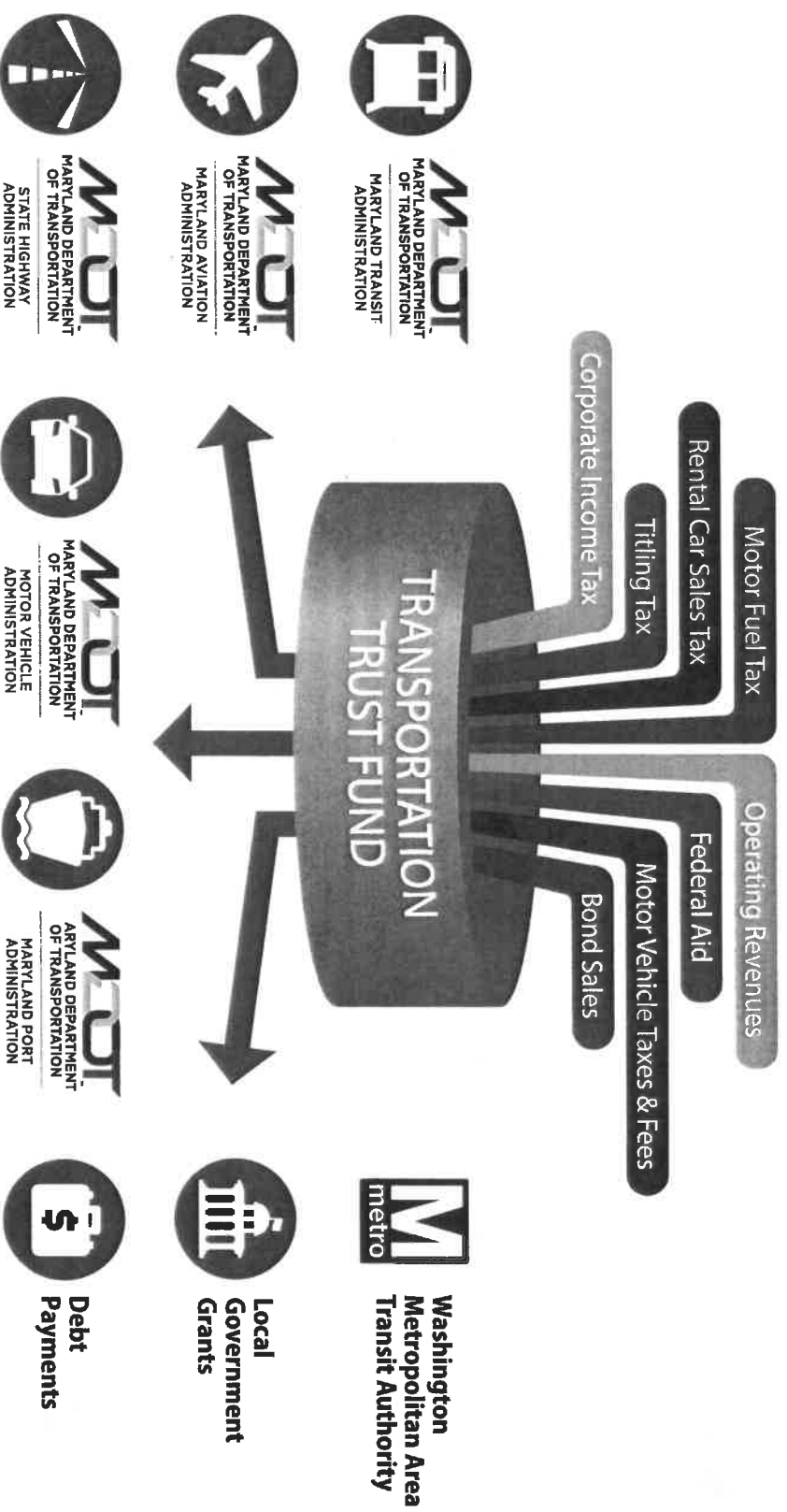
Decentralized growth, while a local choice in Maryland, often results in longer vehicle trips compared to dense development. It typically features few transportation options and it can pose extra costs to build and maintain state roads.

Transportation System Needs and Revenue

Maryland's transportation needs are comprised of the costs required to operate and maintain the current transportation system, and to expand services and infrastructure as needed. These costs include operation and maintenance (O&M) expenses, capital needs as

provided by MDOT's six TBUs, and Maryland's share of the Washington Metropolitan Area Transit Authority's (WMATA) system. O&M expenses include the costs of service for 104 million annual transit trips, maintenance of highways and bridges, dredging for the Port

of Baltimore, and operations for the BWI and MTN airports. Capital needs focus on existing assets and strategic expansion with the goal being to maintain and modernize.



This covers a range of transportation system needs from connecting Maryland with expanded transit options, to addressing congestion, to optimizing waterways for trade. MDOT's highest priority continues to be to operate, maintain, and preserve its existing transportation infrastructure in a state of good repair; doing so improves safety. MDOT ensures all necessary debt service and contractual obligations, O&M, and system preservation needs are addressed first before expanding the system.

Developing needs starts with evaluating and reporting on the performance of the transportation system, which MDOT does through the AR. Another key resource in the development of its needs is through various asset management plans developed by the TBUs which look to ensure its pavement and bridge, transit assets, and multimodal infrastructure meet the performance goals through asset management systems. Much focus is now also being placed on investments needed to address the emergence of new trends (e.g. ride-

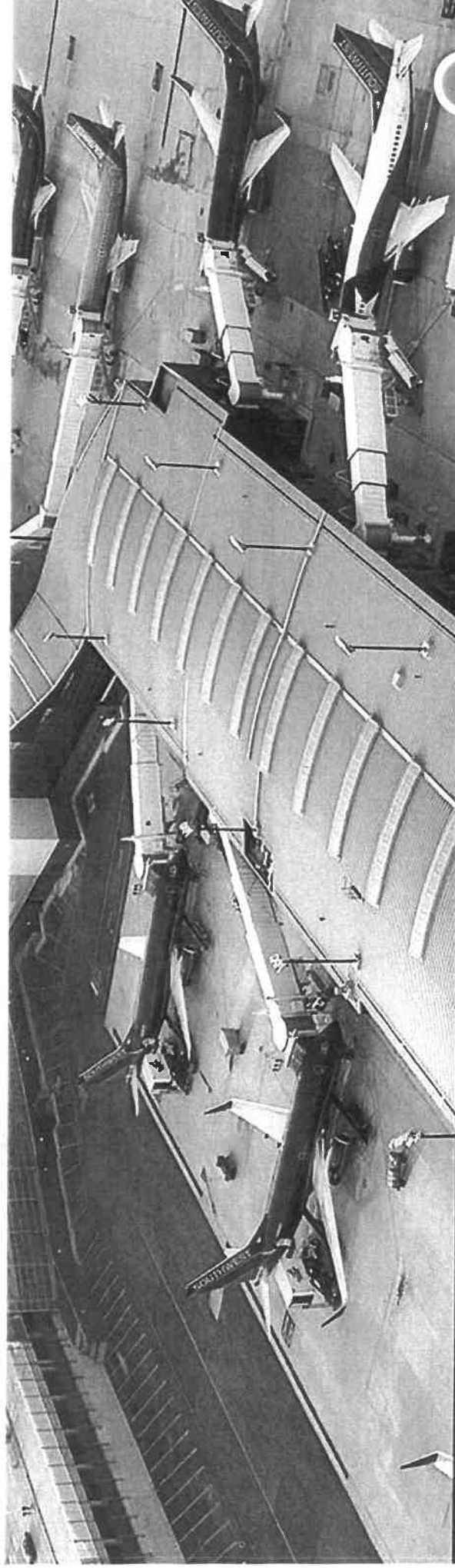
sharing) and technology (e.g. CAVs) that will likely impact the future of the State's transportation system.

Transportation needs in Maryland are primarily funded from an integrated account called the Transportation Trust Fund (TTF), the revenue sources of which are illustrated on the previous page. The Transportation Infrastructure Investment Act of 2013 (Transportation Act) substantially increased and advanced the TTF revenues. The changes included an increase in state motor fuel taxes; the indexing of principal revenue streams (e.g. motor fuel taxes and MDOT MTA passenger fares) to inflation; and restrictions on the transfer of funds from the Trust Fund to the State's General Fund.

Funds from the TTF are not necessarily earmarked for specific agencies or programs. This approach affords Maryland tremendous flexibility to meet the varying service and infrastructure needs to support its diverse transportation system. With the exception of MDTA, which is funded primarily through

tolls and concessions revenues, all activities of MDOT are supported by the TTF. This includes debt service, maintenance, operations, administration, and capital projects. Unexpended funds remaining in the TTF at the close of the fiscal year are carried over and do not revert to the State's General Fund. Disbursements for all MDOT programs and projects are made from the TTF.

Though the Transportation Act provided a boost to the TTF over the past 5 years, MDOT's transportation infrastructure needs to maintain and preserve the extensive system, strategically expand the system, and modernize the system is projected to exceed MDOT's ability to fund all needed improvements. This coupled with the conservative assumptions about availability of future federal funds, highlights the importance of other project funding options including partnerships. Partnerships with other state and local agencies, and increasingly private entities are critical to ensuring the available funding to implement projects and meet the State's transportation needs.



