VI. MANAGING THE SYSTEM FOR MAXIMUM SAFETY & EFFICIENCY

The Baltimore region's system of interstate highways, state and county roads, transit, port and airport facilities represents a considerable investment of federal, state and local tax dollars. In return, residents should be able to travel to school, work, appointments and social engagements in a safe, convenient, cost-efficient and time-efficient way. They should be able to depend on timely delivery of goods for business or personal use.

For most of the twentieth century, the emphasis in transportation was on creating a national highway system for passenger travel, commerce and military use. Then, in 1991 a landmark piece of legislation was passed, the Intermodal Surface Transportation Efficiency Act (ISTEA). This legislation recognizes that the Interstate Highway System is nearly complete, and that system preservation rather than construction needs to become the higher priority. Seven years later, the Transportation Equity Act for the 21st Century (TEA-21) was signed into law making safety the number one priority of the US Department of Transportation (DOT). In response, the focus must turn to making the best use of our assets. There are several factors involved in maximizing the safety and efficiency of our existing system: System preservation, Congestion Management, and Freight Movement.

System Preservation

The overall intensity of travel within and through the Baltimore region impacts the region's roads and bridges, rail lines and trails, requiring a strong commitment to maintenance needs. ISTEA legislation requires metropolitan planning organizations to assure the maintenance and preservation of existing transportation systems before committing to further expansion of those systems.

The Maryland Department of Transportation's (MDOT) commitment to system preservation is reflected in its current budget drafts, which conserve future transportation funds by identifying and prioritizing system preservation and operations needs prior to system expansion needs. Several of the modal agencies have management systems in place to assess the condition of highway pavement, bridges, and transit vehicles.

TEA-21's Focus — Maximizing Safety

Closely related to system preservation but also increasingly considered in long-range planning are safety concerns. Following in the footsteps of ISTEA, TEA-21 included safety as one of seven planning factors, including the following requirement: "Each statewide and metropolitan planning process shall provide for consideration of projects and strategies that will increase the safety and security of the transportation system for motorized and non-motorized users." Currently, the majority of safety issues are addressed at the project level and on individual facilities through traffic engineering improvements. However, transportation planners at all levels recognize the necessity to actively coordinate safety activities with planning processes.

Specific safety issues in the planning process may include bicycle and pedestrian, auto, motor carrier, and transit safety. Ultimately, goals of improved safety considerations in the planning process include:

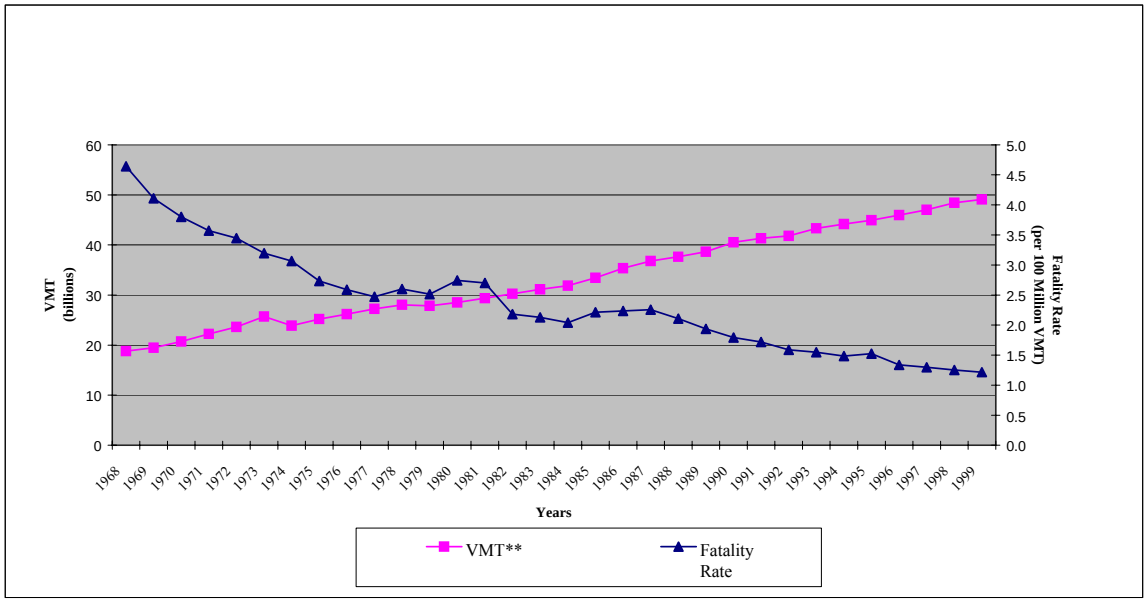
- Reduced rate of fatalities and injuries;
- Improved safety and security of services, vehicles and facilities for transit and for the

transportation disadvantaged;

