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# 2008 ANNUAL ATTAINMENT REPORT

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on Transportation System Performance

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Implementing the Maryland Transportation Plan &  
Consolidated Transportation Program

*Martin O'Malley, Governor  
Anthony G. Brown, Lt. Governor  
John D. Porcari, Secretary*

# SUMMARY

Providing Maryland's citizens an Annual Attainment Report on Transportation System Performance has been a tradition since 2002. Tracking performance over time offers Maryland's transportation agencies an opportunity to identify and implement an overall management strategy to facilitate the safe and efficient movement of people and goods across all transportation modes. This 2008 Report presents updated performance information that Maryland's transportation agencies use to evaluate the status of the Statewide transportation system, the implementation of the Maryland Transportation Plan (MTP) – a 20-year vision for transportation in the State – and the delivery of the Consolidated Transportation Program (CTP) – a detailed list identifying specific road, bridge, transit, aviation, seaport, pedestrian and bikeway projects that will be proposed for construction, or for development and evaluation over the next six years. The 2008 Attainment Report is meant to inform transportation professionals, elected representatives, public officials, and the general public about 1) why the selected performance measures are tracked, 2) why performance changed, and 3) detail what future performance strategies will be.

The performance measures contained in this Attainment Report are directly linked to the four goals outlined in the 2004 MTP: Efficiency, Mobility, Safety & Security, and Productivity & Quality. The MTP goals provide overall policy direction for transportation in Maryland and are updated every five years to address current and future transportation challenges, needs and conditions. MDOT is currently updating the MTP and is conducting extensive public outreach to engage Maryland citizens, agencies, and interested organizations in revisions to the Statewide transportation long-range vision, goals, and objectives. For more information about the MTP update, visit [www.mdot.state.md.us/Planning](http://www.mdot.state.md.us/Planning).

## Efficiency

Making efficient use of Maryland's existing transportation network is a priority for the State's transportation agencies. Given Maryland's expanding population and economy, the State's transportation agencies look to meet growing demand by extending the useful life of existing facilities and equipment before undertaking capacity expansion projects. Current funding limitations also increase the importance and necessity of employing innovative approaches to meet user demand through efficiencies of operations so people and goods can continue to move seamlessly around the State.

Ongoing maintenance is also essential to preserving transportation infrastructure. Keeping Maryland's transportation system in good condition through activities, such as road repaving, engineering safety improvements, and repairing aging infrastructure or equipment, helps to extend the lifespan of the State's investments in a fiscally responsible manner. Maryland's modal administrations and MdTA have made excellent progress toward maximizing efficiency through strategic management practices and focusing transportation investments to achieve the largest positive impact.

### Efficiency Performance Trends:

- ⬢ SHA pavement ride quality is gradually approaching the 84 percent acceptable target due to increased investment in upgrading pavements, but there is concern about whether this trend can continue based on significant increases in costs.
- ⬢ 100 percent of SHA and MdTA bridges on the National Highway System allowed all legally loaded vehicles to safely traverse for the past seven years.
- ⬢ Between FY2006 and FY2007, MTA's on time performance improved for Metro, remained the same for Light Rail, and declined for Core Bus, MARC, and Paratransit.
- ⬢ MVA's branch customer visit time and customer service rating remained the same in FY2007 compared to the previous year.
- ⬢ MVA alternative service delivery transactions increased by 5 percent in FY2007 and reached 29 percent of total transactions, surpassing MVA's short-term target.
- ⬢ SHA's efforts to reduce incident congestion delay continues to save highway users time. In CY2006 alone, 37.5 million vehicle hours were saved, a cost-savings of \$1.1 billion in direct benefits to highway users.
- ⬢ \$250 million of the \$450 million revenue increase passed December 2007 will be dedicated to system preservation.

### MARYLAND'S TRANSPORTATION AGENCIES

AGENCY	ACRONYM
Maryland Department of Transportation	MDOT
Maryland Aviation Administration	MAA
Maryland Port Administration	MPA
Maryland Transit Administration	MTA
Maryland Transportation Authority	MdTA
Motor Vehicle Administration	MVA
State Highway Administration	SHA

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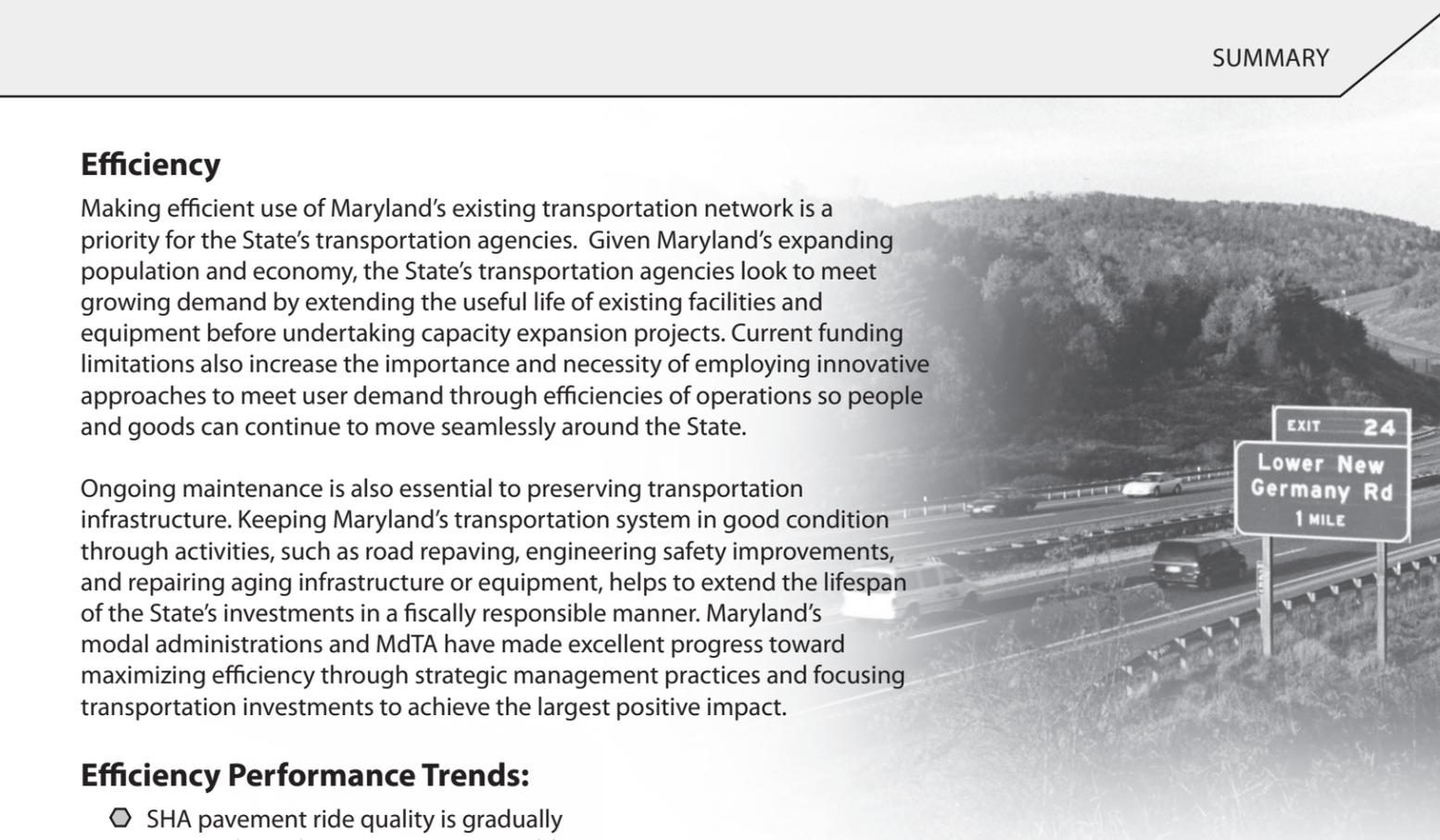
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## Mobility

Maryland's growing population and robust economy depend on a transportation system that facilitates the seamless movement of people and goods in a timely manner. Maryland's modal administrations and MdTA are committed to providing accessible transportation services that meet the varied needs of their customers. To that end, Maryland's transportation agencies are constantly improving the State's transportation system to assist the motorist, air traveler, pedestrian, bicyclist, or public transportation rider to get to their destination efficiently and reliably.

Maryland strives to provide its citizens with a balanced, integrated, and accessible transportation system. However, growing demand leads to increased congestion levels and travel delays at key segments of the transportation network. To address these challenges, MDOT will consider a range of mobility improvement options including the use of managed, variably priced, or special purpose facilities (such as Express Toll Lanes<sup>SM</sup>), technology such as *E-ZPass*<sup>®</sup>, alternative means of travel such as bus rapid transit and Light Rail transit, and key system expansions. By employing approaches that enhance and extend the transportation system, Maryland's transportation agencies help to decrease delay and improve the safety and reliability of the State's transportation network for all customers.

### Mobility Performance Trends:

- The number of miles of freeways and arterials operating at congested conditions declined in CY2006, with the percentage of freeway lane miles at or above congested levels declining slightly and arterial congestion declining by 1.8 percent.
- Annual vehicle revenue miles across all MTA services increased 4.3 percent in FY2007.
- Between FY2006 and FY2007, the total number of MdTA toll transactions increased 1.2 percent while the number of *E-ZPass* transactions increased by 8.6 percent.
- During CY2006, the number of passengers that traveled through Baltimore/Washington International Thurgood Marshall (BWI) Airport increased 4.9 percent and the number of nonstop airline markets served from BWI remained the same compared to the previous year.

## Safety & Security

Providing safe and secure travel for all customers using Maryland's transportation system is a fundamental priority at Maryland's transportation agencies. Exercising heightened safety and security consciousness is central to all activities conducted across Maryland's modal administrations and MdTA, with safety considerations having become a part of all transportation-related design and operational activities. For example, commercial vehicle weigh and inspection stations along State highways and container inspections at Port of Baltimore facilities ensure that goods are moved safely and securely throughout the State. Furthermore, Maryland's transportation agencies employ specific performance measures as a way to evaluate the safety and security of travelers using Maryland's roadways, transit systems, airports, and seaports, as well as for monitoring the effectiveness of safety programs and projects.

Maryland completed a Strategic Highway Safety Plan (SHSP) in 2006, which is a Statewide comprehensive safety plan that provides a coordinated framework for reducing highway fatalities and serious injuries on all public roads. The SHSP's goal is to reduce fatalities and injuries by sharing resources and targeting efforts to the areas of greatest need. While significant progress is being made in traffic safety, MDOT recognizes that these raw numbers for crashes, deaths, and associated injuries remain far too high to accept. Traffic safety is more than a transportation or law enforcement issue; traffic deaths constitute an epidemic that can be prevented. This problem must be approached as a public health issue that requires input from traditional and nontraditional stakeholders. The Maryland Strategic Highway Safety Plan is the State's roadmap for making dramatic decreases in the number of crashes on all public roads in Maryland, and MDOT is committed to working with its partners to continue its role in achieving a significant reduction in the crash rate and raw numbers.

### Safety & Security Performance Trends:

- Although the number and rate of personal injuries per 100 million vehicle miles of travel has steadily declined over the past ten years, with an additional three percent reduction between CY2005 and CY2006, the raw numbers have averaged more than 630 deaths over that same ten year time frame.

- Maryland's CY2006 fatality rate of 1.15 remains lower than the national fatality rate of 1.42. However, the number of fatalities in Maryland increased between CY2005 and CY2006 going from 614 to 652, which is a 6 percent increase.
- Customer perception of safety on MTA systems remains at 2.8 on a five-point scale, suggesting that the safety and security improvements implemented by MTA are not yet recognized by the public.
- The Port of Baltimore continues to be in compliance with the Maritime Transportation Security Act of 2002, and the U.S. Coast Guard has approved all MPA terminals' Facility Security Plans. MPA was recently awarded \$1.87 million in Federal Port Security Grants.
- BWI Airport continues to pass the annual FAA Part 139 safety certification inspection process and, for the third year in a row, received zero discrepancies during the inspection.

## Productivity & Quality

Maryland, like many states, must continually work to balance the competing forces of increasing demand, maintaining existing infrastructure, and funding limitations. That is why Maryland's transportation agencies seek to provide project management that includes leadership and coordination, systematic project planning, and professional oversight of the project delivery process. Using streamlined approaches and partnerships with other agencies assists in the completion of transportation projects while protecting natural environments and sensitive areas at the same time.

Maryland's transportation agencies recognize that simply building transportation infrastructure is not enough and that it is important to effectively manage these investments in order to maximize the user experience and provide quality of life benefits. That

is why MDOT, its modal agencies and MdTA practice business-like organizational strategies and best-value practices designed to improve program and project delivery capabilities. By evaluating key cost-efficiency and customer satisfaction measures, agencies are able to identify areas for improvement and leverage resources in order to reduce or contain costs and meet customer expectations.

### Productivity & Quality Performance Trends:

- MDOT continues to work to achieve measurable reductions in mobile source emissions.
- MTA customer satisfaction ratings increased for MARC and declined for Core Bus, Metro, and Light Rail.
- Customer satisfaction for MAA and SHA are projected to remain steady, with BWI winning top honors in the *Airport Revenue News* 2007 Best Concessions Poll.
- MTA cost per passenger decreased in FY2006 for Core Bus, Light Rail, MARC, and Commuter Bus, and increased for Metro, Paratransit and Taxi Access.
- BWI revenue per enplaned passenger and cost per enplaned passenger both experienced modest increases over the previous year, and continue to compare favorably with peer airports.
- MPA revenue increased slightly in FY2007, with billable cargo tonnage increasing 2.2 percent, largely in containers, autos, and forest products.
- With 16,787 lane miles to maintain, SHA's FY2007 maintenance expenditure per lane mile rose slightly above the previous year's, but remained well below the target level.
- The cost per transaction at MVA rose in FY2007 as a result of capital investment in technology and infrastructure.

# INTRODUCTION

## MARYLAND TRANSPORTATION FACTS

### Ground Transportation...

- 30 transit systems supported by the State
- 256 million transit riders in FY2007 (including LOTS ridership)
- Major construction projects added to the FY2008-2013 *draft* CTP: MD 35, bridge over Branch of Wills Creek; MD 28, over Washington Run; MD 5, from MD 373 to US 301; I-270, over Doctor Perry Road; I-70, bridges over Black Rock; WMATA dedicated funding
- Nearly 72 percent of vehicle miles traveled in CY2006 occurred on State-owned highways (SHA & MdTA)
- 63 systems are integrated with Coordinated Highways Action Response Team (CHART) throughout the State (e.g., Maryland State Police, MdTA, MTA)
- During FY2007, MdTA's Vehicle Recovery Technicians and Courtesy Patrol assisted 29,319 motorists and MdTA Police responded to 1,958 incidents
- More than 120.1 million toll transactions occurred in FY2007, with over 65.4 million collected via *E-ZPass*®
- MVA processed over 8.9 million walk-in transactions at MVA's 24 branch office locations in FY2007

### In The Sky...

- BWI is Southwest's fourth largest "hub" and AirTran's second largest "hub," respectively carrying 10.7 million passengers and 2.2 million passengers in FY2007
- 18 publicly-owned airports and 17 privately-owned airports with public use
- Five scheduled cargo airlines serve BWI

### Waterborne Movement...

- Compared to FY2006, containerized cargo increased 3.3 percent, forest cargo at MPA terminals grew by 5.4 percent, and auto cargo rose by 21 percent in FY2007
- Port of Baltimore ranks 14<sup>th</sup> in the nation in foreign cargo tonnage, and 12<sup>th</sup> in terms of cargo value in 2006
- Nearly 60,000 cruise ship passengers used the Port of Baltimore in CY2006



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The Maryland Department of Transportation (MDOT) is the only transportation department in the country that directly provides its citizens with the complete range of modal choices. The Department's responsibilities span all major transportation facilities—roads, bridges, transit, rail, airports, seaports, bicycle and pedestrian. MDOT coordinates transportation planning activities both across the State and across all modes of transportation. The Secretary's Office (TSO) establishes transportation policy and oversees five modal administrations: the Maryland Aviation Administration (MAA), the Maryland Port Administration (MPA), the Maryland Transit Administration (MTA), the Motor Vehicle Administration (MVA), and the State Highway Administration (SHA). The Secretary of Transportation also serves as Chairman of the Maryland Transportation Authority (MdTA). An independent State agency, MdTA is responsible for Maryland's toll facilities and for financing new revenue producing projects for MDOT. This organization of responsibility across all modes of transportation ensures a closely coordinated State transportation policy.

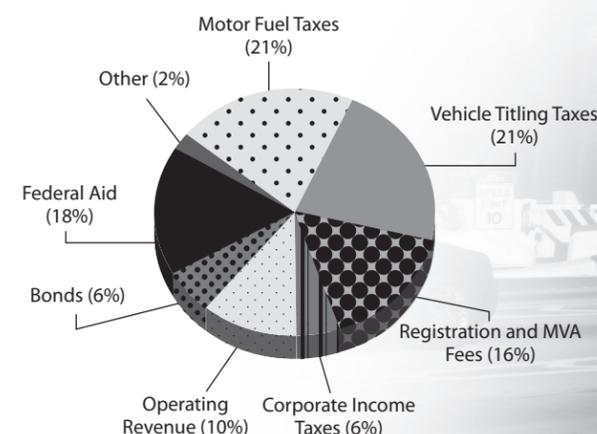
### Funding Framework: MDOT and MdTA

To support the planning, construction, operations, and maintenance activities of all five modal agencies, MDOT receives funding outside the State's General Funds through an integrated Transportation Trust Fund (TTF), which is a dedicated revenue source supported by Federal aid, operating revenues, registration fees, taxes, and bond sales. As a separate entity, MdTA is financially independent from both the TTF and the State's General Funds. MdTA activities are funded through tolls, concessions, investment income, revenue bonds, and miscellaneous sources to cover the construction, operation, and maintenance of all MdTA facilities.

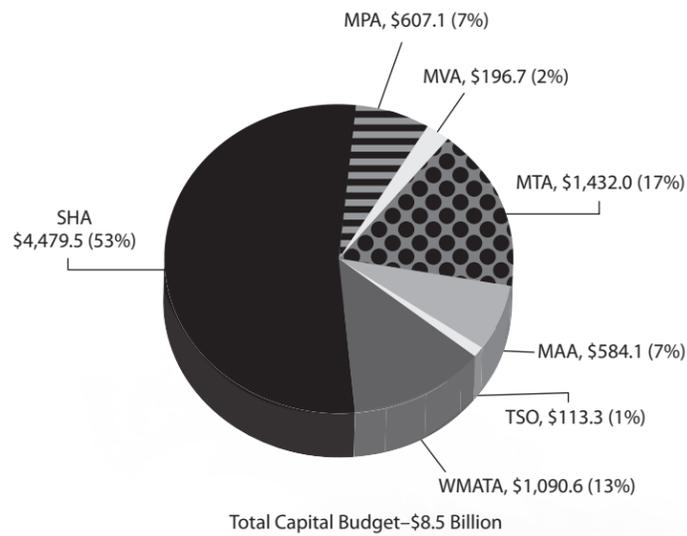
MDOT's capital and operating budgets for FY2008-FY2013 illustrate how the TTF is allocated across MDOT and its five modal administrations, as well as the Washington Metropolitan Area Transit Authority (WMATA). Maryland is one of a few states that fully support two major urban transit systems (WMATA and MTA) in two major urban areas. Because MdTA is an autonomous agency, its capital and operating budgets are shown separately.