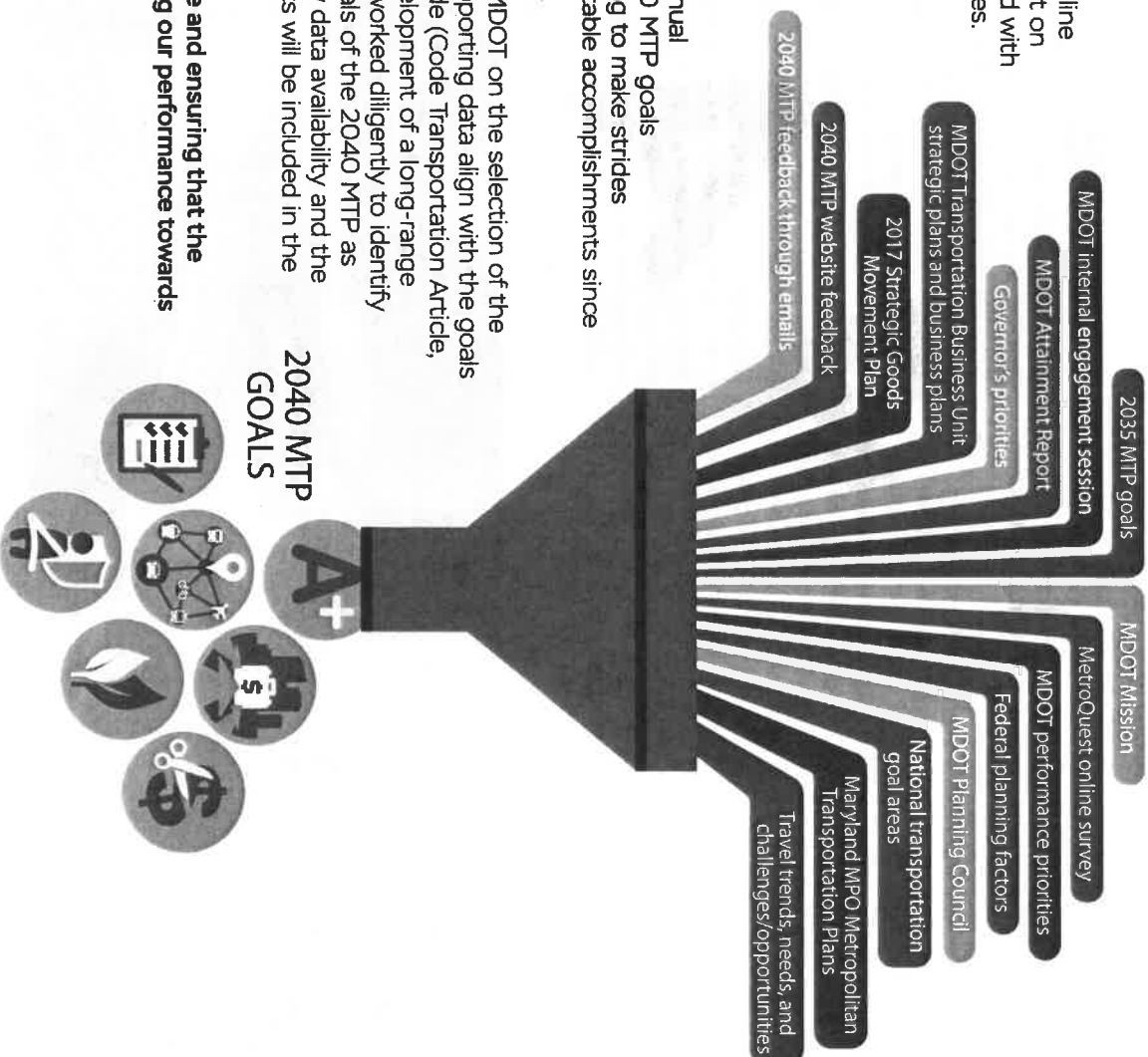
Goals, Objectives, and Performance Measures

MDOT conducted external surveys, including an interactive online survey for Maryland residents to learn about and provide input on their transportation priorities in Maryland. We also coordinated with staff internally to engage MDOT on key transportation priorities. All of these interactions, along with our mission statement and existing plans and programs have helped to shape the development of the 2040 MTP goals and objectives.

A goal is a broad statement with a desired result that reflects the overall MDOT mission statement. The objectives are more targeted outcomes within the goal area. Within the goals and objectives, associated performance measures are developed to evaluate how well MDOT annually achieves the 2040 MTP goals through the annual Attainment Report. This section outlines MDOT's seven 2040 MTP goals and the corresponding objectives for each. MDOT is continuing to make strides towards these goals—included here are some of the most notable accomplishments since the adoption of the 2035 MTP.

The Attainment Report Advisory Committee (ARAC) advises MDOT on the selection of the performance measures and how well these measures and supporting data align with the goals of the MTP. This committee is a requirement per Maryland code (Code Transportation Article, sec 2-103.1). MDOT convenes the ARAC with every new development of a long-range transportation plan. Concurrent to the 2040 MTP, the ARAC worked diligently to identify the currently calculated performance measures that best align with the goals of the 2040 MTP as well as incorporate new performance measures based on new data availability and the 2040 MTP priorities. These performance measures and targets will be included in the subsequent annual Attainment Reports.

We thank the ARAC members for their work on this Committee and ensuring that the performance measures best speak to our customers in showing our performance towards achieving these goals and objectives.





Ensure a Safe, Secure, and Resilient Transportation System

Enhance the safety and security of Maryland's multimodal transportation system and provide a transportation system that is resilient to natural or man-made hazards.

OBJECTIVES		
Reduce the number of lives lost and injuries sustained on Maryland's transportation system.	Provide for the secure movement of people, goods, and data.	Provide a resilient multimodal system by anticipating and planning for changing conditions, and hazards whether natural or man-made.
ANNUAL ATTAINMENT REPORT PERFORMANCE MEASURES		

Annual number of traffic fatalities and personal injuries on all roads in Maryland	MDOT-wide overall perception of safety: crime and safe movement	Qualitative discussion of current initiatives to improve resiliency and address climate change, including resiliency efforts and vulnerability assessments	Average Time to Restore Normal Operations after a Weather Event
Annual number of bicycle and pedestrian fatalities and injuries on all Maryland roads	Preventable accidents per 100,000 vehicle miles	Qualitative discussion of current initiatives to address data security	
Number of transit passenger fatalities and injuries			

IN THE LAST 5 YEARS:

- MDOT MAA completed a \$350 million Runway Safety Area, Pavement Management and Standards Compliance Program in 2016 which brought all the runways at BWI Marshall Airport in compliance with FAA Runway Safety Area Standards.
- MDOT SHA promoted the Transportation Alternatives Program, Bikeways Program, Bicycle and Pedestrian Priority Areas, and Pedestrian Road Safety Audits delivering engineering, enforcement, and education support to local jurisdictions to improve multi-modal safety and mobility of all roadway users.
- MDOT MPA made improvements to truck drive lanes at the Port of Baltimore to improve safety and efficiency and increase inbound truck gate lanes.
- MDOT MVA introduced new driver's license designs that are more secure and less prone to identity theft, and piloted a digital driver's license, which offers a secure and convenient way to display identification documents.
- MDOT SHA completed a \$158.5 million safety and congestion relief project in 2017 to dualize MD 404 between US 50 and Denton.
- MDOT MTA was named America's safest transit system in terms of Part I crimes for four consecutive years (2014, 2015, 2016, and 2017) from among 12 of the largest transit agencies.





Maintain a High Standard and Modernize Maryland's Multimodal Transportation System

Preserve, maintain, and modernize the State's existing transportation infrastructure and assets.

OBJECTIVES

Preserve and maintain State-owned or funded roadways, bridges, public transit, rail, bicycle and pedestrian facilities, ports, airports and other facilities in a state of good repair.

Strategically modernize infrastructure through new and innovative technology, enhanced partnerships, design standards, and practices to facilitate the movement of people and goods.

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

ANNUAL ATTAINMENT REPORT PERFORMANCE MEASURES

Percentage of the MDOT SHA network in overall preferred maintenance condition

Average truck turn-around time at Seagirt Marine Terminal per container

Discussion of MDOT's ongoing asset management initiatives

Number of bridges and percent that are in poor structural condition

Percentage of State-owned roadway directional miles within urban areas that have sidewalks

Number and percent of bridges that are weight-restricted (aka, posted).

Percent of sidewalks that meet Americans with Disabilities Act (ADA) compliance.

Dredged material placement capacity remaining for Harbor and Poplar Island sites

Overall acceptable pavement condition

Transit rolling stock within useful life benchmark

IN THE LAST 5 YEARS:

- MDOT addressed all 69 structurally deficient bridges identified in 2015.
- The I-95 Electronic Toll Lanes (ETL) were completed in December 2014, which included highway and safety improvements along the eight miles of I-95 from the I-895 interchange to just north of White Marsh Boulevard (MD 43) in northeast Baltimore.
- MDOT MTA launched real-time arrival information on all CityLink, LocalLink and Express BusLink buses through the Transit app.
- MDOT SHA invested \$50.3 million to deploy Smart Traffic Signals on 14 major corridors across the State.
- MDOT MPA made improvements to the Cruise Maryland terminal, including changes to keep waiting passengers out of the extreme weather conditions and completely renovating the terminal's interior with new furniture, carpeting, check-in counters, signage, and entrances.

Improve the Quality and Efficiency of the Transportation System to Enhance the Customer Experience



Increase the use of technologies and operational improvements to enhance transportation services and communication to satisfy our customers.

OBJECTIVES

Increase the efficiency of transportation services through partnerships, advanced technologies, and operational enhancements to improve service delivery methods.

Enhance customer satisfaction with transportation services across all modes of transportation.

Minimize travel delays and improve predictability of travel times on Maryland's transportation system.

Apply enhanced technologies to improve communications with transportation system users and to relay real time travel information.