- Improved safety of highway/rail grade crossings and other locations where modes intersect;
- Improved safety for commercial vehicle operations;
- Improved safety of pedestrians, bicyclists, and other non-motorized travel options;
- Improved safety of seaports, rail, and airport facilities;
- Minimized response time of each entity responsible for responding to crashes and other incidents; and
- Implemented response and evacuation plans in cooperation with emergency management agencies.

In Maryland, state law designates the Maryland State Police as the official collector of accident data, which are stored and analyzed by the State Highway Administration (SHA). Data records show that the safety on state and local highways has been improving, as shown in Figure VI-1. Between the late 1960's and 2000, the number of fatalities per million vehicle miles of travel (VMT) has decreased, even though the absolute amount of VMT has increased. Statewide accident rates are calculated for type of access controls, functional class, urban/rural, trucks, collision types, and severity. Such data is used in the Safety and Spot Improvement Program and SHA's Highway

Figure VI-1 MD VMT & Traffic Fatality Rate Trends for State and Local Highways



* **Source: Maryland State Highway Administration, Office of Traffic and Safety, Traffic Safety Analysis Division*

In the 2001 Baltimore Regional Transportation Plan (BRTP) planning process, safety is considered through the project selection and prioritization process. Working in coordination with the SHA, the Baltimore Regional Transportation Board (BRTB) collected three years (1997-1999) of accident data for all candidate projects. Observed data included the number of total accidents, fatalities, and injuries. State and local traffic count data was used to calculate annual VMT and project log miles were identified for each project. All projects were ranked for each measure and assigned points according to ranking for Accidents and Severity. Ultimately, the safety/accident points accounted for 20% of the technical score, used as part of the project prioritization process.

The BRTB will continue to explore methods to incorporate safety into the regional transportation planning process, including such areas as management and operations, enhanced incorporation into long-range planning, and identification of additional data needs and methods, and increased coordination with state and federal safety planning efforts.

Enhancing System Performance with Improved Management and Operation

There is a national emphasis on increasing system efficiency and safety through improved planning for and implementation of management and operations (M&O) strategies. Management and operations addresses all transportation system activities:

- Scheduled/recurring activities (e.g. signal retiming)
- Planned disruptions (e.g. work zones)
- Unscheduled/non-recurring disruptions (e.g. incidents)
- Special events (e.g. sporting events)
- Real-time transportation system management (e.g. traveler information, incident detection)

Improved M&O offers many potential benefits, such as improved safety, reduced travel time, increased capacity, reduced operating costs, improved productivity, and reduced emissions.
One of the tools that can be used to facilitate improved M&O is Intelligent Transportation Systems (ITS) technology. ITS refers to the application of current and evolving technologies (particularly computer and communications technologies) to transportation systems. ITS improves the performance of existing systems in many ways, including roadway monitoring and incident detection, traffic and transit management, providing real-time traffic, transit, and parking information to travelers, and deploying weigh-in-motion and pre-clearance systems for commercial vehicles.

Maryland's ITS program, called CHART (Coordinated Highways Action Response Team), is a joint effort of MDOT, SHA, the Maryland Transportation Authority (MdTA), and the Maryland State Police, in cooperation with other federal, state, regional, and local agencies. The CHART program was initiated in the mid-1980s and has five primary functions: 1) traffic and roadway monitoring; 2) incident response; 3) traveler information; 4) traffic management; and 5) emergency weather operations – crisis management. Addressing these functions enables the state to more effectively manage and operate its roadways. The CHART program is being upgraded and expanded to more fully integrate with other systems within the state, to increase coverage of current roads, and to include coverage of new roads.

Another M&O tool is Transportation System Management (TSM) that seeks to identify improvements to new and existing facilities of an operational nature. These improvements are

designed to increase traffic flow and safety through better management and operation of existing transportation facilities. Compared to major capacity and infrastructure improvements, TSM-related projects are lower in cost and can be implemented or constructed in less time. Some examples of traditional TSM improvements include traffic signal enhancements, removal of freeway and arterial bottlenecks, and ITS deployment.

