

Maryland Freight System Performance Annual Report



Martin O'Malley, Governor

Anthony G. Brown, Lt. Governor

James T. Smith, Secretary

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A MESSAGE FROM THE GOVERNOR...

For generations, Maryland's economy has been strengthened by a robust freight and logistics network that brings jobs and opportunities to citizens in every corner of our state. The movement of goods across all modes of transportation is crucial to all businesses, including: health care, biotech, service businesses, agriculture, manufacturing and distribution. By 2030, the flow of goods that Maryland businesses and citizens rely on will increase by an estimated 75 percent. To help us meet this increased demand, we have developed the *Maryland Statewide Freight Plan* to guide our investments in the projects, programs and policies to keep freight moving.



A key element in this plan is to provide regular updates to our stakeholders through efforts like the *Maryland Freight System Performance Annual Report*. This report tells the story of how our freight system is an integral part of our economy, and the important role it plays in meeting the diverse needs of all Marylanders. From the biotech company in Montgomery County that relies on time sensitive shipments delivered through Baltimore Washington International Thurgood Marshall Airport and the farmer in Western Maryland waiting for their new tractor to be unloaded from a ship at the Port of Baltimore, to the mother in Salisbury depending on a truck to deliver baby formula to her local store, freight in all forms must travel through Maryland as efficiently as possible.

As our economy continues to strengthen following the national recession, the partnership between the public and private sectors in growing Maryland's freight system will be key to our ongoing efforts to expand opportunity and grow our increasingly diverse middle class.

Few places in Maryland highlight this cooperation better than the Port of Baltimore. Last year, over \$54 billion of international cargo moved through the public and private marine terminals, a growth trend that is forecasted to continue. Thanks to the partnership with Ports America, the Seagirt Marine Terminal is one of only two ports on the East Coast that can currently accommodate the larger ships that may call on the Port of Baltimore once the expanded Panama Canal is open in a few years. The increase in goods that will come through Maryland's harbors will travel on a safe and reliable system that includes freight rail connecting Maryland's economy to the rest of the nation.

Please read more to learn about the investments we are making to ensure the efficient movement of freight, at the same time our steadfast commitment to our local communities and our environment as we continue to build a smart, sustainable and interconnected statewide freight network.

Martin O'Malley
Governor

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A MESSAGE FROM THE SECRETARY...

Maryland residents and businesses rely on a seamless, safe and interconnected freight network to move every type of product imaginable – from automobiles to zucchini and everything in between. A high quality freight system means access to the global economy for Maryland’s public and private sectors, which in turns means access to jobs and economic opportunity.

Nobody understands this connection better than Governor Martin O’Malley and Lt. Governor Anthony G. Brown. Thanks to their leadership, and the courageous votes cast by members of our General Assembly, Maryland passed the historic Transportation Infrastructure Investment Act of 2013. This historic Act will help us strengthen our freight network by getting key projects designed, constructed and open for service as quickly as possible.

As we embark on brighter future for transportation in Maryland, we are proud to present this Freight System Performance Annual Report as a resource documenting the progress of implementation of the Maryland Statewide Freight Plan. This report tells the story of the progress of freight initiatives and contains freight performance measures to track how Maryland is serving freight transport and supply chain industries. As we continue to collaborate with our customers, communities and stakeholders to identify freight projects, update our forecasts, and maintain an effective freight network, we welcome your input and feedback.

James T. Smith, Jr.
Secretary



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MARYLAND FREIGHT SYSTEM PERFORMANCE ANNUAL REPORT

Maryland Department of Transportation

Reporting timeframes: calendar year 2012 and fiscal year 2012

Published November 2013

The staff of the Maryland Department of Transportation Office of Freight and Multimodalism prepared this 2013 update. The information and data provided herein are courtesy of the modal administrations: State Highway Administration (SHA), Motor Vehicle Administration (MVA), Maryland Port Administration (MPA), Maryland Aviation Administration (MAA), Maryland Transit Administration (MTA), and the Maryland Transportation Authority (MDTA).

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INTRODUCTION

Maryland's economy moves on a balanced freight network. Ensuring that the network of highways, railways, waterways, and airports are ready to handle the current level and anticipated growth of goods movement is a priority of the Maryland Department of Transportation (MDOT) and its modal administrations: State Highway Administration (SHA), Motor Vehicle Administration (MVA), Maryland Port Administration (MPA), Maryland Aviation Administration (MAA), Maryland Transit Administration (MTA), and the Maryland Transportation Authority (MDTA). To facilitate this effort, the *Maryland Statewide Freight Plan* identifies policies and projects to guide Maryland's development and stewardship of the freight system. The *Statewide Freight Plan* provides a lynchpin for all of the modal plans regarding freight from the Port of Baltimore business plans to the SHA/MDTA's *Freight Implementation Plan* and the MTA's *Freight Lines Strategic Plan*.

MDOT benchmarks, tracks, and reports progress in attaining its goals in the department-wide *Maryland Annual Attainment Report*. This freight performance measure report provides a logical addition by describing measures on the needs and objectives of the freight transportation system. The report identifies freight performance measures for each mode within MDOT, although it does not inventory all freight activity and initiatives. The "freight story" in this document highlights leading indicators that point to how the freight system is changing and how MDOT and the modal administrations might respond.

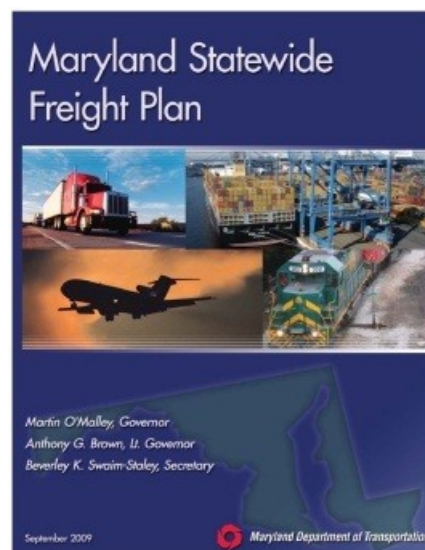


Figure 1: The Maryland Statewide Freight Plan outlines policy recommendations and project needs for the multimodal freight system in the State.

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MARYLAND'S FREIGHT STORY

The freight story is important to the sustainability of Maryland's economy, environment, and mobility. The Port of Baltimore was established in 1706, and the first freight railroad was established in Baltimore in 1827. Today, freight continues to move on water, rail, highway, and in the air. The consumer goods that Maryland businesses import and export are carried by ship, rail, plane, or truck. The emerging bioscience industry relies on air and truck for the time sensitive movement of valuable and scarce resources. Public and private schools, colleges, universities, and hospitals depend on the goods and supplies delivered by all methods to best serve their missions. Every person and business relies on freight movement for everyday living and working. Maryland's freight system is effective at accommodating this demand, but future population and economic growth will place increasing demands on the freight system.