ANNUAL ATTAINMENT REPORT PERFORMANCE MEASURES

MDOT MVA alternative service delivery transactions as percent of total transactions

Percent of toll transactions collected electronically (i.e. E-ZPass)

Discussion on current use of partnerships, technologies and operational enhancements to improve service delivery methods

MDOT MVA metrics on transactions

MDOT MVA Branch office customer wait time versus customer satisfaction rating

MDOT MVA Branch office customer visit time versus customer satisfaction rating

Overall satisfaction with MDOT

MDOT MTA Percent of service provided on time

Percent of VMT in congested conditions on freeways/expressways and arterials in Maryland during the evening peak hour

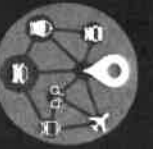
Annual hours (thousands) of delay on the MDOT highway network

Travel time reliability of the MDOT highway network

Customer satisfaction with the accuracy of real-time information systems provided

IN THE LAST 5 YEARS:

- Coordinated Highways Action Response Team (CHART) responded to 30,314 incidents, provided 42,048 motorist assists, averted 43.6 million hours of delays, and saved drivers \$1.5 billion in the cost of delays in 2017.
- MDOT MVA expanded Customer Call Center hours by an hour each weekday, from 4:30 p.m. to 5:30 p.m., to increase capacity by 21% to better serve customers and allowed MDOT MVA to answer an additional 323,829 calls since it was implemented.
- MDOT MVA implemented self-service Vehicle Emissions Inspection Program (VEIP) Kiosks in 10 MDOT MVA locations with over 88,000 transactions completed using the Kiosks to date.
- In 2018, MDTA announced it will be replacing existing toll-lane terminals and upgrading to third generation (3G) E-ZPass® System.
- MDOT MTA launched BaltimoreLink, a complete network redesign for the Baltimore region's transit system.
- MDOT launched the MDOT OneStopShop customer-focused website where Marylanders can address most of their transportation needs at one centralized web destination.
- MDOT MTA received a US DOT TIGER discretionary grant to advance the North Avenue Rising project improving safety and service along the North Avenue corridor for transit, pedestrian and bicycle movement.



Provide Better Transportation Choices and Connections

Improve transportation connections to support alternative transportation options for the movement of people and goods.

OBJECTIVES

Enhance, through statewide, regional and local coordination, transportation networks to improve mobility and accessibility.

Increase and enhance multimodal connections to improve movement of people and goods within and between activity centers.

Inform and educate customers on transportation options and benefits.

ANNUAL ATTAINMENT REPORT PERFORMANCE MEASURES

Total VMT and VMT per capita
Transit ridership
Number of Directional Miles Improved for Bicycle Access

Access to Transit (Percent of population within walk/bike distance of fixed-route transit or multimodal center)
Bicycle Access to transit

MDOT survey - Perceptions of multimodal connectivity

Mode Share

Travel Demand Management; Transportation Emission Reduction Measures (TERMs)

Travel Demand Management; Transportation Emission Reduction Measures (TERMs)

Qualitative discussion of Travel Demand Management Initiatives

IN THE LAST 5 YEARS:

- MDOT MPA received a US DOT TIGER discretionary grant for a project nearing completion, which widens the shipping channel to Seagirt Marine Terminal allowing access by larger ships transiting the enhanced Panama and Suez Canal, expanding Rail capabilities to provide MDOT MPAs tenants at Fairfield Marine Terminal greater options for cargo handling, and increasing cargo storage capacity with 7 acres of new land adjacent to the Fairfield vessel moorings.
- MDOT MTA opened the Takoma Langley Crossroads Transit Center, the largest, non-Metrorail station transfer point in the Washington Metro Region.
- MDOT MTA launched commuter bus service between the Eastern Shore and Baltimore as part of Baltimorelink and expanded commuter bus service to downtown Frederick MARC station creating service to Frederick for the first time.
- MDOT installed bikeshare stations at 8 rail stations and through bicycle and pedestrian grants funded a variety of improvements across the State.



Facilitate Economic Opportunity and Reduce Congestion in Maryland through Strategic System Expansion

Invest in and pursue opportunities to promote system improvements that support economic development, reduce congestion, and improve the movement of people and goods.

OBJECTIVES		
Pursue capital improvements to the transportation system that will improve access to jobs and tourism and leverage economic growth opportunities.	Improve the movement of goods within and through Maryland by investing in intermodal connections and improvements to reduce freight bottlenecks.	Strategically invest in expansion and operational improvements to reduce congestion along the multimodal transportation system.
ANNUAL ATTAINMENT REPORT PERFORMANCE MEASURES		
International cruises using the Port of Baltimore	Freight originating and terminating in Maryland	Annual revenue vehicle miles of service provided (MDOT MTA)
BWI Total Annual Passengers	Port of Baltimore foreign cargo and MDOT MPA general cargo tonnage	Annual cost of congestion (\$ billions) on the MDOT highway network
Change in Market Access due to Improvements in the Transportation Network	Annual Hours of Delay for Trucks	
Change in Productivity due to Improvements in the Transportation Network	Truck Reliability Index	



IN THE LAST 5 YEARS:

- MDOT MTA built 5.5 miles of dedicated bus lanes, installed real-time information signs at 6 multi-modal transfer locations, and built the West Baltimore MARC transfer center.
- MDOT MPA purchased 70 acres of property at the Point Breeze Business Center for the long-term expansion of the Seagirt Marine Terminal to accommodate larger ships from the expansion of the Panama Canal representing the MDOT MPA's first major land purchase for new cargo opportunities since 2001.
- MDOT SHA promoted Innovative Congestion Management (ICM) solutions, which broke ground on busy I-270 between Frederick and Washington, D.C., adding 23 new lane miles, more than 25 real-time traffic communication signs, and more than 30 intelligent signals.
- MDOT allocated \$765 million in funding in 2016 for construction of a new Potomac River crossing on US 301 from Charles County, Maryland, to King George County, Virginia which is vital to the nation's security and to the quality of life of thousands of Marylanders.



Ensure Environmental Protection and Sensitivity

Deliver sustainable transportation infrastructure improvements that protect and reduce impacts to Maryland's natural, historic, and cultural resources.

OBJECTIVES

Protect and enhance the natural, historic and cultural environment through avoidance, minimization and mitigation of adverse impacts related to transportation infrastructure, including support for broader efforts to improve the health of the Chesapeake Bay.

Employ resource protection and conservation practices in project development, construction, operations, and maintenance of transportation assets.

Implement initiatives to reduce fossil fuel consumption, mitigate greenhouse gases, and improve air quality.

ANNUAL ATTAINMENT REPORT PERFORMANCE MEASURES

Acres of wetlands or wildlife habitat created, restored or improved
Water Quality Treatment to protect and restore the Chesapeake Bay

Recycled/Reused Materials from maintenance activities and construction/demolition projects
Conventional Energy Use

Renewable Energy Generated

Transportation-related emissions by region

Transportation-related greenhouse gas emissions

Compliance rate and number of vehicles tested for VEIP versus customer wait time

Total electric vehicles registered in Maryland

Total publicly available electric vehicle charging infrastructure

IN THE LAST 5 YEARS:

- MDOT MPA was awarded several US Environmental Protection Agency (EPA) grants to aid in efforts to improve air quality, in and around the Port including funding for truck owners to replace older trucks with newer, cleaner models; the upgrade of cargo-handling equipment through exhaust system upgrades or replacement; and installation of five automatic stop-start anti-idling devices on locomotives.
- MDOT in collaboration with Maryland Department of Environment, other state agencies, and in partnership with a United Kingdom-based industry partner, hosted the inaugural GreenPorts Congress in North America in 2018.
- MDOT initiated the development of solar projects that promote social benefits, help achieve environmental goals, and promote economic benefits.
- MDOT MTA introduced 27 electric vehicle charging stations across 13 locations, including Park & Ride Lots, MARC Stations, Light Raillink Stations, and Metro Subwaylink stations.
- MDOT MAA installed a 505 kilowatt Solar Plant at the airport that has generated over a million kilowatt hours of Solar Energy since installed.
- MDOT MPA improved water quality through installation of stormwater treatment technologies and contributing to the second trash wheel in the Baltimore Harbor.
- MDOT SHA completed the new Dover Bridge carrying MD 331 over the Choptank River, replacing a historic truss swing bridge built in 1932, preserving the historic bridge as a fishing pier, and preserving the environmental and natural wildlife in the pristine Choptank River basin.



Promote Fiscal Responsibility

- Ensure responsible investment and management of taxpayer resources to add value and deliver quality transportation improvements through performance-based decision-making and innovative funding mechanisms and partnerships.

OBJECTIVES

Accelerate project completion through improved and efficient use of alternative project delivery methods and strategic partnerships.

Provide transportation services and solutions that maximize value.

Ensure a consistent revenue stream and ample financing opportunities.