Improved traffic flow and reduction of delay are benefits that address air quality as well. Improvements at intersections and in signal timing, which reduce delays at those locations, thus limit the amount of vehicle emissions. Reducing traffic jams caused by incidents on freeways through better traffic management also eliminates the amount of pollutants by eliminating idling vehicles.

Although these types of projects tend to be less costly than capacity and can be addressed in the short term, there are several projects identified in this category to be completed during the time frame of the 2001 BRTP:

- North Charles Street (Baltimore County) – GBMC/Shepard Pratt access improvements
- MD 175/US 1 (Howard County) – increase intersection capacity
- MD 543/MD 7 (Harford County) – increase intersection capacity

Congestion Management

A continuing requirement from ISTEA is for urbanized areas, with populations exceeding 200,000, to develop a Congestion Management System (CMS) to be included as part of the planning process. By Fall of 1997, the BRTB adopted a work plan for the development of a CMS for the Baltimore region. The CMS work plan addresses appropriate analysis of all reasonable multimodal, travel demand reduction and operational management strategies for given corridors. Further, a work program was established to collect and monitor data for major corridors to identify problem areas and to assess the effectiveness of improvements. This work is an ongoing component of the Unified Planning Work Program and is reflected in each update to the long-range transportation plan and to subsequent Transportation Improvement Programs (TIP).

Figure VI-2 displays congested corridors in the Baltimore region for which data is collected in order to monitor the system. Trends are established that identify areas that improve or worsen.

Freight/Services Movement

Strategically located midway along the East Coast, Maryland provides an ideal base to serve the largest consumer and industrial markets in North America and beyond. The Baltimore region has a sophisticated freight movement network, consisting of an extensive highway system, two Class I and several smaller railroads, an international airport, and a deepwater seaport. Further, thousands of firms in the Baltimore region are engaged in the handling and transporting of freight cargo.

The movement of freight, goods, and cargo has a significant impact on our daily lives. The clothes you wear, the foods you eat, and other items you purchase probably came from someplace else and were transported to local stores. The businesses that produce these items compete globally and market their services worldwide. Businesses involved in the manufacturing, distribution, and warehousing industries generate significant amounts of transportation activity in and out of the region. Our freight transportation infrastructure is, therefore, a critical lifeline to the firms in these sectors. This infrastructure will have to handle increasing amounts of freight. The Federal Highway

Figure VI-2

and all figures/maps in this document are available on the BMC webpage, http://www.baltometro.org/mambo/content/view/399/322/.

Administration (FHWA) forecasts that the Northeast region of the US will see an 80 percent increase in freight tonnage by the year 2020.[1]

Transportation firms' ability to provide timely and reliable service depends not only on the efficiency of the individual modes and the effectiveness of the laws and regulations under which they operate, but also on the efficiency of intermodal facilities that connect one mode to another. Intermodal facilities use two or more transportation modes and function as transfer points for door-to-door freight movement. For example, freight may be imported into the region by ship, transferred onto rail for a long-haul trip, and finally placed onto trucks once the goods are in close proximity to their final destination. Therefore, issues affecting a single mode also affect the efficiency and effectiveness of the region's entire freight transportation network. Currently 18 major intermodal facilities are identified in the region, including 13 port terminals, three rail facilities, BWI, and an auto distribution center, as shown on Figure VI-3.

Trucking

I-95, I-70, I-695, and I-83 are the principal freight transportation routes for motor carriers in the region. I-95 provides north/south access within the region and to the Philadelphia and Washington, D.C. markets. I-70 provides access to western Maryland and Midwestern states. I-695 provides access to the many business and industrial areas around Baltimore, as well as connects to other major highways. I-83 provides access to the northern part of the region and central Pennsylvania. I-97, I-895, US 50 and US 301 are other major regional routes. Figure VI-4 shows the network of major truck routes in the Baltimore region.