The freight story is one of collaboration among public and private partners on the local, state, and national level. It is the story of multimodal initiatives to improve economic competitiveness, maintaining a reliable infrastructure, and protecting the people who move on that infrastructure.

On average, 39 tons of freight terminates in Maryland for each person every year including everything from low value scrap paper to pharmaceutical shipments worth millions of dollars per trailer load.

Source: Maryland Statewide Freight Plan

Collaboration

Planning, implementing, and measuring the impacts of freight projects requires partnerships and alliances between the modal administrations within MDOT and the private users and beneficiaries of the freight system. There are many examples of collaboration on freight projects and initiatives, some of which are highlighted below.

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MDOT is working with CSX Transportation Inc. and its affiliates (CSX) to develop a rail-to-truck transfer facility in Baltimore City that is capable of shipping and receiving double-stack intermodal trains.

MDOT is also a partner in CSX's National Gateway initiative, a partnership between the federal government, six states, the District of Columbia, and the railroad to create a double-stack rail network connecting Mid-Atlantic ports to Midwest markets.

The shortline rail network provides essential rail service linking its commodities and raw materials with the region, state, and the world. Maryland owns approximately 165

miles of active and inactive shortline railroad track and right-of-way in Kent, Queen Anne's, Wicomico, Caroline, Dorchester, Talbot, Frederick, and Somerset counties.

MDOT has a long standing working relationship with private rail operator Maryland and Delaware Railroad, which provides rail service on the state-owned lines on the Eastern Shore. Canton Railroad Company is a class III short line switching carrier that operates in Eastern Baltimore City and Baltimore County, MD and owns over 17 miles of right-of-way. The company provides service to more than 25 industries in the area, through delivery to/from both CSX and Norfolk Southern Railroads, and owns the rail access to the Seagirt Marine Terminal. The Canton Development Company (CDC) owns the railroad and Freestate Logistic Services, Inc., which provides contract switching services at the Principio Industrial Park in Cecil County, Maryland. The MdTA owns 100 percent of CDC.

Freight collaboration with the private sector is exemplified by the partnership between Maryland and Ports America Chesapeake located at the Seagirt Marine Terminal at the Port of Baltimore. Ports America Chesapeake, a private port operator, made capital improvements to the terminal that allows the Port of Baltimore to handle deep-draft vessels, which are expected to come to the region in increasing numbers after the completion of the Panama Canal expansion in 2015. In 2012, four super post-Panamax cranes were installed at Seagirt. These improvements, along with



Figure 2: CSX's Existing Operations at the Port of Baltimore. CSX's Baltimore Rail Intermodal Facility and the National Gateway initiative will improve freight rail connectivity and capacity.

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improvements to landside connections, provide the Port of Baltimore with a critical advantage in attracting a variety of shipping services and increasing the presence of freight in Maryland.

Maryland's highway freight system provides mobility for trucked freight, connectivity to the State's freight generating facilities, and critical links to all other modes, including marine, air, and rail. The system provides the final link in all supply chains. Safe and efficient goods movement across the highway freight system is critical to Maryland's economy. The SHA and MDTA have a joint highway-focused *Freight Implementation Plan* that provides data driven direction for future transportation investments to enhance the efficient and safe movement of commercial vehicle freight.

Economic Competiveness

The State's highway network is critical for allowing freight-dependent Maryland businesses to be competitive. Trucks provide the final link for freight travelling into, out of, and within Maryland's borders, particularly for the Port of Baltimore. The growth experienced at the Port of Baltimore will continue with the completion of the expansion of the Panama Canal scheduled for 2015 and the movement of global supply chains to Southeast Asia. The Port of Baltimore has expanded the role of break-bulk¹ and roll-on/roll-off² cargoes in its trade mix. In 2012, 27.1 million tons out of 36.7 million tons of cargo came from bulk cargo. Record setting growth during 2012 at the Port of Baltimore included:

- Value of International Cargo: \$54 billion
- Export Tonnage: 23.8 million tons
- Export Coal Tonnage: 19.6 million tons
- Number of Automobiles: 652,000 units

¹ Break-bulk cargo is defined as general cargo that is not containerized nor shipped in bulk.

² Roll-on/roll-off cargo is defined as self-propelled motorized items that are driven on and off the ship.

For 2012 international cargo, the seven public cargo terminals and the 28 private cargo terminals at the Port of Baltimore collectively ranked nationally:

1st - Automobiles/Light Trucks

1st - Roll-on/roll-off Equipment

1st - Imported Sugar

1st - Imported Forest Products

1st - Imported Aluminum

1st - Imported Gypsum

2nd - Exported Coal

2nd - Imported Iron Ore

9th - Overall Foreign Cargo Value

11th - Overall Foreign Cargo Tonnage

Source: Port of Baltimore and MPA Cargo Statistics for 2012
PowerPoint Presentation, Maryland Port Commission, March 5, 2013

Along with the private cargo terminals, the MPA realized significant growth in FY2012 at the Port of Baltimore's seven public marine terminals. The MPA's FY2012 general cargo volume of 9.3 million tons established a new record surpassing the previous record of 9.1 million tons set in FY2008. Roll-on/Roll-off and automobile tonnage increased 42.2 percent and 21.4 percent respectively while container tons through MPA terminals increased 2.7 percent.

Railroads provide high-efficiency advantages and play a dominant role in the movement of certain commodities and a supporting role in the transportation of others. The two Class I railroads, Norfolk Southern and CSX Transportation, operate a combined total of 676 miles of track that connect Maryland shippers to the regional and national rail networks. Both railroads are building capacity along their corridors that will add to the economic competitiveness of shippers located in Maryland by enabling a higher volume of freight to move by rail. CSX and Norfolk Southern operate rail yards and transfer facilities in Maryland that provide jobs in the local

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communities. Both railroads have freight yards and transfer sites throughout the state, including automotive distribution yards in Jessup and Baltimore, transloading facilities in Hagerstown and Baltimore, and an intermodal facility in Baltimore.