ANNUAL ATTAINMENT REPORT PERFORMANCE MEASURES

Percent of projects completed by original contract date

Number of nonstop airline markets served

Qualitative discussion of P3 initiatives and other innovative solutions underway

User cost savings for the traveling public due to incident management

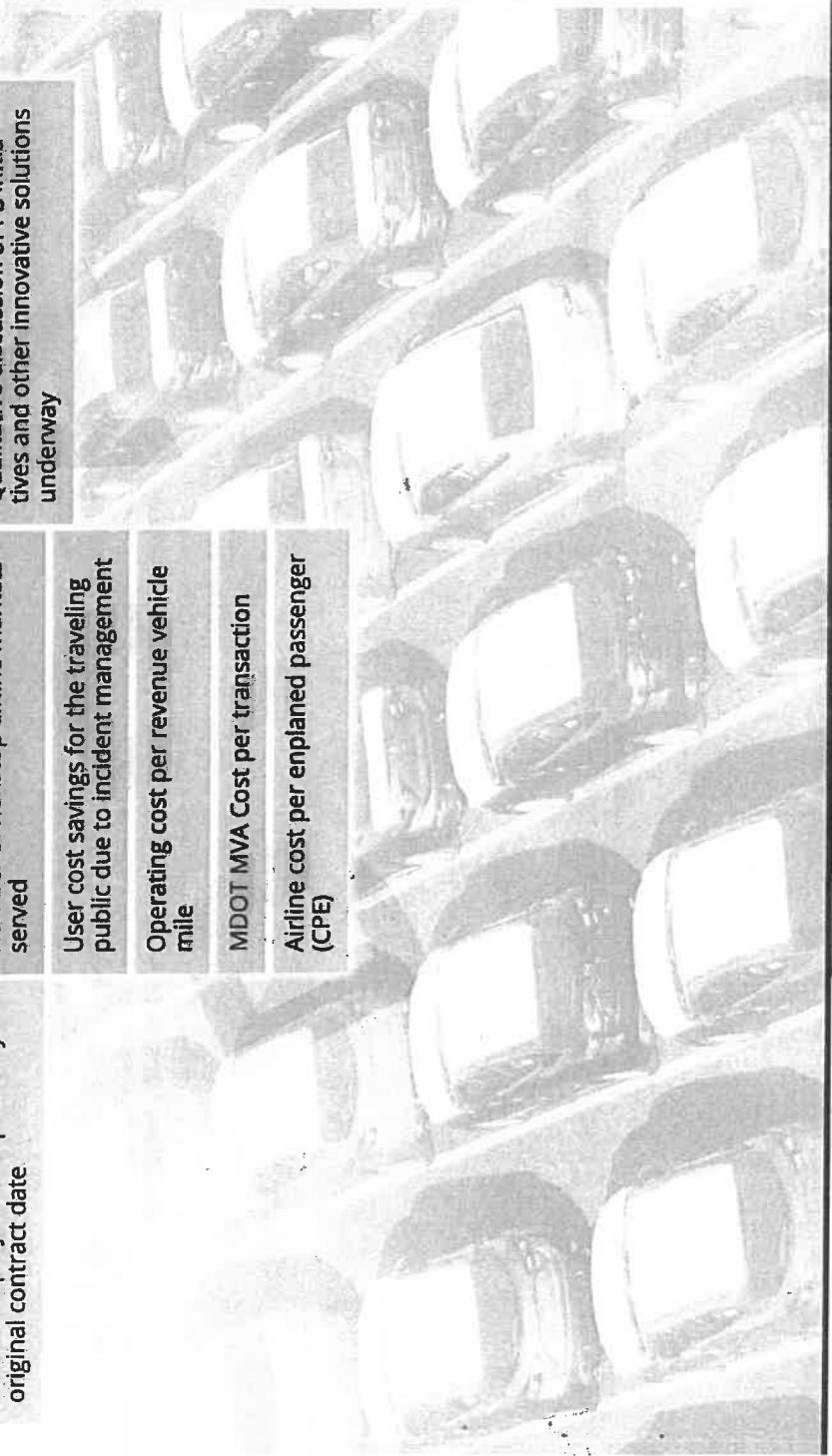
Operating cost per revenue vehicle mile

MDOT MVA Cost per transaction

Airline cost per enplaned passenger (CPE)

IN THE LAST 5 YEARS:

- The Port of Baltimore has been recognized as one of the nation's most efficient container terminals, and has a successful long-term Public-Private Partnership (P3) with Ports America Chesapeake.
- MDOT SHA has improved the construction bidding and project delivery process through Bid Express, E-Construction and A+B Bidding.
- MDOT has begun the process to participate in the largest P3 highway project in North America to add new lanes to I-270, the Capital Beltway, and the Baltimore-Washington Parkway.
- MDOT officials signed the \$5.6 billion P3 contract with the Purple Line Transit Partners to design, build, finance, operate, and maintain the light rail system. The Purple Line will run east-west inside the Capital Beltway with 21 stations.



System Performance Report

In addition to its long-standing efforts measuring progress through the annual Attainment Report and the MDOT Excellerator, MDOT has begun establishing performance targets for safety, infrastructure condition, system performance, congestion mitigation and air quality as per 23 U.S.C. 490. In addition, MDOT MTA is developing a transit asset management plan and working with the local transit operators to develop transit asset management plans for all of the States' transit systems as per 49 U.S.C. 5326. Statewide long range transportation plans must meet the Performance-Based Planning and Programming requirements two years from the effective date of each rule establishing performance measures as follows:

- Safety – those adopted on or after May 27, 2018
- Transit Asset Management – those adopted on or after October 1, 2018
- Infrastructure Condition, System Performance, Congestion, Freight, and Air Quality – those adopted on or after May 20, 2019

The 2040 MTP will be adopted in January 2019 and will include a system performance report for safety and transit asset management performance measures. These measures are currently under development and will be included in the final 2040 MTP.

MDOT is currently updating its annual performance targets for the following safety measures through its Highway Safety Improvement Program:

- Number of Fatalities
- Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT)
- Number of Serious Injuries
- Rate of Serious Injuries per 100 million VMT
- Number of Non-motorized Fatalities and Non-motorized Serious Injuries

MDOT MTA has worked closely with the Tier II transit agencies across the State to develop a Group Transit Asset Management Plan for its Locally Operated Transit System (LOTS). In addition, MDOT MTA has developed initial performance targets for the MDOT MTA operated transit system and is also establishing a transit asset management plan for the MDOT MTA operated transit system assets. Both plans will include the following transit asset management targets for 2019:

- % of revenue vehicles that have met or exceeded their useful life benchmark (ULB) by asset class
- % of non-revenue vehicles that have met or exceeded the ULB
- % of facilities with a condition rating below 3.0 on the Federal Transit Administration Transit Economic Requirements Model (TERM) scale
- % of rail track under performance restrictions (MDOT MTA only)

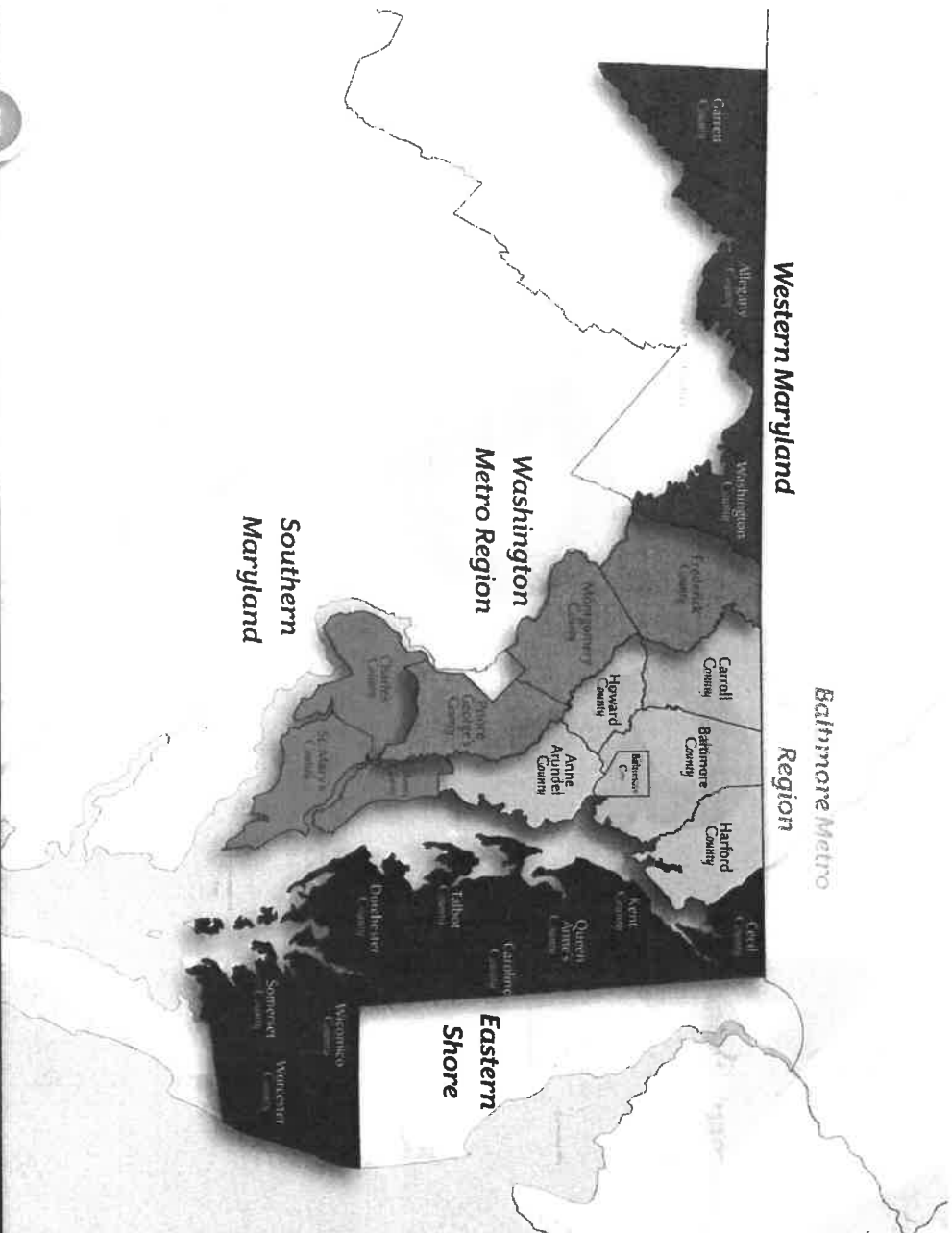
MDOT is continuing efforts related to both safety and transit asset management performance targets. The final 2040 MTP will include the baseline values, performance targets, and a discussion of how the State is working toward achieving those targets and the status of that effort.

SYSTEM PERFORMANCE REPORT PLACEHOLDER

Implementation

MDOT has identified a set of strategies for implementing goals and objectives established in the 2040 MTP. Strategy development was informed by MDOT in MDOT TBU strategic and business plans, as well as input from the public. Putting the strategies into action will help assure progress toward performance targets identified in MDOT's AR.

