

Natural and Historic Resources

Existing Conditions

Streams and Watersheds

The BWI/Linthicum Small Planning Area lies within the Patapsco River watershed. Several area streams feed into the Patapsco River as shown on Map 9. These include Deep Run, Piney Run, Stoney Run, Sawmill Creek, Muddy Bridge Branch, Cabin Branch, Holly Creek, and Kingwood Tributary. All of these streams are classified by the Maryland Department of Environment (MDE) as Class I streams. Class I waters are defined as being suitable for water contact sports; fishing and propagation of fish [excluding trout], other aquatic life and wildlife; and agricultural and industrial water supply.

Sawmill Creek tributary has had a history of water quality and quantity-related problems. The stream crosses the southeastern portion of the Planning Area and flows easterly into Furnace Branch. Land use within the watershed consists of low and medium density residential development and an increasing commercial and industrial zone surrounding the BWI Airport. In the 1980's the watershed was chosen to be part of the Maryland Targeted Watershed Project, a multiagency demonstration project whose goal was to coordinate monitoring, pollution control, and restoration programs to accomplish improvements in water quality and habitat conditions in several key tributaries to the Chesapeake Bay. A baseline survey and stream monitoring were initiated in 1989, and a Restoration Strategies report was published in 1992. Since that time, several restoration activities have been initiated, and positive results have been documented for base flow restoration, habitat and channel stability improvements, removal of fish blockages, and some reductions in chemical pollutants. Significant investments have been made in stormwater volume and quality control, and additional habitat restoration projects are under construction.

The Kingwood Tributary in Linthicum also has a history of channel erosion and sedimentation problems caused by uncontrolled stormwater runoff in the drainage area. The County has recently appropriated over \$500,000 for improvements, and stream restoration projects are being planned for a 3000-foot section of the tributary.

Presently, watershed management master plans are being prepared for the County's 12 major watersheds. The first of these plans was specific to the South River watershed. This master plan identified areas currently subject to adverse impacts of stormwater runoff, and areas that would be subject to stormwater runoff impacts under future conditions if full build-out of current zoning was realized. Specific problems addressed included soil erosion and sedimentation, flooding, and nutrient and heavy metal transport. Management alternatives to address current and potential impacts were then identified and proposed for implementation. A similar plan will be prepared for the remaining watersheds in the County. The Patapsco watershed falls within the second priority grouping of watersheds. Planning efforts for this group will probably be initiated in 2004.

Map 9

Floodplains

Map 9 denotes the 100-year floodplain in the BWI/Linthicum Planning Area. These floodplains have been identified through FEMA FIRM maps and through specific floodplain studies. Additionally, Article 26 of the County Code requires the developer to delineate the 100-year floodplain. County Code prohibits lots from being platted in the 100-year floodplain and requires that the floodplain be retained in or restored to its natural state and dedicated and deeded to the County. Although the floodplain may be deeded to the County, the developer also reserves an easement to the community or homeowners association for the right to use the area in a manner not inconsistent with the maintenance and preservation of the 100-year floodplain.

Critical Areas

The Chesapeake Bay Critical Area is the area encompassing all land within 1,000 feet of tidal water and adjacent tidal wetlands, pursuant to the 1984 Chesapeake Bay Critical Area Act. The County's Critical Area program was developed in 1988 to manage land use in these sensitive coastal areas. Land within the Critical Area is classified into one of three development areas:

- Resource Conservation Areas (RCAs): areas characterized by nature-dominated environments such as forests, wetlands, or agriculture. New residential development is limited to a density of one dwelling unit per 20 acres.
- Limited Development Areas (LDAs): areas developed at low or moderate intensity. Additional development must not change the prevailing established land use, and must improve water quality and conserve areas of natural habitat. LDAs can be developed with medium density housing at a maximum of 4 units per acre, commercial and small industrial uses according to the underlying zoning designation.
- Intensely Developed Areas (IDAs): areas of 20 or more contiguous acres where development predominates and where there is relatively little natural habitat. IDAs can be developed with high density housing, commercial or industrial uses, according to the underlying zoning designation.

Within the Critical Area, there is a 100-foot-wide minimum protected buffer from tidal waters, streams and tidal wetlands. In LDAs and RCAs impervious surface (buildings, pavement, etc.) is generally limited to 15 percent of total site area. Forest clearing is limited, and unforested developments must establish 15% of the site in forest.

The Critical Area within the BWI/Linthicum Planning Area follows the Patapsco River and the County line between I-195 and MD 648. All three categories of Critical Area are found here, but the majority of the acreage, including most of the Patapsco Valley State Park, is

categorized as RCA.

Steep Slopes

Steep slopes are defined in the County Code as slopes characterized by increased runoff, erosion, and sediment hazards and that (1) have an incline greater than 15% and (2) in the Critical Area have an incline of 15% or greater. The BWI/Linthicum area does not contain extensive areas of steep slopes. There are some small pockets of steep slopes generally west of the BW Parkway along the Patapsco River stream valley, and along the Kingwood Tributary in Linthicum. A variance is required in order to develop on steep slopes within the Critical Area. Outside of the Critical Area, development may occur within steep slope areas as per the provisions of Article 21 of the County Code. These provisions include allowing development if at least 30% of the parcel to be developed has less than 15% grade and is contiguous to a County road that allows direct car access to the principal structure.