Although the revenues that fund the TTF do increase, they continue to grow at a lesser pace than transportation operating and capital expenses. With no significant new revenue sources available to fund Maryland's transportation needs, MDOT is committed to maximizing the impact of available funds in every corner of the State. Innovative financing mechanisms can help fill a portion of the gap between declining traditional revenue sources and increasing costs of construction and maintenance. However, these other funding options offer only supplements to the State's TTF. They do not address the basic necessary system maintenance, operating and preservation costs. MDOT has successfully partnered with MdTA since 1985 to provide funding assistance and/or access to the revenue bond market for joint development and delivery of approximately \$1.3 billion in capital construction projects, including the expansion of Baltimore/Washington International Thurgood Marshall (BWI) Airport and improvements to facilities at the Port of Baltimore.

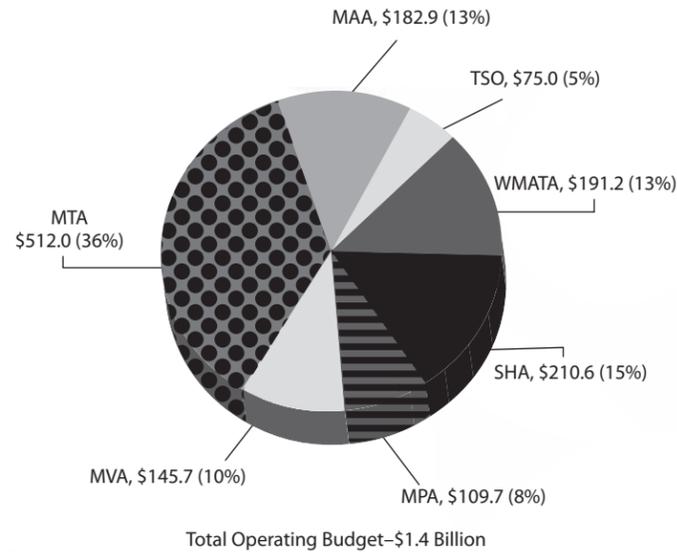
### TRANSPORTATION TRUST FUND SOURCES FY2008-FY2013



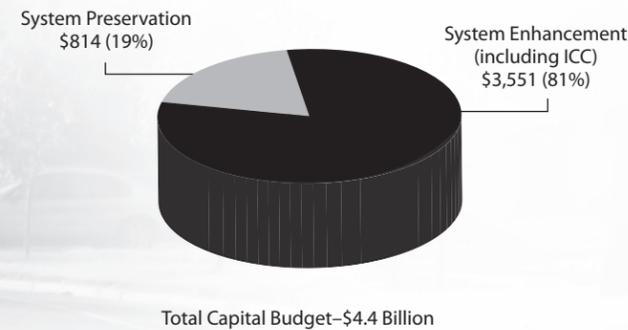
### MDOT CAPITAL BUDGET FY2008-FY2013 (Millions)



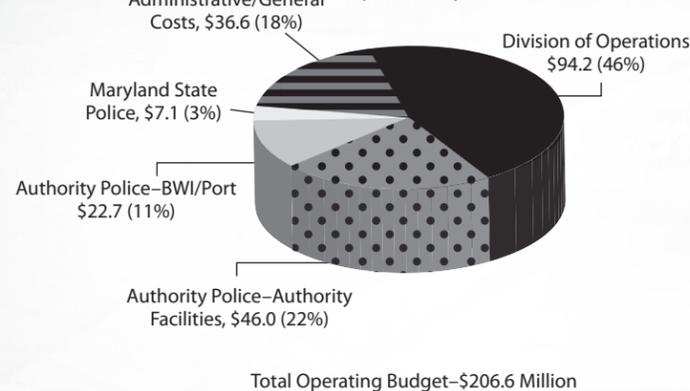
### MDOT OPERATING BUDGET FY2008 (Millions)



### MdTA CAPITAL BUDGET FY2008-FY2013 (Millions)



### MdTA OPERATING BUDGET FY2008 (Millions)



Maryland's transportation network continues to grow, but many parts of the system are also aging. That is why MDOT, its modal agencies and MdTA work to make the most productive use of existing and proposed investments. By maximizing transportation assets and acting in a fiscally responsible manner, Maryland's transportation agencies are able to make the best use of limited resources. MDOT looks to contain costs and employ best value practices in order to deliver projects within expected scope, timeframe, and budget. For example, MDOT evaluates the delivery of projects listed in the CTP by tracking the "percentage of budgeted dollars expended" in order to improve the management of the capital transportation program. MDOT continues to strive to spend 90 percent of budgeted dollars to prevent unnecessary borrowing of funds in the future. In FY2007, MDOT spent 91 percent of the estimated budget (total Federal and State dollars).

### Growing Transportation Demand in Maryland

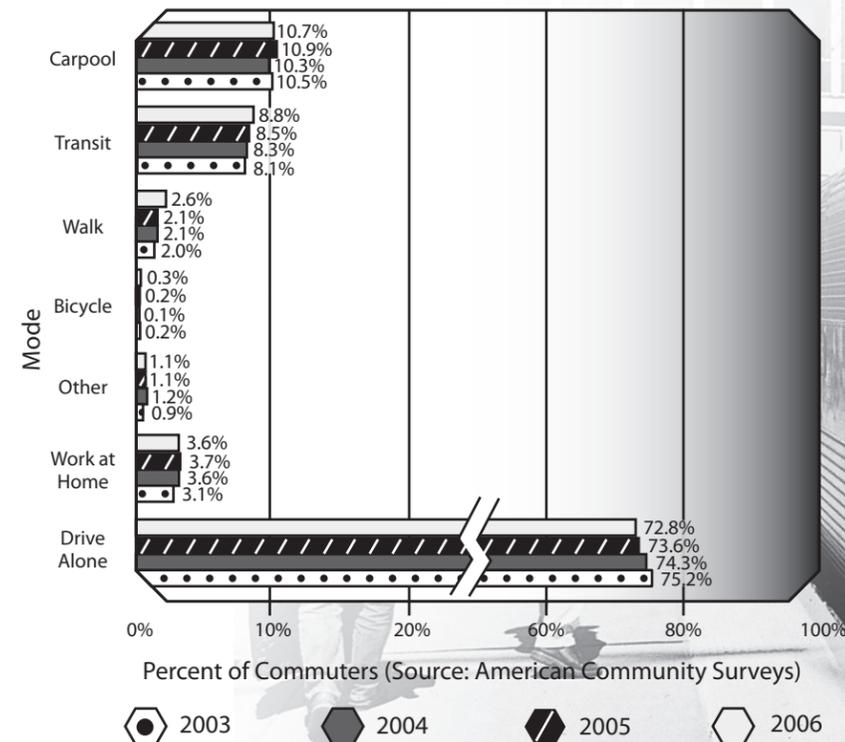
Maryland's transportation agencies continue to manage existing user demand across all modes of transportation as well as prepare for future demand for transportation facilities and services. Census data for 2006 show that

Maryland is home to more than 5.6 million residents and was ranked 19th in the Nation in terms of total population, but was 5th in terms of population density with 578.6 persons per square mile. The State population increased by over 319,000 people between 2000 and 2006 and is projected to grow to more than 6.7 million people by 2030 – an increase of 27 percent between 2000 and 2030.

### Mode Split for Maryland Commuters

Providing Maryland citizens with a mix of transportation options including automobile, transit, and bicycle and pedestrian facilities is important to MDOT. However, even with a host of multi-modal travel choices, a significant portion of personal travel in Maryland occurs by automobile, light truck, or sport utility vehicle. Modal shifts are often incremental, and results from the American Community Surveys show the most substantial shift (2.4 percent decrease) occurred in drive alone trips between 2003 and 2006 and that other modest shifts occurred in transit, walking, and working from home or telecommuting. MDOT aims to maintain the share of public transportation and other non-single-occupant vehicle modes over the six-year period and to continue to increase this share over the next 20 years.

### MODE SPLIT FOR MARYLAND COMMUTERS



### Travel in Maryland – Ground Transportation

In CY2006, vehicle miles of travel (VMT) in Maryland stayed relatively steady at nearly 57 billion vehicle miles. This constitutes a 16.9 percent increase between CY1998 and CY2006, or an average increase of 1.9 percent per year. Between FY2002 and FY2007, total toll transactions on MdTA toll facilities also rose from 115 million to over 120 million, an increase of 4.3 percent over the time period, or an average increase of 0.7 percent per year. Given population projections and development patterns, the growth trend in vehicle miles of travel is likely to continue.

In FY2007, MVA – the agency responsible for registering vehicles and licensing drivers – processed over 12.5 million transactions, not including transactions processed by approved businesses/agencies authorized with online access to records using the Direct Access Records System (DARS). According to MVA, the State’s 16 and above population will be over 4.5 million in 2008 and is expected to grow to nearly 5.4 million by 2028. MVA projects the addition of more than 951,000

licensed drivers on Maryland roadways will result in an increase of nearly 24 percent in the number of licensed drivers and an increase of 39 percent in the number of vehicles registered, which translate into an even stronger demand for MVA services.

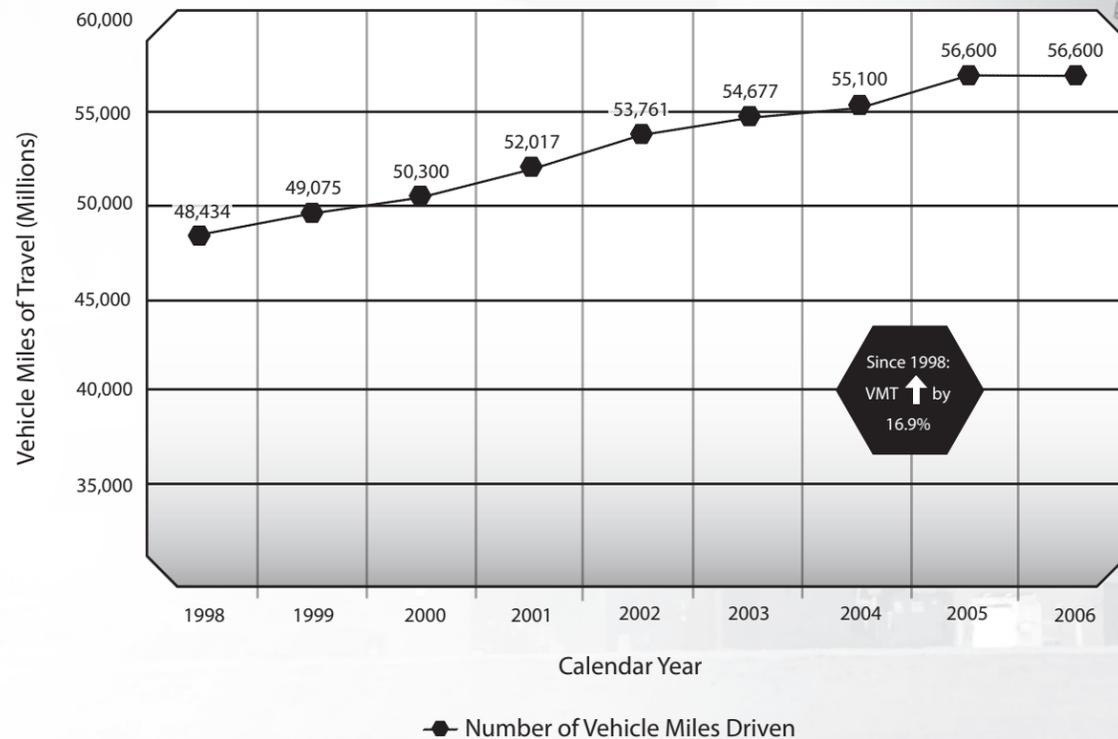
Transit ridership increased on all MTA modes between FY2006 and FY2007, demonstrating the importance of Core Bus, Metro, Light Rail, MARC, Commuter Bus and Paratransit services in Maryland. MDOT provides funding for MTA, WMATA and Locally Operated Transit Systems (LOTS), thus supporting transit services across the State. WMATA bus and WMATA rail have experienced sustained growth, emphasizing the importance of connecting Maryland to the Washington and Virginia metropolitan areas. LOTS encompass 28 transit systems provided by individual cities and counties throughout the State. MTA, WMATA in Maryland, and the LOTS systems carried 256 million passengers in FY2007. MDOT supports LOTS through State and Federal grants, which totaled \$65.9 million in FY2006 (\$51.0 million in operating grants plus \$14.9 million in capital grants). LOTS systems submit annual performance reports of service efficiency and effectiveness to MDOT.

### Travel in Maryland – In the Sky

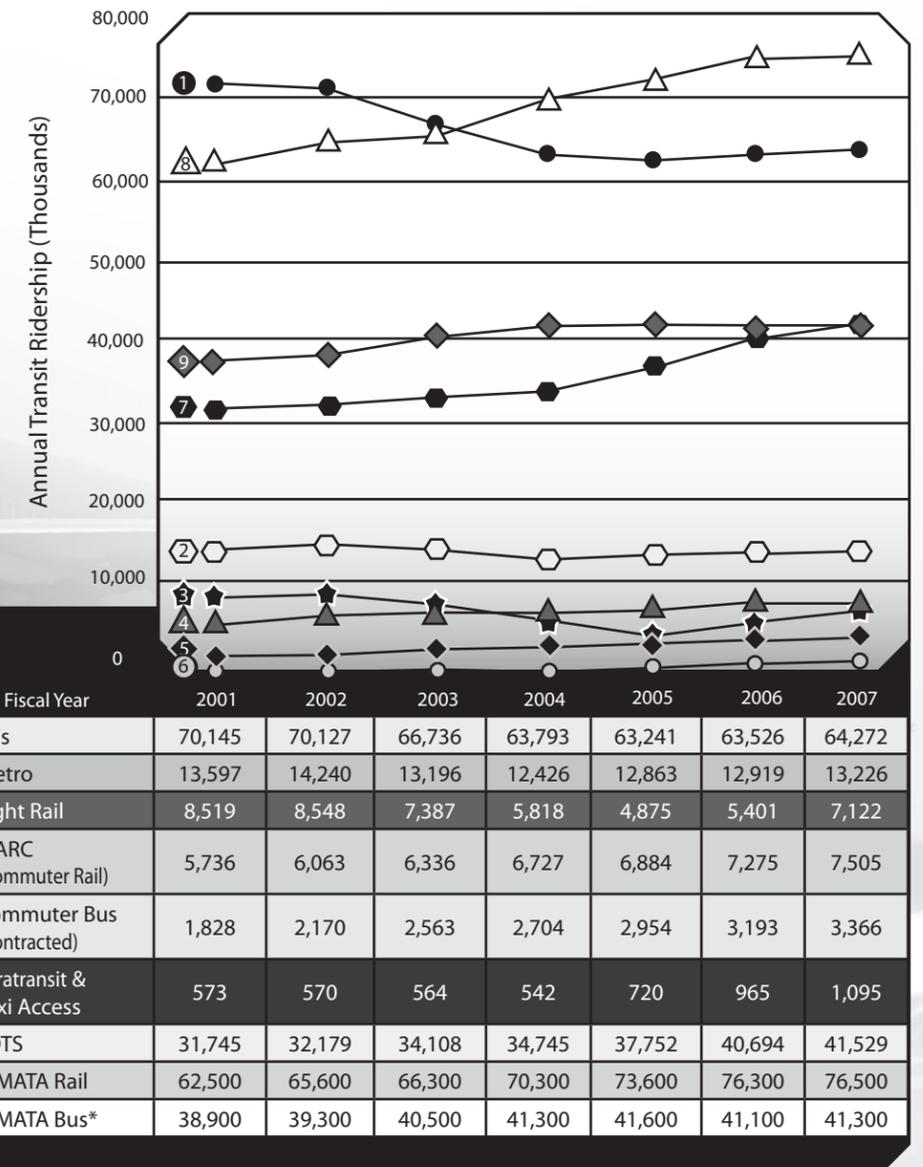
MAA’s vision is that the Maryland aviation system will be the “Easy Come, Easy Go” gateway to the world. A major East Coast airport, BWI offers a convenient option for travelers into and out of the Washington-Baltimore area, connection to other areas on the Mid-Atlantic coast, and access to cross-country flights and international destinations. With nearly 20.7 million domestic and international passengers, a 4.9 percent increase from the previous year, CY2006 marked the highest number of passengers using BWI in its history. In addition to BWI, MAA is responsible for the operation of Martin State

Airport – a general aviation and support facility for the Maryland Air National Guard and Maryland State Police. In total, there are 35 public-use airports in Maryland, with commercial air service offered at BWI and Salisbury. Not including BWI and Martin State Airport, public-use general airports in Maryland received approximately \$36 million in State funding assistance between 1997 and 2007 (Federal funds and local airport funds are not included in the \$36 million). State assistance funds have been used for airport infrastructure expansion, runway rehabilitation, obstruction clearance, and system preservation.

ANNUAL VEHICLE MILES OF TRAVEL IN MARYLAND



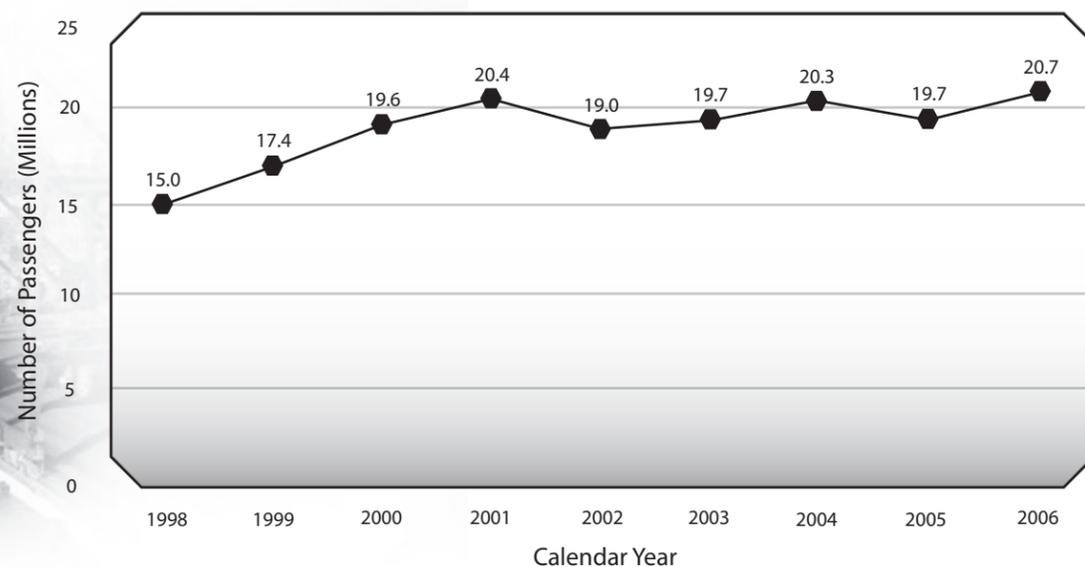
MARYLAND TRANSIT ANNUAL RIDERSHIP BY MODE



\*2006 WMATA Bus data revised.