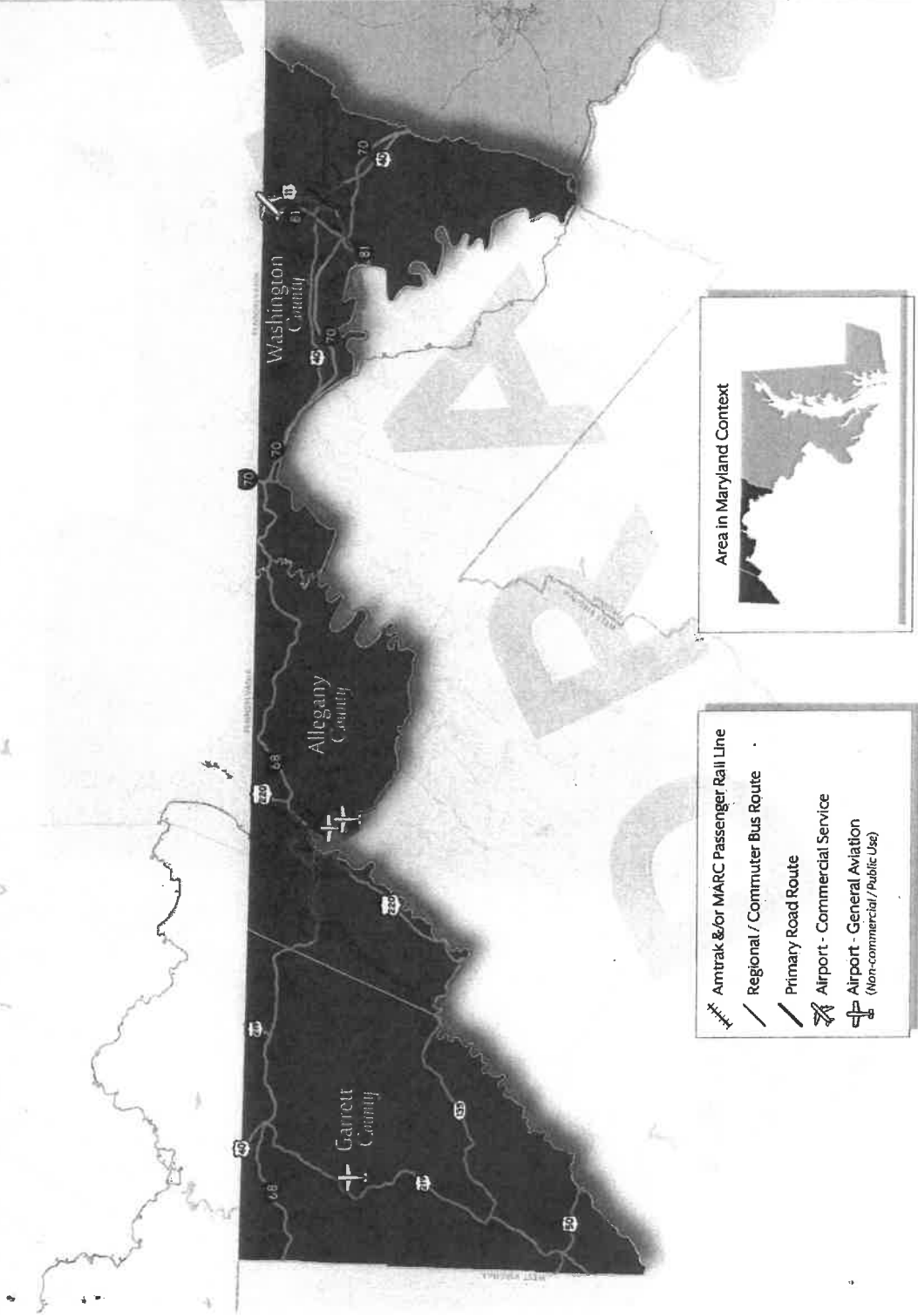
Though some of the 2040 MTP's implementation strategies are statewide, MDOT recognizes the State's regions are diverse and places high importance on customizing strategies to fit each region's unique needs and special context as described in the maps that follow.



Over the next 20 years...

- MDOT will replace the electronic toll collection and operating system to the 3rd generation (3G) toll system Authority-wide.
- MDOT will upgrade truck weigh facilities at the Kennedy Highway, Bay Bridge, and Hatem Bridge locations to accommodate increased truck traffic through new technologies improving the efficiency and effectiveness of commercial vehicle safety programs.
- MDOT intends to install solar canopies in parking lots throughout the State, such as at MDOT MVA branch offices, Park and Ride lots, etc. The solar canopies enhance customer experience by providing shade and protection from adverse weather while providing renewable energy.
- MDOT SHA continues to deploy smart traffic signals on major regional corridors to improve congestion, safety and traffic operations.
- Customer Connect will modernize the MDOT MVA's entire infrastructure and greatly enhance the agency's ability to provide fast, efficient, and premier customer service.
- MDOT is updating its bicycle and pedestrian master plan to establish a 20-year vision for bicycling and walking in Maryland and to provide guidance and investment strategies to support bicycling and pedestrian facilities.
- MDOT MTA is deploying Positive Train Control (PTC) in coordination with Amtrak and CSX to increase safety across all MARC service.
- MDOT MTA will partner with jurisdictions and transit operators statewide to encourage innovation in transit service through the Statewide Transit Innovation Grant program.
- MDOT MPA will implement Innovative Reuse Demonstration Projects to show the potential for the reuse of all material dredged from the Baltimore Harbor by 2040.
- MDOT will continue to connect with partners to expand on opportunities in Automated Vehicle Testing in Maryland through the Maryland Locations to Enable Testing Sites (LETS).

Western Maryland Transportation System



Western Maryland's transportation system is primarily automobile-oriented, but locally operated fixed-route bus service is provided in Cumberland and Hagerstown. Intercity bus providers connect parts of western Maryland to the Baltimore metro area. The transportation system in the region also connects travelers to Pennsylvania and West Virginia.

Over the next 20 years...

- MDOT SHA will complete I-81 corridor improvements from the West Virginia State Line to the Pennsylvania State Line, including upgrading and widening to reduce congestion, especially related to high truck volume, and provide capacity for planned development.
- MDOT will address truck parking shortages statewide, including at I-68 at the Youghiogheny Overlook.
- MDOT SHA will complete US 219 corridor improvements to enhance accessibility and promote economic development through upgrades and relocation of US 219 from I-68/US 40 to the Pennsylvania State Line.
- MDOT SHA will conduct a US 220 joint planning study with West Virginia.
- MDOT will improve the connection between the Cumberland Amtrak station and the Allegheny Highlands Trail.

The Eastern Shore's transportation system is automobile-oriented. Some communities in the region, such as Salisbury and Ocean City, have local fixed-route bus systems. Intercity bus providers connect the eastern shore to the Baltimore Metro Region. The transportation network in the region connects Maryland to Pennsylvania, Delaware, and Virginia.

Over the next 20 years...

- MDTA will complete a National Environmental Policy Act Study for the I-95 Belvidere Road Interchange to determine the environmental effects of a new interchange providing access at I-95 and Belvidere Road.
- MDTA will complete a National Environmental Policy Act Study to determine the environmental effects of a new Bay Bridge crossing location.
- MDOT SHA will construct a shared-use path along US 50 from MD 611 to the US 50 Bridge over the Sinepuxent Bay.
- MDOT SHA will widen US 50 from US 301 to MD 404 and replacement of at-grade intersections with interchanges to increase capacity, relieve congestion and improve safety.
- MDOT MTA will support the construction of an Ocean City Transit Center which will include an administration building, bus wash, bus service and storage facilities and parking to support transit service in Ocean City.



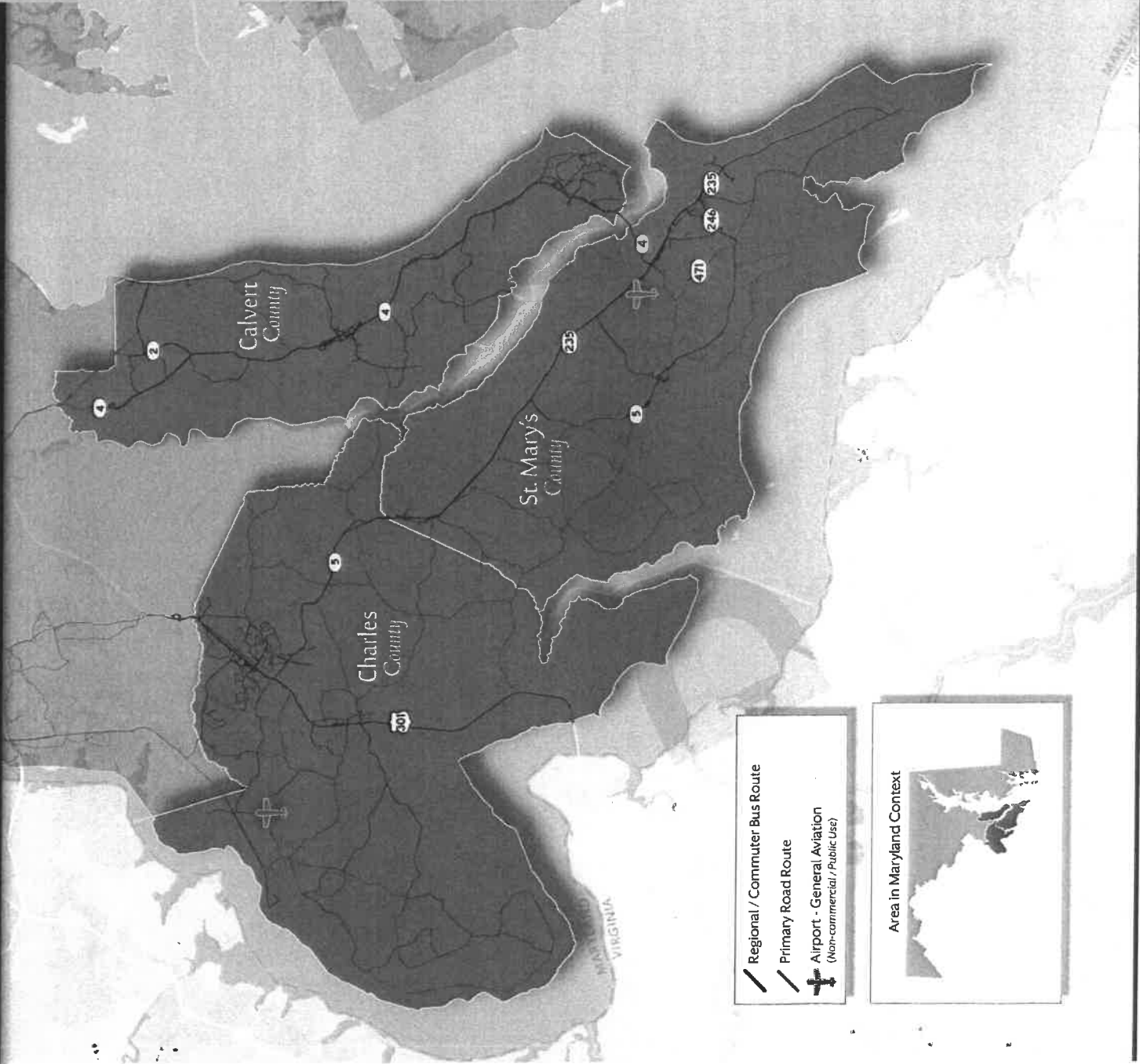
Area in Maryland Context

Southern Maryland Transportation System

The **Southern Maryland Region's** transportation system is automobile-oriented. Each of the region's counties operates its own fixed-route bus system. Commuter bus routes also provide access from the region to Washington, D.C. metro area. The transportation network in the region connects Maryland to Virginia across the Potomac River.