Greenways and Protected Lands

Permanently protected land in the BWI/Linthicum area consists primarily of County and State-owned parkland. Additional acreage is preserved in dedicated flood plain areas. These areas have been zoned as Open Space by the County. The intention of Open Space zoning districts is to preserve open areas for recreational use and to protect persons and property from the hazards of flooding.

In 2002, Anne Arundel County adopted its first Countywide *Greenways Master Plan*. The goal of the plan is to create an interconnected network of greenways in the County that protects ecologically valuable lands for present and future generations and provides open space, recreational, and transportation benefits and opportunities for people. The County used five criteria in assessing land as potential greenways: habitat value; size; connections to other land with ecological value; future potential, that is the potential to create greenways where they do not currently exist; and national and countywide trails. The greenway network is a system of connected hubs and corridors. The plan defines a “hub” as an ecologically significant natural area of at least 250 acres with a high ratio of interior versus edge habitat. A “corridor” is a natural area at least 200 feet wide.

Portions of six segments in the greenway network lie within the BWI/Linthicum Planning Area: the Patapsco Valley 1 and 2, Cabin Branch Creek, Sawmill Creek, Stoney Run, and Piney Run segments. The amount of acreage in each of these segments (not all of which falls within the BWI/Linthicum Planning Area) as well as the amount that is considered protected is shown below in Table 13. Map 10 shows the locations of the greenway segments in the planning area as well as those portions which are currently protected.

In all, the entire greenway network covers over 70,000 acres of land. Approximately 50 percent of the network is currently protected, either as a publicly-owned land, a private conservation land, land that is in the County’s Open Space zoning district, or land protected under an agricultural or environmental easement. In the BWI/Linthicum Area, as seen on Map

10, large portions of the Cabin Branch Creek, Patapsco Valley 1, Sawmill Creek and Stoney Run

Map 10

greenway segments are protected as dedicated floodplain areas which are zoned Open Space or as State parkland. Smaller portions of the Patapsco Valley 2 and Piney Run segments are currently protected. The County will continue to work with other public agencies, land trusts, and private owners to preserve the remaining segments of the greenway network.

Table 13. Greenway Segments in the BWI/Linthicum Small Planning Area

Segment Name	Total Acres	Protected Acres	Unprotected Acres	Percent Unprotected
Cabin Branch Creek	521	326	195	37 %
Patapsco Valley 1	658	613	44	7%
Patapsco Valley 2	1,004	581	423	42%
Piney Run	817	102	714	87%
Sawmill Creek	421	311	110	26 %
Stoney Run	500	329	170	34%

Threatened and Endangered Species

Within the Planning Area, there is a Natural Heritage Area in the vicinity of the BWI Amtrak station, within the floodplain and wetlands associated with Stoney Run. Natural Heritage Areas are designated by the Maryland Department of Natural Resources in areas of unusual geologic significance or sites with a number of rare, threatened or endangered species. This particular area is a pitch pine-red maple swamp which is a rare community in the Upper Coastal Plain. Four rare plants have been identified in this area, and one of them – the swamp pink – is listed as Federally Threatened and State Endangered.

Forest Conservation Program

The County administers a Forest Conservation Program in accordance with the requirements of the State Forest Conservation Act. Under this program, development proposals submitted to the County for approval must include a Forest Conservation Plan which identifies and classifies wooded areas on the site and establishes limits of disturbance and areas of forest retention. The Forest Conservation Ordinance specifies conservation and afforestation thresholds according to the type and density of land use. Development plans that propose clearing of existing forested areas must retain at least this minimum threshold, or else the developer will be required to reforest portions of the site or, as a less desirable alternative, to reforest areas offsite. If a developer can demonstrate that reforestation on or offsite cannot be reasonably accomplished, a fee in lieu may be paid to the County's Forest Conservation Fund, to be used by the County in reforesting sites as they become available.

Historic Resources

There are several historic structures located in the BWI/Linthicum area, including three that are listed in the National Register of Historic Places. Some of these are discussed in the Community History section of this Plan. Table 14 lists historic resources that have been listed on the Maryland Inventory of Historic Properties due to their architectural or historical significance. The sites locations are shown on Map 11.