The Maryland Motor Truck Association estimates that the trucking industry carries approximately

Table VI-1 Truck Percentages at Regional Toll Facilities[2]: 1998 - 2000

Total Vehicles & % Truck Activity	1998	1999	2000
Hatem Bridge (US 40)	9,196,352	9,408,826	9,109,694
% Truck Activity	4.8%	5.0%	5.0%
Bay Bridge (US 50/301)	22,957,198	23,505,508	23,686,214
% Truck Activity	9.1%	9.1%	8.9%
Key Bridge (I-695)	10,534,909	11,009,443	10,936,386
% Truck Activity	9.9%	9.8%	10.1%
Harbor Tunnel (I-895)	21,420,625	22,552,189	23,439,460
% Truck Activity	3.4%	3.6%	3.6%
Ft. McHenry Tunnel (I-95)	40,069,225	39,927,699	41,812,696
% Truck Activity	9.2%	9.8%	10.0%
JFK Memorial Hwy. (I-95)	27,593,620	28,315,362	28,800,408
% Truck Activity	13.3%	13.6%	14.0%

Source: Maryland Transportation Authority

1 National Freight Movement Trends/Issues/Forecasts/Policy Implications, FHWA, Office of Freight Management and Operations, August 2001

2 The Hatem Bridge, Chesapeake Bay Bridge, and Tydings Memorial Bridge have one-way tolls. For these facilities, two-way truck volumes were estimated by doubling the traffic counts.

Figure VI-3

and all figures/maps in this document are available on the BMC webpage, http://www.baltometro.org/mambo/content/view/399/322/.

Figure VI-4

and all figures/maps in this document are available on the BMC webpage, http://www.baltometro.org/mambo/content/view/399/322/.

Current Truck Issues

Areawide Congestion — Congestion is one of the major impediments for regional freight movement routes. In addition to the traffic back-ups, lane reductions and bottlenecks contribute to congestion.

Truck Restrictions — Trucks are restricted from transporting various goods on certain roads. These restrictions include height clearances, bridge and pavement weight limits, and parking restrictions. Highway ramp design, poor signalization, lack of signage, access, and narrow roads are other impediments in the truck routes traveled. These restrictions make it difficult for trucks to travel through downtown areas with narrower streets and to park at delivery/drop-off areas. These restrictions also make it difficult for trucks to travel to manufacturing and distribution centers and intermodal facilities.

Intermodal Connectors — These are local, county or city streets that connect the National Highway System to major intermodal terminals. While intermodal connectors are typically shorter than two miles long, they carry heavy truck volumes, yet they have generally lower design standards than the interstates. An FHWA report states that problems with shoulders, inadequate turning radii and road maintenance are the commonly cited geometric and physical deficiencies on connectors. The connector road segments located in the Baltimore region are primarily located near port terminals. A March 2001 workshop focused on identifying smaller-scale problems, particularly on the connectors. These problems are being forwarded to local jurisdictions and state agencies for their review and possible improvements could be included in the TIP.

Railroads

Railroads are vital links in the Baltimore region's freight movement system, providing important long-haul connections between shippers and receivers. Nationally, forty percent of intercity freight tonnage moves by rail.

Private companies operate Class I railroads[3] (CSX and Norfolk Southern), a shortline railroad (Maryland Midland Railroad), and two switching and terminal rail companies (Canton Railroad and Patapsco & Back Rivers Railroad) in the region. These companies' principal regional rail lines and facilities are depicted in Figure VI-5. More detailed rail information can be found in Maryland Transit Administration's (MTA) State Rail Plan. **CSX** owns and operates 450 route miles in Maryland, about 50 percent of the total. CSX also owns several facilities in the Baltimore region; including rail switching yards and rail-to-truck and auto distribution centers. It also operates the publicly owned Intermodal Container Transfer Facility (ICTF) at the Seagirt Marine Terminal at the port. Most of these facilities are in Baltimore City.

Norfolk Southern (NS) owns 89 route miles and operates on another 90 miles through an agreement with Amtrak on its Northeast Corridor line. Since 1999, NS assumed most of Conrail's track and trackage rights. NS owns a rail-to-truck facility and the Bayview ICTF and switching yard in Baltimore City.

Maryland Midland Railroad (MMID) is a shortline railroad that operates in Carroll, Frederick, and western Baltimore counties on 67 miles of track. MMID primarily transports coal, raw materials, cement, and lumber products. MMID's yard is in Union Bridge and the railroad interchanges with CSX.

[3] Class I railroad companies are defined as those with annual revenues in excess of $258.5 million.

Figure VI-5

and all figures/maps in this document are available on the BMC webpage, http://www.baltometro.org/mambo/content/view/399/322/.