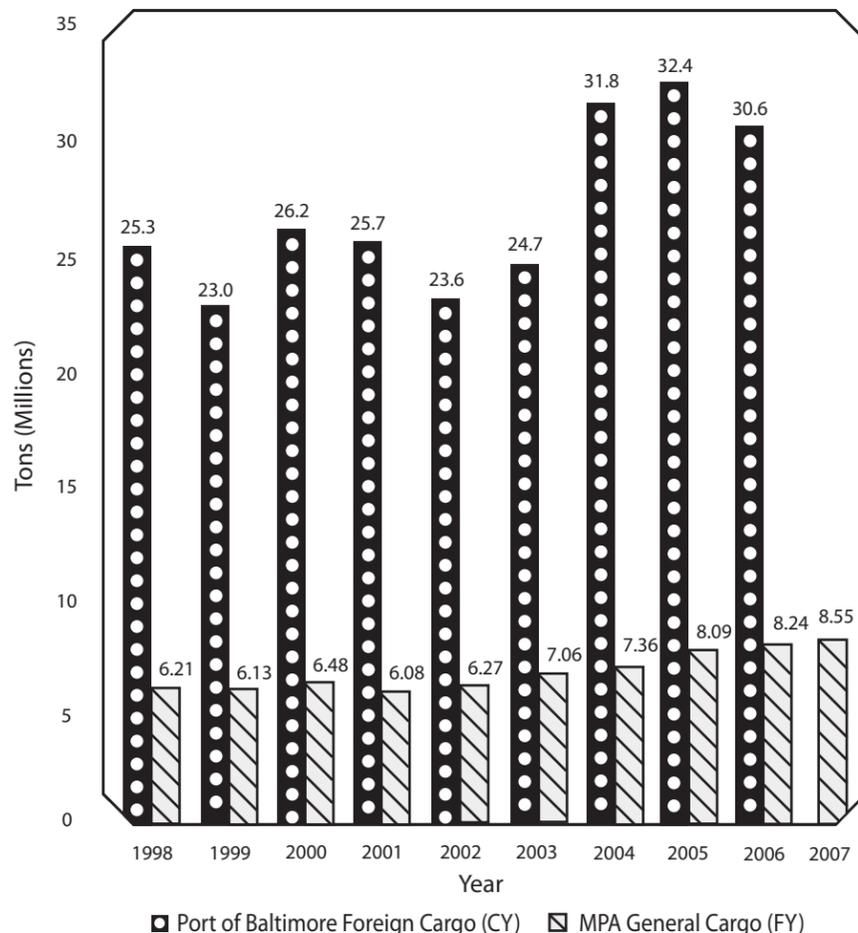
### TOTAL ANNUAL PASSENGERS AT BWI



### Travel in Maryland – Waterborne Movement

Having recently celebrated its 300th anniversary, the Port of Baltimore continues its tradition as an economic driver and source of revenue for the State. With six public and 30 private terminals located on 45 miles of shoreline, the Port of Baltimore is one of only two ports on the U.S. East Coast that has a 50-foot deep channel. MPA currently has three 45-foot deep berths and is dredging a 50-foot access channel to Seagirt Marine Terminal. Because the Port of Baltimore is located in close proximity to major Interstate highways and frequent rail service, goods have direct access to both overnight and national marketplaces. Total foreign cargo handled (bulk and general) has remained above 30 million tons for the last three years with a slight decrease in CY2006. General cargo throughput at the Port of Baltimore’s public terminals reached 8.55 tons in FY2007, a quarter million tons, or 3.8 percent, more than the previous year. Having set a new record for general cargo in FY2007, MPA will continue to focus on niche cargos and strategically plan for future maritime shipping needs while maintaining its commitment to safety, security, and the environment.

### PORT OF BALTIMORE FOREIGN CARGO & MPA GENERAL CARGO



Note: Port of Baltimore Foreign Cargo tonnage data for CY2007 will not be available until CY2008.

### Travel in Maryland – Bicycle and Pedestrian Access

The MDOT Bicycle and Pedestrian Access Master Plan completed in 2002 is a comprehensive guide to developing, improving and maintaining bicycle and pedestrian travel in Maryland over a twenty-year period. The plan outlined five goals: facility integration and expansion, facility preservation and maintenance, safety, education and encouragement, and smart growth. Maryland’s continual commitment to fulfill the five bicycle/pedestrian goals is illustrated in the actions described in the following table.

The Bicycle and Pedestrian Access Master Plan also established a set of performance measures for MDOT to track on an annual basis to determine the extent to which the Department is meeting the goals set forth in the plan. Maryland’s bicycle and pedestrian program

fulfills the Federal Highway Administration (FHWA) guidelines on establishing and monitoring performance using quantitative performance measures and targets. The following table and chart list current data for the key bicycle and pedestrian performance measures.

#### Other Bicycle/Pedestrian Measures:

- Number of local jurisdictions implementing ordinances that support bicycling and walking: 23 in CY2007.
- Percent of appropriate MTA transit vehicles that can accommodate bicycles: 33 percent in CY2007 (this represents a slight increase from 32 percent in CY2006).
- Dollars committed to bicycle and pedestrian projects in the FY2008-FY2013 draft CTP: \$208.7 million.

GOALS	ACTIONS IN 2007
Goal 1: Facility Integration and Expansion	<ul style="list-style-type: none"> <li>● Published SHA Bicycle and Pedestrian Design Guidelines</li> <li>● Added marked bike lanes in White Oak and Briggs Chaney sections of Montgomery County</li> <li>● Completed construction of the 21-mile Allegheny Highland Trail, Maryland’s portion of the Great Allegheny Passage</li> </ul>
Goal 2: Facility Preservation and Maintenance	<ul style="list-style-type: none"> <li>● Board of Public Works approved the Easton, Maryland to Clayton, Delaware lease agreement between the Maryland Department of Natural Resources and MDOT</li> </ul>
Goal 3: Safety	<ul style="list-style-type: none"> <li>● Maryland Highway Safety Office awarded nearly \$3.4 million in Safe Routes to Schools funds</li> <li>● Completed and distributed an adult bicycle safety DVD, <i>Competent and Confident Bicycling in Maryland</i></li> <li>● Continued distribution of <i>Safe Bicycling in Maryland</i> and <i>Biking from A to Z</i> publications</li> <li>● Helped to fund and develop the 2007 DC regional Street Smart pedestrian traffic safety campaign, <i>Flesh versus Steel... Its No Contest!</i></li> </ul>
Goal 4: Education and Encouragement	<ul style="list-style-type: none"> <li>● Sponsored the 2007 Cycle Across Maryland event in Princess Anne</li> <li>● Supported annual Bike To Work Day events</li> <li>● Participated in Healthy Maryland initiative to improve nutrition and increase physical activity through walking and bicycle commuting</li> <li>● Published a new Maryland Bicycle Map</li> </ul>
Goal 5: Smart Growth	<ul style="list-style-type: none"> <li>● Initiated Maryland Bicycle and Pedestrian Partnership program where MDOT works with county, regional and municipal staff to develop and implement bicycling and walking programs</li> <li>● Produced the 2002 Maryland Bicycle and Pedestrian Access Master Plan Implementation Progress Report</li> </ul>

### Bicycle and Pedestrian Safety

MDOT is committed to implementing strategies aimed at improving the safety of bicyclists and pedestrians on Maryland's roadway network. Following are a number of strategies that are being pursued in order to provide safe conditions for Maryland's pedestrians and bicyclists. Several of these strategies were further developed during the effort led by SHA to update Maryland's Strategic Highway Safety Plan. The effort included a Traffic Safety Summit where interdisciplinary teams developed objectives and strategies in 14 identified safety emphasis areas (e.g., Intersection Safety, Distracted Driving, and Aggressive Driving).

- Improve infrastructure to address factors contributing to crashes at "hot spots," locations identified by analyzing accident data and conducting safety audits.
- Continue public information and education campaigns directed toward pedestrians, bicyclists, and motor vehicle operators (e.g., adult bicycle safety DVD, International Walk to School Day, Drive Safely to Work Week).

- Provide grants to State and local agencies to fund "Safe Routes to School" projects and programs.
- Install and/or designate additional bike facilities along State highways.
- Support pedestrian safety enforcement campaigns (e.g., Street Smart regional traffic safety media campaign).
- Train State and local agency staffs to use the "Pedestrian Toolbox," an assembly of techniques to improve pedestrian access and safety.
- Expand the use of pedestrian "count down" signals.
- Improve intersections to better accommodate pedestrians with sight and mobility limitations.
- Continue SHA sponsorship of the Pedestrian Safety Task Force and distribution of *Safe Bicycling in Maryland* guidebooks.
- Enhance and enforce pedestrian safety laws.

BICYCLE/PEDESTRIAN MEASURES	2002	2003	2004	2005	2006	TARGET	TARGET DATE
Percentage of State-owned roadway centerline miles with a bicycle level of comfort (BLOC) grade of "D" or better (Scale "A" to "F")	77%	80%	81%	79%	78%	80%	12/07
Centerline mileage of SHA-owned highways with designated bicycle lanes/routes	8 miles	40.6 miles	186 miles	455.4 miles	680 miles	700 miles	12/08
Percentage of SHA-owned roadway centerline miles within urban areas that have sidewalks	20%	24.6%	26%	28.6%	29.9%	32%	12/07
Number of bicycle fatalities and injuries on all Maryland roads	7 fatalities 722 injuries	6 fatalities 641 injuries	11 fatalities 652 injuries	7 fatalities 629 injuries	6 fatalities 659 injuries	<5 fatalities <409 injuries	2010
Number of pedestrian fatalities and injuries on all Maryland roads	101 fatalities 2,566 injuries	118 fatalities 2,724 injuries	95 fatalities 2,481 injuries	101 fatalities 2,625 injuries	93 fatalities 2,594 injuries	<85 fatalities <2,300 injuries	2010

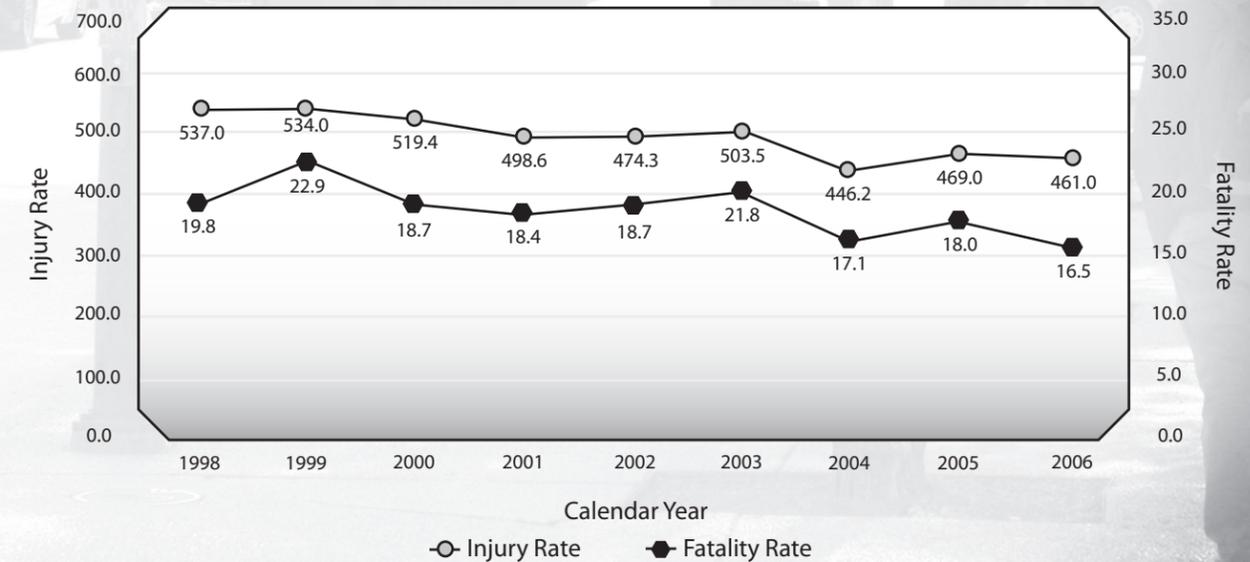
### BICYCLIST INJURIES AND FATALITIES PER 1 MILLION MARYLAND RESIDENTS

(All Maryland Roads)



### PEDESTRIAN INJURIES AND FATALITIES PER 1 MILLION MARYLAND RESIDENTS

(All Maryland Roads)



# EFFICIENCY

Policy Objectives:

- Extend the useful life of existing facilities and equipment
- Maximize the operational performance and capacity of existing systems

PERFORMANCE MEASURES: Efficiency	
MEASURE	MONITORING AGENCY
Percentage of SHA roadway mileage with acceptable ride quality	SHA
Percentage of SHA & MdTA NHS bridges that will allow legally loaded vehicles to traverse	SHA & MdTA
Percentage of MTA service provided on time	MTA
MVA branch office customer visit time vs. customer service rating	MVA
Alternative service delivery transactions as percent of total transactions	MVA
Total reduction in incident congestion delay	SHA

Making efficient use of Maryland's existing transportation network is a priority for the State's transportation agencies. Given Maryland's expanding population and economy, the State's transportation agencies look to meet growing demand by extending the useful life of existing facilities and equipment before undertaking capacity expansion projects. Current funding limitations also increase the importance and necessity of employing innovative approaches to meet user demand through efficiencies of operations so people and goods can continue to move seamlessly around the State.

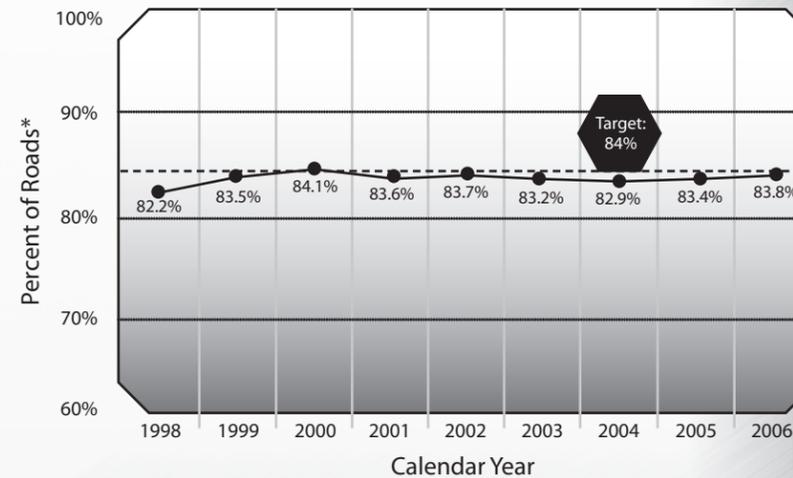
Ongoing maintenance is also essential to preserving transportation infrastructure. Keeping Maryland's transportation system in good condition through activities, such as road repaving, engineering safety improvements, and repairing aging infrastructure or equipment, helps to extend the lifespan of the State's investments in a fiscally responsible manner. Maryland's modal administrations and MdTA have made excellent progress toward maximizing efficiency through strategic management practices and focusing transportation investments to achieve the largest positive impact.

Efficiency Performance Trends:

- SHA pavement ride quality is gradually approaching the 84 percent acceptable target due to increased investment in upgrading pavements, but there is concern about whether this trend can continue based on significant increases in costs.
- 100 percent of SHA and MdTA bridges on the National Highway System allowed all legally loaded vehicles to safely traverse for the past seven years.
- Between FY2006 and FY2007, MTA's on time performance improved for Metro, remained the same for Light Rail, and declined for Core Bus, MARC, and Paratransit.
- MVA's branch customer visit time and customer service rating remained the same in FY2007 compared to the previous year.
- MVA alternative service delivery transactions increased by 5 percent in FY2007 and reached 29 percent of total transactions, surpassing MVA's short-term target.
- SHA's efforts to reduce incident congestion delay continues to save highway users time. In CY2006 alone, 37.5 million vehicle hours were saved, a cost-savings of \$1.1 billion in direct benefits to highway users.
- \$250 million of the \$450 million revenue increase passed December 2007 will be dedicated to system preservation.

## PERCENTAGE OF SHA ROADWAY MILEAGE WITH ACCEPTABLE RIDE QUALITY

The traveling public has identified acceptable ride quality as a priority. Ride quality facilitates mobility, efficiency, and safe movement of people and goods within Maryland.



\*Revised methodology for calculating ride quality.

WHY DID PERFORMANCE CHANGE?

- Completed major bridge projects along eight State roads, including rehabilitation of the bridges along MD 90, the Ocean City Expressway, over the Assawoman Bay and St. Martins River, and several bridge deck replacements over I-68
- SHA continued to perform timely bridge inspections in conformance with Federal guidelines, 89 percent of bridges were inspected within one month of the due date and 100 percent within four months of the due date

WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Pursue funding for remedial repairs and/or improvement work to avert weight restrictions
- Following major storms, evaluate structural condition and scour protection of bridges that cross water
- Proactively identify structurally deficient SHA/NHS bridges as candidates for deck replacement or repair and conduct preliminary engineering activities
- Review all SHA's NHS bridges whose ratings show a borderline structural condition within six months of the previous inspection and begin repair within one year
- MdTA continues to consistently maintain 100 percent of bridges by utilizing an aggressive inspection, maintenance, and repair program
- All MdTA bridges are inspected annually, which surpasses the Federally mandated biennial inspection cycle, and all critical findings are addressed in a timely manner to ensure that bridges within MdTA's inventory have no load restrictions

WHY DID PERFORMANCE CHANGE?

- Executed the annual strategic budget allocation plan for the pavement preservation program to identify lane-miles to improve
- Used high-speed laser technology to ensure construction standards are linked to ride quality targets
- Targets and performance measures have been changed to reflect new Federal guidelines for calculating ride quality

WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Request additional funding for Pavement System Preservation (Fund 77) to increase the mileage of pavement repair projects
- Develop preventive maintenance program and integrate it with pavement management system and maintenance operating budgets
- Create an electronic inventory of highway assets (including attributes) on the SHA highway system and update annually

## PERCENTAGE OF SHA & MdTA NHS BRIDGES THAT WILL ALLOW LEGALLY LOADED VEHICLES TO TRAVERSE

Bridges that do not have weight restrictions enable goods to move safely and efficiently, ensure the safety of the traveling public, and facilitate a rapid response to any emergency throughout Maryland.

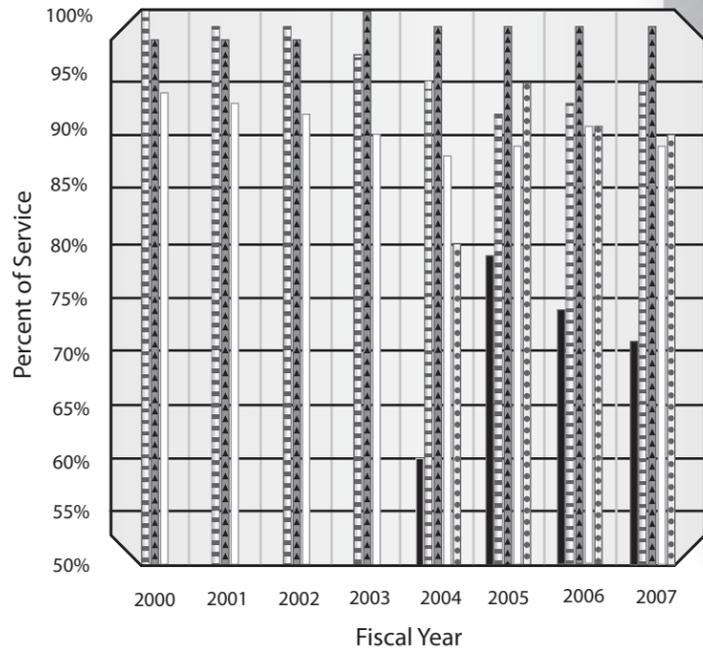
CALENDAR YEAR	NUMBER OF SHA NHS BRIDGES	NUMBER OF MdTA NHS BRIDGES	PERCENTAGE THAT WILL ALLOW ALL LEGALLY LOADED VEHICLES TO SAFELY TRAVERSE THE NATIONAL HIGHWAY SYSTEM
2000	1,340	251	100%
2001	1,336	251	100%
2002	1,340	253	100%
2003	1,157*	253	100%
2004	1,157	253	100%
2005	1,155	253	100%
2006	1,155	239*	100%

TARGET: 100%

\* Method of counting NHS bridges has been adjusted over time so that it is now consistent for SHA and MdTA.

