

I. INTRODUCTION

The purpose of this transportation chapter is to plan for a safe, efficient, and convenient multi-modal transportation system which recognizes the current needs of the community, provides for future travel demand, and supports compatible land uses within the City of Havre de Grace and its planning area. The chapter describes how people can be moved to, from, and within the City safely and efficiently. It also recognizes the need to plan and provide mobility for persons who are transit dependent, such as persons without access to automobiles, some members of the senior population, and those with disabilities. In addition, there is recognition of the importance that transportation infrastructure plays in development and land use decisions insofar as the future of Havre de Grace is concerned. This chapter includes a review of the existing transportation system and services and identifies both problems and opportunities for improvements and enhancements. Recommendations to address current and future roadway, transit, bicycle, pedestrian, aviation and water transportation needs are also included.

The transportation system in Havre de Grace can be grouped into six general categories: (1) Street System, (2) Rail Service, (3) Bus Service, (4) Bicycle/Pedestrian Facilities, (5) Aviation Facilities, and (6) Water Transport. Various local, State, and Federal agencies are involved in the planning, capital improvements, maintenance, and general oversight of the various aspects of transportation. These include but are not limited to the City's Departments of Public Works and Economic Development and Planning, the Maryland Department of Transportation, which incorporates both the Maryland Transit Administration (MTA) and State Highway Administration (SHA), the Maryland Toll Authority, the Federal Aviation Administration, and the Coast Guard. The following is an overview of each of the six categories:

- 1) Street System – Havre de Grace has a mix of different street designs, reflecting the City's historical development. The street system in the older portions of the City is comprised of a traditional grid pattern, with north/south and east/west street orientation. Some streets, such as Union Avenue, Revolution, Otsego, and Juniata Streets serve as arterial and collector streets within the Old Town framework. The building of US 40 in the 1930's and I-95 in the 1960's, both major interstate thoroughfares, resulted in a shift away from the City's central core as a transportation route to highways that bypass the Old Town.

Connections from Old Town Havre de Grace to areas north of US 40 are limited to MD 155 and Chapel Road. However, a third connection extending Lewis Lane from US 40 to Chapel Road is expected to open in the near future. Street patterns within Havre de

- Grace changed through time to include a modified grid pattern street system in older communities along Revolution Street and a curvilinear/cul-de-sac street system in newer neighborhoods. The Federal Highway Administration Functional Classification System has been applied to the City's road network for planning purposes. This classification system can be utilized for assessing the inter-relationship of the streets, land uses, and trip generators/destinations within the City. Presently, the street system is generally successful in handling traffic volume in relation to street widths and current configuration, however proactive planning for the road network in terms of future growth must be accomplished.
- 2) Rail Service – Within the immediate vicinity of Havre de Grace, there is excellent access to rail service for both regional and national passenger destinations. Located only three miles away, the City of Aberdeen offers daily rail service for AMTRAK, the national rail provider, and weekday commuter rail service through MTA. Commuter rail service is provided by MTA MARC service for regional destinations of Baltimore City, Baltimore/Washington International (BWI) Airport, and Washington, D.C. Stopping locally in both Aberdeen and Perryville, these trains utilize the AMTRAK line with service available on weekdays during the morning and evening commuting times. In addition to extensive passenger service, local freight service is available through the CSX Rail Line and Norfolk Southern Railroad to the Chesapeake Industrial Park and J.M. Huber via a spur line from AMTRAK.
 - 3) Bus Service – During the week, residents of the City are served by MTA commuter bus options to Downtown Baltimore and Harford County Transportation Services (HCTS) to Aberdeen and Bel Air. The MTA 420 commuter buses serve the US 40 communities in Harford County. This service begins and ends in Havre de Grace with three morning and three evening runs. In addition, mid-day MTA bus service (the 731) is provided from Baltimore to Havre de Grace for MARC commuter needs. The 1 and 1A local bus service is provided through HCTS between Havre de Grace, Aberdeen, and Bel Air. This service operates hourly during the week and is well utilized. Local connections to other communities along US 40 can be made via the Aberdeen transit hub.
 - 4) Bicycle/Pedestrian Facilities – Pedestrian and bicycle opportunities are great in Havre de Grace. As a traditional small town, the City is and always has been very pedestrian friendly, with sidewalks along most streets in the older portions of the community. The City has diligently focused on improving sidewalk connections throughout the City and requiring them in new neighborhoods as they are built. In addition to pedestrian access, it would be advantageous that the City also pursue signed bike routes. These bike routes would connect to the hiking and biking paths of the Lower Susquehanna Heritage Greenway (LSHG), a regional recreational trail system.
 - 5) Aviation Facilities – Commercial airline service is available at BWI and Philadelphia International Airports. In addition, local aviation facilities include a seaplane base in Havre de Grace and Harford County Airpark, which is located on MD 156 approximately five miles from the City. The seaplane base consists of docking facilities located on the waterfront of the Downtown Business District, and provides limited

refueling and minor repair services. Harford County Airpark is a small, private airport with hangars, tie-downs, fuel, and maintenance services. Phillips Army Airfield located on nearby Aberdeen Proving Ground is currently used for military purposes. Over the past several years, consideration has been given to converting that facility to a joint-use civilian/military operation.

- 6) Water Transport – Commercial water transport is limited to the shipment of stone products by the Arundel Corporation located just north of the City. Mined stone is loaded onto barges and pushed by tugboat to other destinations via the Chesapeake Bay. At times, the empty barges are moored off the City’s shoreline. Future operation of a private commercial water taxi between Havre de Grace, Perryville, Port Deposit, Susquehanna State Park, and Swan Harbor Farm is being considered and would be a great amenity for the region.

Transportation improvement planning and funding requires a significant effort on the part of City and State agencies. The City has been fortunate in recently receiving funded streetscape improvements by SHA, which have greatly enhanced street function, pedestrian accessibility, and appearance. These include the beautification of Legion Square on Union Avenue (MD 7) completed in the fall of 2002, US 40 improvements to be completed in 2003, and Otsego Street (also MD 7) improvements which have been designed. The City is also working with SHA with regard to necessary safety improvements for MD 155. Future considerations for State road enhancement include improved signage to the Downtown Business District, streetscape/revitalization improvements for MD 7/Old Post Road, and the continued improvement of pedestrian access along State roads.

The City’s DPW continues to maintain and improve streets within Havre de Grace through a regular road maintenance program. As with the recent Clark Road improvements, grant funds for major road reconstruction will also be pursued. In addition, the City must develop an integrated Capital Improvement Program (CIP) that addresses utility infrastructure repair with street and sidewalk improvements. A CIP process generally provides a five-year timeline for planned physical improvements and includes enhancements, such as bikeway, park, and streetscape improvements. All capital improvements should also be identified and included in the CIP so that they may be implemented in a reasonable and accomplishable sequence.