Table 14. BWI/Linthicum Historic Resources

Site Number	Name	Street Location
AA0083	Linthicum Station, W B & A Railroad	West Maple Road
AA0084	H. H. Thomas House	Mountain Road
AA0086	Locust Grove	Homewood Road
AA0087	Hamilton House	Andover Road
AA0088	Luther Shipley House	Andover Road
AA0089	Sachs Residence	West Nursery Road
AA0111	Summerfield-Benson House	West Nursery Road
AA0113*	Twin Oaks	Twin Oaks Court
AA0114*	Turkey Hill	West Maple Road
AA0115	Holly Run Methodist Protestant Church	School Lane
AA0118*	Benson-Hammond House	Poplar Avenue
AA0238	J. G. Cromwell Farm	Hollins Ferry Road
AA0757	Duplex	Elkridge Landing Road
AA0758	Two-Story Frame House	Elkridge Landing Road
AA0766	Patapsco River Bridge	Route 648
AA0870	Charles A. Brauer House	Smith's Farm Road
AA0871	Lebowitz Farm	Dorsey Road
AA0933	John Stoll House	John Avenue
AA0959	Joshua Hawkins Farm	Hollins Ferry Road
AA0960	Smith / Clark House	Ridge Road
AA0990	Linthicum Heights	
AA0997	West Downs House	Hollins Ferry Road
AA1028	Buren Smith House	Route 170
AA1033	John Kelbaugh House (site)	Ridge Road
AA1034	Shipley Cemetery	Ridge Road
AA1040	William Abner Shipley House (site)	Golden Oak Drive
AA1041	Ferndale B & A Trestle	over Hollins Ferry Road
AA1069	North Linthicum B & A Railroad Trestle	over B & A Boulevard
AA1070	Nursery Road I-House	Nursery Road
AA1071	Overlook	Hampton Road
AA1072	Harmony Grove	B & A Boulevard
AA1081	White Avenue Cemetery	East side of White Avenue

Site Number	Name	Street Location
AA1096	Furnace Road Log House	East Furnace Road
AA1097	Furnace Road Amtrak Trestle	Furnace Road
AA1098	Ridge Road Italiante House	Ridge Road

*National Register of Historic Places

Assets and Issues

With so much of the Planning Area planned for higher intensity land uses, protection of the areas's natural resources is an issue of concern among area residents. It is important that protection mechanisms are in place prior to build out of the remaining developable land in order to prevent degradation of these resources. Some areas of highest concern include the following:

Preventing degradation of local streams: Control of stormwater runoff is deficient in some parts of the Planning Area, where older residential developments were established. This has had detrimental effects on some local streams in the area. Opportunities for retrofitting these problem areas are needed, and new development should be encouraged, either through regulatory means or otherwise, to incorporate buffers along area waterways to prevent future erosion and pollution.

Loss of forested areas and green spaces: The area has experienced fairly rapid growth over the past several years, with new office and technology parks choosing to locate near the airport. This has resulted in significant clearing of forest cover. In addition to the existing forest conservation regulations, additional policies and incentives should be developed to allow development to occur while at the same time maximizing the retention of forest and open space to the extent possible.

Goals and Recommendations

Goal 1: Restore degraded local streams to their natural state, and maintain healthy conditions in all area streams and wetlands through proactive watershed planning.

Streams in the area are critically at risk due to existing and planned development. Much of the Patapsco River watershed within Anne Arundel County is highly developed. Portions of the river and its tributaries are experiencing problems typically found in these types of urbanized areas, such as streambank erosion, sedimentation, and high nutrient and bacteria levels. As further development occurs, proactive planning on a watershed basis will be important in protecting the area's water resources.

Recommendations:

1. Continue implementation through coordination with the Maryland Department of Natural Resources, Department of the Environment, and the Maryland Aviation Administration of the restoration strategies recommended by the Sawmill Creek Targeted Watershed Restoration Project.

Map 11

2. Identify areas in local streams where stream restoration, sediment and erosion control, storm drain retrofits, or other improvements are needed to prevent stream degradation; and incorporate these projects into the County's work program and capital budget. OPZ and the Department of Public Works should coordinate in developing a program for planning and funding of these projects. Continue to seek additional funding sources for stream restoration projects. Where projects have been approved, such as the Kingwood Tributary restoration project, the County should work towards completion.
3. Water quality benefits of maintaining forested or vegetated buffers along streams and wetlands are widely recognized. Identify unforested riparian buffer areas that can be used for reforestation sites, and target reforestation funds to those areas.
4. Account for and minimize impacts to the 100-year floodplain with respect to stormwater runoff increases from new development. Where comprehensive or site-specific rezoning is expected to result in increases in runoff, the need for additional stormwater management, or retrofits to existing facilities, should be determined and accommodated.
5. Adopt strict criteria to be used in determining when a waiver to allow floodplain encroachment should be granted, and ensure that all County review staff adhere to these criteria.
6. Adopt environmental regulations or guidelines to require stream buffers with a minimum 100-foot width along all intermittent and perennial streams in the County. Require that all stream buffers be delineated on a record plat, and that a conservation easement be placed on all buffer areas. Record an easement agreement that defines what activities would be allowable within a conservation easement.
7. Develop a program which would encourage landowners to establish easements on all wetlands and streams to protect those areas.
8. Encourage no net loss of wetlands.
9. Identify wetland sites in need of restoration and develop a program to restore areas that have been damaged.
10. Identify sites that can be used for wetland mitigation banking.
11. Develop and implement a program to place labels reading "Chesapeake Bay Drainage" at all storm drains that have runoff to tributaries of the Chesapeake Bay.
12. Ensure that funding and County resources are available to complete a Patapsco River Watershed Management Plan within the next 10 years.