Two switching and terminal railroads serve the Baltimore region. The **Canton Railroad**, owned by MdTA, operates on six miles of state-owned track in Baltimore City and Baltimore County from the Seagirt Marine Terminal to Eastpoint. The railroad interchanges traffic with CSX and NS. The privately owned **Patapsco & Back Rivers Railroad** primarily transports raw materials to and from the Bethlehem Steel plant at Sparrows Point along its ten miles of track. It also interchanges traffic with CSX and NS.

Because of the proprietary nature of rail data, regional information on rail movements is not easily accessible. Tables VI-2 and VI-3 present statewide activity as an indicator of regional rail traffic.

Table VI-2 Originating Rail Traffic by Commodity Type, 1999

Commodity Type	Tons (000)	Percent of Total
Waste and Scrap	1,558	21
Primary Metal Product	951	13
Mixed Freight	794	10
Coal	754	10
Metallic Ores	646	9
Other	2,873	37
Total	7,576	100

Table VI-3 Terminating Rail Traffic by Commodity Type, 1999

	Tons (000)	Percent of Total
Coal	14,440	51
Nonmetallic Minerals	3,734	13
Autos	1,290	5
Chemicals	1,266	4
Food Products	1,162	4
Other	6,380	23
Total	28,272	100

Source: Maryland Transit Administration

Current Railroad Issues

Height, Width, and Weight Limitations — Height, width, and weight limitations can impede the flow of rail traffic. New generation auto railcars and the ability to double-stack high-cube containers require higher clearances than are available in some locations. In the Baltimore region, several tunnel and bridge clearances are not high enough to accommodate the new 20'6" standard size. The CSX Howard Street tunnel in Baltimore City serves low cube containers, but cannot handle high cube double-stack service. NS intends to increase clearances in Perryville. Other clearances are needed outside the region that also impact the flow rail traffic through the region. Baltimore is one of a handful of East Coast ports without high-cube double stack service in place or under construction; however, low cube double-stack trains are in operation.

On July 18, 2001, a CSX train derailed and a railcar carrying hazardous materials caught fire inside a downtown Baltimore tunnel. More than thirty trains travel through the tunnel daily and rail service along the Northeast corridor and to the Port of Baltimore were impacted. It is important to recognize that transporting hazardous materials by rail is safe. This incident in the Howard Street tunnel brought to light the importance of rail infrastructure. Maryland Senators Mikulski and Sarbanes have co-sponsored an amendment to the FY 02 transportation appropriations bill (S.1178), to study Baltimore's passenger and freight rail system.

Regarding weight limitations, the industry standard is increasing from 263,000 to 286,000 gross pounds. Some trackage within the region and statewide cannot handle the increased weight standard.

Passenger/Freight Coordination — MARC commuter trains operate on CSX and Amtrak. This joint use of trackage raises conflicting goals—the need for timely service for MARC riders and the efficient movement of rail freight that is vital to the state's economy. MDOT recently agreed to use state and federal funds to improve CSX tracks. The agreement also includes performance provisions relating to CSX's ability to maintain MARC's on-time performance levels. Amtrak will also receive state funding for track improvements. CSX and MARC will continue to work together to evaluate future improvements that offer mutual benefits.

Grade Crossings — Rail safety issues are primarily related to reducing the accidents that occur at grade crossings. MTA and SHA work together to promote education and enforcement of crossing safety, through the federal Operation Lifesaver program. SHA manages the federal funds used to improve signalization at crossings. In addition to the safety impacts, the elimination of certain grade crossings may also reduce truck traffic congestion, cited as a major freight movement impediment. The reduced-congestion benefits at particular grade crossing locations may warrant further study.

Air Cargo

The region's major air freight facility is Baltimore-Washington International Airport (BWI). Domestic and international companies handle specialized cargo, such as seafood, flowers, and other time-sensitive, high-value shipments. BWI's new 60,000 square foot (sq. ft) cargo building is located separately from passenger traffic. The facility is designed to expand to 724,800 sq. ft. as demand increases. Several all-cargo airlines serve BWI, and passenger airlines also provide freight movement services ("belly-freight").

Dulles (IAD) and Ronald Reagan Washington National Airports (DCA), along with BWI, are part of the Baltimore-Washington regional airport system. Two general aviation airports, Carroll County Airport, near Westminster, and Martin State Airport, in Baltimore County, provide a limited amount of air cargo service in the region.