II. RECOMMENDATIONS

Street System

- Conduct a traffic study of Chapel Road, which includes specific design recommendations and focuses on the road’s function, safety, capacity, opportunities for traffic calming, and pedestrian access. Utilize current information regarding vehicle trip generation related to planned development in the City’s recently annexed areas and planned growth areas.

- Review the SHA study findings regarding suggested safety improvements on MD 155. Support implementation of improvements that slow traffic and support the Havre de Grace Police Department in their enforcement of traffic laws, particularly speed limits.
- Consider constructing traffic calming measures on roadways where excessive speed is documented.
- Work with law enforcement officers on roadways that are problematic for excessive traffic speeds, such as MD 155, Chapel Road, Canvasback Drive, Juniata Street, and others.
- Ensure that road improvements are required along road frontage for development projects during the development review process. All road improvements must be standardized for the segment of roadway that the project fronts and must be consistently applied.
- Consider the number of access points along major road arterials and carefully manage entrances so that they are aligned wherever possible and the number is reduced but adequate for neighborhood egress.
- Coordinate with MdTA on their 20-Year Master Plan for Interstate 95.
- Continue to work with SHA to develop and promote Park and Ride facilities, car-pooling, and van-pooling in Havre de Grace.
- Continue to implement the City's DPW road maintenance schedule.
- Work with SHA to identify and implement necessary improvements on Old Post Road/Revolution Street (MD 7) as part of a future Consolidated Transportation Program. Items of particular importance are the need for at-grade rail spur crossing and beautification improvements for the purpose of neighborhood commercial revitalization.
- Support the extension of Lewis Lane from US 40 to Chapel Road to provide improved roadway connections between older and newer communities.
- Continue roadway improvements within the Chesapeake Industrial Park, to include right-of-way ownership of Old Bay Lane and grant funding for road reconstruction.
- Coordinate with MdTA and SHA on I-95/MD 155 interchange improvements in relation to future anticipated growth.
- Establish an integrated Capital Improvement Program to ensure that roadway, utility, and pedestrian improvements are efficiently planned and funded. Funding

priorities should be established based on the severity of the problem and functional classification of the street.

- Coordinate with SHA to address needed intersection improvements for US 40 and Lewis Lane, Otsego and Ohio Streets, and Ohio Street and Ontario Street Extended.
- Work with SHA to coordinate the placement of directional signs for attractions and businesses within the City to ensure the signage directs the visitors to the desired gateway and attractions. This includes the redirection of traffic from MD 155 to Juniata and Otsego Streets to reduce traffic volume and intersection problems on Ohio Street.
- Conduct a comprehensive City-wide traffic capacity study using best available information on existing and proposed development and intended annexation.
- Perform a sight-line analysis for intersections within the older portions of the City to ensure adequate visibility.
- Seek additional parking opportunities within the Downtown Business District.
- Review the Harford County Road Code to ensure the Code accomplishes the necessary street system objectives of the City.

Rail Service

- Coordinate with MTA to publicize the availability of MARC commuter train service at the Aberdeen station.
- Support City of Aberdeen in their efforts to strengthen the Aberdeen station as an AMTRAK and MARC transit hub.
- Work with MTA and HCTS to improve the coordination of bus service to Aberdeen's rail service for those who are transit dependent and to encourage the use of multi-modal mass transit as opposed to commuting in individual automobiles.
- Consider opportunities for transit-oriented development in the City's Old Town in regard to future in-fill or redevelopment sites.
- Support the existing mid-day reverse MARC rail service provided by MTA Bus 731 to Harford County from Baltimore and Washington, D.C.
- Continue to explore the long-range possibility of a train station in the City of Havre de Grace within close proximity to the Downtown Business District.

Bus Service

- Coordinate with the MTA to establish a new bus stop on Old Post Road to serve residential communities along the corridor.
- Work with the MTA to relocate the Otsego Street bus stop to the new SHA Park and Ride located at the corner of Otsego and Juniata Streets. This will require the reverse routing of commuter buses through the City.
- Support the concept of transit-oriented development through increased zoning densities, pedestrian connections, and potential bus stop and shelter locations. Evaluate regulations in regard to transit-oriented development and consider the role of transit during project review.
- Implement the MTA bus shelter program, which initially will include the installation of five bus shelters in the City to serve MTA commuter and HCTS local service buses.
- Work with HCTS to investigate expanded local bus service within Havre de Grace. This may include the development of a local circulator bus, re-routing of existing buses to better serve low to moderate income communities, or the reverse routing of the alternate 1A bus to serve the function of a circulator bus. Expansion of bus stop locations, evening service, and limited weekend service may also be considered. Consideration for tourism objectives should be included.
- Coordinate with HCTS for expanded bus service along US 40, which effectively links transit dependent employees with employment destinations.
- Work with HCTS for improved bus and rail transfer connections in Aberdeen, as Aberdeen serves as the only opportunity for transfers to other destinations in the US 40 corridor for Havre de Grace transit-dependent riders.
- Expand paratransit service for the elderly and handicapped population to the fullest possible extent by HCTS.
- Encourage maximum utilization of the Park and Ride facility. This includes incorporating the facility into as many MTA and HCTS bus routes as possible and identifying it as an entrance point for the City's proposed bikeway system and the Lower Susquehanna Heritage Greenway.
- Coordinate with MTA to publicize transit services that are available in the immediate region, to include commuter bus routes, mid-day MARC bus service, and MARC rail service.

Bicycle/Pedestrian Facilities

- Require sidewalks and/or bikeways within new residential developments during the development review process. Ensure that successful sidewalk and/or bikeway connections are made to adjacent neighborhoods and to the planned regional trail system of the LSHG.
- Implement the proposed bikeway system by designating the routes with pavement markings and signs as appropriate.
- Install bike racks throughout the City to encourage ridership and provide security. Bike racks, at a minimum, should be placed at shopping facilities, schools, parks, bus stops and employment centers.
- Continue to replace older stormwater drain grates with bicycle-friendly grates along bike routes to improve safety.
- Continue the City's sidewalk maintenance program to assure pedestrian safety on existing sidewalks and systematically retrofit connections for missing (discontinuous) sections of the sidewalk system to provide continuity as part of the City's walk-able community. This should be done in concert with the CIP process.
- Revise the Site Plan Ordinance to address sidewalk and bikeway standards to assure consistency throughout the City. Require all new sidewalks to be at least five (5) feet wide. Wider sidewalks may be required in areas of high commercial and pedestrian traffic.
- Continue to implement the brick accented "signature" sidewalk design to connect key pedestrian pathways in the Downtown Business District, the Waterfront revitalization area, the North Park Loop Trail, and the LSHG.
- Continue to implement ADA accessibility standards throughout the City for all sidewalks and crosswalks.
- Publicize the advantages of Havre de Grace as a walk-able and bicycle-friendly community in regard to the City's excellent quality of life. Continue to incorporate bicycle and pedestrian amenities in both the comprehensive and site planning process so that the need for motor vehicles is reduced and the recreational benefits of inter-connected residential communities is attained.