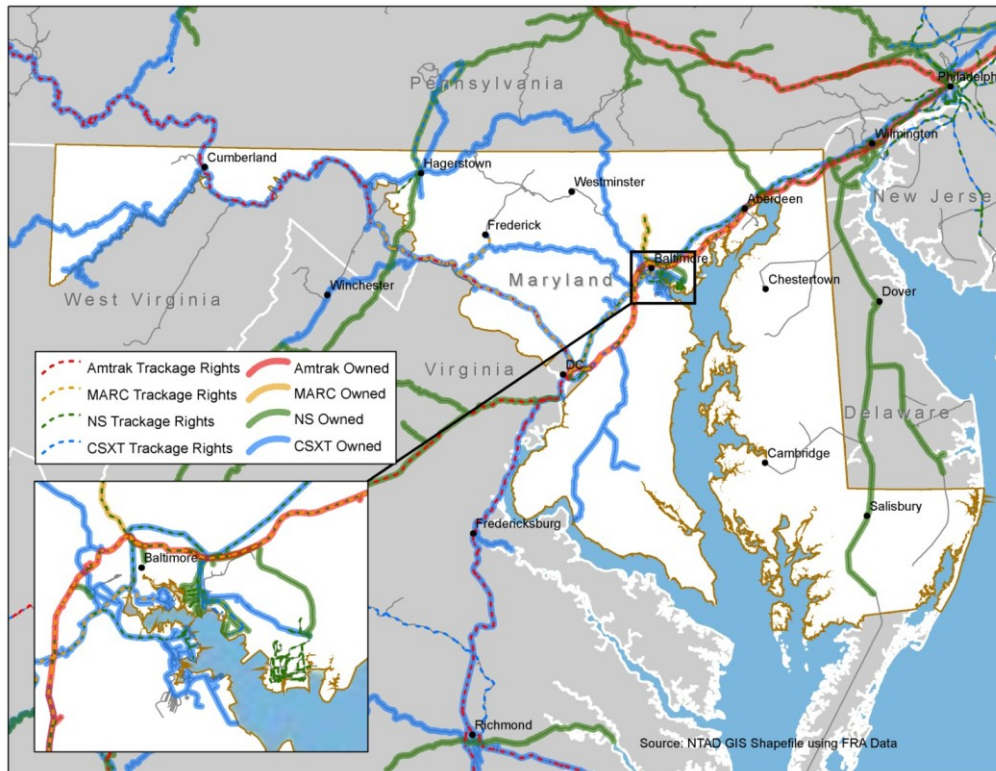


Figure 3: Overview of Maryland’s Class I Railroads Source: Cambridge Systematics from the National Transportation Atlas Database using FRA data

The shortline network is another component of the rail system. Shortline railroads provide cost effective solutions for importing/exporting raw materials, such as grain, paper, and fertilizer, and getting goods to market. There are several shortline operators that provide service on the Eastern Shore and central Maryland. Operations on the state-owned “Seaford to Cambridge” line, “Townsend to Chestertown” line, and the “Townsend to Centreville” line are provided by the Maryland and Delaware Railroad Company. Maryland Midland Railway, a division of Genesee and Wyoming, Inc. supplies businesses in central Maryland with interchange services to CSX that include movement of cement, coal, and forest products. The Bay Coast Railroad operates a barge services that transports railroad cars across the Chesapeake Bay between Cape Charles, Virginia and Norfolk, Virginia to serve businesses on the

lower Delmarva Peninsula. The Winchester and Western Railroad in Washington County, Maryland, provides access to the Norfolk Southern network in Hagerstown and the CSX network in Martinsburg, West Virginia and Winchester, Virginia.

Complete multimodal freight movement in Maryland is rounded out by air cargo. As a major transportation hub, Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall) serves as a passenger and freight node for the region. As the population of the region continues to grow, in addition to the increased practice of passenger flights carrying freight, demand for air freight services is expected to grow. Cargo at BWI Marshall grew by 4.6 percent over 2011 to nearly 110,000 metric tons in 2012.

Safety and Reliability

Safety is the top priority on the freight systems. Maryland has a robust truck and bus commercial vehicle enforcement and compliance program, ranking in the top 10 states nationwide for inspections. These inspections reduce the number of trucks with deficiencies on Maryland's roadways and encourage professional drivers to operate safely as they share the roads with passenger vehicles.

Ensuring safety and protecting the infrastructure occurs through the truck size and weight enforcement program. The program requires large vehicles to be weighed at Truck Weigh and Inspection Stations (TWIS), through roving enforcement, and through the Virtual Weigh Station (VWS) system. The VWS program uses intelligent transportation systems to weigh and capture an image of trucks that are overweight on key corridors across the state. The program deploys technology to identify and electronically screen commercial vehicles at mainline speeds.

The network of Virtual Weigh Stations, using pavement-embedded truck weighing technology and intelligent transportation systems, doubled from three sites to six sites across the state in 2012.

Source: State Highway Administration Motor Carrier Division

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The need for truck driver safe havens is important to the trucking community. SHA and MDOT developed a truck parking count program (believed to be the first dedicated program in the country) that highlights demand for parking on the majority of the freight network. SHA has developed concepts for truck parking capacity expansion at seven welcome centers and rest areas throughout the state. There are two park and ride locations that are currently funded for construction and that have truck parking incorporated into their design. The Federal Highway Administration awarded SHA \$2.6 million to add 40 truck parking spaces, including a 16-space “Idle Free Zone” to the I-95 southbound Welcome Center in Howard County, Maryland.

As the highways are to the trucking industry, runways are to the aviation industry. Several projects were completed or began in 2012 aimed at improving both the safety and capacity of runways at BWI Marshall. These projects supported both cargo planes and passenger aircraft. System preservation projects completed in 2012 included:

- \$40.3 million Runway 10-28 safety areas and pavement rehabilitation project that is part of a larger, ongoing \$332.2 million Runway Safety Area, Pavement and Standards Compliance Investment Program.
- \$4.1 million for taxiways and apron rehabilitation to support runway construction.

Safety and security are of paramount interest for water freight transport. Maryland is charged with providing safe passage to the large cargo vessels that travel the Chesapeake Bay and for protecting its sensitive ecosystem. One measure of port safety is compliance with the Maritime Transportation Security Act of 2002. Conformance with this standard is required due to numerous security concerns such as the potential smuggling of contraband or persons or attacks on critical transportation infrastructure. For the fifth consecutive year, the Coast Guard gave the MPA an “excellent” security assessment for the Port of Baltimore’s public marine terminals. Responsible dredging deepens the maritime channels for modern ship navigation, and is done in such a way to protect water and ecological systems.

Safety is the top priority for the railroads that operate in Maryland. Maryland’s Department of Labor, Licensing, and Regulation, in coordination with

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MDOT, have three federally certified rail safety inspectors, one each for track, operating practices, and motive power and equipment. Among the actions taken by MDOT to increase safety on the state-owned shortline railroads include replacing grade crossings, inspecting bridges and structures, and initiating a plan for repairs or replacement to culverts.

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MARYLAND'S FREIGHT SYSTEM

This section provides information about the Maryland Freight System and performance measures for each transportation mode grouped according to the goals outlined in the *Maryland Statewide Freight Plan*. Some of the measures apply to the movement of goods and people because the system is shared by both users. For example, tracking highway ride quality provides information about the maintenance of the highway system for both truck and automobile traffic. Some measures have already been incorporated into official documents, such as the *Maryland Annual Attainment Report*, modal business and strategic plans, or program reports. A summary table of all freight performances measures reported is at the end of the section.