13. Implement a watershed approach to stormwater management, land use planning, development, permitting, and capital improvement program planning to ensure that potential cumulative impacts of land use changes are addressed prior to implementation of those land use changes.
14. The Office of Planning and Zoning should coordinate with the Maryland Aviation Administration as it continues to develop land in the Hanover area, and should encourage the MAA to adhere to County environmental regulations and to provide for adequate stream buffering within their developments in order to prevent degradation of the Stoney Run and Deep Run tributaries.
15. Ensure all engineering design for stormwater management facilities is site appropriate and strictly adheres to the Maryland Stormwater Design Manual or County Stormwater Design Manual, whichever is more stringent.
16. Encourage development plans to incorporate stormwater management ponds into their designs in a manner that will enhance the attractiveness of the site design.
17. Request the MAA to issue quarterly or periodic reports to the public on water quality issues related to airport activities (stream monitoring, stormwater management, permit compliance, etc.).
18. Develop and encourage community support programs to work with conservation groups involved in stream-related activities such as monitoring and trash cleanup.
19. Identify opportunities and sites to provide stormwater management for older developments that generate uncontrolled runoff.
20. Continue and, if possible, accelerate the County's ongoing effort to comprehensively identify, analyze and, where needed, retrofit stormwater management problem areas.
21. Aggressively pursue incentive-based approaches (e.g., state grant funds) to achieve retrofitting of areas in need of improved stormwater management.
22. Establish a comprehensive stormwater infrastructure preventative maintenance and management program that reduces environmental degradation and extends infrastructure useful life.
23. Provide more stringent County inspection programs for stormwater management facilities to ensure that property owners are adhering to maintenance requirements.

24. Encourage more innovative site planning and stormwater management techniques and the use of low impact development site design in the land development process.
25. Develop ongoing community and business awareness programs to educate residents and businesses about how their activities and lifestyle choices can impact the Chesapeake Bay.
26. Recommend and urge that all Federal, State, and County-sponsored land use projects adhere to the highest environmental regulations and standards with regard to site design and stormwater management facilities, thus setting the environmental standard to be followed.

Goal 2: Preserve significant historical and archeological resources in the BWI/Linthicum area.

Recommendations:

1. Promote community awareness related to identifying and restoring important historical sites.
2. Portions of the Linthicum Historic Area, which is listed in the Maryland Inventory of Historic Properties, have been determined to be eligible for designation in the National Register of Historic Places. Prepare a formal nomination for National Register status.
3. Encourage preservation of significant structures such as the Linthicum B&A Station and other buildings or sites which contribute to the character of the community.
4. The County should work with prospective buyers or developers of the Twin Oaks property in Linthicum, a property listed on the National Register of Historic Places, to negotiate a development plan that will preserve the estate home and outbuildings and the character of the surrounding property, and that will facilitate restoration of the home. Any subdivided lots should be situated so that the grounds and views around the estate home remain intact.

Goal 3: Promote preservation of forest and green spaces in the area.

Recommendations:

1. Work with government agencies, conservation trusts, and property owners to obtain forest conservation easements. Provide incentives to property owners to preserve forested land and to make land available for reforestation sites.

2. Develop an Urban Forestry program in the County, and within this, create a community awareness program to educate the public in recognizing and controlling tree diseases.
3. Restructure the Forest Conservation Program to allow funds to be earmarked for a particular area or community.
4. Consider selectively replacing some of the trees which were removed from the Lindale Middle School campus.
5. Establish a program through which forest conservation fees could be used to acquire land or easements for reforestation.

Goal 4: Implement measures to improve air quality in the region.

Recommendations:

1. Work with the MAA and with other jurisdictions in the Metropolitan Baltimore Air Quality Control Region to establish and implement regional policies and measures to reduce ozone levels in the Non-Attainment Area.
2. Adopt land use and transportation plans that encourage the use of public transportation, car pooling, and High Occupancy Vehicle lanes in order to reduce automobile traffic and ozone levels.
3. Develop a program through the Health Department to educate the public about ways to reduce air emissions.

Goal 5: The County should encourage and support the BWI Airport's policies and actions to control and/or lessen airport noise levels where possible.

Recommendations:

1. Reduce ground run-up noise levels and encourage the construction of sound sheds.
2. Control the loss of natural tree buffers between the airport and residential areas.
3. Continue the residential buy-out program for properties within the Airport Noise Zone.
4. Expand the coverage and enhance the residential insulation and noise proofing program.
5. Allocate funds previously approved for the installation of roadway sound barriers between residences and the Airport.

6. Continued vigilance and accountability is required of BWI with regard to noise. More monitoring is needed for ground level noises.

Goal 6: Police and clean-up unauthorized dumping and develop a business community recycling program.

Recommendations:

1. Identify areas where trash dumping is an ongoing problem. Use both County resources and community groups to increase monitoring and legal enforcement as well as clean up of these areas.
2. Encourage and promote neighborhood clean-up crews on roadways where dumping is an on-going problem.
3. Develop a plan for a business communities recycling program.
4. Encourage the County to provide periodic street cleaning in the BWI/Linthicum area.

Transportation

The BWI/Linthicum Planning Area is serviced by a multi-modal transportation system centered around the Baltimore Washington International Airport. The Airport complex is a major economic engine in the state and has been developed as an intermodal facility that is serviced by a comprehensive transportation system consisting of an extensive highway network, a light rail system, an AMTRAK/MARC rail station, shuttle bus service and a hiker-biker trail. The BWI Airport and its associated airport noise zone have a profound influence on the Planning Area. Land use and zoning in the area are directly affected by the airport and its noise zone restricting the location of residential development and fostering the development of support/compatible facilities such as industrial parks and hotels.