Over the next 20 years...

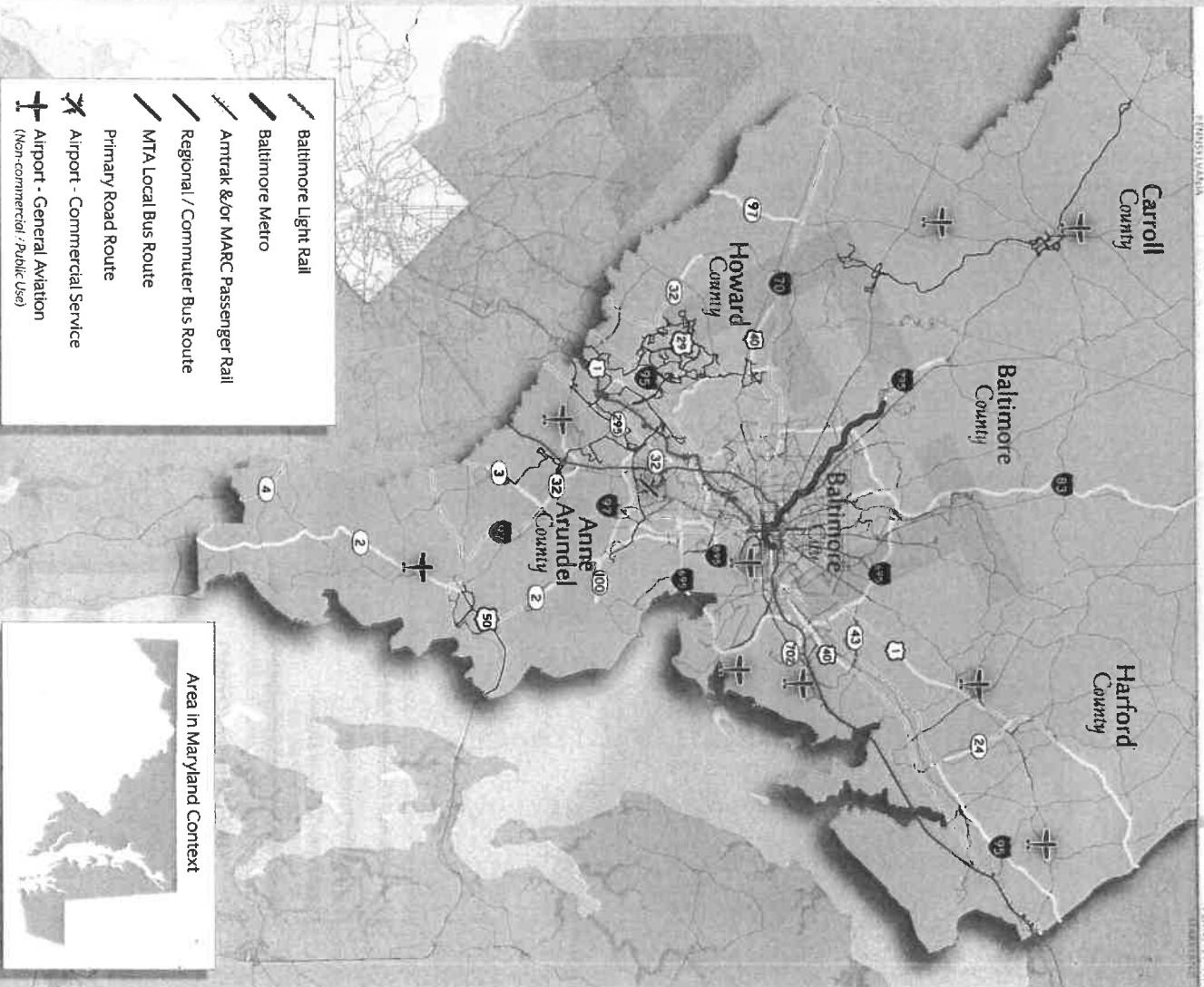
- MDOT MDTA will complete construction of the Nice Bridge, a new Potomac River crossing from Charles County, Maryland, to King George County, Virginia. This crossing is vital to the nation's security and to the quality of life of thousands of Marylanders who depend on this bridge daily for work, business, and recreation.
- MDOT SHA will continue to progress on updates to MD 4 from MD 2 to MD 235 including the replacement of the Thomas Johnson Bridge.
- MDOT SHA will widen MD 2/4 to six lanes from north of Stoakley Road/Hospital Road to south of MD 765A in Prince Frederick.
- MDOT SHA will upgrade MD 5 from MD 471 to MD 246 including the bridge over the Saint Mary's River.



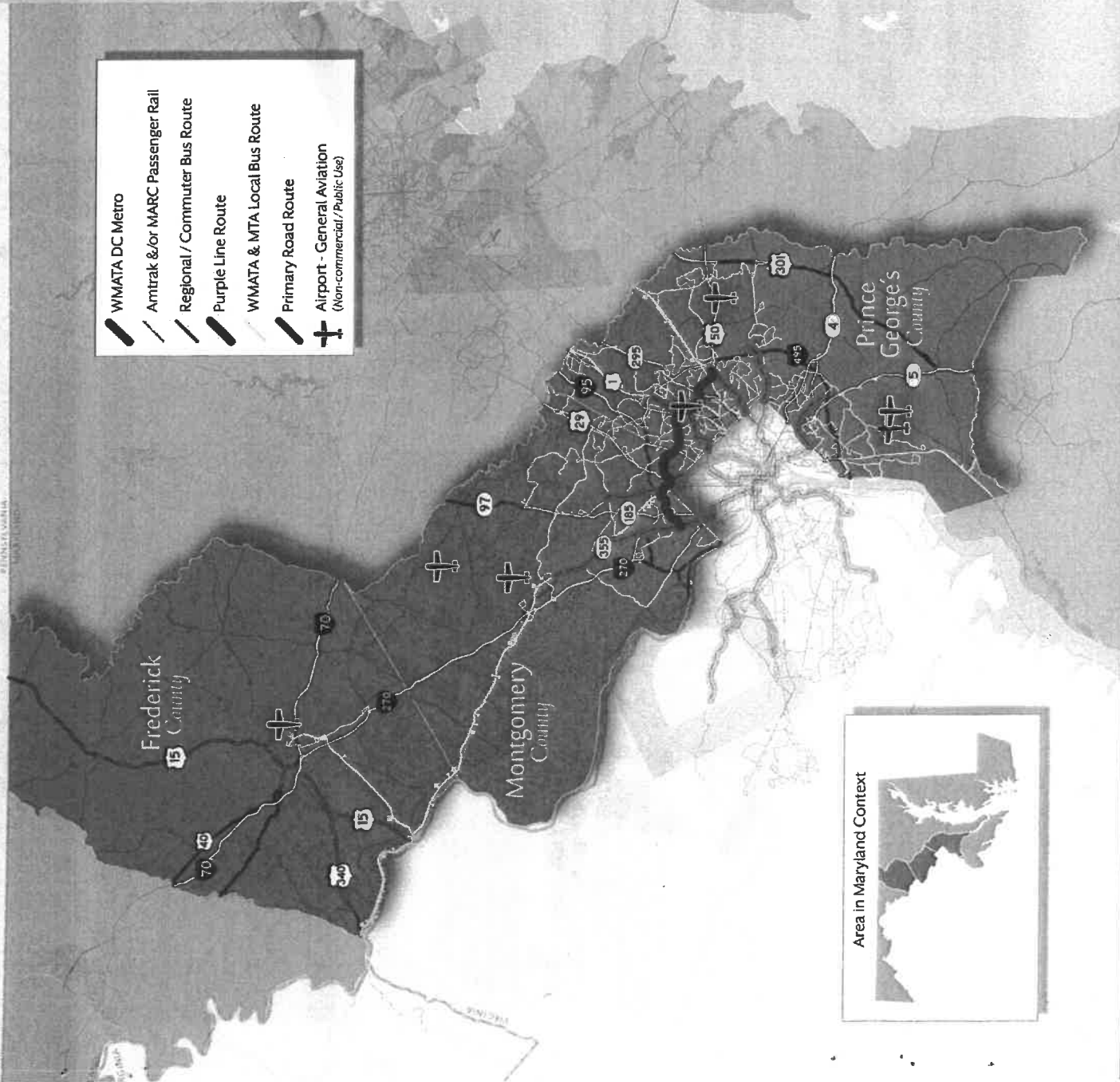
The **Baltimore Metro Region** has many non-automobile transportation options including light rail, metro bus, commuter rail and active transportation infrastructure. It is also home to the Port of Baltimore, BWI Thurgood Marshall Airport, and Martin State Airport. The transportation network in the region connects Maryland to Pennsylvania, Delaware and the east coast.

Over the next 20 years...