In 2007, 74 percent of freight that originated or terminated within Maryland was hauled by truck, highlighting the importance of the highway freight system to the State's economy.

Source: Maryland Statewide Freight Plan

The measures are reported as noted for calendar year 2012 or fiscal year 2012. Baseline and trend analysis for measures that have previously been reported are found in source documents where available.

Highway Freight System

The highway freight system allows access to local, regional, and national markets. The trucking service providers that travel the system range from local delivery companies to long haul carriers. The highway freight system performance measures are shown in the following tables.

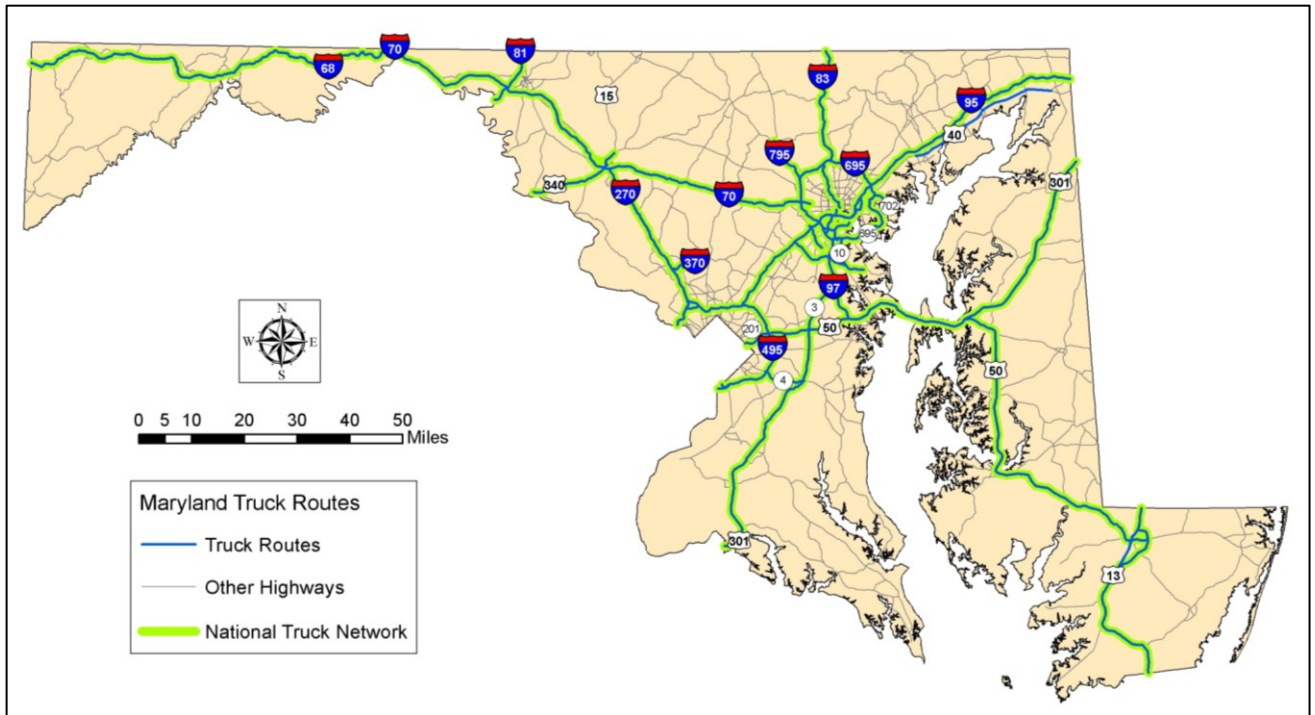


Figure 4: Maryland Truck Route System Source: Cambridge Systematics map using information from the Maryland Motor Carrier Handbook 2007

The truck route system consists of:

- Maryland Truck Route System – 900 miles
- National Truck Network located in Maryland – 908 miles
- National Highway System – 2,376
- Intermodal connectors – 88 miles

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Highway Quality of Service	
Provide reliable and predictable travel times across modal options for people and goods	
MEASURE	DATA
Truck Congestion Cost (in \$ millions) on freeways/expressways in CY2011	167
Percent of statewide expressways and freeways congested in peak hours (on average weekdays) in CY2011	10.5%
Percent of freeways/ expressways reliable in peak hours (on average weekdays) in CY2011	80%
Source: SHA Business Plan, MDTA, and MDOT	

Table 1: Highway Freight System Performance Measures -- Quality of Service

Congestion leads to...

delay that leads to...

costlier freight movement

Unpredictable, non-recurring, congestion adds to logistics costs because truckers have to build in extra time to deliver goods in order to meet the schedule requirements of businesses.

The data collected in 2011 will provide a baseline for trending the costs of congestion to truckers.

Highway Safety and Security	
Reduce the number and rate of transportation related fatalities and injuries	
MEASURE	DATA
Number of fatalities in traffic crashes involving heavy trucks on all roads in Maryland for CY2012 ³	70
Number of persons injured in traffic crashes involving heavy trucks on all roads in Maryland in CY2012 ⁴	2,365
Annual number of commercial vehicle safety inspections performed in CY2012 ⁵	111,723
Number of available truck parking spaces in CY2012 (baseline number of public spaces)	2,292
Peak Overnight Truck Parking volume in CY2012 ⁶	1,160
Sources: SHA Truck Parking Counts, MDTA, and MDOT	

Table 2: Highway Freight System Performance Measures -- Safety and Security

Reducing fatalities and serious injuries related to highway goods movement is a key safety and security objective. Commercial vehicle safety inspections are the front line defense against unsafe vehicles and drivers. The number of inspections increases year over year.

The supply of truck parking spaces supports the safety and security goal by providing places for truck drivers to pull over and rest without creating dangerous conditions for themselves and other drivers.

³ Heavy trucks are defined as single unit vehicle with 3 axles, tractor-trailer combinations and truck-tractor, cargo tank, and auto haulers.

⁴ Heavy trucks are defined as single unit vehicle with 3 axles, tractor-trailer combinations and truck-tractor, cargo tank, and auto haulers.

⁵ Commercial vehicle inspections can be conducted on trucks weighing 10,001 or more pounds gross vehicle weight, or any size vehicle that is carrying a hazardous material in a quantity that requires placarding according to U.S. DOT regulations.

⁶ Number of trucks parked on shoulders and ramps and in Welcome Centers, rest areas, and Park and Ride a census statewide.