Aviation Facilities

- Encourage the owners of the seaplane base to successfully maintain and improve operations as a commercial and recreational facility. Assure that plans are shared with the adjacent community to facilitate a positive relationship regarding the shared

use of the river for recreational and commercial uses as well as overall public enjoyment.

- Support Harford County's efforts to contract with BWI shuttle bus service providers to provide services to Harford County air passengers.
- Work with Harford County Government on the joint use of Phillips Army Airfield so that commercial opportunities are maximized and residential impacts are reduced.

Water Transport

- Support the LSHG in their effort to establish a water shuttle service between Havre de Grace, Perryville, Port Deposit, Susquehanna State Park, and Swan Harbor Farm. Work with the LSHG to provide water shuttle docking facilities at key points along the City's shoreline.

III. STREET SYSTEM

The City of Havre de Grace is served by a hierarchy of streets, roads and highways. These various types of roadways have specific purposes, depending upon the volume of traffic, physical characteristics of the street, location, and the type of development they serve. These purposes are defined according to their functional classification, a description of which follows. Maintaining the integrity of the street hierarchy is very important to assure efficiency of travel, maximum use of street capacity and the safety of motorists, pedestrians, and bicyclists.

A. Functional Classification

Functional Classification is a methodology by which all roads and streets are identified as to the purpose or function in moving traffic within a network. The hierarchy of roads relates directly to access, travel distance and traffic volume. The functional classification of a street or highway is determined by considering its role in providing access to property and mobility. The highest classification, interstate highway, has very limited access but has capacity for moving many people and goods. The lowest classification, minor collector, has virtually unlimited access but significantly smaller capacity for moving people and goods. Each road in the hierarchy has a different purpose, which is reflected in the assigned functional classification. The value of this system is in understanding how different streets work in regard to adjacent land uses and destinations. This inter-relationship is critical in accomplishing good land use planning.

1. Functional Hierarchy

Streets and highways are ranked according to a nationally established hierarchy through the Federal Highway Administration, and include the following classifications:

- Interstate Highway
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector

An *Interstate Highway* is a high-speed, limited access road intended to link large population centers. Interstate highways are constructed as divided, arterial highways that allow through-traffic movement with full control access only at grade separated interchanges.

A *Principal Arterial* links major centers of activity of a metropolitan area. Its primary function is for mobility and it serves to carry a high proportion of trips through an area. It is not intended to provide direct access to individual properties along its path and such service should be purely incidental to the primary function of the road for use of through traffic.

A *Minor Arterial* provides for a lower level of travel and trip length as compared to the *principal arterial* and serves intra-community continuity. Its primary function is mobility, however it may provide limited access to major community centers along its path.

Major Collectors provide access to abutting land and circulation within neighborhoods and business areas. These streets serve residential, commercial, and industrial areas by collecting and distributing trips from local streets and channeling these trips into arterial roadways for reaching their final destination.

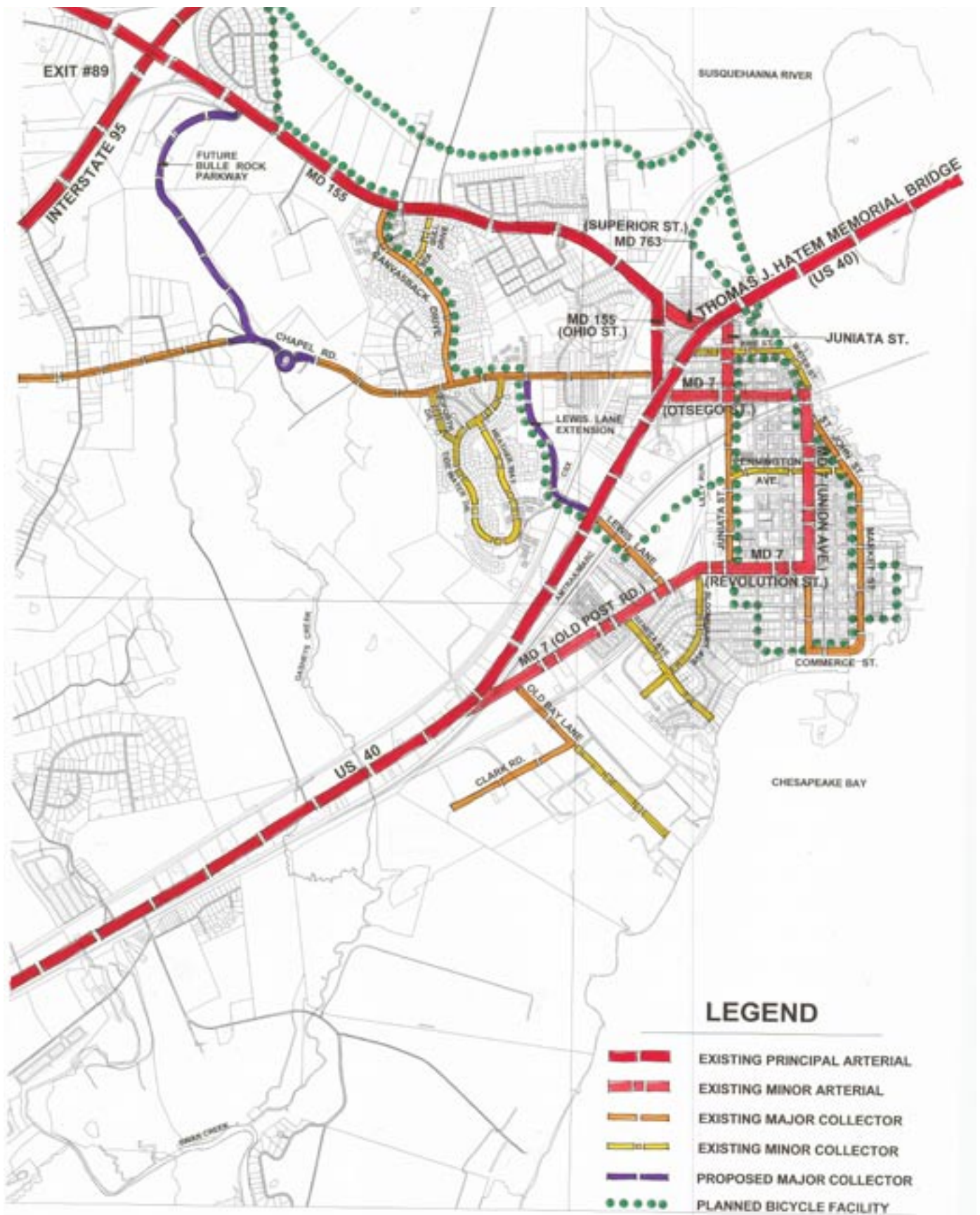
Minor Collectors provide for low traffic volumes but the most direct access and service to residential, commercial, and industrial land uses.