### PERCENTAGE OF MTA SERVICE PROVIDED ON TIME

On-time performance is an important indicator of service quality and efficiency, and correlates highly with system usage and customer satisfaction.



#### WHY DID PERFORMANCE CHANGE?

- Improved scheduling of required maintenance resulted in fewer delays for Metro trains
- Increases in Amtrak passenger trains and CSX freight trains interfered with MARC commuter trains on shared right-of-ways

#### WHAT ARE FUTURE PERFORMANCE STRATEGIES?

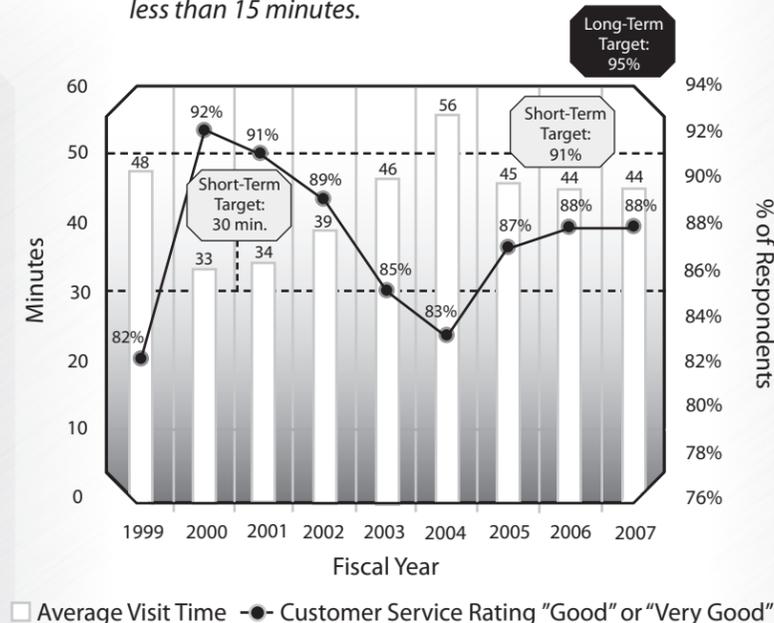
- Implement computer aided dispatching (CAD) and Automatic Vehicle Locator (AVL) systems on MTA buses to track their location on a real time basis
- Commence Light Rail vehicle mid-life overhaul and overhaul of diesel and electric MARC locomotives
- Reduce bus breakdowns through preventative maintenance practices and the procurement of new buses to replace those in service for 12 years or more (\$178.6 million in FY2008-2013 draft CTP)
- Replace paratransit service vehicles (\$49.8 million in FY2008-2013 draft CTP)

**Short-Term Target:**  
 Bus 80%  
 Metro 96%  
 Light Rail 99%  
 MARC 92%

**Long-Term Target:**  
 Bus 90%  
 Metro 97%  
 Light Rail 99%  
 MARC 95%

### MVA BRANCH OFFICE CUSTOMER VISIT TIME VS. CUSTOMER SERVICE RATING

Average customer visit time is a key indicator for the quality and efficiency of service delivery to customers and is inversely related to customer satisfaction (i.e., as MVA branch customer visit time decreases, customer satisfaction increases). The branch customer visit times do not include visit times for Vehicle Emissions Inspection Program (VEIP) Station customers, which currently average less than 15 minutes.



#### WHY DID PERFORMANCE CHANGE?

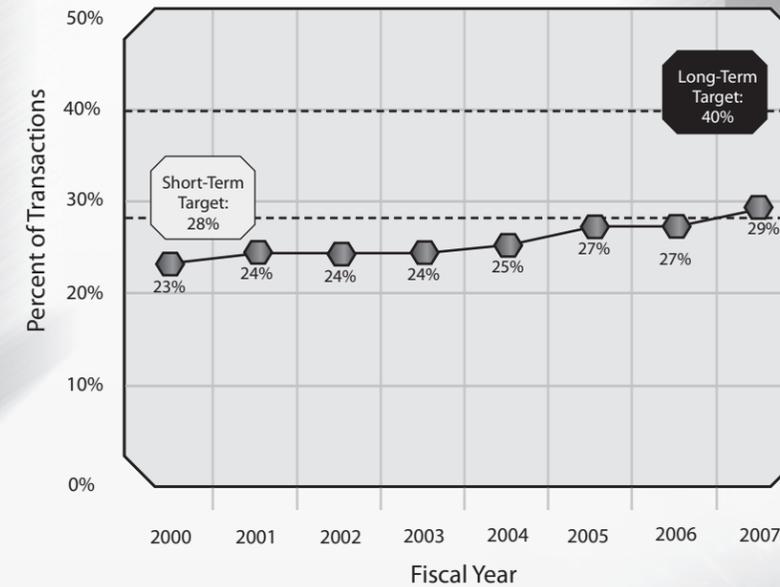
- Completed minor improvements to branch facilities (e.g., repaved parking lots)
- The overall number of customer service personnel in MVA branch offices remained constant between FY2006 and FY2007

#### WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Expand the number of locations with a full range of MVA services
- Develop the MVA Central Scheduling System to manage the flow of customers at branch locations
- Continue to promote service delivery through alternative methods (e.g., phone, mail, Internet)
- Utilize customer surveys, best practice models, and benchmarking to further improve the delivery of MVA products and services

### ALTERNATIVE SERVICE DELIVERY TRANSACTIONS AS PERCENT OF TOTAL TRANSACTIONS

Alternative services offer the ability to provide fast and convenient service delivery to the MVA customer.



\* Measure revised to include only "core transactions" (direct access driver and vehicle records are no longer included).

#### WHY DID PERFORMANCE CHANGE?

- MVA customer usage of mail, internet and telephone services increased
- More customers are choosing to complete basic transactions using alternative delivery rather than visiting branch offices

#### WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Continue to upgrade and expand services and products available by e-MVA Internet, kiosks, and phone
- Strengthen marketing efforts and identify incentive mechanisms
- Utilize surveys, best practices models, and policy input in developing service delivery improvement projects

#### WHY DID PERFORMANCE CHANGE?

- Deployed 63 CHART systems throughout the State to integrate with responding agencies (e.g., Maryland State Police, MdTA, MTA)
- Installed 26 new Closed Circuit TV Cameras and 6 new Dynamic Message Signs
- Operated 18 full-time and 12 part-time service patrols in the Baltimore-Washington Metropolitan area, including new operations in Frederick that cleared more than 17,000 incidents and assisted more than 22,000 stranded motorists

#### WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Install 54 new cameras and 16 additional dynamic message signs by December 2010
- Increase the number of systems integrated with CHART
- Add patrol personnel to increase the number of patrol hours logged by June 2011
- Continue to conduct local, State and regional incident management coordination and collaboration with responding agencies (law enforcement, emergency responders, local and State transportation officials, and members of the media)
- Develop a performance-based strategic plan for long-term CHART enhancements that maximize the public benefit realized from this program

### TOTAL REDUCTION IN INCIDENT CONGESTION DELAY

The Coordinated Highways Action Response Team (CHART) incident management program continues to provide safety and economic benefits to motorists and commerce in Maryland. This program is anticipated to save motorists and commercial traffic approximately 38 million vehicle-hours annually, equivalent to \$1 billion a year in cost-savings.

Performance Measure	Calendar Year				
	2003	2004	2005	2006	Target
Reduction in incident congestion delay	26.8 million vehicle hours saved	25.9 million vehicle hours saved	28.7 million vehicle hours saved	37.5 million vehicle hours saved	30.0 million vehicle hours saved

# MOBILITY

Policy Objectives:

- Relieve congestion by adding key system links
- Support varied modal needs with cost-effective options

## PERFORMANCE MEASURES: Mobility

MEASURE	MONITORING AGENCY
Percentage of lane miles with average annual volumes at or above congested levels	SHA
Peak-period congestion of freeways in Baltimore/Washington regions	SHA & MdTA
Annual vehicle revenue miles of MTA service provided	MTA
Percentage of tolls collected electronically	MdTA
Number of nonstop airline markets served	MAA

Maryland's growing population and robust economy depend on a transportation system that facilitates the seamless movement of people and goods in a timely manner. Maryland's modal administrations and MdTA are committed to providing accessible transportation services that meet the varied needs of their customers. To that end, Maryland's transportation agencies are constantly improving the State's transportation system to assist the motorist, air traveler, pedestrian, bicyclist, or public transportation rider to get to their destination efficiently and reliably.

Maryland strives to provide its citizens with a balanced, integrated, and accessible transportation system. However, growing demand leads to increased congestion levels and travel delays at key segments of the transportation network. To address these challenges, MDOT will consider a range of mobility improvement options including the use of managed, variably priced, or special purpose facilities (such

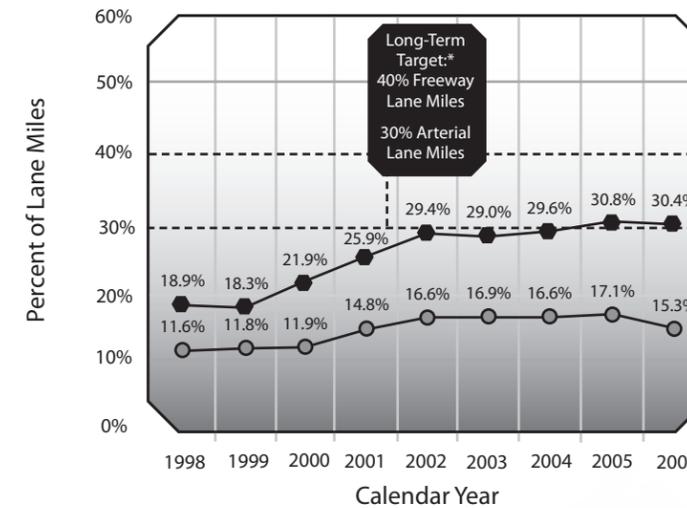
as Express Toll Lanes<sup>SM</sup>), technology such as *E-ZPass*, alternative means of travel such as bus rapid transit and Light Rail transit, and key system expansions. By employing approaches that enhance and extend the transportation system, Maryland's transportation agencies help to decrease delay and improve the safety and reliability of the State's transportation network for all customers.

### Mobility Performance Trends:

- The number of miles of freeways and arterials operating at congested conditions declined in CY2006, with the percentage of freeway lane miles at or above congested levels declining slightly and arterial congestion declining by 1.8 percent.
- Annual vehicle revenue miles across all MTA services increased 4.3 percent in FY2007.
- Between FY2006 and FY2007, the total number of MdTA toll transactions increased 1.2 percent while the number of *E-ZPass* transactions increased by 8.6 percent.
- During CY2006, the number of passengers that traveled through Baltimore/Washington International Thurgood Marshall (BWI) Airport increased 4.9 percent and the number of nonstop airline markets served from BWI remained the same compared to the previous year.

### PERCENTAGE OF LANE MILES WITH AVERAGE ANNUAL VOLUMES AT OR ABOVE CONGESTED LEVELS

*Congestion imposes a variety of costs – to individuals, to the environment, and to the economy. Vehicles per lane per day volumes provide insight into whether congestion is improving or worsening across the State. Given Maryland's growing economic vitality, the increase in vehicle miles traveled and the growing size of the driving population, MDOT is focusing its efforts where it can be most effective, which is to slow the pace of congestion growth and have targets set accordingly.*



- Percentage of Freeway Lane Miles with average annual volumes at or above congested levels
- Percentage of Arterial Lane Miles with average annual volumes at or above congested levels

\* These targets are consistent with county annual growth factors for these types of roads.

### WHY DID PERFORMANCE CHANGE?

- Completed construction of several major capacity enhancement projects: MD 43 from MD 150 and US 40 in Harford County, an interchange on US 29 at Briggs Chaney Road in Montgomery County, and widening on I-270 from I-70 to MD 85 in Frederick
- 63 operations centers that monitor 541 traffic information devices throughout the State make CHART an effective tool for reducing congestion related to incidents
- Recent increases in gasoline prices are likely to be helping reduce vehicle miles of travel

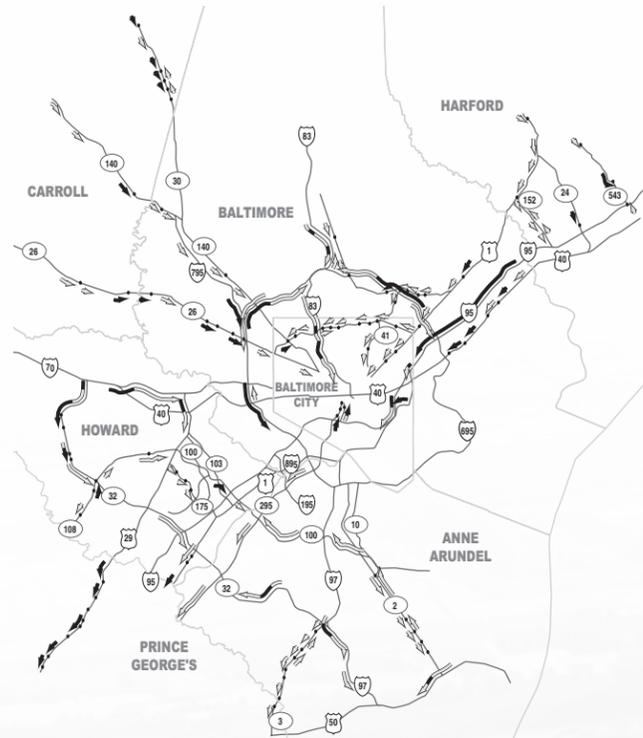
### WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Increase the number of systems integrated with CHART
- Improve traffic and roadway monitoring capabilities (\$51 million in FY2008-2013 draft CTP)
- Promote modal options for transportation users
- Open the inner loop of the Woodrow Wilson Bridge and the Maryland approach, including the MD 210 and I-295 interchanges with expanded capacity
- Deliver strategic construction projects ranging from improving congested intersections to the completion of the Hampstead Bypass and new interchanges: I-70/MD 85/East Street in Frederick, I-95/I-495/Arena Drive in Prince George's County, and access to the Branch Avenue's Metro station from MD 5
- Continue to focus on efficiently operating arterial highways through an aggressive program of retiming traffic signals to minimize delay for the traveling public



**PEAK-PERIOD CONGESTION OF FREEWAYS  
BALTIMORE METROPOLITAN REGION**

MORNING: REGIONAL  
CONGESTION  
(SPRING 2005)



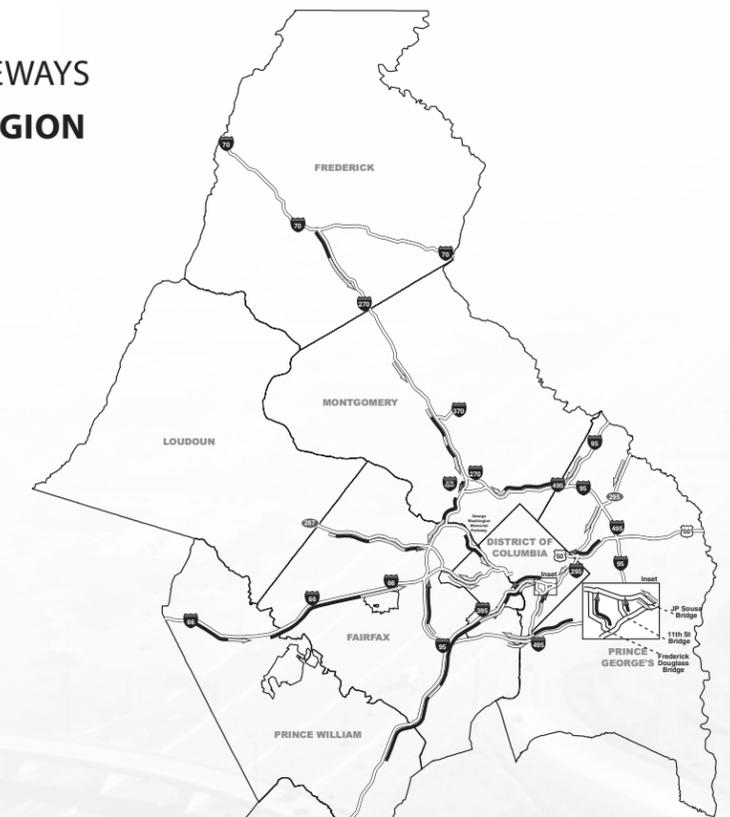
EVENING: REGIONAL  
CONGESTION  
(SPRING 2005)



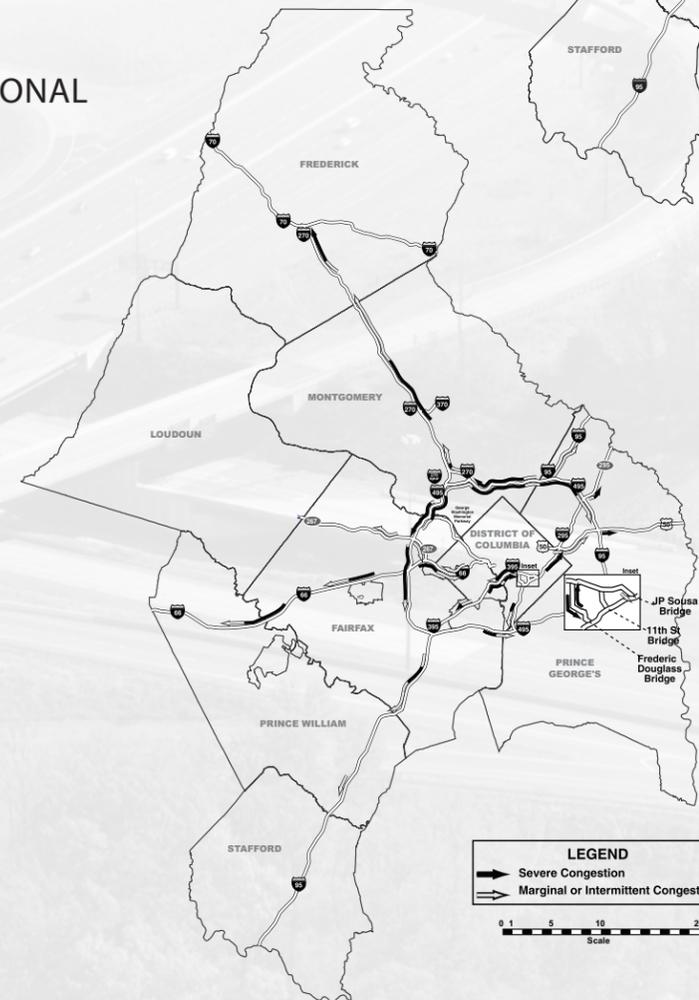
Freeways		Arterial Highways	
	Severe congestion (<30 mph)		Congested signal (>40 vpl)
	Moderate or intermittent congestion (30-50 mph)		Congested signal (Marginal / intermittent)

**PEAK-PERIOD CONGESTION OF FREEWAYS  
WASHINGTON METROPOLITAN REGION**

MORNING: REGIONAL  
CONGESTION  
(SPRING 2005)



EVENING: REGIONAL  
CONGESTION  
(SPRING 2005)



**LEGEND**  
 Severe Congestion  
 Marginal or Intermittent Congestion  
 0 1 5 10 20  
 Scale



**WHY DID PERFORMANCE CHANGE?**

- With the completion of double track construction in February 2006, Light Rail operated its full network 4 months in FY2006 and for 12 months of FY2007
- With full Light Rail service, substitute bus service was eliminated
- Commuter Bus trips and Paratransit trips were added to accommodate growing ridership