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Highway System Preservation and Performance	
Preserve and maintain the existing transportation network	
MEASURE	DATA
Percentage of the Maryland SHA network in overall preferred maintenance condition for CY2012	85.1%
Number and percent of bridges that are structurally deficient in CY2012	101 / 3.5%
Percent of roadway miles with acceptable ride quality in CY2011	86%
Ratio of overweight vehicles to number of vehicles weighed for CY2012 ⁷	1.1%
Sources: SHA, MDTA, and MDOT <i>Annual Attainment Report</i>	

Table 3: Highway Freight System Performance Measures -- System Preservation and Performance

Safe and efficient truck freight movement relies on keeping roadways and bridges in a state of good repair.

Overweight and unsafe trucks damage roadways and bridges and can cause disruptions to traffic flows. Enforcing the weight limits and safety rules helps freight and passenger movement.

⁷ All vehicles with a gross weight or weight rating over 10,000 pounds gross weight as a unit or in combination.

Highway Environmental Stewardship

MDOT and the trucking industry work together on innovative methods to lower climate impacts of freight movement, including partnerships with Maryland Department of Environment and the Maryland Energy Administration on grant and voucher programs for alternative fuel vehicles.

The Maryland Energy Administration, in partnership with MDOT and the Maryland Department of the Environment, provides financial assistance for truck energy-alternative technologies.

- *Maryland Idle Reduction Grant Program -- financial assistance for the purchase and installation of idle reduction technology on trucks.*
84 awards
- *Maryland Electric Truck Voucher Program -- financial assistance for the purchase of new, all electric trucks registered in the state of Maryland.*
14 awards
- *Maryland Natural Gas Voucher Program -- financial assistance for the purchase of new and converted natural gas vehicles registered in the state of Maryland.*
11 awards

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Highway Connectivity for Daily Life	
Provide balanced, seamless, and accessible multimodal transportation options for people and goods	
MEASURE	DATA
Intermodal connector mileage as of CY2012	88.8
Sources: Federal Highway Administration	

Table 4: Highway Freight System Performance Measures -- Connectivity for Daily Life

Intermodal connectors are the key to a free-flow, seamless freight transportation system. Supply chains rely on the last-mile of delivery by trucks.

Rail Freight System

The rail freight system allows access to local, regional, and national markets. Maryland's freight rail system includes tracks, terminals, switching yards, sidings, and intermodal facilities. The railroad network is approximately 1,157 miles long, comprised of two Class I freight railroads, four Class III shortline freight carriers, one switching/terminal railroad, and two passenger railroads (Amtrak and MARC). Three railroads, CSX Transportation (CSX), Norfolk Southern Railway, and the Maryland and Delaware Railroad (MDDE), account for roughly three quarters of the rail freight network mileage. The remaining one-quarter is owned by other shortlines, rail operations on ports, or track that is banked by MDOT for future use.

The rail freight system performance measures are shown in the following tables. The private ownership and operation of freight railroads makes measuring the performance of the freight rail system more challenging from a public sector perspective because most of the data and information are proprietary to the railroads.

The rail lines in Maryland with the highest freight density are the CSX Capital subdivision between Washington, DC and Baltimore and the CSX Metropolitan, Cumberland, and Keystone subdivisions between Washington DC and the Pennsylvania border just north of Cumberland.

Source: Maryland Statewide Interim Rail Plan

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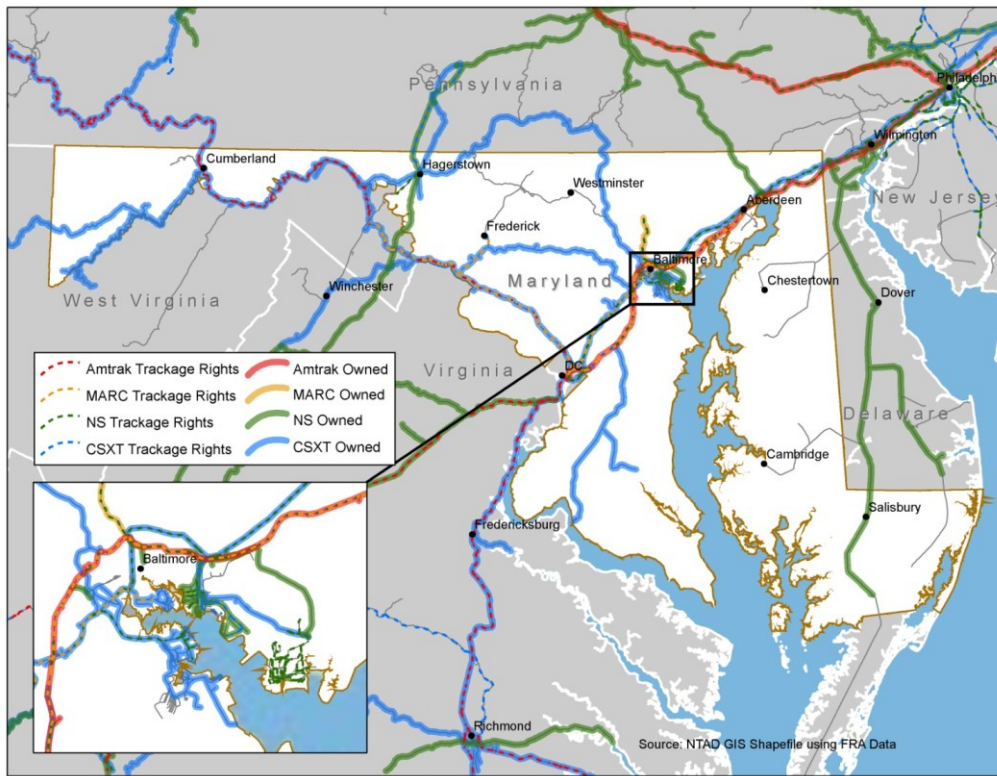


Figure 5: Overview of Maryland's Class I Railroads Source: Cambridge Systematics from the National Transportation Atlas Database using FRA data

Rail Quality of Service	
Provide reliable and predictable travel times across modal options for people and goods	
MEASURE	DATA
Number of shortline carloads on Maryland owned rail during FY2012 Note: FY2012 is the first year for reporting this measure	961
Source: MDOT	

Table 5: Rail Freight System Performance Measures -- Quality of Service

The number of carloads moving on the State owned shortline infrastructure shows a trend in providing reliable and efficient movement by rail.

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Rail Safety and Security	
Reduce the number and rate of transportation related fatalities and injuries	
MEASURE	DATA
The number of fatal crashes at at-grade rail crossings in CY2012	0
Number of public and private at-grade highway-rail crossings in CY2012	1,286
Source: FRA: http://safetydata.fra.dot.gov/OfficeofSafety/default.aspx	

Table 6: Rail Freight System Performance Measures -- Safety and Security

The ZERO fatal crashes at at-grade crossings indicate the effectiveness of the railroads and the State's efforts at improving rail crossing infrastructure and modifying driver behavior.