The functional classifications for streets in the Havre de Grace Planning Area are listed in Table 7.1. In addition to the existing street system, two new major road connections are proposed or under construction: Bulle Rock Parkway, which will directly link MD 155 and Chapel Road, and Lewis Lane, which will extend Lewis Lane from US 40 to Chapel. These linkages will further improve access and general circulation within the newer communities of Havre de Grace and provide enhanced connections to the Old Town areas. The Transportation Map located at the end of this chapter illustrates functional classification designations.

**TABLE 7.1
FUNCTIONAL CLASSIFICATION**

Name of Thoroughfare	From	To
INTERSTATE		
I-95 (John F. Kennedy Memorial Highway)	Susquehanna River	Earlton Road
PRINCIPAL ARTERIAL		
US 40 (Pulaski Highway)	Susquehanna River	Robinhood Road
MD 155 (Level Road - Superior Street - Ohio Street)	I-95 Interchange	US 40
MINOR ARTERIAL		
Juniata Street	Superior Street	Otsego Street
Otsego Street	Union Avenue	US 40
Revolution Street	US 40	Union Avenue
Superior Street (MD 763)	MD 155	Juniata Street
Union Avenue	Revolution Street	Otsego Street
MAJOR COLLECTOR		
Canvasback Drive	Chapel Road	MD 155
Chapel Road/Ontario Street	Earlton Road	MD 155
Clark Road	City Limits	Old Bay Lane
Commerce Street	Union Avenue	Market Street
Congress Avenue	Union Avenue	Market Street
Juniata Street	Revolution Street	Otsego Street
Market Street	Commerce Street	Congress Avenue
Old Bay Lane	Clark Road	Revolution Street
Revolution Street	Union Avenue	Market Street
St. John Street	Congress Avenue	Union Avenue
<i>Bulle Rock Parkway (proposed)</i>	MD 155 (at I-95 interchange)	Chapel Road
<i>Lewis Lane (proposed)</i>	Revolution Street	Chapel Road
MINOR COLLECTOR		
Bloomsbury Avenue	Wilson Street (west)	Revolution Street
Erie Street	US 40	Water Street
Giles Street	Bloomsbury Avenue	Market Street
Goforth Drive	Tidewater Drive	Chapel Road
Heather Way	Tidewater Drive (west)	Tidewater Drive (east)
Lapidum Road	MD 155	I-95 (at overpass at Lapidum)
Old Bay Lane	City Limit	Clark Road
Pennington Avenue	Juniata Street	St. John Street
Robinhood Road	US 40	Chapel Road
Seagull Drive	Canvasback Drive	MD 155
Seneca Avenue	Chesapeake Drive	Revolution Street

Figure 7.1



TRANSPORTATION

B. Existing Conditions

To respond to land use, population changes, and planned future development in Havre de Grace, the existing street system was examined. Considerations include: (1) configuration and connectivity, (2) street widths, (3) existing pavement conditions, (4) traffic control devices, (5) street capacity, (6) impediments to traffic circulation, (7) accident reports, and (8) on-street and off-street parking conditions.

1. Configuration and Connectivity

The present City street system consists of three patterns or configurations. In Old Town, the street system is an adaptation of the traditional grid pattern forming uniform blocks and numerous intersecting streets at intervals of 400 feet on east/west streets and 500 feet along north/south streets. A modified grid pattern appears in the older subdivisions of Bay Brook, Concord Fields, and Meadowvale. The predominant street pattern in the newer subdivisions (west of Route 40) is curvilinear, with streets often ending in cul-de-sacs.

In general there is good connectivity throughout the City, afforded by the configuration of the existing street system. The most significant obstacle to this connectivity is US 40, an arterial highway that serves as a physical divide between the Downtown Business District and older neighborhoods and the newer communities located west of US 40. There are only two existing crossing points along US 40 – MD 155/MD 763 (Superior Street) and Ontario Street extended – that enable movement from the older neighborhoods to residential areas located to the west. This area of transition in the street system along Ohio Street is less than successful and has subsequently created some difficult intersections as a result of increased residential growth and commercial truck traffic. MD 155/Ohio Street must be evaluated in terms of safety and improved traffic flow.

Future road connections include the extension of Lewis Lane from US 40 to Chapel Road. This will be provided with the completed development of Grace Manor and Havre de Hills neighborhoods. As a connection through those communities, Lewis Lane will be classified as a Minor Collector primarily to serve the immediate residents.

2. Street Widths

Similar to many other historic cities like Havre de Grace, there are no uniform street widths within the City. Union Avenue and Congress Avenue have 132 foot rights-of-way, with a street pavement width of 40 feet. The majority of the remaining streets in the older sections of the City average 70 foot rights-of-way with 30 to 35 foot pavements, although most streets in the Concord Fields neighborhood have 40 foot rights-of-way with 35 foot

pavements. The newer subdivisions, such as Bayview Estates and Grace Harbour, have 50 and 60 foot rights-of-way with 30 and 36 foot pavements which is the result of the City having adopted the Harford County Road Code. A few streets within the City, such as Alleghany and Hebditch Streets, have unusually narrow rights-of-way. All lanes in the City have rights-of-way of 20 feet.

Some local streets are not wide enough to accommodate two lanes of traffic with parking lanes. It is necessary to study the desirability of allowing on-street parking or the possibility of converting streets to one-way traffic. Determining factors include traffic volume, functional classification, adjacent land use and availability of and accessibility to off-street parking.

3. Existing Pavement Conditions

There are approximately forty-four miles of paved streets in the City of Havre de Grace's road system, consisting of both open and closed sections. In addition to the streets, the City maintains approximately 4.4 miles of paved lanes in the older neighborhoods. A ten-year cycle street maintenance program has been developed and utilized by the City's DPW.