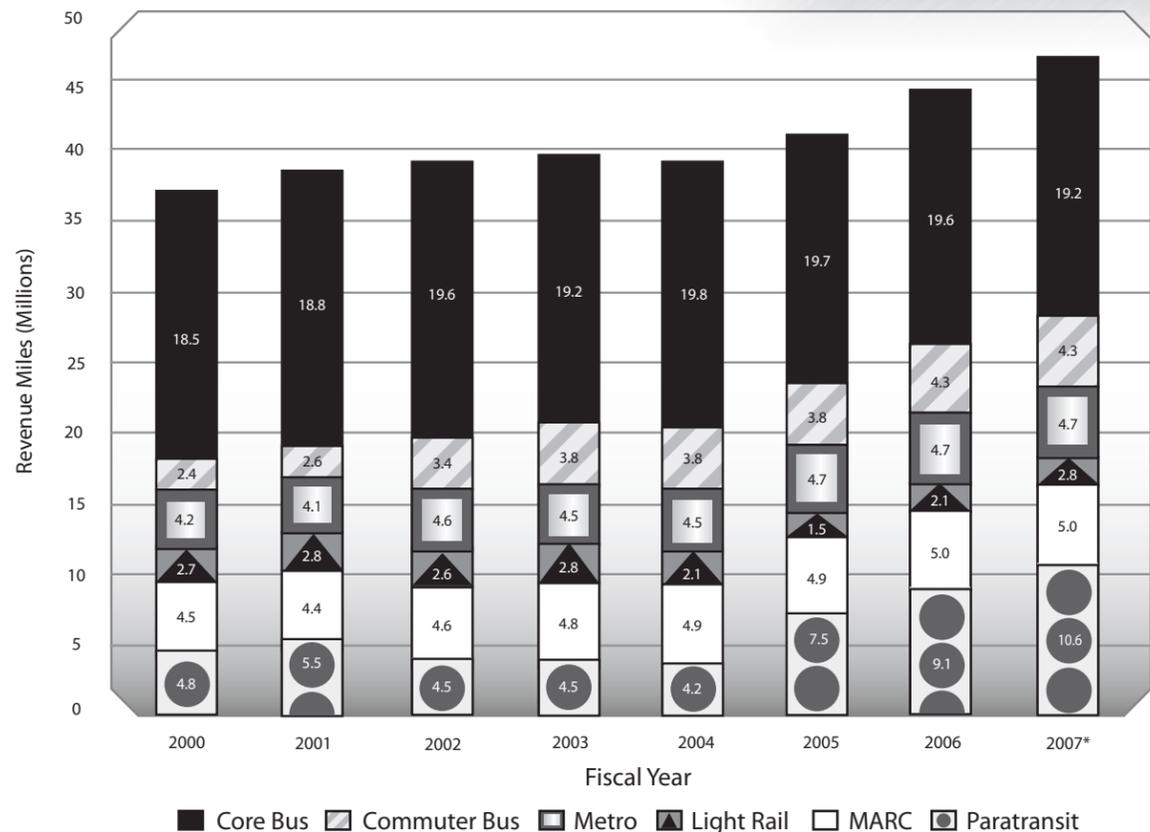
**WHAT ARE FUTURE PERFORMANCE STRATEGIES?**

- Further expand Commuter Bus service to accommodate demand
- Starting August 26, 2007, increase evening service on Metro subway from one train every 22 minutes to one train every eleven minutes
- Starting August 26, 2007, establish a new Light Rail train running every 20 to 30 minutes between Penn Station and Camden Station
- Continue to develop the Red Line Corridor Transit Study to relieve congestion, provide better connectivity of transit service, support economic development, and address air quality
- The MARC Growth and Investment Plan will add cars to existing rush-hour trains, add new rush-hour and mid-day trains, initiate Saturday and Sunday service, and add new stations on the Penn Line

**ANNUAL VEHICLE REVENUE MILES OF MTA SERVICE PROVIDED**

*(Excluding Locally Operated Transit Systems and WMATA)*

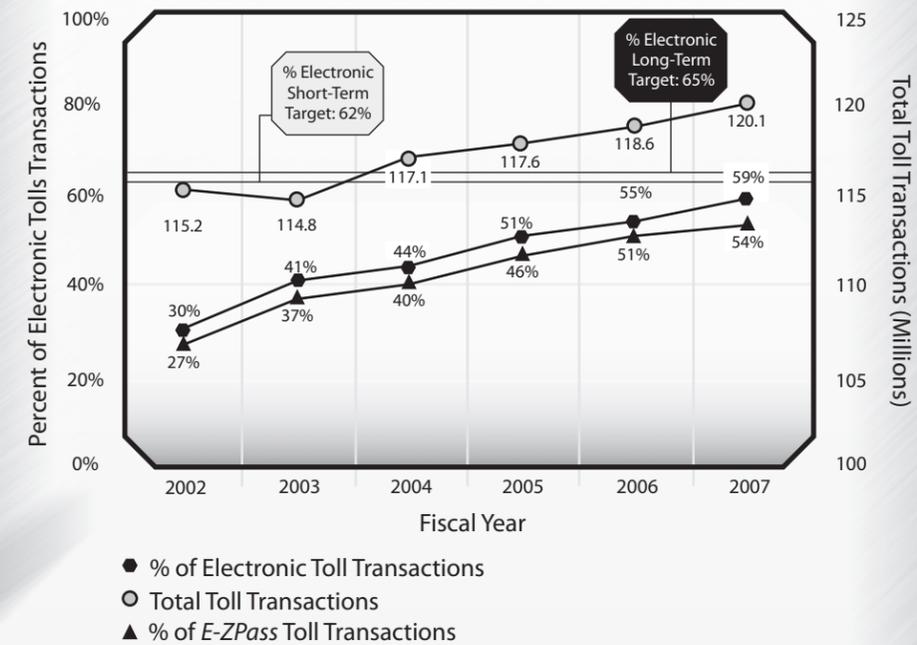
Annual vehicle revenue mileage indicates the level of transit service available to, and in use by, the general public.



\*FY2007 is estimated.

**PERCENTAGE OF TOLLS COLLECTED ELECTRONICALLY**

Electronic toll collect system expedites the toll collection process and reduces delays at toll plazas. Electronic toll collection is available at all seven MdTA toll facilities.



**WHY DID PERFORMANCE CHANGE?**

- E-ZPass lane improvements (dedicated E-ZPass lanes), implementation of speed differential at E-ZPass lanes, and availability of "E-ZPass on the Go" through retail sales helped to increase the percentage of tolls collected via E-ZPass
- Expanded market initiatives including television and radio advertisements, brochures, and printed advertisements in regional magazines

**WHAT ARE FUTURE PERFORMANCE STRATEGIES?**

- Expand E-ZPass lane improvements, including higher speed tolling improvements on selected lanes
- Disseminate information about electronic toll collection options at public events, toll plazas, and Stop-In Centers
- Continue aggressive project planning, development and implementation for I-95 Express Toll Lanes<sup>SM</sup> (ETLs<sup>SM</sup>) project and Section 200 of Master Plan

**WHY DID PERFORMANCE CHANGE?**

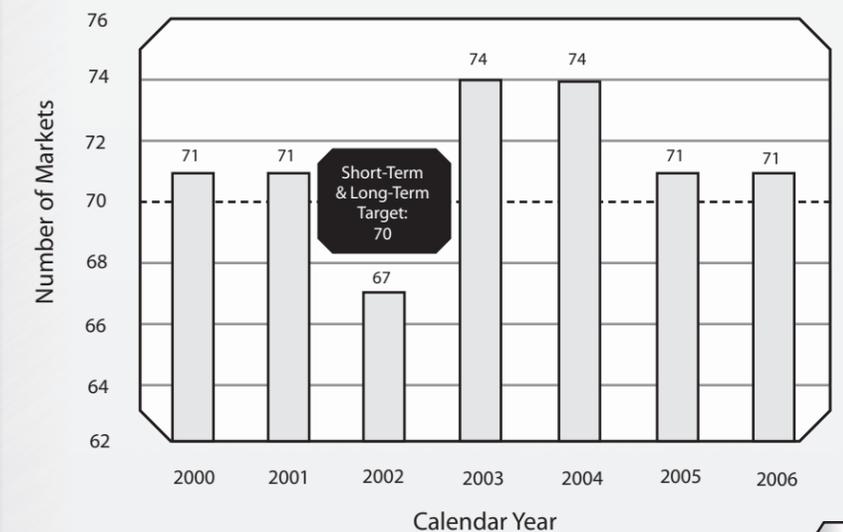
- Passenger travel on Southwest increased 3.4 percent and travel on AirTran increased more than 5 percent
- Air Greenland began operations at BWI with twice weekly seasonal service to Kangerlussuaq
- AirTran commenced seasonal service to Daytona Beach, Florida, Portland, Maine, and Seattle, Washington

**WHAT ARE FUTURE PERFORMANCE STRATEGIES?**

- Continue to conduct cooperative marketing programs with targeted carriers to enhance new and existing air service to begin, maintain, and increase service frequencies and destinations from BWI
- Meet with targeted airlines' headquarters executives to promote air service opportunities to BWI
- Conduct "tag-team" presentations with other airports about opportunities for selected markets

**NUMBER OF NONSTOP AIRLINE MARKETS SERVED**

Growth in the number of nonstop airline markets served provides enhanced mobility options to passengers traveling to select cities in the U.S. and around the world; increases the attractiveness of Baltimore/Washington International Thurgood Marshall (BWI) Airport as the airport of choice; and reflects the success of MAA's marketing efforts to increase the competitiveness of BWI Airport for business and leisure travel.



# SAFETY & SECURITY

Policy Objectives:

- Reduce injuries, fatalities, and risks
- Ensure security of the public

PERFORMANCE MEASURES: Safety & Security	
MEASURE	MONITORING AGENCY
Annual number and rate of personal injuries on all roads in Maryland	SHA & MdTA
Annual number and rate of traffic fatalities on all roads in Maryland	SHA & MdTA
Customer perception of safety on the MTA system	MTA
Port of Baltimore compliance with the Maritime Transportation Security Act of 2002	MPA
Compliance with annual FAA Part 139 safety certification (Pass/Fail)	MAA

injuries by sharing resources and targeting efforts to the areas of greatest need. While significant progress is being made in traffic safety, MDOT recognizes that these raw numbers for crashes, deaths, and associated injuries remain far too high to accept. Traffic Safety is more than a transportation or law enforcement issue; traffic deaths constitute an epidemic that can be prevented. This problem must be approached as a public health issue that requires input from traditional and nontraditional stakeholders. The Maryland Strategic Highway Safety Plan is the State's roadmap for making dramatic decreases in the number of crashes on all public roads in Maryland, and MDOT is committed to working with its partners to continue its role in achieving a significant reduction in the crash rate and raw numbers.

**Safety & Security Performance Trends:**

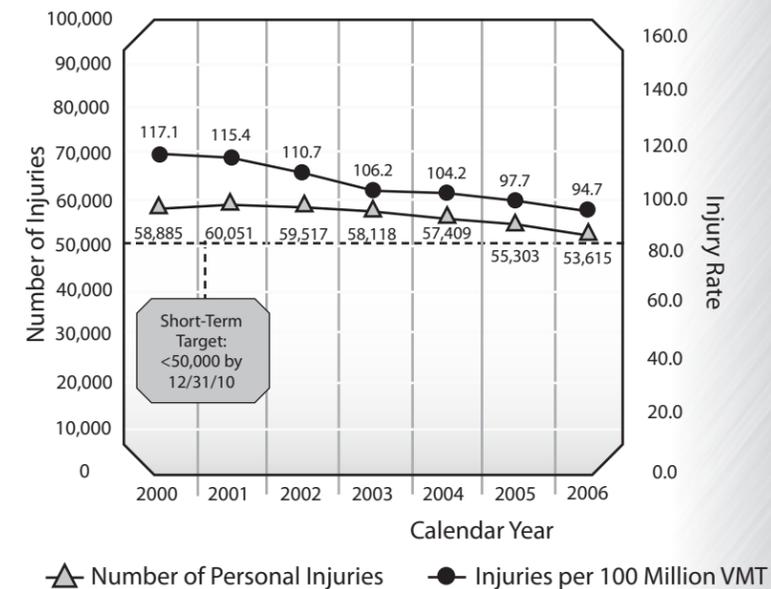
- Although the number and rate of personal injuries per 100 million vehicle miles of travel has steadily declined over the past ten years, with an additional three percent reduction between CY2005 and CY2006, the raw numbers have averaged more than 630 deaths over that same ten year time frame.
- Maryland's CY2006 fatality rate of 1.15 remains lower than the national fatality rate of 1.42. However, the number of fatalities in Maryland increased between CY2005 and CY2006 going from 614 to 652, which is a 6 percent increase.
- Customer perception of safety on MTA systems remains at 2.8 on a five-point scale, suggesting that the safety and security improvements implemented by MTA are not yet recognized by the public.
- The Port of Baltimore continues to be in compliance with the Maritime Transportation Security Act of 2002, and the U.S. Coast Guard has approved all MPA terminals' Facility Security Plans. MPA was recently awarded \$1.87 million in Federal Port Security Grants.
- Baltimore/Washington International Thurgood Marshall (BWI) Airport continues to pass the annual FAA Part 139 safety certification inspection process and, for the third year in a row, received zero discrepancies during the inspection.

Providing safe and secure travel for all customers using Maryland's transportation system is a fundamental priority at Maryland's transportation agencies. Exercising heightened safety and security consciousness is central to all activities conducted across Maryland's modal administrations and MdTA, with safety considerations having become a part of all transportation-related design and operational activities. For example, commercial vehicle weigh and inspection stations along State highways and container inspections at Port of Baltimore facilities ensure that goods are moved safely and securely throughout the State. Furthermore, Maryland's transportation agencies employ specific performance measures as a way to evaluate the safety and security of travelers using Maryland's roadways, transit systems, airports, and seaports, as well as for monitoring the effectiveness of safety programs and projects.

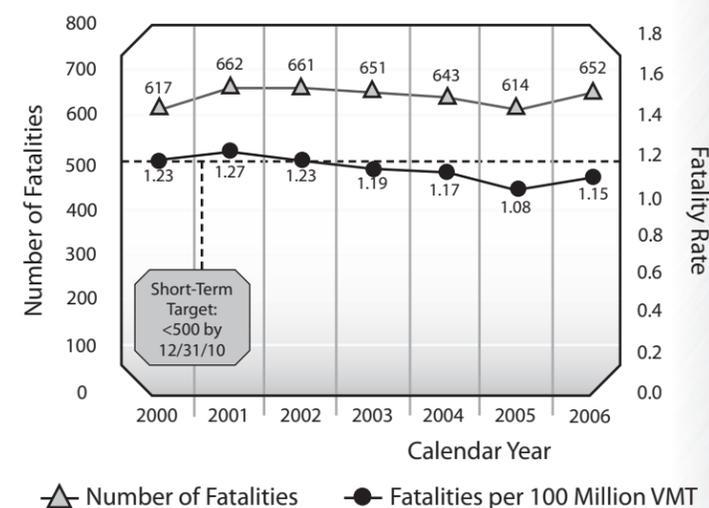
Maryland completed a Strategic Highway Safety Plan (SHSP) in 2006, which is a Statewide comprehensive safety plan that provides a coordinated framework for reducing highway fatalities and serious injuries on all public roads. The SHSP's goal is to reduce fatalities and

## ANNUAL NUMBER AND RATE OF PERSONAL INJURIES ON ALL ROADS IN MARYLAND

In line with international trends, Maryland uses reductions in the actual numbers of injuries and fatalities as desired safety outcomes. Injury and fatality numbers allow SHA and MdTA to assess the effectiveness of the Maryland Strategic Highway Safety Plan and to identify tendencies and trends that assist in implementing a wide variety of countermeasures.



## ANNUAL NUMBER AND RATE OF TRAFFIC FATALITIES ON ALL ROADS IN MARYLAND



**WHY DID PERFORMANCE CHANGE?**

- Improved our partnership with the State and local agencies that are involved in making roads safer through the development of Maryland's Strategic Highway Safety Plan
- Increased Statewide seat belt use and lowered impaired driving rates through comprehensive earned and paid media campaigns
- Used the State's dynamic message system to display traffic safety messages on highways in coordination with comprehensive media campaigns
- Awarded nearly \$3.4 million in Safe Routes to Schools funds through Maryland Highway Safety Office
- Completed construction of major roadway reconstruction projects to improve safety such as US 113 in Worcester County and MD 404 in Caroline County
- Completed a program to install and/or replace median barriers on high-speed roads where necessary to improve safety
- SHA and local personnel have been trained to conduct safety audits and understand human factors in roadway safety, with safety audits continuing on a regular basis at new locations
- Increased vehicle miles traveled, aging population and aggressive driving negatively offset efforts to reduce the number and rate of fatalities

**WHAT ARE FUTURE PERFORMANCE STRATEGIES?**

- Engage a broad range of State and local officials on the Maryland Strategic Highway Safety Plan Executive Committee and Emphasis Area Work Teams to raise awareness and create support for improving road safety on all public roads
- Make maximum use of the earned and paid media campaigns that coincide with national initiatives and a strong law enforcement component
- Further increase the use of seat belts
- Provide a real-time Traffic Safety Information System
- Establish a routine SHA Road Safety Audit program
- Target crash reduction efforts based on fatal crash and overall safety report trends
- Continue public outreach through media events and educational tools that target pedestrians, occupant protection, impaired driving prevention, aggressive driving prevention, inattentive driving prevention, motorcycle safety, truck-related crashes, and younger and older driver safety
- Train local and State government personnel in pedestrian-friendly engineering design techniques
- Launch a Drive Safely to Work Week campaign for all State employees and then to the general public



**WHY DID PERFORMANCE CHANGE?**

- Continued unannounced police sweeps of MTA facilities, Zone Enforced Uniform Sweeps (ZEUS) and installed a Closed Circuit Television (CCTV) at Johns Hopkins Medical Center Metro Station
- Systematically tracked incidents to improve responses to crime trends through CompStat
- Given the “behind the scenes” nature of many safety and security programs, the benefits are not clearly evident in customer satisfaction surveys

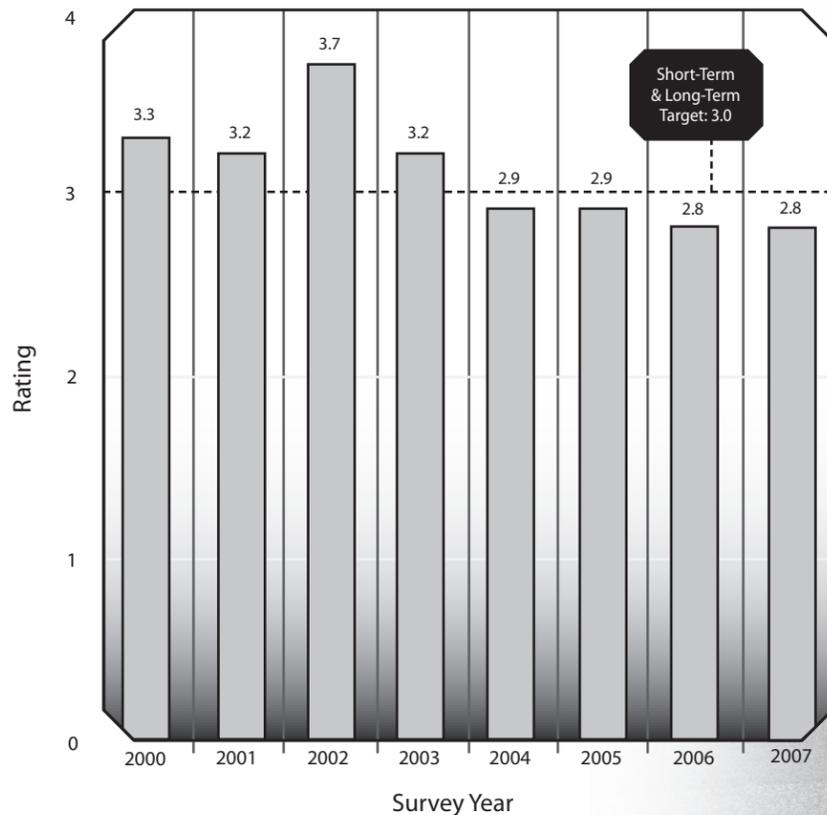
**WHAT ARE FUTURE PERFORMANCE STRATEGIES?**