BWI Airport

Baltimore Washington International Airport continues to be one of the fastest growing airports in the nation, both in terms of increases in flight operations as well as passenger boarding growth. Even with the events following the September 11, 2001 terrorist attacks and the resulting drop in flight operations and passenger trips, BWI continues to experience growth. This growth is in large part due to the success of the “low cost” airlines such as Southwest and AirTran which draw passengers from longer distances and more family, leisure-related travel. Even with the setback in air travel and the changes in travel behavior resulting from the September 11th attacks, forecasts show a near-doubling of enplanements within the next 20 years. The longer distance draw and the type of travel both lead toward increases in automobile traffic generated by the airport which has implications on the highway network.

BWI is the Baltimore-Washington Region’s largest origin-destination airport as most of the travel at Dulles International Airport is related to hub and spoke operations meaning that enplaning passengers do not arrive at the airport via “landside” facilities such as highways or transit, rather they are changing planes. Since BWI is an origin-destination airport, the demand for landside facilities such as roads, parking, transit, and hotels exerts great influence over facility decisions, land use choices and even regional travel demand. Current surveys of BWI passengers shows that more than 45 percent come from the Washington, DC region (suburban Maryland, Washington and Northern Virginia) and approximately 33 percent come from the Baltimore region. Practically 10 percent come from Pennsylvania and Delaware.

BWI has created over 11,000 current, direct jobs. Due to its presence and the need to support these base jobs, over 4,100 jobs have been induced and over 4,600 jobs are located in the area as an indirect consequence of the airport, creating a job based in current terms of practically 20,000 jobs in one area with a total personal annual revenue of more than \$800 million.

BWI is adding substantial landside supporting assets. Among these are an 8,400-space

parking garage, a consolidated rental car facility (off-site), a new bus maintenance facility, additional parking for tenants located on airport property and other support activities. Many of these landside facilities are located on properties acquired by the Maryland Aviation Administration, but not on the immediate airport property. These shifts in activities and the acquisition of properties away from the immediate airport will cause increases and shifts in travel, leading to greater impacts on highway facilities in the area, many of which are not owned by the State.

BWI is also increasing its share of air freight movement. While many of the air passenger carriers fly narrow body aircraft and freight movement in those aircraft is not as significant, growth in freight operations is increasing at approximately four-to-five percent per year. Over time this increase in activity will result in greater demands for truck travel in the area, both during peak and off-peak street demand times.

Given these changes in operations, increases in travel demand, and its overall influence on development patterns, County interest in BWI's strategic and comprehensive plan updates should be very important.

Road Network

The highway network servicing the Planning Area consists of five limited access highways and supporting roadways. The Baltimore Beltway (I-695), Glen Burnie Bypass (I-97), MD 100, I-195, and the Baltimore Washington Parkway (MD 295) service the majority of the interregional traffic as well as accommodate local access needs. Dorsey Road (MD 176), Telegraph Road/Aviation Boulevard (MD 170), Baltimore Annapolis Boulevard (MD 648), Hollins Ferry Road, Hammonds Ferry Road, Camp Meade Road, Nursery Road/West Nursery Road, New Ridge Road, and Andover Road provide secondary access to and through the area. This road network is depicted in Map 12.

Table 15 lists transportation improvement projects in the BWI/Linthicum Planning Area that are in the County's current Capital Budget and Program, or in the State's Consolidated Transportation Program. In addition, the County's 1997 *General Development Plan* calls for completion of the connection of Hanover Road between Stoney Run Road and MD 170 with the replacement of the at-grade railroad connection at Stoney Run Road, and future extension to the existing Hanover Road at Ridge Road.

Map 12

Table 15. Current Transportation Improvement Projects in the BWI/Linthicum Area

Project	Description	Status
<i>County Projects</i>		
Crestwood Sidewalk, Curb, Gutter	Replace sidewalks, curbs, & gutters in Crestwood Community. Mill, patch, & resurface road where determined.	Will be funded under Project H479000 - Masonry Reconstruction.
Race Road Bridge over Piney Run	Replace existing bridge and widen approach roads.	Authorized by Council FY97.
North Linthicum, Road Reconstruction	Reconstruct roads in the North Linthicum community deteriorated beyond normal maintenance.	Will be funded under Project H4789 - Road Reconstruction.
Ridge Road	Connect New Ridge Road with Ridge Road north of Stoney Run Road.	Planning Study underway.
<i>State Projects</i>		
MD 174, Quarterfield Road	Replace 2-lane bridge over I-97 with 6-lanes & sidewalks. Located just south of SAP.	Construction.
Belle Grove Road Phases I & II	Reconstruct Belle Grove Road from MD2 to MD 648 as urban street.	On hold.
Light Rail Extension	Extend Light Rail service from its terminus at BWI Airport to the Arundel Mills area.	MTA to conduct feasibility study.
Light Rail Double Track	Construct second set of tracks for light rail transit to increase capacity and service reliability.	Construction underway.