As a result of the street maintenance program, approximately 21 percent of the City streets have been resurfaced since the 1996 Comprehensive Plan was completed. Reconstruction of one section of Clark Road in the Chesapeake Industrial Park was completed in 2003. The City will also seek to secure grant funds and the right-of-way to Old Bay Lane so that future access improvements to the Industrial Park may be completed.

4. Traffic Control Devices

The primary purpose of traffic control devices, such as traffic lights, railroad signals, and stop signs, is to ensure safe traffic movement. Havre de Grace has nine traffic signals, three fire station warning lights, three school warning lights and two traffic caution lights within its boundaries. Currently, improvements are planned at 40 locations (signs and pavement markings). Since the last Plan update in 1996, a traffic signal has been installed at the intersection of MD 155 and Canvasback Drive. SHA will monitor the intersection of MD 155 and Bulle Rock Parkway (currently under construction) to determine if a future traffic signal is warranted.

Railroad crossing signs and signals are present along both the CSX main line and the Norfolk Southern Railroad (formerly Conrail) spur line in Havre de Grace. Railroad crossing signs on the spur line are located at Clark Road, Old Bay Lane, Revolution Street, and Seneca Avenue. An industrial railroad crossing signal is located on Juniata Street. Two

railroad crossing devices are installed on the CSX line in the City. A crossing signal is located at Chapel Road while a sign warns of the crossing at Lewis Lane Extended. This latter grade crossing will be upgraded with gates and flashing signals with the construction of the Havre de Hills townhouse development.

The City has an inventory of sixteen hundred directional, information, and regulatory signs, which are maintained by the City's DPW staff, and over thirty-four miles of pavement markings. To manage the sign inventory, the City utilizes a street signage program that provides for the continuous upgrading and maintenance of City-owned signs. DPW adheres to the policy established under the Manual on Uniform Traffic Control Devices in which signs are installed when warrants are met. This is beneficial when there are many requests for signs at a location where signs may not be required or justified.

5. Road Capacities

The capacity of a street is the maximum number of vehicles that it can carry during any given period of time. This capacity is usually determined by the maximum number of vehicles that can pass a given section of a roadway in either or both directions during a certain time-period under prevailing roadway and traffic conditions. Prevailing road conditions can seriously hinder traffic flow and, thus reduce capacity. For instance, if a portion of a street is utilized for parking, the traffic capacity is proportionately reduced. Another factor that affects a street's capacity is the number of access points onto and from the street; numerous access points greatly reduce traffic capacity. Traffic signals and stop signs, although required for safety, also reduce roadway capacity.

Level of Service (LOS) is a set of operational conditions describing the ability of a roadway or intersection to accommodate traffic. Different ratings are used to evaluate the efficiency of vehicular movement on a transportation facility. The LOS operation of a facility is measured by many factors, including speed, delay, freedom of maneuver, and frequency of traffic flow interruptions. There are six established Levels of Service – A through F – to measure the operational efficiency of a transportation facility. The following is a general definition of each Level of Service.

LOS A – A free flow of traffic with no restriction or significant delay.

LOS B – A stable flow of traffic with very little restriction or delay.

LOS C – A stable flow of traffic with low to moderate restriction or delay.

LOS D – Approaching unstable flow of traffic with moderate to heavy restriction and delay.

LOS E – Unstable flow of traffic with significant restriction and delay.

LOS F – Force flow of traffic. The flow rate drops significantly.

The overall Level of Service for road sections within the City is excellent. There are only a few streets which operate at LOS C and this occurs primarily at morning and afternoon peaks. These streets are MD 155, Old Post Road/Revolution Street (MD 7), and Chapel Road. A comprehensive review of City-wide traffic capacity is necessary to update the information related to road section capacities.

There are several intersections where improvements are needed to provide a better Level of Service. Problematic intersections are Ohio Street and Ontario Street extended, which operates at LOS D at certain times of the day, and Ohio and Superior Street. The City must work with SHA on addressing intersection issues for Ohio Street (MD 155) from US 40 to Superior Street. One other intersection that experiences operational problems is Seneca Avenue at Old Post Road, which also needs to be addressed with SHA. Currently all signalized intersections are operating at a LOS B or better.

6. Impediments to Traffic Circulation

From a traffic engineering viewpoint, impediments to good traffic circulation can be many and varied. They include inadequate sight distance, roadway design, inappropriate traffic routing, and a lack of proper traffic control devices. The City's street system experiences some of these conditions as might be expected in an older urban community.

Limited sight distance occurs in Havre de Grace due to man-made physical obstructions such as fences and hedges, delineation of parking spaces too close to intersections, and road alignment dictated by topography. Some intersections in the Downtown Business District, such as the intersections of Green, St. John, and Washington Streets and St. John and Franklin, are examples of locations where there is poor visibility or limited sight distance. MD 155 also has a number of intersections which due to a combination of steep grades and intersecting street angle, result in poor visibility and reduced sight distance. SHA is reviewing MD 155 from I-95 to Ohio Street to determine what engineering solutions might be applicable.

Roadway design and aesthetic improvements are being addressed through several streetscape projects, and include the reconstruction of Legion

Square at Union Avenue, the US 40 Improvement Project, and downtown streetscape improvements performed by the City. Union Avenue has been narrowed in the vicinity of Legion Square to better define turning movements and landscaping has been added to improve appearance. US 40 will be resurfaced, landscaped and defined with pavement treatments designed to slow traffic and improve the appearance. In addition, SHA improvements are planned for Otsego Street from Union Avenue to US 40. The City will continue to work with the community and the SHA to identify, plan, design, and provide streetscape improvements to address road function, pedestrian access, and appearance.

Problems related to traffic routing occur when traffic is directed onto an already heavily used street when other options exist. Ohio Street is a prime example in Havre de Grace. Current signage on eastbound Superior Street directs traffic onto Ohio Street resulting in traffic back-ups at the US 40 traffic signal and congestion at the Ohio and Ontario Street extended intersection. Traffic destined for eastbound US 40 and Downtown could be directed to continue east on Superior Street to Juniata Street, and then south to Otsego Street. At Otsego Street, the traffic would disperse according to its destination. This would serve to relieve Ohio Street, particularly when traffic is detoured off I-95 during period of heavy congestion. The City will work with the SHA on routing issues and signage.

Traffic control devices including signals, signs, and pavement markings are very important elements in the efficient and a safe movement of motor vehicles and pedestrians. When these devices are not present or are no longer effective, they serve as clear impediments to traffic circulation. The City's Department of Economic Development and Planning and the DPW must work cooperatively to assure that traffic control devices are present, operational, and replaced when required according to the upgrade and maintenance schedule.