- Continue ZEUS and CompStat
- Install and monitor CCTVs at additional Metro and Light Rail stations
- Replace Metro fire and security management systems with state-of-the-art technologies
- Continue emphasis on defensive driving techniques in bus operator training programs

**CUSTOMER PERCEPTION OF SAFETY ON THE MTA SYSTEM**

(1 = POOR AND 5 = EXCELLENT)

*A positive perception of personal safety is correlated with higher ridership and stronger commitment to transit as a mode of travel.*



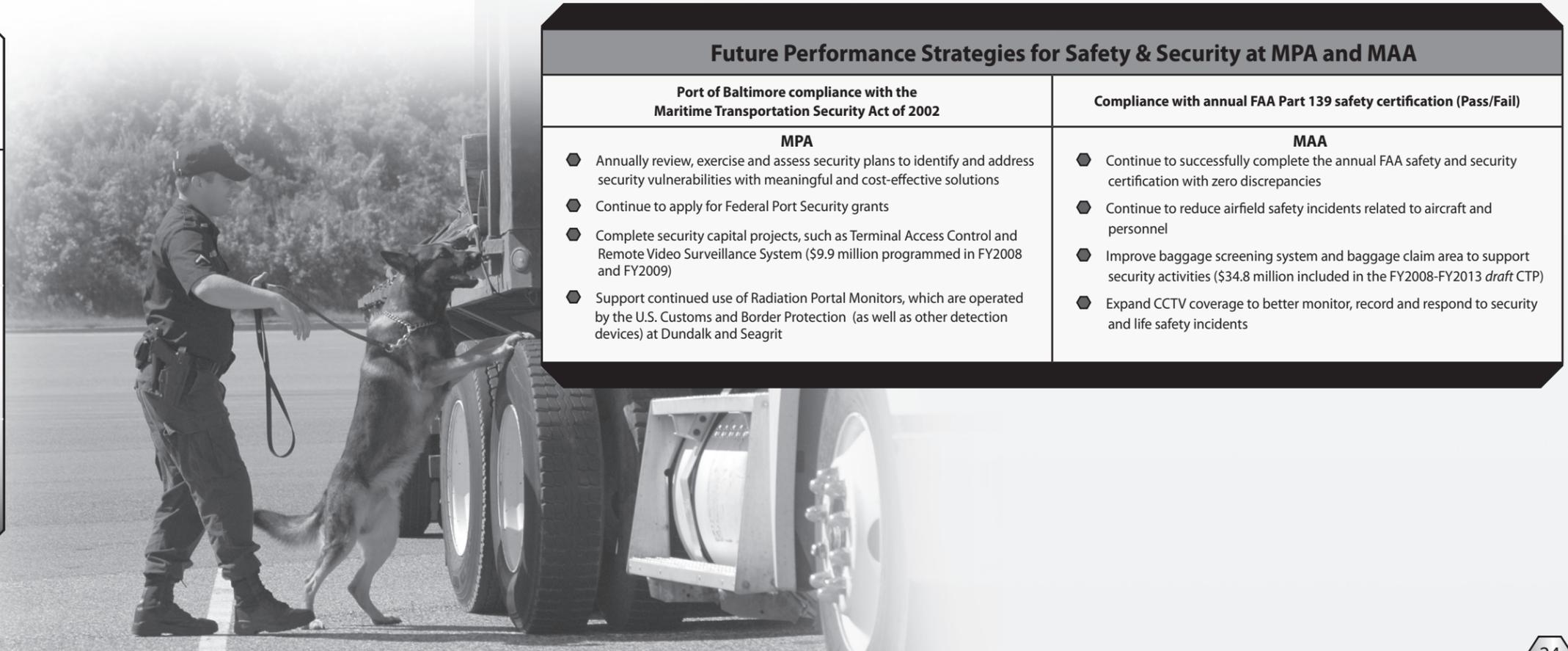
**Safety & Security at MPA and MAA**

MPA is actively working to enhance safety and security at the Port of Baltimore. MPA is a member of the Maryland Area Maritime Security Committee, which coordinates security efforts and plans annual port security drills and exercises to evaluate port security and address lessons learned for port security improvement. All MPA terminals’ Facility Security Plans currently meet the Maritime Transportation Security Act of 2002 requirements and have been approved by the U.S. Coast Guard. Working with agencies like the U.S. Customs and Border Protection, the Port utilizes the latest, high-tech devices to maintain port security such as Radiation Portal Monitors, the Eagle container inspection unit, and the eModal Trucker Check system. MPA was awarded \$1.87 million in the 7th round of Federal Port Security Grants. Additionally MPA is working to ensure the safety and security of passengers departing from the Port’s new dedicated cruise passenger terminal at South Locust Point.

MPA continues to ensure unimpeded shipping access to the Port of Baltimore, with no ship accidents attributed to the channel’s physical characteristics. The Port of Baltimore compares extremely well to

other U.S. East Coast ports; the Corps of Engineers is on track to maintain the Federally authorized shipping channels. However, as the size of vessels increases, future improvements will need to be considered. MPA is committed to providing safe and secure importing and exporting facilities demonstrated by being the first East Coast port to use the eModal Trucker Check system – a database of truck company and driver information used for security – and for funding the Physical Oceanography Real Time System (PORTS) – which provides instant weather, tide, and oceanographic data to assist mariners safely transit the Bay.

MdTA police are responsible for law enforcement activities not only on all MdTA toll facilities, but also at the Port of Baltimore and at BWI, making them an integral component in the overall effort to reduce vulnerabilities at these locations. MdTA officers assigned to BWI use a variety of security methods, such as bike patrol, explosives detection by K-9 teams, and the Special Weapons Team. To assist in managing safety and security at BWI, MAA installed an interoperable radio system to ensure that different agencies providing safety and security services can communicate on a single radio channel.



**Future Performance Strategies for Safety & Security at MPA and MAA**

Port of Baltimore compliance with the Maritime Transportation Security Act of 2002	Compliance with annual FAA Part 139 safety certification (Pass/Fail)
<p><b>MPA</b></p> <ul style="list-style-type: none"> <li>● Annually review, exercise and assess security plans to identify and address security vulnerabilities with meaningful and cost-effective solutions</li> <li>● Continue to apply for Federal Port Security grants</li> <li>● Complete security capital projects, such as Terminal Access Control and Remote Video Surveillance System (\$9.9 million programmed in FY2008 and FY2009)</li> <li>● Support continued use of Radiation Portal Monitors, which are operated by the U.S. Customs and Border Protection (as well as other detection devices) at Dundalk and Seagrit</li> </ul>	<p><b>MAA</b></p> <ul style="list-style-type: none"> <li>● Continue to successfully complete the annual FAA safety and security certification with zero discrepancies</li> <li>● Continue to reduce airfield safety incidents related to aircraft and personnel</li> <li>● Improve baggage screening system and baggage claim area to support security activities (\$34.8 million included in the FY2008-FY2013 draft CTP)</li> <li>● Expand CCTV coverage to better monitor, record and respond to security and life safety incidents</li> </ul>

# PRODUCTIVITY & QUALITY

Policy Objectives:

- Reduce project implementation time through process improvements
- Incorporate environmental stewardship into all projects and activities
- Contain costs and leverage resources with business-like organization and innovative approaches to funding and service delivery

Maryland, like many states, must continually work to balance the competing forces of increasing demand, maintaining existing infrastructure, and funding limitations. That is why Maryland's transportation agencies seek to provide project management that includes leadership and coordination, systematic project planning, and professional oversight of the project delivery process. Using streamlined approaches and partnerships with other agencies assists in the completion of transportation projects, while protecting natural environments and sensitive areas at the same time.

Maryland's transportation agencies recognize that simply building transportation infrastructure is not enough and that it is important to effectively manage these investments in order to maximize the user experience and provide quality of life benefits. That is why MDOT, its modal agencies and MdTA practice business-like organizational strategies and best-value practices designed to improve program and project delivery capabilities. By evaluating key cost-efficiency and customer satisfaction measures, agencies are able to identify areas for improvement and leverage resources in order to reduce or contain costs and meet customer expectations.

PERFORMANCE MEASURES: <i>Productivity &amp; Quality</i>	
PERFORMANCE MEASURE	MONITORING AGENCY
Transportation-related emissions by region	MDOT
MTA customer satisfaction rating	MTA
MAA Percent of excellent/good passenger rating	MAA
Percent of overall Maryland driver satisfaction rating of "A" or "B"	SHA
MVA customer service rating "good" or "very good"	MVA
MTA Operating cost per passenger	MTA
MTA Operating cost per passenger mile	MTA
Airline cost per enplaned passenger	MAA
Airport revenue per enplaned passenger	MAA
MPA revenue versus operating expense	MPA
SHA maintenance expenditures per lane mile	SHA
MVA cost per transaction	MVA

\* MVA customer service rating performance data is presented on Page 13 in graph "MVA Branch Office Customer Visit Time vs. Customer Service Rating."

## Productivity & Quality Performance Trends:

- MDOT continues to work to achieve measurable reductions in mobile source emissions.
- MTA customer satisfaction ratings increased for MARC and decreased for Core Bus, Metro, and Light Rail.
- Customer satisfaction for MAA and SHA are projected to remain steady, with Baltimore/Washington International Thurgood Marshall Airport (BWI) winning top honors in the *Airport Revenue News* 2007 Best Concessions Poll.
- MTA cost per passenger decreased in FY2006 for Core Bus, Light Rail, MARC, and Commuter Bus, and increased for Metro, Paratransit and Taxi Access.
- BWI revenue per enplaned passenger and cost per enplaned passenger both experienced modest increases over the previous year, and continue to compare favorably with peer airports.
- MPA revenue increased slightly in FY2007, with billable cargo tonnage increasing 2.2 percent, largely in containers, autos, and forest products.
- With 16,787 lane miles to maintain, SHA's FY2007 maintenance expenditure per lane mile rose slightly above the previous year's, but remained well below the target level.
- The cost per transaction at MVA rose in FY2007 as a result of capital investment in technology and infrastructure.

### WHY DID PERFORMANCE CHANGE?

- Vehicle emissions decreased nationwide
- Increased financial support for alternative modes of transportation at the State and local levels
- Implemented emission-reduction strategies in non-attainment areas to foster transportation alternatives to single occupancy vehicles

### WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Implement the Clean Car Bill requirements and standards passed by the 2007 Legislature
- Support mobile source emission reduction efforts and invest in alternative transportation (FY2008-FY2013 *draft* CTP contains \$14.9 million for Transportation Emission Reduction Program)
- Execute regional emission reduction strategies recommended by the Ozone Transport Commission

## TRANSPORTATION-RELATED EMISSIONS BY REGION

Reducing vehicle emissions improves air quality in compliance with Federal regulations and provides health benefits for Maryland residents.

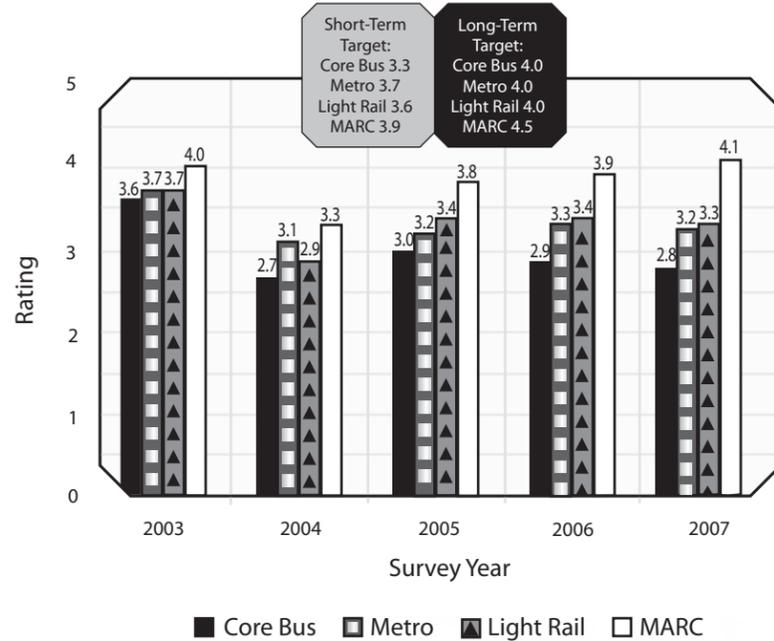
PERFORMANCE MEASURE	REGION	2002*	2005*
Volatile Organic Compound (VOC) Tons per Day	Baltimore	70.6	55.1
	Washington	116.9	97.4
Nitrogen Oxide (NOx) Tons per Day	Baltimore	177.1	144.5
	Washington	266.7	234.7

\* Revised methodology for calculating VOC and NOx.

### MTA CUSTOMER SATISFACTION RATING

(1 = POOR AND 5 = EXCELLENT)

Providing reliable, safe, and convenient service is a key factor in attracting ridership. Customer satisfaction reflects whether MTA is meeting its customer service standards and signals which modes require improvement.



#### WHY DID PERFORMANCE CHANGE?

- MTA's customer satisfaction ratings were largely static from FY2006 to FY2007

#### WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Continue Core Bus service improvements, including fleet replacements (60 new hybrid powered buses) and the CBS Outdoor (formerly Viacom) bus shelter program
- Expand use of technology to address schedule reliability (Automatic Vehicle Location (AVL) systems) and provide information to riders (Next Vehicle Arrival signs to be installed at 200 bus stops in Baltimore)
- Starting August 26, 2007, increase evening service on Metro subway from one train every 22 minutes to one train every eleven minutes
- Starting August 26, 2007, establish a new Light Rail train running every 20 to 30 minutes between Penn Station and Camden Station
- Implement maintenance activities to extend the life of equipment including mid-life overhauls of Light Rail railcars and MARC locomotives
- The MARC Growth and Investment Plan will add cars to existing rush-hour trains, add new rush-hour and mid-day trains, initiate Saturday and Sunday service, and add new stations on the Penn Line
- Expand facilities with additional parking (commuter bus Park-and-Ride lots as part of the Southern Maryland Commuter Bus Initiative, \$24.9 million in FY2008-2013 draft CTP)

### MAA PERCENT OF EXCELLENT/GOOD PASSENGER RATING

Customer surveys provide valuable feedback to agencies regarding service delivery, enabling them to continuously respond to customer needs.

Survey Data	Target
2004 - 74%	80%
2005 - 79%	
2006 - 81%	

#### WHY DID PERFORMANCE CHANGE?

- Data was not reported for 2007 because the contract to conduct the customer survey was not awarded until late FY2007

#### WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Conduct quarterly customer satisfaction surveys by the close of FY2008 and develop a methodology for the useful management of survey information (e.g., develop and implement action plans)
- Continue to enhance concessions space at BWI with a mix of national and regional branded shops and restaurants

#### WHY DID PERFORMANCE CHANGE?

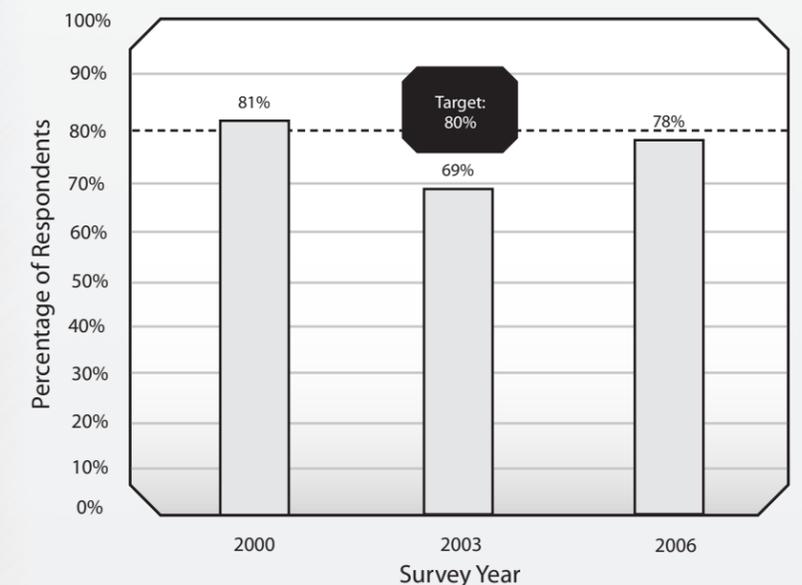
- Maryland drivers indicate SHA does a better than average job "maintaining roads" and "clearing roads after crashes"
- SHA receives high satisfaction rating for snow removal activities
- Customers who contacted SHA were displeased by the response delay

#### WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Continue to provide infrastructure and services that meet or exceed customer expectations, despite employee downsizing (e.g., implement Liter Control Action Plan, increase pavement repair activities, add completion dates on construction signs for large projects, and retime traffic signals)
- Continue to implement a Customer Care Management System designed to improve the ability to handle customer requests in a coordinated way throughout the many SHA Offices Statewide
- Plans are underway to establish a Community Liaison to work closely with citizens and the media in each of SHA's seven District Offices and pilot the concept of forming citizen advisory groups

### PERCENT OF OVERALL MARYLAND DRIVER SATISFACTION RATING OF "A" OR "B"

Customer Satisfaction Surveys help SHA determine if its services are better than average from the customers' eyes. SHA strives to achieve a "B" grade.