Public Transit Network

The Planning Area is serviced by a fairly extensive public transportation network operated by the Maryland Transit Administration (MTA). The existing commuter rail network, along with some proposed extensions that are discussed in the recommendations below, are shown in Map 13. The MTA contracts with Amtrak to operate MARC service from Perryville to Washington D.C. on the Penn Line, with one stop in the Planning Area serving the Airport. The BWI Amtrak/MARC station is located off of Aviation Boulevard and Amtrak Way and serves the commuter needs of the Baltimore/Washington region as well as the needs of the interstate travelers. The station includes a multi-level parking garage and provides shuttle service to the

Airport's main terminal. The current number of average weekday boardings at the station is 936.

Map 13

The MTA also operates a Light Rail Service over a 29 mile distance between Hunt Valley in Baltimore County and Cromwell Station in Anne Arundel County. Current weekday ridership along this line is over 26,000 trips. Seven Light Rail stations are located in the BWI/Linthicum area along Baltimore Annapolis Boulevard and Camp Meade Road, with a spur running along Aviation Boulevard to the BWI Airport terminal. The current number of average weekday boardings at each station is listed below:

Nursery Road station: 440	Cromwell station: 1,497
North Linthicum station: 494	BWI Business District: 360
Linthicum station: 380	BWI Airport: 1,109
Ferndale station: 127	

A few MTA core bus routes also serve the BWI/Linthicum area. The Number 14 Line operates between Annapolis and the Patapsco Light Rail Station, and the Number 17 Line operates between the BWI Airport and the Patapsco Light Rail Station.

Bus transit is also provided by two other service providers, Corridor Transportation Corporation (CTC), and BWI Business Partnership. The CTC routes include stops at Marley Station, Harundale Mall, Cromwell Light Rail Station, Arundel Mills, Meade Village and Pioneer Drive via Governor Ritchie Highway, Dorsey Road, Telegraph Road, and Donaldson Avenue. The BWI Business Partnership runs the LINK, a shuttle service whose route includes NSA, Fort Meade Complex, FANX, the BWI area, the BWI Business District Light Rail Station and the BWI Amtrak/MARC Station.

MTA Capital Projects that are currently active in the Planning Area include Light Rail Double Tracking and Nursery Road Parking Expansion. The Light Rail Double Track Project will convert 9.4 miles of single track sections into double track, allowing separate tracks for trains traveling in opposite directions. The section between the Linthicum and Ferndale Light Rail stations is to be double-tracked. The project will allow for more frequent service and improve the reliability and safety of the system. The project is currently beginning construction. The Nursery Road Parking Expansion project will increase the number of parking spaces at the Nursery Road Light Rail station from the current 37 spaces to 104 spaces. A recently completed capital project involved the provision of additional parking spaces at the North Linthicum Light Rail station, and sidewalk and pedestrian improvements at the intersection of MD 648 and MD 170.

On a more regional or interstate basis, Amtrak has recently upgraded its rail service to provide high-speed service along the Northeast Corridor between New York and Washington D.C., which includes a stop at the BWI Amtrak/MARC station. A long range proposal for a super high-speed Magnetic Levitation System (MAGLEV) is currently in environmental impact assessment. If this proposal is implemented, the MAGLEV train will initially traverse between

Baltimore's Camden Station and Washington D.C.'s Union Station at speeds up to 300 mph, with a stop at the BWI Airport.

Hiker-Biker Network

The Planning Area is served by two connecting hiker-biker trails. The BWI Trail encompasses the airport generally along Aviation Boulevard and extending along MD 176 (Dorsey Road), with spurs extending up to Andover Park and the Linthicum Light Rail station. At the intersection of B&A Boulevard and Dorsey Road, the BWI Trail connects with the B&A Trail, which extends approximately 13 miles to its terminus at Jonas Green State Park on the Severn River at the U.S. Naval Academy Bridge.

Anne Arundel County recently adopted a Pedestrian and Bicycle Master Plan in 2003. The master plan proposes a regional network of bicycle and pedestrian routes in the County and identifies roads where improvements are needed to accommodate either bicycling or walking or both. Map 14 identifies the roads in the BWI/Linthicum Planning Area that are recommended for improvements. The master plan identifies Camp Meade Road and New Ridge Road as Tier 1 recommended improvements, meaning that these are important road segments that need to be retrofitted in order to better accommodate bicycling and walking. The master plan also identifies several roads in the planning area as Tier 2 recommended improvements, which indicate routes that are recommended for future improvements as opportunities may arise, but that are of a lower priority than the Tier 1 routes. The Tier 2 roads are Aviation Boulevard, Dorsey Road, Baltimore-Annapolis Boulevard, Hammonds Ferry Road, and Nursery Road east of Hammonds Ferry Road. The master plan also identifies two intersections as Pedestrian Improvement Zones, which targets the areas for pedestrian-oriented redesign to improve pedestrian safety. These are the intersections of Hammonds Ferry Road and Nursery Road, and Dorsey Road and Aviation Boulevard.

Assets and Issues

The many transportation-related assets in this Planning Area include a good highway network that provides convenient access to employment and shopping opportunities as well as nearby metropolitan areas, an extensive public transit system, and the BWI Trail. There are also several transportation related issues of concern that have been frequently voiced by community members and employees in the area.

Traffic congestion and poor circulation: As traffic has increased in the area over the past decade, so has congestion on many of the major roads serving the area, particularly B&A Boulevard, the BW Parkway, and Nursery Road. In addition, at-grade crossings of the Light Rail track on some area roads often hinder traffic circulation further. Some specific actions are recommended herein to address these problem areas.