7. Accident Reports

Traffic accident information from the Havre de Grace Police Department was considered for identifying problem areas. The highest accident location in Havre de Grace is the intersection of US 40 and Lewis Lane. The City will work with SHA to ensure that the redesign and current reconstruction of US 40 successfully addresses safety issues of that intersection. Other intersections that are problematic are Ohio and Ontario Street extended and Ohio and Superior Streets.

8. On-Street and Off-Street Parking Conditions

Pedestrian-friendly environments encourage on-street parking on all streets, except for arterial roads. Besides helping to meet the demand for vehicle storage, on-street parking helps to reduce speeds and protect pedestrians by creating a buffer between moving vehicles and the sidewalk. On-street parking in commercial areas also contributes to the small-town feel of Havre de Grace and supports similar site design for new development. It is consistent to build a pedestrian environment where walking is encouraged.

For the most part, parallel parking is the recommended on-street parking design for the Downtown Business District. However, angled on-street parking is acceptable along some streets within core commercial areas where slow drive-by traffic occurs and where the street width is sufficient to permit such parking. There are some practical difficulties with existing on-street parking on particular streets. These include: the 300 block of Green Street because of the lack of adequate maneuver space, the 400 block of Franklin Street due to insufficient road width, and the 100 block of St. John Street because of traffic speed and backing movements.

The City offers free public off-street parking in the Downtown through the provision of three surface parking lots. The largest of the lots is located along the Susquehanna River between Warren and Franklin Streets behind the City's Water Treatment Plant. This lot is designed to accommodate eighty-eight automobiles. A second lot, which provides twenty-four parking spaces, is located on Lodge Lane between Green Street and Pennington Avenue, and a third surface lot located at the foot of Pennington Avenue accommodates thirty-eight vehicles. It is necessary for the City to complete a parking study of the Downtown Business District because of increased demands as a result of current efforts in revitalization.

IV. RAIL SERVICES

A. Existing Services

Due to the location of Havre de Grace within the mid-Atlantic region, the right-of-ways and track infrastructure for AMTRAK and CSX pass through the City, both in a northeast-southwest direction. The AMTRAK line provides the services of three railroads, which include AMTRAK, Norfolk Southern Railroad and MARC. This line runs east of and parallel to US 40 and has no at-grade crossings in the Havre de Grace planning area. A spur line off of the AMTRAK main line serves the J.M. Huber Corporation and the Chesapeake Industrial Park and has at-grade crossings on Clark Road, Old Bay Lane, Seneca Avenue, Revolution, and

Juniata Streets. The CSX line, paralleling US 40 to the west, has four at-grade crossings in the planning area. Two of the crossings, Ontario Street extended and Lewis Lane extended, are within City limits. The remaining two crossings involve the access roads to the Bulle Rock Golf Course and Greenway Farms.

Passenger rail service is available three miles away in Aberdeen for both AMTRAK and the MTA MARC Commuter Rail Service. AMTRAK provides daily long distance rail service throughout the United States, along with high-speed service from Boston to Washington, DC. MARC Commuter Rail Service provides weekday commuter service from Perryville to Washington DC, via Baltimore's Penn Station. A study completed by the MTA in March 2002 concluded that development of a MARC commuter rail station in Havre de Grace was not feasible in the near term. The MTA report cited proximity to the nearby stations at Aberdeen and Perryville and track infrastructure issues. The City will continue to pursue a commuter rail station in its long-range planning, however residential densities supporting transit (i.e. transit-oriented development) must be achieved for the City to warrant a station in the future.

Freight service in Havre de Grace is provided solely by the Norfolk Southern Railroad. By using the AMTRAK main line and its rail spur, this freight line serves J.M. Huber and the Chesapeake Industrial Park. Though it passes through Havre de Grace, the CSX line has no rail spurs within the Havre de Grace planning area and lacks accessibility to the City's industrial base. Due to future land uses in the growth areas, it is not anticipated that this line will be accessed for freight service.