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Rail System Preservation and Performance	
Preserve and maintain the existing transportation network	
MEASURE	DATA
Percent of rail network capable of supporting 286K in FY2012	92%
Source: MDOT	

Table 7: Rail Freight System Performance Measures -- System Preservation and Performance

The highest transportation savings per ton mile are found on railroads that can handle fully loaded shipments of 286,000 pounds.

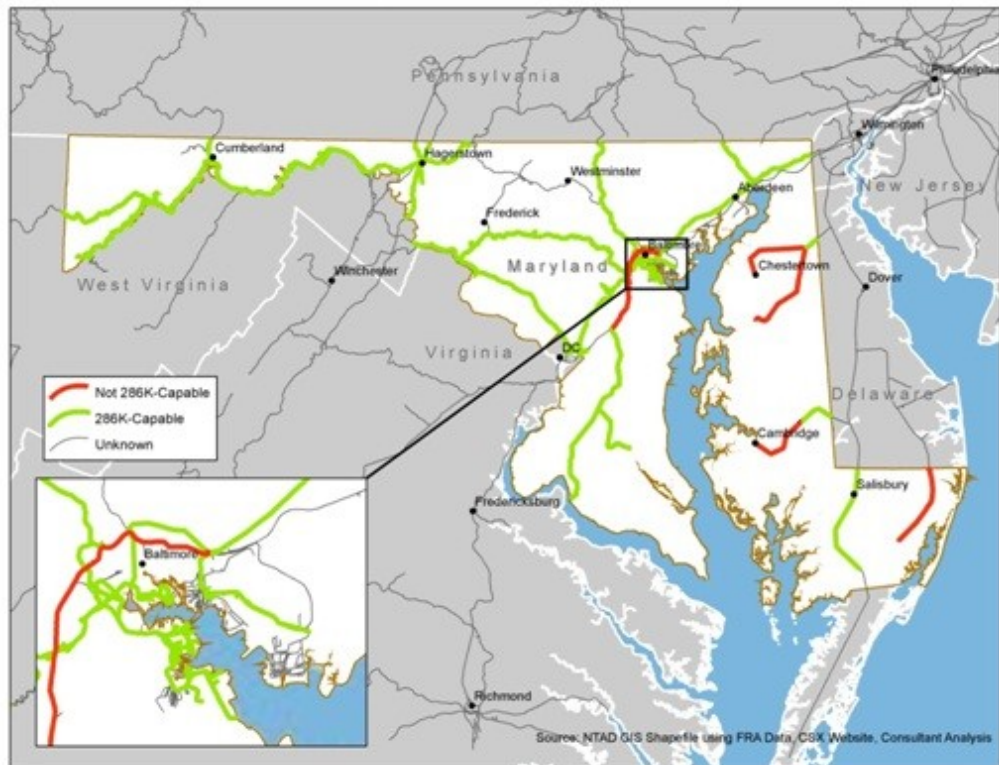


Figure 6: The 286,000 Pound Rail Network. Source: Cambridge Systematics

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Marine Freight System

Maritime freight is Maryland's connection to the world. Over 80 percent of global trade moves by water, and the freight that touches the docks at Baltimore travels far beyond Maryland.

Maritime activity is concentrated in the Baltimore area through the Port of Baltimore. There are a number of other commercial maritime locations in the state. The United States Army Corps of Engineers Waterborne Commerce Statistics Center estimates that Maryland had approximately 128 active commercial docks statewide, of which about three dozen private facilities (including cargo, shipyards, and ready reserve vessel moorings) are located near the Port of Baltimore.

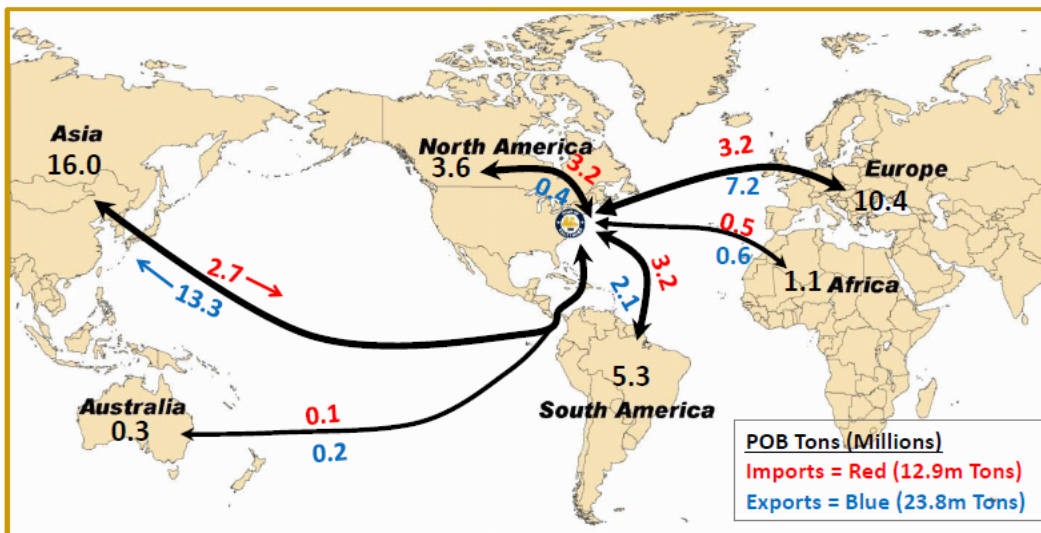


Figure 7: Exports and Imports tonnage through the Port of Baltimore in 2012. Source: MPA