- MDOT MAA will replace the Air Traffic Control Towers at BWI Marshall and Martin State airports that are approaching the end of their usable lives, to meet current and projected operational needs and standards.
- MDOT MAA will complete the concourse connector program at BWI Marshall Airport that includes expanded passenger amenities, improved circulation and enhanced baggage handling capability.
- MDOT MTA will construct, in coordination with the Maryland Stadium Authority and the Orioles, a new Camden station to replace the temporary facility built in the 1990s and serve Camden Line MARC and Light Rail Link trains. The project will provide passenger amenities, MDOT police facilities, and signage.
- MDOT MTA will upgrade its fleet including new Metro SubwayLink railcars, a mid-life overhaul to the Light RailLink vehicles, and replacement buses to improve reliability, safety, and customer comfort.
- MDOT MTA will upgrade existing fare collection hardware and software to ensure security, and increase transit fare payment options and flexibility for customers.
- MDOT will complete a National Environmental Policy Act Study for the I-95 Port Covington Access to determine the environmental effects of improvements to accommodate anticipated growth while maintaining the functionality of the regional and local transportation system.
- MDOT will complete a Baltimore Traffic Relief Plan that includes:
 - I-95 Express Toll Lanes - expanding the Express Toll Lanes from the existing terminus just north of MD 43 to north of MD 24.
 - I-695 Baltimore Beltway - make improvements to relieve congestion during peak hours within the segment from I-70 north to MD 43.
- MDOT MTA will complete the North Avenue Rising project to install dedicated bus/bike lanes, transit signal priority, bus shelters, streetscaping, pedestrian lighting, and improvements to Penn North Metro SubwayLink to enhance transit, pedestrian and bicycle movement and safety along the North Avenue corridor.
- MDOT MTA will expand marine terminal capacity by redeveloping the Kurt Iron Slip at Fairfield Marine Terminal, redeveloping Point Breeze, reconstructing Berths 1-3 at Dundalk Marine Terminal, and deepening the Seagirt Loop Channel to support a second 50-foot berth to accommodate more Neo-Panamax ships at Seagirt Marine Terminal.



Washington Metro Region Transportation System



The **Washington Metro Region** has a radial highway system and an extensive and heavily used commuter rail, subway, and bus transit network. Portions of this region are well suited to active transportation modes. The transportation network in the region connects Maryland to Washington, D.C. and Virginia.

Over the next 20 years...

- MDOT MTA will complete the Purple Line transitway which will provide faster more reliable transportation between residential and major employment areas, enhance access to existing radial Metrorail lines, increase capacity of congested roadways, support economic development consistent with local master plans, and reduce environmental impacts.
- MDOT SHA will complete the I-270 innovative congestion management project, which will include implementation of innovative congestion management (ICM) tools to reduce congestion on I-270, including the east I-270 and west I-270 spurs.
- MDOT will complete the I-495 & I-270 Public-Private Partnership (P3) Project which includes managed lane improvements for over 70 miles of interstate in Maryland including:
 - I-495 (Capital Beltway) between the American Legion Bridge and the Woodrow Wilson bridge.
 - I-270 (Dwight D. Eisenhower Memorial Highway) between I-495 and I-70, including the east and west I-270 spurs.
- MDOT SHA will continue the pedestrian, safety, and operational upgrades to US 1 from College Avenue to I-495/I-95.
- MDOT will address truck parking shortages statewide, including at the I-70 eastbound and westbound Welcome areas and at the I-70 eastbound truck rest area in Frederick County.



Ensure a Safe, Secure, and Resilient Transportation System

STRATEGIES

OBJECTIVES		
Reduce the number of lives lost and injuries sustained on Maryland's transportation system.	Provide for the secure movement of people, goods, and data.	Provide a resilient multimodal system by anticipating and planning for changing conditions, and hazards whether natural or man-made.
Develop and implement, through a data driven approach and best practices research, effective engineering and technology solutions to reduce aggressive and distracted driving and support impaired driving countermeasures.	Invest in cyber-security through information technology (IT) improvements, improvements in Network Maryland, and in the Center for Internet Security Multistate Information Sharing and Analysis Center (MS-ISAC).	Identify and inventory assets that are vulnerable to flooding and inundation, and develop adaptation strategies such as reconstruction, relocation, and protective infrastructure to address existing and potential future weaknesses.
Implement public awareness training and media programs to educate drivers about child occupant protection, impaired driving, distracted driving, and aggressive driving.	Design transportation system projects with security elements at the start.	Implement unified incident command with first responders.
Implement safety improvements at intersections and along corridors where the Crash Severity Index is high.	Continue to work closely with Anne Arundel, Howard, and Baltimore counties in implementing the Airport Zoning Permit process for proposed development within the vicinity of BWI Marshall and Martin State airports.	Standardize operations, response, and scene safety practices with first responders and other key partners.
Implement system-wide roadway safety improvements and technology approaches that address the safety of vulnerable user groups (e.g. bicyclists, pedestrians, motorcyclists, older and younger drivers, etc.).	Enhance facility inspection and maintenance program with technology-based management solutions.	Invest in technology to facilitate 24/7 roadway clearance and public information of incidents through the Coordinated Highway Action Response Team (CHART).
Initiate appropriate infrastructure safety improvements with commercial motor vehicles in mind.	Continue to upgrade security infrastructure such as closed-circuit television, security cameras, and other technology on the multi-modal transportation system.	Develop and implement accredited incident management training with first responders.

STRATEGIES

Provide support for safe transit stops.	Install new flashing light signals and replace outdated components at existing active warning-device installations at rail-highway grade crossings.	Collaborate with partners to maintain truck and rail safety enforcement and monitoring programs.
Improve the safety of bicycle and pedestrian travel through education, enforcement, and infrastructure solutions.	Continually improve first responder, emergency management, and rescue training programs and facilities.	Enhance facility inspection and maintenance program with technology-based management solutions.

OBJECTIVES	
<p>Preserve and maintain State-owned or funded roadways, bridges, public transit, rail, bicycle and pedestrian facilities, ports, airports and other facilities in a state of good repair.</p>	<p>Strategically modernize infrastructure through new and innovative technology, enhanced partnerships, design standards, and practices to facilitate the movement of people and goods.</p>
STRATEGIES	
<p>Invest in MDOT roadways to maintain pavement quality.</p>	<p>Provide real-time variable-control of speed, lane movement, and traveler information (for drivers and transit users) and conduct centralized data collection and analysis of the transportation system.</p>
<p>Invest in MDOT bridges to improve structurally deficient bridges and preserve existing bridges to prevent them from becoming structurally deficient.</p>	<p>Invest in the National Highway System in accordance with the 10-year projections for bridges and pavement as identified in the Transportation Asset Management Plan.</p>
<p>Study the effects of truck size and weight for permitted and non-permitted loads on safety, infrastructure, and the economy.</p>	<p>Incentivize the demand for clean low-carbon fuels and the development of infrastructure to provide for increased availability/accessibility of alternative fuels and plug-in locations for electric vehicles.</p>
<p>Invest in MARC to overhaul and replace the rolling stock and introduce new diesel electric locomotives in order to extend the useful life of the MARC system.</p>	<p>Invest in Maryland's transit systems and rolling stock to maintain a state of good repair as per the Transit Asset Management Plan.</p>
<p>Maintain the State's aviation facilities and runways in a state of good repair to support the vitality of aviation statewide.</p>	<p>Develop a framework and guidance for asset management software and begin using a Business Intelligence tool to aggregate and manage asset data across MDOT.</p>
<p>Maintain the navigation channel depth and width to allow safe, two-way traffic to and from the Port of Baltimore.</p>	<p>Implement the short-term, mid-term, and long-term strategies identified in the State Asset Management Plan to improve the asset management and project selection across MDOT.</p>
<p>Develop tools and guidance to ensure effective and efficient enhancement and maintenance of bicycle and pedestrian infrastructure.</p>	<p>Upgrade the existing fare collection system for BaltimoreLink, Metro Subway Link, and Light RailLink and introduce mobile ticketing service for MARC and Commuter Bus.</p>
<p>Maintain, rehabilitate, and improve State-owned rail assets as identified in the MDOT Freight Lines Strategic Plan.</p>	<p>Promote electric vehicle infrastructure around the State.</p>
	<p>Assess opportunities for implementing truck platooning.</p>
	<p>Assess opportunities for implementing new and innovative public transit options through innovative financing and partnerships.</p>
	<p>Continue to improve our transportation infrastructure using the most current design guidelines and applicable technology enhancements.</p>
<p>Implement Connected and Automated (CAV) pilots and support CAV testing through partnerships to build experience and attract partner investment in Maryland.</p>	
<p>Implement robust telecommunications infrastructure, enhanced road markings and signage to provide foundational needs of a CAV program.</p>	
<p>Implement an internal and external outreach program related to CAV and continue involvement in national CAV activities and through the MDOT CAV Working Group.</p>	
<p>Complete retrofits of existing facilities to achieve full ADA compliance of existing facilities and encourage the use of ADA best practices to the maximum extent reasonable within the constraints of a specific project or program.</p>	
<p>Incorporate new American Association of State Highway and Transportation Officials (AASHTO) design standards and framework including an explicit purpose and need for projects, implementation of new context classification system, multimodal considerations, design flexibility, and performance-based design.</p>	
<p>Update state guidelines for bicycle and pedestrian infrastructure and establish a multimodal process to ensure innovative treatments and techniques are regularly vetted for inclusion.</p>	



Improve the Quality and Efficiency of the Transportation System to enhance the customer experience

STRATEGIES

OBJECTIVES

Increase the efficiency of transportation services through partnerships, advanced technologies, and operational enhancements to improve service delivery methods.

Enhance customer satisfaction with transportation services across all modes of transportation.

Minimize travel delays and improve predictability of travel times on Maryland's transportation system.

STRATEGIES

Implement One Stop Shop MDOT MVA Customer Service Centers and other improvements to customer service transactions as per the MDOT MVA Customer Service Plan.

Provide enhanced training and employee development for MDOT senior leadership, supervisors, and staff, especially employees interacting directly with our customers.

Expand CHART and other intelligent transportation systems and operations tools to better manage peak hour congestion on Interstate and regionally significant corridors.

Enhance and modernize MDOT IT systems.

Provide MDOT MVA Headquarters Senior Management customer support at branch offices twice per year.