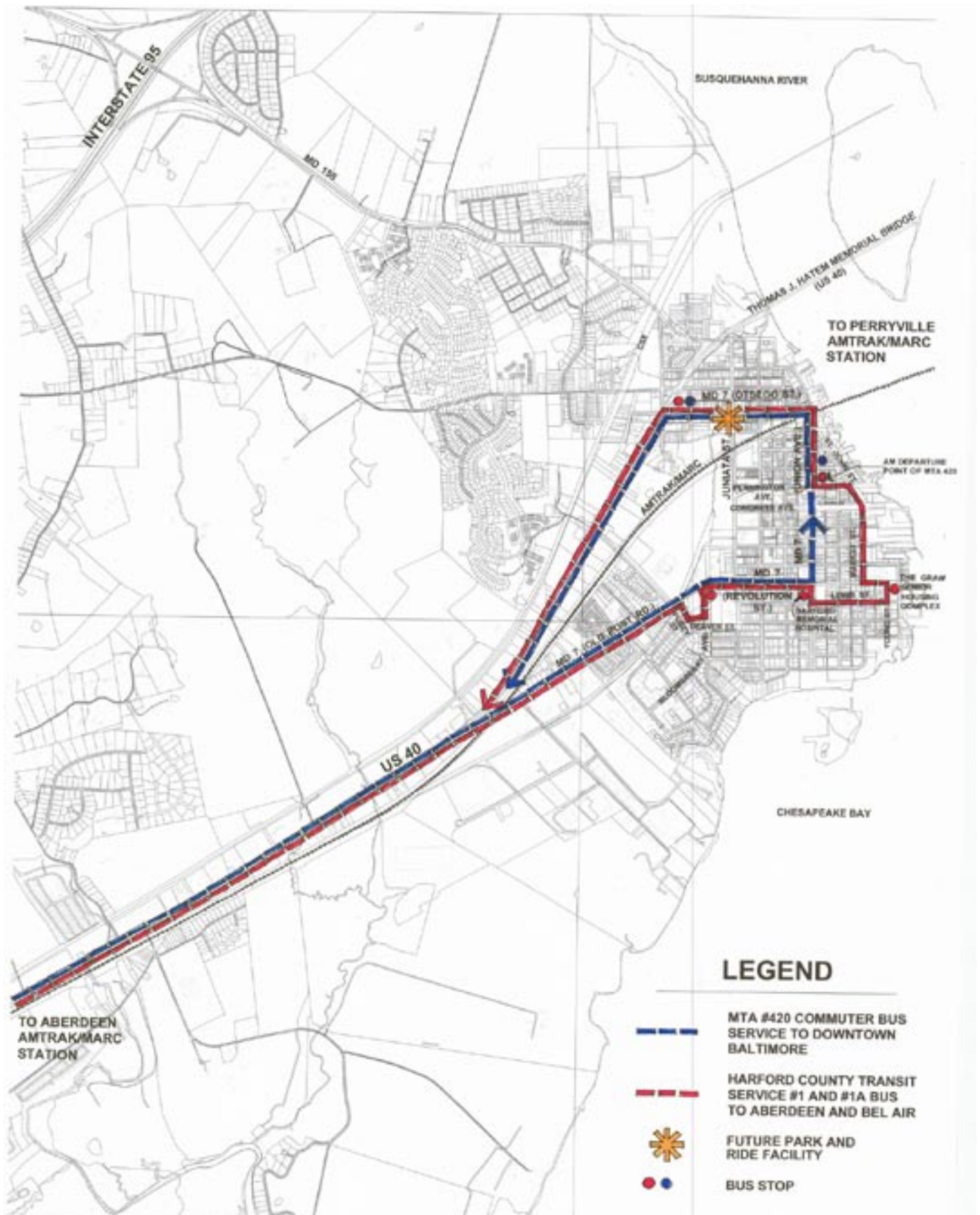
V. BUS NETWORK

A. Existing Services

Bus service in Havre de Grace consists of Baltimore Metropolitan Region MTA commuter service and local HCTS service. The MTA commuter bus service, the Baltimore Flyer Route No. 420, is provided through a private contractor and operates during the week from Havre de Grace and other points along US 40 in Harford County to Downtown Baltimore. Two bus stops are currently available for this commuter service in Havre de Grace, one at Union Avenue and Franklin Street and the corner of Otsego Street and Legion Drive. Due to the construction of a Park and Ride facility at the corner of Otsego and Juniata Streets, this second stop will be relocated and may result in the reverse routing of the bus through the City. In addition, a third stop on Old Post Road at Seneca Avenue is desired.

Harford County Government operates HCTS local bus service through the Office on Aging. This service is provided for intra-county transit needs between and within the major population centers and route destinations of Bel Air, Aberdeen, Havre de Grace, Riverside, Edgewood, and Joppatowne. HCTS buses 1 and 1A

Figure 7.2



PUBLIC TRANSIT

serve Havre de Grace residents on an hourly basis during the weekday hours of 6 AM to 6 PM. These two buses circulate between Havre de Grace and Bel Air via Aberdeen and require approximately two hours to complete each full loop. For Havre de Grace riders, bus transfers are required at Aberdeen for other US 40 destinations. HCTS also provides transportation services for the elderly and disabled populations of the County on a dispatched basis. These services are in accordance with the Americans with Disabilities Act of 1990.

The need for additional transit service within Havre de Grace was discussed at a public hearing in January 2002 for Harford County's Five-Year Consolidated Plan, a plan which outlines identified community service needs. Senior citizens in particular articulated the need for a circulator bus service within Havre de Grace due to increased cab fares. The need for improved transfers and employment connections within the US 40 corridor were also noted for transit dependent populations. A feasibility study and implementation plan for a small circulator bus system is warranted. Combined with existing tourist demand and senior citizens, a regular shuttle bus system with short headways (time between buses) can likely be supported.

Desired transit improvements also include the installation of bus shelters throughout the City to serve both MTA and HCTS customers. A bus shelter program offered through MTA is currently being pursued, however the more immediate Baltimore Metropolitan areas are being considered first for installation of these shelters. In addition, the MTA is completing a Harford County Transit Study through a private consultant and will address both local and regional identified transit needs. The study will provide a demographic and land use profile for the County, a description of currently available transit services, and future service recommendations.

VI. BICYCLE/PEDESTRIAN FACILITIES

Other important, but sometimes overlooked, forms of transportation are bicycling and walking. Sometimes referred to as non-motorized transportation, trip purposes of bicycling and walking include work, shopping, school, and recreation. Most areas within the City of Havre de Grace have interconnected sidewalks which allow full opportunity for pedestrian access. As in most communities, drivers must share the road with bicyclists. To support and encourage more bicycling and walking as a means of transportation, sufficient and safe facilities must be provided throughout the City.

A. Bicycle Facilities

1. Existing Conditions

Havre de Grace offers an attractive opportunity for cyclists which can be further augmented if safe, defined bike routes are developed throughout the City. An increase in bicyclists is desired as the result of the Lower

Susquehanna Heritage Greenway, further underlining the need to establish designated bikeways that link to the Greenway. Three bike routes have been proposed and are described below and illustrated on a map located at the end of this chapter. The signification of these routes has not been implemented, but they should be identified with signs or road stencils in the future.

Route 1, The Old Town Loop: This trail is a loop trail that primarily traverses streets in the historic portions of the City linking the waterfront, Downtown Business District, and cultural attractions. From the North Park parking lot on Conestee Street where linkage to the trail system of the LSHG occurs, travel south to Erie Street; west on Erie to Juniata Street; south on Juniata to Alliance Street; east on Alliance Street to Adams Street; south on Adams to Commerce Street; east on Commerce to Market Street; north on Market to Lafayette Street; east on Lafayette to Concord Street; north on Concord to Revolution to Market Street; north on Market to St. John Street; north on St. John to Union Avenue; north on Union to Water Street; north on Water to Erie Street; west on Erie to Conestee Street; north on Conestee to the North Park parking lot, thus completing the loop.

Route 2, The North Park Loop: This trail, which is located along the north shoreline of the City, is a hiking and biking trail within a natural setting. From the North Park parking lot, travel north past McLhinney Park, crossing Fountain Run, to the semi-paved area under Thomas J. Hatem Memorial Bridge. The loop diverges here and rider may proceed along the Susquehanna River shoreline or slightly inland to follow trail in either clockwise or counterclockwise direction to beginning point. Future walking trails around the Arundel Corporation mining operation to the North Park Loop Trail will complete connections to the LSHG trail system. Long-term connections along the shoreline through the quarry operation would be ideal but may not be possible.

Route 3, Proposed Old Town/New Town Bikeway: This trail would serve to connect older portions of the City with the newer neighborhoods west of US 40. From the North Park parking lot travel south to Erie Street, west on Erie to Juniata Street, south on Juniata to Harris Stadium/Recreation Complex, west on trail through the Recreation Complex to Lewis Lane; northwest on Lewis Lane through Grace Manor to Chapel Road; west on Chapel Road to Canvasback Drive; north on Canvasback to MD 155; west on MD 155 to Lapidum Road; north on Lapidum to Susquehanna State Park and LSHG.