Map 14

Light Rail Service and Stations: Service should be extended around the periphery of the airport and along West Nursery Road to connect major business parks and employers with residential neighborhoods, shopping opportunities, the Arundel Mills Mall, and the Baltimore metro area. Lack of adequate pedestrian access, lighting, and parking has been an issue at some of the Light Rail stations. Planned double tracking between Linthicum and Ferndale has also created concerns among area residents as to whether the increased frequency in service will exacerbate existing traffic delays at rail crossings on area roads.

Inadequate sidewalks: A lack of sidewalks and/or poorly maintained sidewalks have been frequently cited as issues in the Linthicum and Ferndale communities.

Expanded hiker-biker trail network: Nearly everyone in the area cites the BWI Trail as a wonderful asset to this area, and residents and employees alike would like to see the trail network extended to connect all of the area's natural features, employment centers, and residential communities.

Controlled expansion of parking areas: The BWI Airport obviously generates a tremendous demand for parking facilities. Careful planning to prevent a proliferation of surface parking lots in the area is a high priority among community members.

Goals and Recommendations

Of the recommendations listed below, those that are specific to a particular location are illustrated on Map 15.

Goal 1: Provide upgraded road and transportation systems in the area.

The following actions are recommended to reduce traffic congestion, improve existing circulation deficiencies, decrease accidents, and minimize traffic flow through established communities in the Planning Area.

Recommendations:

1. Create a West Ordnance road extension between MD 648 south of Burwood Plaza and I-97. This road would alleviate congestion at a major intersection (Furnace Branch Road and B&A Blvd.) and would allow for a connecting road out of the North County High School.
2. Provide a second exit/entrance to North County High School (utilize West Ordnance Road) in order to reduce the traffic congestion at B&A Blvd and 1st Avenue in Ferndale.

Map 15

3. Reconfigure the intersection of B&A Blvd./Orchard Road/Hollins Ferry Road to increase safety and provide two way access between Broadview and B&A Blvd. without increasing neighborhood traffic. Some possible solutions that should be studied include the permanent closing of Orchard Road and B&A Blvd., heightening the Light Rail trestle, and installation of a traffic signal or traffic circle at the intersection.
4. Improve safety and traffic flow in and near the Shipley Linthicum Shopping Center.
5. Create an access road linking MD 648 and Aviation Boulevard without increasing neighborhood traffic. This would allow easier access to businesses within the Ferndale area from the businesses on and around Aviation Boulevard as well as reduce the amount of traffic in the residential areas of Ferndale.
6. Improve the MD 295 interchange at West Nursery Road to reduce traffic congestion in the vicinity of this interchange.
7. Widen and straighten Nursery Road from Hammonds Ferry Road to MD 295 bridge. This would create a better access to business and hotel areas in the BWI area.
8. Eliminate the West I-695 on-ramp from Camp Meade Road due to the lack of a merge capability with the Beltway. In place of this ramp, provide a left turn lane with traffic signal to be used in conjunction with the West I-695 ramp from south bound Camp Meade Road.
9. Provide a new interchange at the Baltimore-Washington Parkway and Hanover Road. This would serve the planned industrial park development west of the BWI Airport as well as the new employee parking and car rental facilities and the Airport.
10. Widen the Baltimore-Washington Parkway to three lanes in each direction between MD 175 and I-695.
11. Rename New Ridge Road to Arundel Mills Boulevard. This will eliminate confusion on this road which is an extension of Arundel Mills Boulevard south of MD 100.
12. Reconstruct Ridge Road as a Parkway from New Ridge Road to the BW Parkway overpass. This could include a landscaped median center strip plus additional setbacks for buffer zones between the future development of the area that will occur.
13. In coordination with MAA and SHA, conduct feasibility and design studies to determine right-of-way needs, alignment, design and phasing of improvements of Hanover Road between Howard County and MD 170.

Goal 2: Provide public transportation to future areas of commercial, industrial, and mixed use development, and maintain and improve service to existing residential communities.

Public transportation offers an opportunity to decrease reliance on the automobile and protect the environment as well as to serve the needs of households which can not rely entirely on vehicular transportation. Encourage a transit system of fixed routes (conventional bus and rail) and paratransit (demand responsive: serves individuals at specifically arranged places and times) which provides efficient and comfortable service, conserves energy, and improves air quality.

Recommendations:

1. Create grade-separated Light Rail crossings to replace the current at-grade crossings at Maple Road, Camp Meade Road, and Twin Oaks Road. Grade-separated crossings at these locations will alleviate the existing traffic congestion that is expected to worsen as MTA increases the frequencies of Light Rail trains to accommodate increased ridership. Grade separation of the crossing at Maple Road should be considered the highest priority.
2. In conjunction with current and ongoing BWI Airport expansion plans, construct a grade-separated Light Rail crossing to replace the at-grade crossing at Aviation Boulevard and Elm Road.
3. Maintain bus/shuttle service from BWI Business District Light Rail station to the hotels and business parks along West Nursery Road.
4. Enhance bus/shuttle service from the BWI and Dorsey MARC stations to the business parks along Dorsey Road and West Nursey Road.
5. Study, identify and protect an alignment to extend Light Rail service from the BWI Business District station to MD 295 (see Map 13). Include stations at growth areas or where transit can support current and future development.
6. Provide Light Rail service to the new Arundel Mills development to serve the considerable amount of residential, office, commercial and retail development that is occurring and planned in this area. Light Rail service could be extended from either the BWI Terminal or Cromwell stations.
7. Consider establishing a nonpeak hour regional shuttle bus service in the Linthicum, North Linthicum area to include destinations at the Hammonds Ferry Road/Nursery Road intersection, the Linthicum Shipley Shopping Center, Burwood Shopping Center, and the North Linthicum and Nursery Road Light Rail stations. (see Map 15).
8. If Magnetic Levitation System (MAGLEV) high-speed rail service is located along the