Implement current state-of-the-practice in truck parking availability technology systems where appropriate and feasible.

Continue to perform Traffic Signal Synchronization and installation of "smart signals" to provide an efficient flow or prioritization of traffic, increasing the efficient operations of a corridor and reducing unwarranted idling at intersections.

Improve the tracking, responsiveness, and time-to-resolution of all electronic, telephone, written and in-person correspondence.

Provide reliable and accessible real-time modal choice information to travelers and stakeholders at all times.

Expand and modernize the facilities at and around BWI Marshall Airport baggage handling system and the terminal curbside roadways.

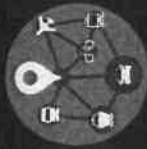
Use social media to share information about services, events, and news to provide citizens and businesses with information important to them.

Develop education and outreach tools, including web-based and social media applications, targeted to the traveling public.

Develop new tools and use new technologies to facilitate multimodal planning, policy, and project-level decision-making at the state, regional, and local levels.

Enhance passenger wayfinding, convenience and customer experience through improved amenity and technology based solutions at MDOT facilities including BWI Marshall Airport passenger screening and baggage handling and MDOT MVA branch offices.

Provide Better Transportation Choices and Connections



OBJECTIVES	
Enhance, through statewide, regional and local coordination, transportation networks to improve mobility and accessibility.	Increase and enhance multimodal connections to improve movement of people and goods within and between activity centers.
STRATEGIES	
Coordinate infrastructure improvements to facilitate multimodal connectivity and access.	Expand commuter transportation options, including commuter bus, car/vanpooling, park-and-ride facilities, cycling, walking, and transit, as well as promoting opportunities for teleworking, and alternative or flexible work hours to help reduce congestion along key routes.
Support MARC improvements and improve access to stations in accordance with the MARC Cornerstone Plan.	Promote innovative public involvement strategies for projects such as use of social media and text message surveys to expand outreach and engagement.
Invest in improvements to transit to provide better access to BWI Marshall Airport.	Educate local leaders and elected officials on the benefits of other transportation options and opportunities for support through Commuter Choice Maryland.
Develop new tools to facilitate project development, prioritization, and implementation, and to ensure effective use of state and federal discretionary programs.	Provide outreach on Commuter Choice Maryland travel options through targeted media campaigns, brochures, and websites to promote bicycling, walking, carpooling, teleworking, and transit.
Coordinate activities across MDOT and with regional and local agencies to incentivize changing travel behavior.	Strengthen employer commuter incentive programs by increasing marketing and financial/and or tax based incentives for employers, schools, and universities to encourage walking, biking, public transportation usage, carpooling, and teleworking.
Invest in improvements to provide choices and connections between rural and urban areas.	



Facilitate Economic Opportunity and Reduce Congestion in Maryland through Strategic System Expansion

STRATEGIES

OBJECTIVES

Pursue capital improvements to the transportation system that will improve access to jobs and tourism and leverage economic growth opportunities.

Improve the movement of goods within and through Maryland by investing in intermodal connections and improvements to reduce freight bottlenecks.

Strategically invest in expansion and operational improvements to reduce congestion along the multimodal transportation system.

STRATEGIES

Develop a data supported system for performance reporting and project prioritization.

Target infrastructure and incentive programs towards improving job access and reducing household transportation costs.

Use the economic model to assess productivity benefits through travel cost savings, reliability benefits of industry, delivery logistics and supply chain benefits, and agglomeration effects on access to specialized skills and services to facilitate business opportunities throughout Maryland.

Ensure Maryland is well positioned to attract new industries that emphasize transportation alternatives in their site-selection process.

Support state efforts to improve the attractiveness of Maryland for the traveling public, and to promote activity-based tourism.

Address congestion and bottlenecks on nationally and regionally significant corridors to facilitate access to major employment, freight, and activity centers.

Reduce or mitigate the effects of congestion on industry supply chains where appropriate.

Implement improvements at key freight bottlenecks identified in the State's Strategic Goods Movement Plan.

Acquire property adjacent to existing Port facilities to preserve opportunities for expanding terminal space

Identify locations where projected volume may exceed capacity on key freight rail corridors.

Implement Transportation Systems Management and Operations (TSM&O) improvements to reduce congestion on highway systems, focusing on integrated freeway and arterial management and operations.

Develop a data supported system and modelling tools to evaluate benefits and tradeoffs for TSM&O strategies.

Evaluate managed lanes, including high occupancy vehicle (HOV) lanes, congestion pricing, and related strategies for future transportation investment and integrate transit as part of the strategies as appropriate.

Manage peak hour congestion on regionally significant corridors through targeted operational strategies.

Expand air-cargo facilities at BWI Marshall Airport.



Ensure Environmental Protection and Sensitivity

STRATEGIES

OBJECTIVES

Protect and enhance the natural, historic and cultural environment through avoidance, minimization and mitigation of adverse impacts related to transportation infrastructure, including support for broader efforts to improve the health of the Chesapeake Bay.

Employ resource protection and conservation practices in project development, construction, operations, and maintenance of transportation assets.

Implement initiatives to reduce fossil fuel consumption, mitigate greenhouse gases, and improve air quality

STRATEGIES

Prepare for future climate impacts on transportation infrastructure through: Site and Stressor Identification, risk assessment, and adaptation development.

Reduce water use and reuse water in order to reduce stress on fresh and drinkable water sources.

Improve waste minimization techniques through product life cycle analysis, reuse, and recycling.

Develop and implement a "Green Port Strategy" consistent with industry trends and initiatives including US EPA's Strategy for Sustainable seaports.

Continue to coordinate with other state agencies to heighten the awareness of the value and vulnerability of the State's water and natural resources.

Support state and local revitalization strategies to strengthen existing communities and infrastructure.

Promote State dredging and dredged material placement priorities for inclusion in Federal appropriations and authorization bills.

Increase public knowledge, understanding, and support of Maryland's Dredged Material Management Program through strategic outreach to the communities, businesses, and schools in the vicinity of project sites.

Mitigate stormwater runoff to protect sensitive aquatic ecosystems, like the Chesapeake Bay with green infrastructure features such as bioswales and tree plantings.

Continue to adhere to Maryland Department of the Environment's standards and specifications for soil erosion and sediment and employ best management practices related to erosion control in the design and construction of projects.

Research and incorporate innovative practices to protect and conserve natural resources in the maintenance and operations of the transportation system.

Develop a comprehensive Environmental Management System.

Continue to increase the renewable energy portfolio through solar geothermal installations on MDOT facilities and rights-of-way.

Continue to support investments and partnerships with intercity bus providers to promote use of intercity bus as a commute option to reduce congestion and improve air quality.

Develop pricing strategies to encourage smarter commuting options.

Promote and/or incentivize fuel efficient technologies for medium and heavy-duty trucks.

Provide incentives to increase purchase of fuel-efficient vehicles/fleets.

Encourage and incentivize retrofits and/or replacements of old, diesel powered non-highway engines, such as switchyard locomotives, with new hybrid locomotives.

Install electric vehicle charging devices at parking lots along the Metro Subway Link, Light Rail Link, MARC, and Commuter Bus systems.



Promote Fiscal Responsibility

STRATEGIES

OBJECTIVES

Accelerate project completion through improved and efficient use of alternative project delivery methods and strategic partnerships.

Provide transportation services and solutions that maximize value.

Ensure a consistent revenue stream and ample financing opportunities.

STRATEGIES

Coordinate Transportation Systems Management and Operations (TSM&O) activities across MDOT, with regional and local agencies with clear, common objectives.

Collaborate with public and private partners including CSX and Amtrak to determine the feasibility of creating a double-stack rail network into and out of the Port of Baltimore.

Increase truck parking facilities in key locations through innovative project delivery solutions and partnerships with private travel service providers.

Work in partnership with local jurisdictions and other state agencies in development of corridors within and revitalization of urban centers and towns and suburban centers.

Implement practical design guidelines in the project development process.

Assess the potential of monetizing data as a new revenue stream.

Include consideration of long-term maintenance, operations, and life cycle costs for any newly proposed facility.

Assess opportunities for implementing new and innovative mass transit options through private partnerships.

Prioritize projects that enhance accessibility over mobility, and coordinate with local jurisdictions to ensure that land use decisions support such outcomes.

Leverage local funding contributions and incorporate bicycle and pedestrian improvements by private developers through transportation impact mitigation process where feasible.

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2019 ARAC Members

Required Representation	Representative	Representative Title	Organization
Maryland Business Community	Christine Ross	President/CEO	Maryland Chamber of Commerce
Disabled Citizens Community	Janice Jackson	Commissioner	Maryland Commission on Disabilities
Rural Interests	Geoff Turner	President/CEO	Choptank Transport
Auto Users Group	Ragina Cooper-Averella	Public & Gov't Affairs Manager	American Automobile Association (AAA)
Transit Users Group	Steve Chan	Chairman	MARC Riders Advisory Council
Goods Movement Industry	Louis Campion	President/CEO	Maryland Motor Truck Association (MMTA)
	Geoff Turner	President/CEO	Choptank Transport
National Expert: Transportation Demand Management	Nicholas William Ramfos	Director, Transportation Operations Programs	Metropolitan Washington Council of Governments
National Expert: Pedestrian/Bike Transportation	Jennifer L. Toole, AICP, ASLA	President	Toole Design Group
National Expert: Transportation Performance Management	Matthew H. Hardy, Ph.D.	Program Director for Planning and Policy	American Association of State Highway and Transportation Officials (AASHTO)
Environmental Advocacy Organization	Joel Dunn	President/CEO	The Chesapeake Conservancy
Maryland Department of Planning	Pat Keller	Assistant Secretary for Planning Services	Maryland Department of Planning
Maryland Association of Counties	Keith Hall, AICP	Chief, Long Range and Transportation Planning	Salisbury/Wicomico Counties
	Alex Rawls	Long-Range Planner	Harford County Planning & Zoning
Maryland Municipal League	Jim Beauchamp	Town Council Vice President	Town of Centerville
	Tim Davis	Transportation Planner	City of Frederick



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