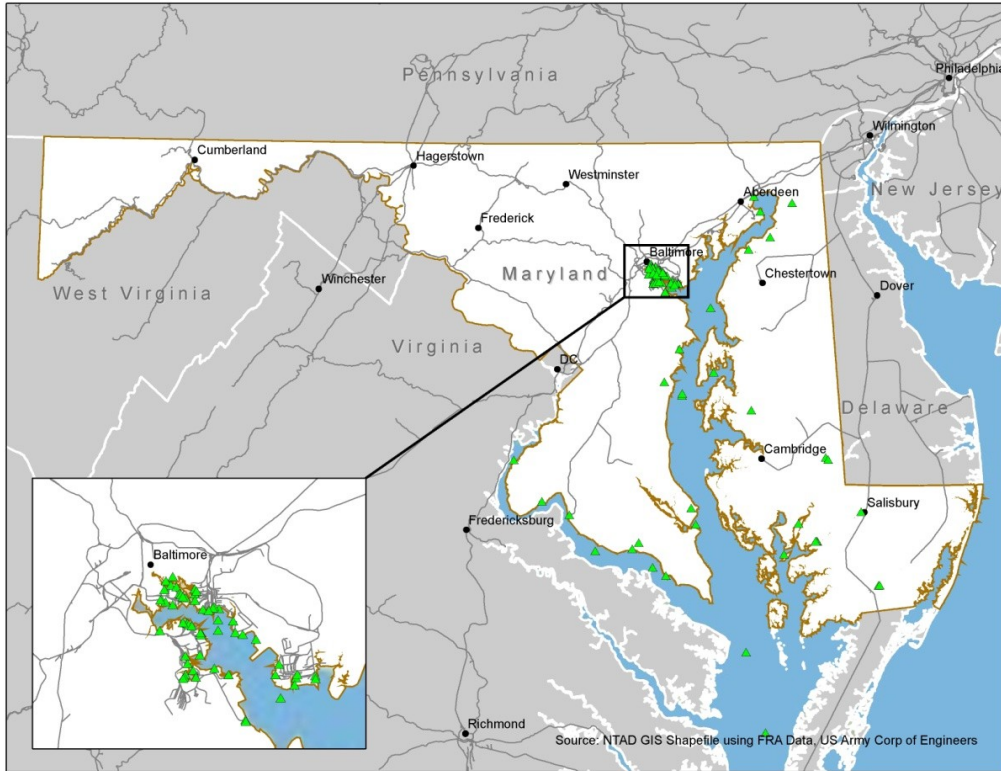


Figure 8: Active Docks and Open Water Positions. Source: Cambridge Systematics

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Marine Quality of Service	
Provide reliable and predictable travel times across modal options for people and goods	
MEASURE	DATA
Average truck turn-around time at Seagirt Marine Terminal during FY2012	Single moves: 30.2 minutes Double moves: 56.0 minutes
Source: MDOT <i>Annual Attainment Report</i>	

Table 8: Marine Freight System Performance Measures -- Quality of Service

Efficient truck service to the Port of Baltimore's Seagirt Marine Terminal, translates into competitively priced truck service from the terminal and helps lower truck idling with a positive impact on air quality.

Average truck turn-around time at Seagirt Marine Terminal is 30.2 minutes, its lowest time for a pick-up or drop-off since MDOT's Annual Attainment Report began tracking in 2001.

Marine Safety and Security	
Secure transportation assets for the movement of people and goods	
MEASURE	DATA
MPA compliance with the Maritime Transportation Security Act of 2002	MPA is currently in compliance
Source: MDOT <i>Annual Attainment Report</i>	

Table 9: Marine Freight System Performance Measures -- Safety and Security

MPA received an overall rating from the Coast Guard of "Excellent" for the fifth straight year.

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Marine System Preservation and Performance	
Preserve and maintain the existing transportation network	
MEASURE	DATA
Dredge material placement capacity remaining for Harbor and Bay in Million Cubic Yards (MCY)	Bay material: 16.2 MCY Harbor material: 17.8 MCY
Source: MPA	

Table 10: Marine Freight System Performance Measures -- System Preservation and Performance

Maryland's Dredged Material Management Program strives to provide adequate dredged material placement capacity for harbor and bay dredging.

Marine Environmental Stewardship	
Support initiatives that further our commitments to environmental quality	
MEASURE	DATA
Number of trucks replaced - Mid-Atlantic Dray Truck Replacement Program during CY2012	24
Source: MDOT and MPA	

Table 11: Marine Freight System Performance Measures -- Environmental Stewardship

The “Mid-Atlantic Dray Truck Replacement Program” provides up to \$20,000 toward the purchase or lease of a newer vehicle with an engine that meets or exceeds 2007 EPA emissions standards. The aim is to reduce air pollution and greenhouse gases from transporting goods to and from the Port of Baltimore.

Together, freight moves

Marine Connectivity for Daily Life	
Facilitate linkages within and beyond Maryland to support a healthy economy	
MEASURE	DATA
Port of Baltimore Foreign Cargo for CY2012	36.7 million tons
MPA General Cargo Tonnage for CY2012	9.6 million
Source: MPA	

Table 12: Marine Freight System Performance Measures -- Connectivity for Daily Life

In 2012, the Port of Baltimore handled nearly 37 million tons of foreign cargo, ranking 11th out of all US ports.

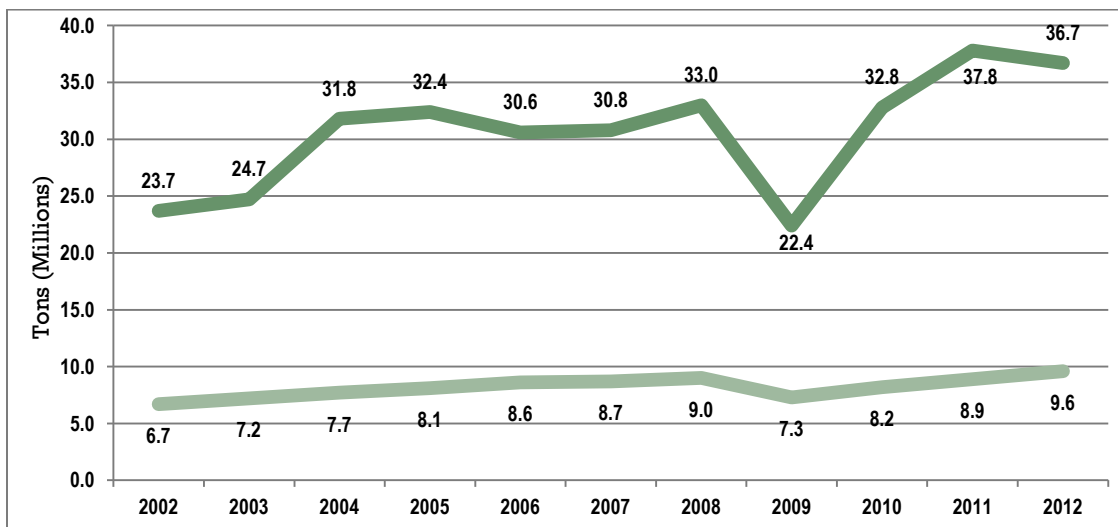


Figure 9: Cargo Tonnage at the Port of Baltimore in 2012. Source: MDOT and MPA

Air Freight System

The air cargo system facilitates the most dynamic trade in high value goods and cutting edge technology. Air cargo allows freight shippers to access every corner of the world. The MAA owns and operates BWI Marshall and Martin State Airport, and coordinates state aviation matters with the owners and operators of the 34 public-use airports. Scheduled cargo service is offered from two of these airports: BWI Marshall and Salisbury-Ocean City Wicomico Regional Airport.