**WHY DID PERFORMANCE CHANGE?**

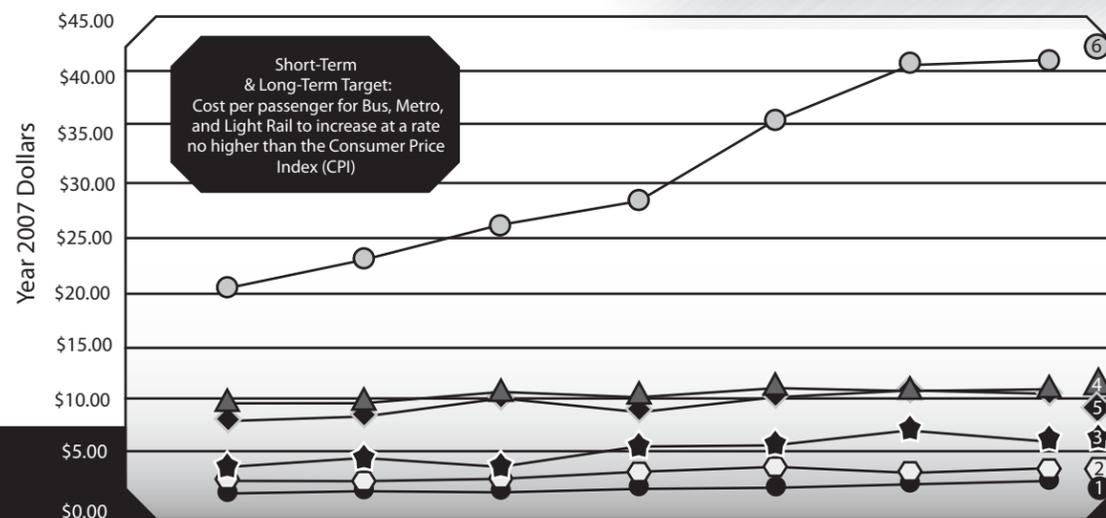
- Increased costs for labor, fuel, insurance and contracted services affected all modes
- Light Rail ridership grew 32 percent in FY2007 with the completion of double track construction in late FY2006, and the reopening of closed stations
- Light Rail operating costs increased by a much lower percent, so there was a decline in cost per passenger and per passenger mile
- Paratransit costs increased because a new service delivery model was implemented that increased on-time performance; staffing was increased in the Operations Control Center to improve scheduling; staffing was increased in the Reservations Center to reduce telephone wait times

**WHAT ARE FUTURE PERFORMANCE STRATEGIES?**

- Institutionalize preventative maintenance practices to reduce road calls and repairs
- Continue monitoring Core Bus service to increase efficiency
- Increase ridership through Commuter Choice Maryland, College Pass, and Maryland Transit Pass
- Build and lease additional Park-and-Ride lots where parking is at capacity
- Complete installation of new fare collection equipment to increase efficiency of operations (\$16.1 million in FY2008-2013 draft CTP)

**MTA OPERATING COST PER PASSENGER**

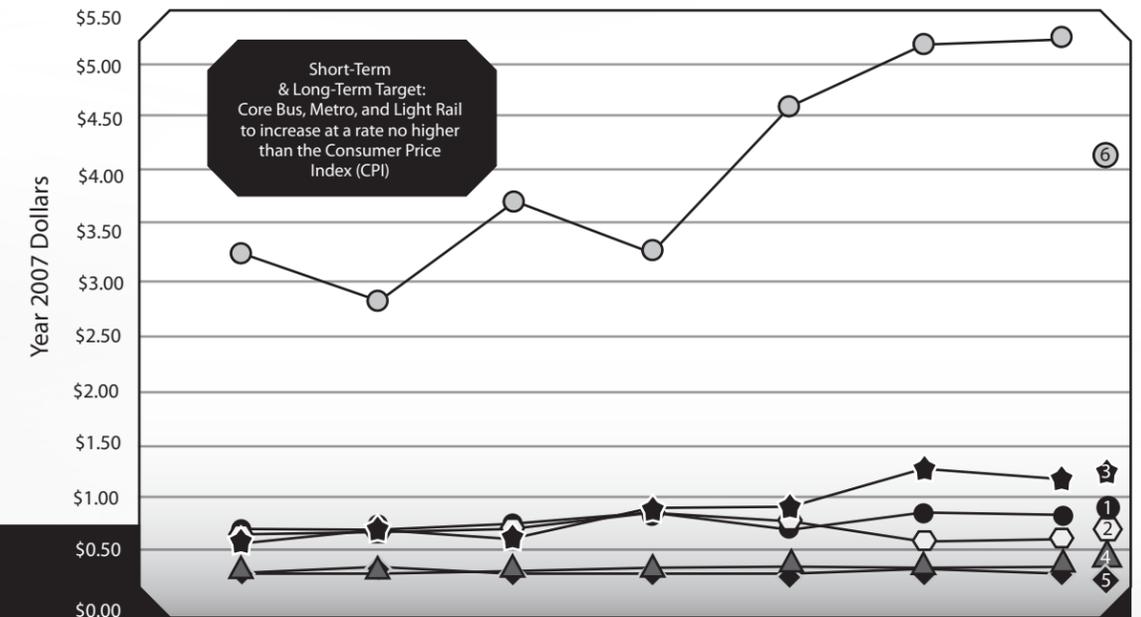
Together, the operating cost per passenger and operating cost per passenger mile shows MTA's ability to provide service to passengers on various modes of travel. Because passengers on the various modes travel very differently, it is best to use cost per passenger information in conjunction with the cost per passenger mile information.



Fiscal Year	2000	2001	2002	2003	2004	2005	2006
1 Core Bus	\$2.18	\$2.36	\$2.30	\$2.60	\$2.33	\$2.83	\$2.73
2 Metro	\$3.27	\$3.15	\$3.20	\$3.51	\$3.71	\$3.35	\$3.41
3 Light Rail	\$4.09	\$4.88	\$4.21	\$5.40	\$6.12	\$7.46	\$6.27
4 MARC	\$9.94	\$9.94	\$10.42	\$10.48	\$10.87	\$10.57	\$10.33
5 Commuter Bus	\$8.81	\$9.48	\$10.74	\$9.85	\$10.34	\$10.87	\$10.44
6 Paratransit & Taxi Access	\$20.55	\$23.75	\$26.77	\$28.47	\$35.54	\$41.49	\$41.65

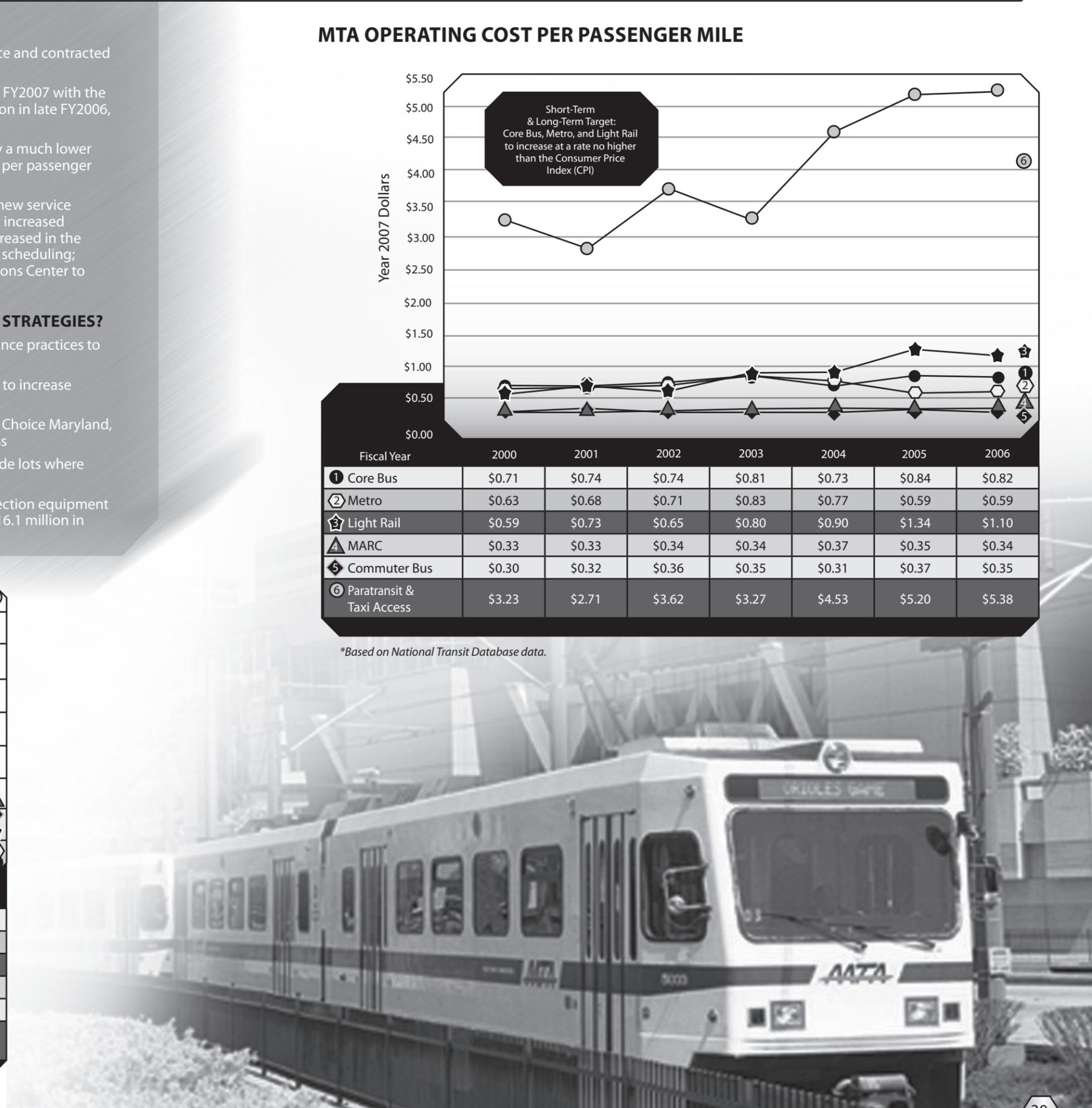
\*Based on National Transit Database data.

**MTA OPERATING COST PER PASSENGER MILE**



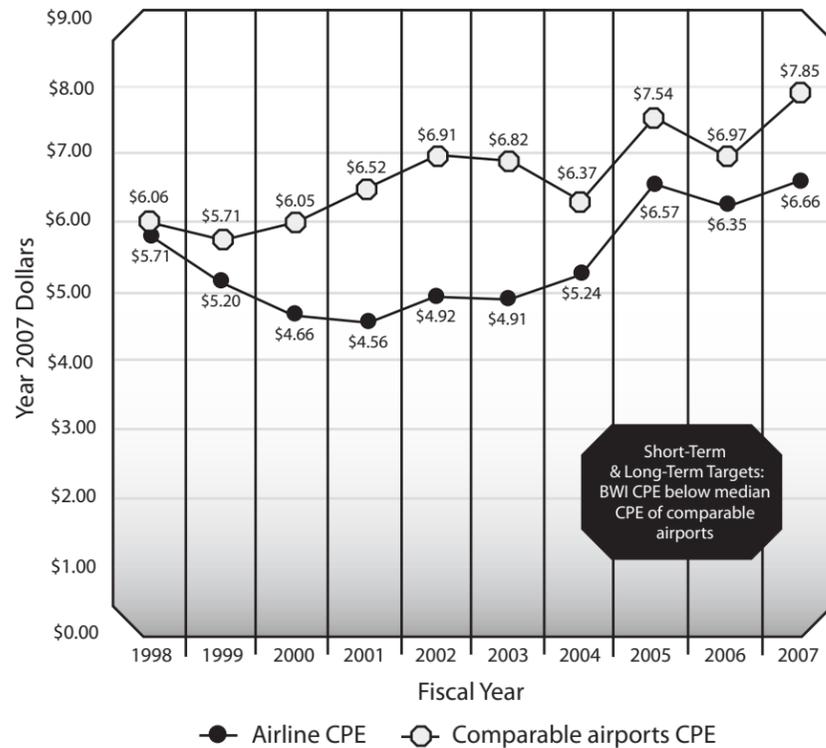
Fiscal Year	2000	2001	2002	2003	2004	2005	2006
1 Core Bus	\$0.71	\$0.74	\$0.74	\$0.81	\$0.73	\$0.84	\$0.82
2 Metro	\$0.63	\$0.68	\$0.71	\$0.83	\$0.77	\$0.59	\$0.59
3 Light Rail	\$0.59	\$0.73	\$0.65	\$0.80	\$0.90	\$1.34	\$1.10
4 MARC	\$0.33	\$0.33	\$0.34	\$0.34	\$0.37	\$0.35	\$0.34
5 Commuter Bus	\$0.30	\$0.32	\$0.36	\$0.35	\$0.31	\$0.37	\$0.35
6 Paratransit & Taxi Access	\$3.23	\$2.71	\$3.62	\$3.27	\$4.53	\$5.20	\$5.38

\*Based on National Transit Database data.



### AIRLINE COST PER ENPLANED PASSENGER

Airline cost and airport revenue measures allow BWI to remain competitive in a region which is unique because it has four proximate airports.



#### WHY DID PERFORMANCE CHANGE?

- BWI's rates increased slightly in order to recover higher operating expenses
- BWI's CPE continues to compare favorably with peer airports

#### WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Implement additional cost containment initiatives of at least \$2 million annually in FY2008 and FY2009
- Focus negotiations with airline tenants on greater recovery of terminal costs (e.g., reduce vacancies)



#### WHY DID PERFORMANCE CHANGE?

- The accounting methodology changed to include Seagirt lease payment as an operating expense effective November 2006
- Billable cargo tonnage increased 2.2 percent in FY2007, with the greatest increases occurring in containers, autos, and forest products
- Improved contractual arrangements with customers
- Increase in expenses due to utility and general operating cost increases

#### WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Focus on long-term agreements with carriers and manufacturers
- Expand facilities to meet growing demand (terminal projects, Canton warehouse expansion and deepen Seagirt berths)
- Renovate and lease office space currently vacant in the World Trade Center
- Improve financial reporting mechanisms for decision-making
- Increase Security Fee to improve coverage of increased security operating costs

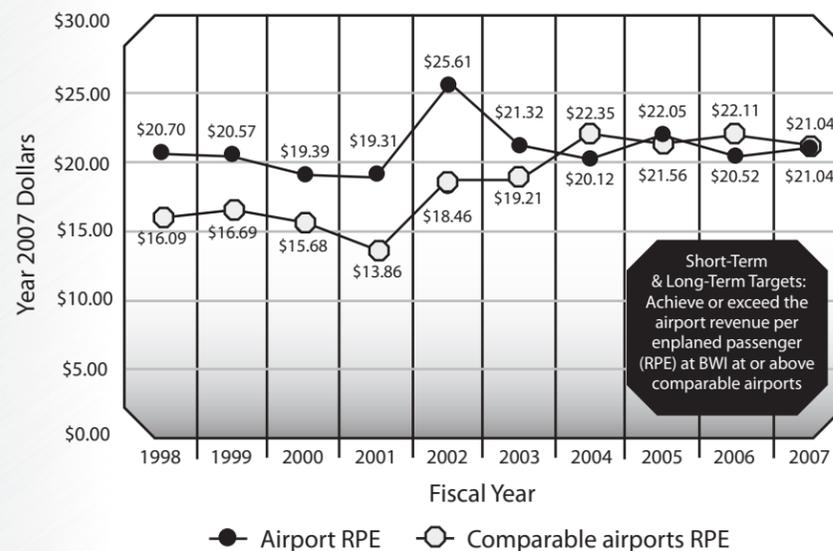
#### WHY DID PERFORMANCE CHANGE?

- Revenue increased due to higher terminal lease rates, concession growth (retail, food and beverage) and parking strategies
- BWI's RPE continues to increase and compare favorably with peer airports

#### WHAT ARE FUTURE PERFORMANCE STRATEGIES?

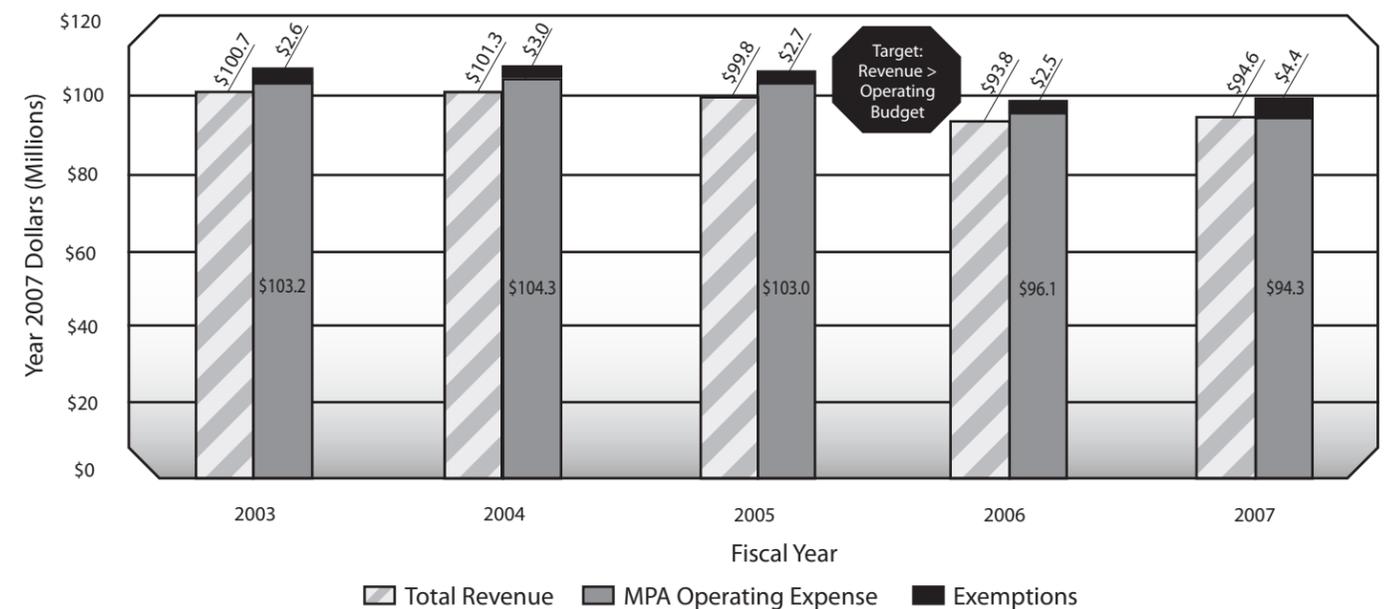
- Investigate opportunities to increase revenue through terminal and landside advertising
- Complete build-out of retail, food, and beverage space in the terminal to promote continued concession growth
- Continue to implement parking strategies to increase overall parking revenue

### AIRPORT REVENUE PER ENPLANED PASSENGER



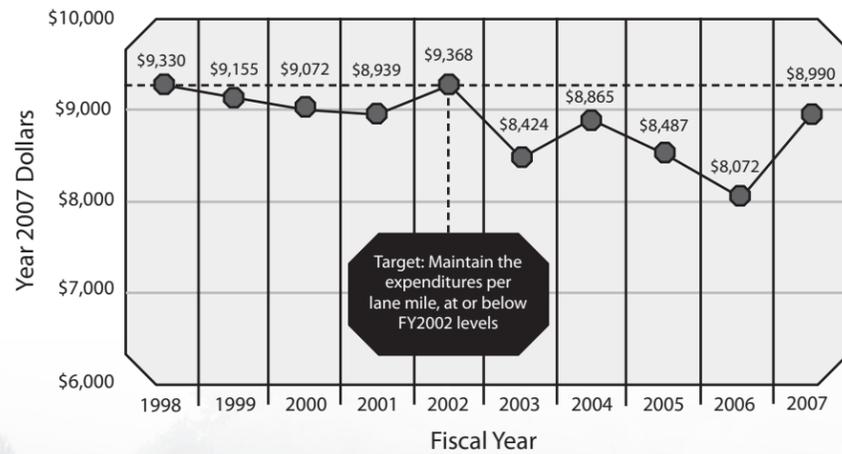
### MPA REVENUE VERSUS OPERATING EXPENSE

Revenues are important as a measure of activity at the terminals, and it is used to determine income. Net income is important because it shows the relationship between revenues and expenses.



### SHA MAINTENANCE EXPENDITURES PER LANE MILE

Maintenance expenditures per lane mile reflect how well asset-management strategies, improved operations, and technology have sustained the quality and safety of existing roadways.



#### WHY DID PERFORMANCE CHANGE?

- Reduced maintenance workload and contracted maintenance activities where cost-effective
- Identified acreage (approximately 1,200) for mowing reduction and target acres for reforestation, native meadow establishment, and natural regeneration
- Piloted the Corporate Sponsorship Program where 22 companies supported maintenance of 40, one-mile segments

#### WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Explore corporate sponsorship of Park-and-Ride facilities, rest areas and maintenance activities
- Implement cost saving strategies such as reducing the number of SHA "shadow vehicles" that accompany the Division of Corrections labor crews, adopt alternative work schedules, explore leasing heavy equipment versus ownership
- Evaluate a Maintenance Management System for highway operations

# TRAVEL DEMAND MANAGEMENT

### STATEWIDE PARK-AND-RIDE FACILITIES (ESTIMATED)

CATEGORY	TOTAL SPACES	AVERAGE WEEKDAY UTILIZATION
SHA/MdTA	11,450	7,000
MTA – Transit Only	35,000	20,000
MTA – Multipurpose*	5,210	12,739

\* Includes facilities operated by MTA, Amtrak, WMATA, Penn Station in Baltimore, and Union Station in Washington, DC.