Major truck access to BWI along MD 170 is provided from I-95, I-695, and the Baltimore-Washington Parkway (MD 295) to I-195, I-97, MD 100, and MD 176. In most cases, air cargo shipments do not originate or terminate at an airport location and trucks link airports with shippers and receivers. In fact, many cargo shipments travel long distances by truck to connect with direct flight services, particularly for international markets (due to limited direct service) or where economies of scale create cost advantages. Good examples of the international services are the nightly trucks from BWI and IAD to New York's Kennedy Airport to meet the next day's international departures. These trucks gather freight at Philadelphia and Newark along the way and deliver local destination freight. The reverse trip picks up freight for distribution along the route.

Tables VI-4 and VI-5 show recent cargo activity at BWI and regional market share.

Table VI-4 Mail and Freight Activity at BWI*: 1998 — 2000

	1998	1999	2000
Mail	44,686	40,966	39,931
Freight	190,791	184,187	196,112
Domestic	177,496	172,253	184,503
International	13,295	11,934	11,608

** in metric tons*
Source: Maryland Aviation Administration

Table VI-5 Regional Air Mail and Freight Activity, 2000

Regional Comparison	Baltimore Washington International	Dulles	Ronald Reagan Washington National
Mail	30.3%	47.2%	22.5%
Freight	37.3%	61.3%	1.3%

Source: Maryland Aviation Administration

Current Air Cargo Issues

Cargo Forecasts — Mail and freight volumes are projected to grow at average annual rates of 3.0 percent and 5.1 percent, respectively. Total average weekday truck traffic for BWI is estimated at 298 round-trips in 1996 and 1,164 projected round-trips in 2020.[4] The current level of air cargo-related vehicle traffic, however, is insignificant when compared with total airport traffic and traffic on major local and regional routes. The projected increase in truck traffic levels should not, therefore, have a significant impact on either congestion or expansion requirements at BWI. However, the projected increase in congestion on major access corridors in the metropolitan region could have a detrimental impact on the competitiveness of cargo services at both BWI and IAD due to increased access costs and diminished service levels relative to other airports.

In addition, BWI's cargo facilities' capacity is projected to be able to handle cargo growth through 2017, when it will reach full utilization. The horizon for the expected shortfall provides sufficient time for the planning, design, and construction of additional facilities to meet anticipated growth. There are also efficiency options that could increase capacity without new facility development or, at the very least, forestall the need for that development. These measures include a reduction in cargo terminal use through more direct transfer and off-airport handling, rehabilitation of older terminal areas, and more efficient use of truck services.

Seaport

The Port of Baltimore is the region's major maritime facility. Located on the Patapsco River near the northern end of the Chesapeake Bay, the port is accessible from the Atlantic Ocean sea routes through Hampton Roads at the south end of the Chesapeake Bay and through the Chesapeake and Delaware (C&D) Canal. The port's inland location provides access to more than 30 percent of the nation's population overnight by truck or within two days by rail. The port's principal inland market areas are the mid-Atlantic and midwestern states.

The Port of Baltimore provides access to more than 30 percent of the nation's population overnight by truck or within two days by rail.

The port consists of approximately 35 private marine terminals and five public marine terminals that are owned and administered by the Maryland Port Administration (MPA). Some of these terminals are shown on Figure VI-6. Virtually all of the dry bulk cargo (e.g., coal, ores, gypsum, cement, grain and sugar), the majority of the liquid bulk cargo (e.g., petroleum products, molasses, chemicals and latex), and a significant portion of the breakbulk cargo (primarily automobiles, forest products, steel and other metals) are handled in the private terminals.

MPA is responsible for the overall management, safety, operation and marketing of the port's public facilities. More detailed information can be found in MPA's Strategic Plan. Most of the port's container and other general cargo tonnage is handled on these public terminals. The two largest public terminals are Dundalk and Seagirt. Dundalk is the second largest terminal on the North Atlantic coast and the largest general cargo facility in the port. It primarily handles automobiles and other roll-on/roll-off equipment and forest products. Seagirt serves as the hub of the port's intermodal container cargo, with some of the world's most modern container cranes and technology. Activity at these two terminals accounts for more than 80 percent of the total tonnage at the public terminals.

[4] Washington-Baltimore Regional Airport System Plan, Air Cargo Element. Metropolitan Washington Council of Governments, July 1997.

Figure VI-6

and all figures/maps in this document are available on the BMC webpage, http://www.baltometro.org/mambo/content/view/399/322/.