As tourism continues to increase in Havre de Grace, boosted by the operation of the City's Visitor Center, recreational bicycling will likewise increase. Designated bike routes will assist in directing new groups of visitors along safe pathways so they can enjoy the City's attractions and

atmosphere. Bicycle connections to Swan Harbor Farm on the Oakington Peninsula are also desired.

B. Pedestrian Facilities

Havre de Grace has been and continues to be very pedestrian-friendly. Due to the nature of the traditional street configuration, with sidewalks often on both sides, full pedestrian access is available in the City's older portions. Requiring sidewalks in new areas as they develop and providing for their interconnections (between neighborhoods) in a comprehensive manner is paramount for pedestrian accessibility throughout the City. "Walkable communities" are desirable communities in that they reduce auto-dependence for short trips, provide for daily recreation, and provide for an overall improved quality of life.

1. Existing Conditions

Sidewalks are installed throughout most of the City's Old Town residential neighborhoods and the Downtown Business District, making this area very pedestrian-friendly. However, some of the major streets that link the residential areas with destinations such as the Chesapeake Industrial Park, Stancill Park, and Havre de Grace High and Middle Schools, do not have complete pedestrian connections. These links need to be implemented over time through the City's DPW capital improvements or with SHA so that full pedestrian accessibility is achieved. The City will continue to maintain an inventory of these needed sidewalk connections and address them as funds allow. In addition, the City's DPW will continue its annual sidewalk maintenance program to ensure that existing pedestrian facilities are passable.

Newer neighborhoods and growth areas west of US 40 present a bigger challenge for interconnectivity between neighborhoods and with the Old Town areas of the City. Though sidewalks have been required in most new communities during the development process, some older existing neighborhoods, such as Havre de Grace Heights and Meadowvale, do not have them installed. Retrofitting pedestrian access in most instances is not practical. There are, however, some limited opportunities along Chapel Road and along Lewis Lane Extended where short sidewalk links would serve to connect large neighborhoods, such as between Canvasback and Tidewater Drives and along Lewis Lane at US 40 (which will then connect to Havre de Hills and Grace Manor). As areas develop, planning for future interconnections is extremely important at the site plan review stage. These interconnections will serve to link new neighborhoods with schools, community facilities, and the LSHG.

Great emphasis has been placed on the development of a complete waterfront "signature" sidewalk, which links North Park, the Downtown

Business District, the Promenade, Heritage Park, and the City's numerous cultural amenities. While many segments have been completed, sections along Water, Erie, St. John, Market, and Revolution Streets are still unfinished. Priority will be placed on sections where no pedestrian access is currently available. The North Park Loop Trail is also available within the City for those who are interested in natural areas hiking and biking. Ideally, this will connect directly with the LSHG through Susquehanna State Park in the future.

VII. AVIATION FACILITIES

A. Existing Services

Commercial airline services are primarily available through BWI and Philadelphia International Airports. Harford County Airpark, a primary non-military airport in Harford County, is a 58-acre privately owned aviation facility. Located on a high plateau on Aldino Road (MD 156), the airport consists of a 2,140 foot lighted paved runway and two turf runways of 1,600 and 1,800 feet in length. Service facilities available at the airpark include hangar space for fifty airplanes and a fuel, repair and maintenance operation. Only five miles away, the airport is readily accessible from Havre de Grace for private corporate and recreational fliers.

There are two aviation facilities in the Havre de Grace area which represent additional opportunities. The first is the seaplane base in Havre de Grace, located on the City's shoreline in the 300 block of St. John Street. This facility is the only seaplane base in the Upper Chesapeake Bay Region. The designated FAA landing area is located in the Susquehanna River east of the main channel. The owners of the seaplane base intend to enhance operations by replacing the existing deteriorated pier with a longer floating pier which will improve access and safety. The seaplane base will be expanding its operation with new dock facilities for seaplanes and smaller boat slips. It is anticipated that flight training and sightseeing rides as well as future charter service may be offered at this unique location.

The second facility is Phillips Army Airfield located on a 500-acre tract within the Federal installation of Aberdeen Proving Ground and is used for military purposes. In 1991, the City of Aberdeen, Aberdeen Proving Ground and U.S. Department of Defense agreed to study the joint use of Phillips Field. Proposed plans for the use of the airfield, to include continued military operations, shipment of commercial cargo, a corporate jet facility, and scheduled commercial airline service, are uncertain due to events of September 11th, 2001 and citizen opposition. If an acceptable master plan can be developed, the potential benefits to Havre de Grace would include close proximity to commuter air service and enhanced economic development potential. Noise impacts as it relates to the

orientation of flight paths need to be considered for existing and future residential development.

VIII. WATER TRANSPORTATION

Being located at the confluence of the Susquehanna River and Chesapeake Bay, water played an important role in the development of the community. The establishment of Susquehanna Lower Ferry, Concord Point Lighthouse, and Susquehanna and Tidewater Canal contributed both to the development of the City and the availability of water transportation in the area. Water was used by mining, fishing, ice harvesting, canning and milling operations in Havre de Grace to transport products for almost a century

A. Existing Services

Today, with the exception of the Arundel Corporation Quarry, which uses tugboats and barges to carry stone, there is very little utilization of the water as a means of commercial transport. This is the result of the loss of water transportation-oriented industries in the City. Some ceased operations due to natural attrition caused by increased or more efficient competition while others were affected by the environmental regulations developed to save the Bay. The primary use of the Susquehanna River and Chesapeake Bay is now for recreational purposes. With the development of the LSHG on both sides of the Susquehanna, which includes the waterfront revitalization efforts in Havre de Grace, Port Deposit, Perryville, Susquehanna State Park, and Swan Harbor Farm, a new industry may be served by water transportation – *tourism*.

Tourists visit the area to enjoy the water. Many partake of the opportunity to sail on the Skipjack Martha Lewis as well as visit other ships which may dock in Havre de Grace, such as the Pride of Baltimore II. By providing water transportation via a water shuttle, there is an opportunity for residents and visitors to experience and enjoy the water while reducing individual vehicular trips between waterfront destinations. Ideally, a privately operated water shuttle will be used to connect the Harford and Cecil County portions of the LSHG and provide an alternate and enjoyable means of transportation between sites. To ensure success of the operation, frequency, cost, comfort, convenience, and safety must be addressed as in the case of any other form of mass transit. It is intended that each jurisdiction benefiting from this venture would provide adequate docking facilities for the proposed shuttle.