Baltimore-Washington corridor, the rail alignment through Linthicum should preserve existing, or should establish needed, buffers that screen the residential communities from more intense land uses and the rail line.

9. Encourage MTA and its vendors to use smaller, fuel efficient vehicles.
10. All Light Rail stations should have easy and safe access, i.e. proper sidewalks, lighting, etc. Access to both the Linthicum and the North Linthicum stations needs to be improved.
11. Promote private/public subsidy programs available to riders using public transportation.
12. Provide additional parking at Light Rail Stations as needed to prevent commuter parking on residential streets. Look for opportunities to provide structured parking at stations that have existing surface parking, such as the Nursery Road, North Linthicum, and BWI Business Center stations.

Goal 3: Provide sidewalks and pathways to better connect existing neighborhoods and improve overall pedestrian access throughout area communities.

Transportation in the area is dominated by automobiles and will continue to remain that way in the future, due in part to the large concentration of businesses and the airport. This naturally has caused most of the transportation budget to be concentrated on roads. But even minimal pedestrian and bicycle facilities, such as sidewalks and shoulders in densely populated areas, and pedestrian and bicycle-friendly parking lots and intersections, are often lacking or in complete disrepair. This creates safety problems and makes it difficult to walk even short distances, especially within the walking perimeter of many of the schools. Within the student walking perimeter (1 mile radius) of all the public schools in the Planning Area, the County should ensure that the sidewalks are provided.

Recommendations:

1. Provide continuous sidewalks at the following locations. Along state roads, sidewalks must be constructed as a state project in cooperation with property owners.
 1. Camp Meade Road (MD 170) from Maple Road to Music Lane,
 2. B&A Boulevard from Furnace Branch Road to First Avenue and North County High School,
 3. Twin Oaks Road,
 4. West Maple Road,
 5. Wellham Avenue from George Cromwell School to B&A Boulevard,
 6. The residential side of Nursery Road to the Nursery Road Light Rail station and to the business establishments,
 7. Elkridge Landing Road.

2. Remove telephone poles and signs from sidewalks along Camp Meade Road (MD 170) from Maple Road to Music Lane.
3. Conduct a traffic signal warrant study for the intersection of Benton Avenue and Camp Meade Road. If warranted, replace the existing blinking traffic signal with a stop light. This would allow better flow of traffic and also allow pedestrians easier access to the Linthicum Light Rail station.
4. Create a safe pedestrian walkway from the Cromwell Light Rail station to Cromwell Fields shopping center.
5. MTA should consider providing bicycle storage facilities at all Light Rail stations in order to encourage multi-modal access.

Goal 4: Develop a hiker-biker trail network in the area and connect it with existing local and regional trail systems.

Recommendations

4. Create a hiker-biker trail loop connecting the BWI Trail, Airport Square, Hock Business Park, the Maritime Institute, Patapsco Valley State Park, and the BWI Amtrak station, in addition to implementing the recommendations in the Countywide Pedestrian and Bicycle Master Plan (See Map 14).
5. Extend the Linthicum spur of the BWI Trail from its current terminus at the Linthicum Light Rail station northward to the Patapsco River and beyond, running parallel to the Light Rail line, with connections to the North Linthicum rail station, the Patapsco Valley State Park, the Southwest Area Park in Baltimore County, and to Baltimore City.
6. Develop adequate parking around existing and new trails. This could include the negotiated use of school and business parking lots on a non-interference basis.
7. Plan and develop a new trail on the west side of the airport connecting the Hanover and Arundel Mills area with the current BWI Trail. This trail could follow land currently owned by the state and/or make use of abandoned rail spur lines to provide a trail through the business parks and eventually connect to the Arundel Mills area. Coordinate with the development of the BWI airport parking.

8. When the Amtrak Station is expanded, improve the walker overpass of the Amtrak tracks so that it can accommodate a hiker/biker overpass of the tracks. Create a hiker-biker trail from the BWI trail along Amtrak Drive to the Amtrak station. The trail should continue over the rail tracks to Ridge Road, and then over the BW Parkway into the Patapsco Valley State Park.

Goal 5: Encourage centralized parking surrounding the BWI Airport that will provide easy access, require the least amount of paving, and have the least impact to the environment.

Recommendations:

1. Buffer parking lots surrounding the BWI Airport with landscaping and by replacing any trees lost when creating additional parking.
2. In order to preserve green space to the extent possible in the Planning Area, develop multi-level parking structures, as opposed to surface parking lots, when feasible to meet future demands for additional parking.