Major truck access routes to the terminals are provided by I-95, I-895, and I-695. Roads providing internal access around the port facilities include Broening Highway, Dundalk Avenue, Clinton Street, Keith Avenue, Key Highway, Hanover Street, Potee Street, and Patapsco Avenue.

Table VI-6 shows the activity at the public and private terminals from the last three years. General cargo includes both containerized and breakbulk freight. Bulk cargoes have totaled approximately 20 million tons per year in recent years.

Table VI-6 Activity at Port Terminals: 1998 — 2000

Short Tons	1998	1999	2000
Total Cargo	25,274,377	22,964,610	26,159,238
Imports	16,150,005	15,502,005	17,425,349
Exports	9,124,372	7,462,605	8,733,889
Bulk Cargo	19,843,631	17,578,822	20,336,452
General Cargo	5,430,746	5,385,788	5,822,786
Value ($ 000)	**1998**	**1999**	**2000**
Total Value	$18,808,980	$19,463,675	$20,607,053
Imports	$12,744,678	$14,039,333	$15,308,229
Exports	$6,064,302	$5,424,342	$5,298,824
Bulk Cargo	$1,487,247	$1,421,257	$1,599,932
General Cargo	$17,321,733	$18,042,418	$19,007,121

Source: Maryland Port Administration

Current Port Issues

Harbor Dredging — Dredging of the harbor channels is crucial to keep the channels at depths appropriate for ocean-going vessels. International ocean carriers are building larger ships that require deeper harbor channels. In addition, these carriers are merging and concentrating their operations at fewer ports of call, which give them greater leverage in requiring greater channel depths.

Dredging, including on-going maintenance, not only affects port activity, but also truck and rail activity. If fewer ships call on the port, there will be direct impacts on the intermodal traffic between ship and truck and ship and rail.

Rail Access — Both CSX and NS have rail lines into various port terminals. High-cube double stack service to and from the port on both railroads would contribute significantly to the promotion of the port to the major ocean carriers.

Port Capacity — The MPA is currently investing in major renovations of existing marine terminals. As existing facilities are nearing capacity, the growth of the port will demand the creation of new

terminals and increased efficiencies in the operation of existing terminals.

Programmatic Actions Supporting Long-Range Planning

In addition, the BRTB, in its capacity as the MPO, also conducts studies and develops strategies that are conducive to system preservation. Table VI-7 below identifies significant planning,

Table VI-7 Programmatic Actions Supporting Long-Range Planning

Action	Participants	Time Frame
Develop a new outreach and education program to support public involvement initiatives	BRTB, CAC; BMC staff, Consultant	2002
Vision 2030	BRTB, Baltimore Regional Partnership, Baltimore region stakeholders, BMC staff, Consultant	2002
Review need for improvements to Intermodal Connectors to increase freight movement efficiency	BRTB, Freight Movement Task Force, BMC staff, Consultant	2001
Undertake studies to evaluate intersections that carry high volumes of truck traffic	Freight Movement Task Force, BRTB, BMC staff	Near-term
Participate in the development and assessment of alternatives for the I-95 Master Plan Study	BRTB, BMC staff	2002
Continue refinement of tools for environmental justice analysis and incorporate data from Census 2000	Equity Subcommittee, BRTB, BMC staff	Near-term
Continue exploration of new or expanded TDM strategies	Emissions Mitigation Strategies Subcommittee, BMC staff	Near-term
Incorporate the results of new survey data such as National Personal Transportation Survey and External Travel Survey to better estimate future travel	Technical Committee, BMC staff	Near-term
Complete work to integrate the TRANUS land use model into the transportation planning process	BMC staff, Consultant	Ongoing
Facilitate development of an integrated, multi-modal region-wide ITS infrastructure	BRTB, MDOT, BMC staff, Private partners	Ongoing
Integrate management and operations planning and safety issues into regional long-range planning	Mngt. & Operations Partnership, BRTB, BMC staff	Ongoing
Continue refinement of cooperative forecasting process to determine future population, household and employment data at the TAZ level	Cooperative Forecasting Group, BMC staff	Ongoing
Provide support and analysis as necessary to develop transit initiatives in support of the goal of doubling ridership by 2020	BRTB, MTA, Local transit agencies, BMC staff	Ongoing
Participate in interagency review meetings for project planning to review consistency with the goals of the 2001 BRTP	BMC staff	Ongoing