Air System Preservation and Performance	
Maximize operational performance and efficiency of existing systems	
MEASURE	DATA
Total Air Tonnage at BWI Marshall (Apr. 2012- Mar. 2013)	112,939 metric tons
Source: MAA	

Table 13: Air Freight System Performance Measures -- System Preservation and Performance

Air cargo provides easy access and reliable on-time delivery.

Cargo travels by way of dedicated aircraft or in the belly of passenger planes.

Together, freight moves

Air Connectivity for Daily Life	
Facilitate linkages within and beyond Maryland to support a healthy economy	
MEASURE	DATA
Number of Nonstop Airline Markets Served FY2012	76
Source: MDOT <i>Annual Attainment Report</i>	

Table 14: Air Freight System Performance Measures -- Connectivity for Daily Life

The growth of transporting cargo in passenger planes is expected to continue as aircraft efficiency increases and higher operating costs force airlines to look to innovative ways to generate revenue.

More markets served by BWI Marshall allow for more passenger travel options, thus more bellies to fill with cargo.

Freight Measures Index

Goal Area	Objective	Performance Measure	Page
Quality of Service - Highway	Provide reliable and predictable travel times across modal options for people and goods	Truck Congestion Cost (in \$ millions) on the MD Freight Network	12
		Percent of statewide expressways and freeways congested in peak hours (on average weekdays)	12
		Percent of freeways/ expressways reliable in peak hours (on average weekdays)	12
Quality of Service – Rail	Provide reliable and predictable travel times across modal options for people and goods	Number of shortline carloads on Maryland owned rail	19
Quality of Service – Marine	Provide reliable and predictable travel times across modal options for people and goods	Average truck turn-around time at Seagirt Marine Terminal	24
Safety and Security – Highway	Reduce the number and rate of transportation related fatalities and injuries	Number of fatalities in traffic crashes involving heavy trucks on all roads in Maryland	13
		Number of persons injured in traffic crashes involving heavy trucks on all roads in Maryland	13
		Annual number of commercial vehicle safety inspections performed	13
		Number of available truck parking spaces	13
		Peak Overnight Truck Parking volume	13
Safety and Security – Rail	Reduce the number and rate of transportation related fatalities and injuries	The number of fatal crashes at at-grade rail crossings	20
		Number of public and private at-grade highway-rail crossings	20
Safety and Security – Marine	Secure transportation assets for the movement of people and goods	MPA compliance with the Maritime Transportation Security Act of 2002	25
System Preservation and Performance – Highway	Preserve and maintain the existing transportation network	Percentage of the Maryland SHA network in overall preferred maintenance condition	14
		Number and percent of bridges that are structurally deficient	14
		Percent of roadway miles with acceptable ride quality	14
		Ratio of overweight vehicles to number of vehicles weighed	14
System Preservation and Performance – Rail	Preserve and maintain the existing transportation network	Percent of rail network capable of supporting 286K	21
System Preservation and Performance – Marine	Preserve and maintain the existing transportation network	Dredge material placement capacity remaining for Harbor and Bay	26
System Preservation and Performance – Air	Maximize operational performance and efficiency of existing systems	Total Air Tonnage at BWI Marshall	29
Connectivity for Daily Life – Highway	Provide balanced, seamless, and accessible multimodal transportation options for people and goods	Intermodal connector mileage	16

Together, freight moves

Goal Area	Objective	Performance Measure	Page
Connectivity for Daily Life – Marine	Facilitate linkages within and beyond Maryland to support a healthy economy	Port of Baltimore Foreign Cargo	28
Connectivity for Daily Life – Marine	Facilitate linkages within and beyond Maryland to support a healthy economy	MPA General Cargo Tonnage	28
Connectivity for Daily Life – Air	Facilitate linkages within and beyond Maryland to support a healthy economy	Number of nonstop airline markets served	30
Environmental Stewardship – Marine	Support initiatives that further our commitments to environmental quality	Number of trucks replaced – Mid-Atlantic Dray Truck Replacement Program	27

Table 15: Freight Measures Index

Freight Demand

Maryland has a diversified freight cargo profile. Cargo that both originates and terminates in Maryland is an indicator of the commodities and products needed to fuel the economy. Gravel, scrap and non-metallic mineral products stand out as major drivers of the internal freight tonnage. Coal shipments are expected to increase, while total gravel shipments are expected to fall by 2020. Shipments of mixed freight, including consumer goods and service-sector supplies that are typically tied directly to population increases are expected to see robust growth. Machinery, mixed freight and pharmaceuticals are the most important intrastate commodities in terms of value. The value of intrastate machinery shipments is expected to grow slowly with mixed freight and pharmaceuticals growing more robustly.

Together, freight moves

Freight Demand by Mode		
Originating and Terminating Freight in Maryland		
Method for Moving Freight	Total Value (Millions of Dollars)	Total Weight (Thousands of Tons)
Air ⁸	3,206	118
Other ⁹	47,933	12,826
Rail	6,923	24,139
Truck	259,822	305,148
Water ¹⁰	51,391 ¹¹	27,844 foreign; 13,500 domestic
All Freight	396,275	512,245
<p>Source: U.S. Department of Transportation Freight Analysis Framework (FAF3) Version 3. Other, Rail, and Truck value and tonnage data is estimated based on FAF3 data. The data is adjusted yearly to account for previous year actual data and a two percent annual growth rate consistent with the Federal Highway Administration's Freight Summary 2008. The two percent growth rate reflects a conservative estimate of domestic and international freight growth given current economic conditions.</p>		

Table 16: Freight Demand by Mode

⁸ Source: BWI Marshall report to Airports Council International (2011)

⁹ Freight consists largely of postal and courier shipments weighing less than 100 pounds and other intermodal combinations.

¹⁰ Source: MPA and U.S. Army Corps of Engineers (2011)

¹¹ Value of international cargo only

CONCLUSION -- FOUNDATION BUILDING

The *Maryland Freight System Performance Annual Report* identifies freight performance measures for each mode within MDOT and shows the interconnectivity of those measures. The performance measures within this document are intended to create a common point of reference for the discussion of freight and to further the awareness among transportation stakeholders. Performance measures, no matter how sophisticated, can never tell the full story and should not substitute for detailed analysis of freight operations and planning. Nevertheless, the continued and enhanced use of freight performance measures is a key feature of the current national policy discussion. By compiling the performance measures that are already tracked through the various modal plans, this report demonstrates that MDOT has a significant pre-existing body of viable freight performance measures.

To comprehensively assess the Maryland Freight System, new measures will need to be developed, particularly with respect to the rail system. Practicality has been and will continue to be a key concern in determining which freight measures to track. It is also important that the measures ultimately align with the needs and priorities of MDOT, the modal administrations, and system users. Future freight performance measure reports will detail these modal interconnections and the connections to economic development and investment to provide a fully realized picture of the freight impact in Maryland.