Travel Demand Management (TDM) strategies support the use of alternatives to the single-occupant vehicle (SOV), such as carpooling, using transit, and teleworking, through a variety of facilitating measures and incentives. Reductions in single-occupancy vehicle usage and miles of travel generally translate into emission reductions. For this reason, many TDM strategies are also known as Transportation Emission Reduction Measures (TERMs). Benefits from TDM strategies include lower commuting costs, reduced congestion, decreased parking demand, energy conservation, and improved air quality. The table at

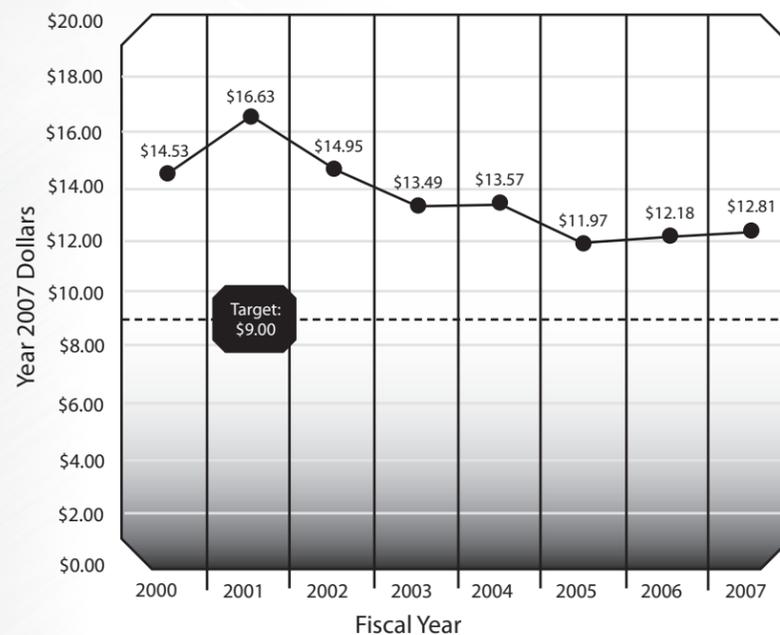
the bottom of the page describes and provides an indication of the impacts of many of the Maryland-funded TERMS.

Transit-Oriented Development (TOD) is another form of localized TDM being encouraged by MDOT. TOD relies on mixed land uses and pedestrian-friendly urban design concepts to integrate dense residential and commercial areas with transit hubs. Within TOD, some otherwise motorized trips can be substituted with walking trips and the proximity to high-quality transit service also encourages greater usage. Eight such projects are currently underway across the State.

Park-and-Ride facilities encourage public transit use and carpooling. SHA, MdTA and MTA operate such facilities. In addition, Washington Metropolitan Area Transit Administration (WMATA) provides parking spaces at all of its rail stations in Maryland. The following table indicates the availability and weekday utilization of Park-and-Ride lots operated by SHA, MdTA, MTA, and WMATA. WMATA parking facilities that are also served by MTA services have been removed from the WMATA figures.

### MVA COST PER TRANSACTION

Cost per transaction is an indication of whether MVA business practices and programs are increasingly cost-effective through the employment of better technology and operational practices.



\*Measure computed using only "core transactions," not including direct access (bulk sale) driver and vehicle records.

#### WHY DID PERFORMANCE CHANGE?

- Increased capital investment in technology and facility infrastructure
- Changed the accounting of transactions by eliminating driver and vehicle direct access record sales (DARS)

#### WHAT ARE FUTURE PERFORMANCE STRATEGIES?

- Increase alternative services transactions by developing new technological systems and focused marketing efforts
- Manage staffing levels using new scheduling and customer traffic management tools

### 2006 – 2007 TRANSPORTATION EMISSION REDUCTION MEASURES (TERMs)\*

PROGRAM	PROGRAM DESCRIPTION	DAILY REDUCTION IN VEHICLE TRIPS	DAILY REDUCTION IN VEHICLE MILES OF TRAVEL
Guaranteed Ride Home	Provides transit users or carpoolers up to four rides home per year in a taxi or rental car in the event of an unexpected personal or family emergency.	12,400	348,100
Employer Outreach (including Employer Outreach for Bicycles)	Supports marketing efforts to increase employee awareness and use of alternatives to driving alone to work every day.	68,700	1,160,200
Integrated Rideshare	Integrated Rideshare/InfoExpress Kiosk promotes traveler information and other alternative transportation services to employers and to the general public. Commuter information system documentation is provided with comprehensive commute information, to include regional TDM software updates, transit, telework, park-and-ride, and interactive mapping.	3,000	80,000
MTA College Pass	Offers a subsidized monthly transit pass to full- or part-time students enrolled in greater Baltimore metropolitan area colleges or universities.	550	4,100
MTA Commuter Choice Maryland Pass	Baltimore region program that allows employers to purchase transit passes and vouchers for their employees. Employers can subsidize these for their employees, or allow employees to purchase passes or vouchers with their pre-tax income.	1,970	14,800
Commuter Operations and Ridesharing Center	Updates and maintains the Commuter Connections database for ridematching services and provides information on carpooling, transit, Guaranteed Ride Home services, and alternative mode choices for the Baltimore/Washington metropolitan region.	10,200	290,700
Transit Store in Baltimore	Provides customer access to transit information and for purchases of transit passes. Some 15-20 percent of total transit pass sales occur through this outlet.	2,250	22,500
Telework Resource Center	Provides information to employers on the benefits of telecommuting and assists in setting up new or expanded telework programs for employers.	11,600	236,400
Mass Marketing	Promotes and communicates the benefits of alternative commute methods to single occupant vehicle (SOV) commuters through the media and other wide reach communications.	7,600	138,400
<b>TOTAL</b>		<b>118,270</b>	<b>2,295,200</b>

\* Estimated.

# INDUCED TRAVEL

As part of the State Transportation Article, MDOT is required under the Annual Attainment Report provision “to the extent practicable, account for the effect of planned transportation investments on inducing automobile travel.” Induced travel is generally defined as any increase in daily travel (measured as passenger trips or vehicle miles traveled) resulting from a change in the transportation system. Estimating induced travel has been a formal part of highway planning dating back to the 1930s when planners recommended a factor for “induced traffic” to account for the growth in population and employment, increases in vehicle ownership, or other changes that might cause traffic to increase greater than constant trends would suggest. This approach continued until the 1950s when sophisticated travel forecasting methodologies were developed to better account for population and employment growth, development density, and car ownership. As a result, interest in induced travel waned until the 1990s when new research efforts were undertaken.

Although recent strides have been made to measure the effect of capacity increases on total travel, it is still extremely difficult to determine the magnitude of induced travel. Quantifying induced demand across a system is particularly challenging given the lack of “before and after” studies that isolate the effect of transportation system changes on travel demand. In addition, perceived “induced travel” on certain facilities may actually be the result of shifts in travel from adjacent roadways and other modes versus an overall increase in system trips; or of more global economic factors, such as increases in income levels or reductions in fuel costs, that would have increased travel demand regardless of transportation investments. There remains some disagreement among transportation experts if trips shifted from other roads or modes should even be categorized as induced demand.

Induced travel is more likely to occur in highly congested urban areas, such as the Washington, DC, or Baltimore metropolitan areas, where new facilities or increased capacity on existing facilities has the potential to substantially reduce travel times, and hence increase the willingness of individuals to take more trips or longer trips. In urban areas, MDOT currently relies on travel demand models run by local Metropolitan Planning Organizations (MPOs). The

distribution step of the four-step travel demand model captures induced travel, to some extent, through an increase in the length of trips. As new or improved facilities are proposed, the modeled trip travel times decrease as a result of reduced congestion, thus reducing the total “cost” of travel. Induced demand is reflected in the model results that demonstrate travelers are willing to take longer distance trips, resulting in an increase in vehicle miles traveled.

By contrast, travel models still fail to capture potential changes in the total number of trips based on improvements to the transportation network. Research conducted to date has not provided a reasonable approach to estimate the change in the total number of trips taken due to increased capacity and reduced travel times. Estimates of total trips taken by households are estimated based primarily upon variables such as household size, number of vehicles, and income. Over the long-term, households changing travel behavior in response to congestion will be reflected in household travel surveys and, in turn, regional models will adjust estimates of total trips per household. However, in the short-term, models cannot prospectively estimate these changes in travel behavior. The Metropolitan Washington Council of Governments (MWCOG) does calculate, to some extent, the effect of modal shifts through its auto ownership model, which estimates household auto ownership based on transit accessibility. As transit accessibility increases, auto ownership estimates for households with improved transit accessibility decline, and the estimates of auto trips generated by these same households will then decrease.

The existing travel-demand forecasting approaches continue to be improved and may, in the long-term, offer the opportunity for MDOT and other transportation planning organizations to isolate the effect of transportation improvements on changes in travel demand. MDOT and MdTA are also beginning to develop a Statewide transportation model and, as the model is developed, will have an opportunity to more directly quantify the impact of induced travel. On a program level, MDOT will remain involved in efforts aimed at reducing the number of trips and shortening trip lengths, such as Transit Oriented Development (TOD) and improvements in the job/housing balance in parts of the State.

# GLOSSARY

GLOSSARY TERM	DEFINITION
Annual Attainment Report on Transportation System Performance	Pursuant to Transportation Article Section 2-103.1 of the Annotated Code of Maryland, the State is required to develop or update an annual performance report on the attainment of transportation goals and benchmarks in the Maryland Transportation Plan (MTP) & Consolidated Transportation Program (CTP). The Attainment Report must be presented annually to the Governor and General Assembly before they may consider the MTP and CTP.
Calendar Year	The period of 12 months beginning January 1 and ending December 31 of each reporting year.
Coordinated Highways Action Response Team (CHART)	CHART is an incident management system aimed at improving real-time travel conditions of Maryland’s highway system. CHART is a joint effort of the State Highway Administration, Maryland Transportation Authority, and the Maryland State Police, in cooperation with other Federal, State, and local agencies.
Consolidated Transportation Program (CTP)	A six-year program of capital projects, which is updated annually to add new projects and reflect changes in financial commitments.
<i>E-ZPass</i> ®	An electronic toll collection system utilized to provide a more efficient flow of traffic through MdTA toll facilities. <i>E-ZPass</i> toll collection is available at all seven MdTA toll facilities. The benefits of <i>E-ZPass</i> membership allow travel in Delaware, New Jersey, West Virginia, Pennsylvania, New York and Massachusetts with tolls paid from a Maryland <i>E-ZPass</i> account.
Fiscal Year	A yearly accounting period covering the timeframe between July 1 and June 30 of each reporting year.
Intercounty Connector (ICC)	The ICC is an 18-mile long, toll highway which will link the I-270/I-370 corridor in Montgomery County to the I-95 and US 1 corridors in Prince George’s County in the Washington, D.C., metropolitan region. The ICC will offer improved travel reliability and job access. There will be no need for motorists to stop to pay tolls – tolls will be collected at highway speeds, using <i>E-ZPass</i> transponders or video tolling.
Locally Operated Transit Systems (LOTS)	Transit systems that provide primarily bus service and demand response within the local areas in which they operate. They are funded through a combination of Federal, State and local money. MDOT provides financial, technical, and operating support for these services.
Long-Term Target	Long-term targets cover a twenty-year period in conjunction with the MTP timeframe.
Maryland Transportation Plan (MTP)	The MTP is MDOT’s long-range transportation policy plan and includes the vision, goals and objectives that provide the policy framework and context for Maryland’s transportation programs and investments. The MTP sets Department policy for the twenty-year period and is updated every five years.
Managing for Results (MFR)	Pursuant to SB 381, which passed during the 2004 Legislative session (Chapter 452, Acts of 2004) – State Finance and Procurement Article, subtitle 10. Managing for Results, section 3-1001 through 3-1003. MFR is a Statewide strategic planning approach to management that incorporates goals, objectives, and performance measures. MFR measures largely describe operational facets of each of the modal administrations and report data for four fiscal years (current, previous, and two future years). To create consistency between performance reports, the majority of Attainment Report measures are also contained in the MFR.
Port of Baltimore Foreign Cargo	International (Foreign) cargo handled at public and private terminals within the Baltimore Port District. This includes bulk cargo (e.g., coal, sugar, petroleum, ore, etc. shipped in bulk) and all general cargo (e.g., miscellaneous goods shipped in various packaging). Over the last five calendar years, the Port’s foreign cargo ranged between 23.6 and 32.4 million tons.
MPA General Cargo	Foreign and domestic waterborne general cargo handled at the public (MPA) terminals. Over the last five fiscal years, MPA general cargo has ranged between 7.06 and 8.55 million tons.
National Highway System (NHS)	Includes the Interstate System, Strategic Highway Network, and other principal arterials.
Performance Measure	A quantitative or qualitative measurement tool to assess progress toward an outcome or goal.
Short-Term Target	Short-term targets cover a six-year period in conjunction with the CTP timeframe.
Vehicle Miles of Travel (VMT)	A measurement of the total miles traveled by all vehicles.

# APPENDIX: LIST OF PERFORMANCE MEASURES

MTP GOAL	PERFORMANCE MEASURE	DEFINITION
<b>Maryland Aviation Administration (MAA)</b>		
Mobility	Number of nonstop airline markets served*	Nonstop flights are direct to destination without connections
Safety & Security	Compliance with annual FAA Part 139 safety certification (Pass/Fail)*	Compliance based on Federal Acquisition Regulation (FAR) Part 139 rules governing the certification and operation of US commercial airports
Productivity & Quality	Percent of excellent/good passenger rating*	Excellent/Good rating = BWI Airport services / facilities receiving rating of 8, 9, or 10 on a 10-point scale
Productivity & Quality	Airline cost per enplaned passenger*	Total airline-related fees divided by total enplaned passengers at BWI
Productivity & Quality	Airport revenue per enplaned passenger*	Revenue divided by number of passengers who board an aircraft at BWI, including passengers who disembark from other aircraft for connecting flights from BWI
<b>Maryland Department of Transportation (MDOT)</b>		
Productivity & Quality	Transportation-related emissions by region	Tons of Volatile Organic Compound (VOCs) and Nitrogen Oxide (NOx), precursors of Ozone, emitted per day for an average weekday from transportation sources in the Baltimore and Washington regions
<b>Maryland Port Administration (MPA)</b>		
Safety & Security	Port of Baltimore compliance with the Maritime Transportation Security Act of 2002	Pass / Fail rating
Productivity & Quality	MPA revenue versus operating expense	Total operating expense of MPA (includes Seagirt lease payment as an operating expense); revenues collected through Port fees
<b>Maryland Transit Administration (MTA)</b>		
Efficiency	Percent of service provided on time*	Proportion of MTA services that meet scheduled service times (performance calculated differently for each mode)
Mobility	Annual vehicle revenue miles of MTA service provided	Vehicle revenue miles are defined as each mile for which a transit vehicle is in service and accepting customers
Safety & Security	Customer perceptions of safety on the MTA system*	Average annual customer survey rating of safety (while riding, at stops and stations, and at parking lots) of MTA services (Core Bus, Metro, Light Rail, and MARC) on a 1-to-5 scale (1=poor to 5=excellent)
Productivity & Quality	MTA customer satisfaction rating	Average annual customer survey rating of their overall satisfaction of each MTA service (Core Bus, Metro, Light Rail, and MARC) on a 1-to-5 scale (1=poor to 5=excellent)
Productivity & Quality	MTA operating cost per passenger*	Operating cost for mode of transit service / total passengers: values calculated separately for MTA Core Bus, Metro, Light Rail, MARC, Contracted Commuter Bus, and Paratransit and Taxi Access
Productivity & Quality	MTA operating cost per passenger mile*	Operating cost for each mode of transit service / total miles traveled by passengers: values calculated separately for MTA Bus, Metro, Light Rail, MARC, Contracted Commuter Bus, and Paratransit and Taxi Access
<b>Maryland Transportation Authority (MdTA)</b>		
Mobility	Percentage of tolls collected electronically	Toll collections by E-ZPass® and Automatic Vehicle Identification / total number of toll collections

MTP GOAL	PERFORMANCE MEASURE	DEFINITION
<b>Motor Vehicle Administration (MVA)</b>		
Efficiency; Productivity & Quality	MVA branch office customer visit time vs. customer service rating*	Average visit time plotted against percentage of customers rating their MVA experience as "good" or "very good" (based on quarterly survey of customers)
Efficiency	Alternative service delivery transactions as percent of total transactions*	Transactions by alternative services (using a means other than a visit to an MVA branch) / tracked transactions
Productivity & Quality	MVA cost per transaction	Operating cost plus capitalized costs / core transactions, not including direct access (bulk sale) driver and vehicle records
<b>State Highway Administration (SHA)</b>		
Efficiency	Percentage of SHA roadway mileage with acceptable ride quality*	Percent of miles with International Roughness Index (IRI) value less than 170 inches per mile; IRI is a standardized procedure that measures the pavement roughness as the cumulative deviation from a smooth surface in inches per mile
Efficiency	Total reduction in incident congestion delay*	Number of driving hours saved due to the Coordinated Highway Action Response Team (CHART) incident management system
Mobility	Percentage of lane miles with average annual volumes at or above congested levels*	Percentage of freeway lane miles with an average annual density greater than or equal to 20,000 vehicles per lane per day (vplpd) and percentage of arterials with an average annual density greater than or equal to 10,000 vplpd (facilities with densities greater than those vplpd levels will result in congested conditions)
Productivity & Quality	Percent of overall Maryland driver satisfaction rating of "A" or "B"*	Percentage of Maryland driver survey respondents rating their "overall satisfaction" with SHA as a "B" or better on an A-to-E scale (survey conducted biennially)
Productivity & Quality	Maintenance expenditures per lane mile*	Maintenance expenditures / lane mile: maintenance expenditures include routine landscaping, traffic signing, lighting, and signal upkeep, but exclude resurfacing (e.g., asphalt overlays or patching concrete pavement)
<b>State Highway Administration (SHA) and Maryland Transportation Authority (MdTA)</b>		
Efficiency	Percentage of SHA & MdTA NHS bridges that will allow legally loaded vehicles to traverse*	Percent of National Highway System bridges that are not posted with a weight limit restricting use by legally loaded vehicles (only bridges within the NHS roadways are included in this measure)
Safety & Security	Annual number and rate of traffic fatalities on all roads in Maryland*	The annual number of traffic fatalities on all Maryland roads including MdTA facilities (the fatality rate is calculated as fatalities per 100 million vehicle miles of travel)
Safety & Security	Annual number and rate of personal injuries on all roads in Maryland*	The annual number of persons injured on all Maryland roads including MdTA facilities (the injury rate is calculated as injuries per 100 million vehicle miles of travel)
Mobility	Peak-period congestion of freeways in Baltimore/Washington regions	Location of congested conditions based on a series of aerial photos
* Performance measures also included in other performance measurement documents.		



7201 Corporate Center Dr.  
Hanover, Maryland 21076

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This document is prepared pursuant to Transportation Article Section 2-103.1 of the Annotated Code of Maryland. Additional copies are available by calling (410) 865-1277; Toll Free (888) 713-1414 or from the Internet at [www.marylandtransportation.com](http://www.marylandtransportation.com).

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