

# TRANSPORTATION PLAN

## INTRODUCTION

Most of the Upper Rock Creek Planning Area is within one of the County's rural policy areas; only the Derwood section of the Planning Area is outside this rural classification. Transportation needs in Upper Rock Creek are influenced by the area's location adjacent to the I-270 corridor to the west, the suburban community of Aspen Hill to the southeast and the satellite community of Olney to the east and northeast. Commercial activities in the I-270 corridor and downcounty areas influence travel patterns for residents of Upper Rock Creek as well those traveling from other planning areas.

The Shady Grove Metrorail Station is located just outside the Planning Area's western boundary at the intersection of Redland Road and Crabbs Branch Way. This station serves as the terminus of the Metrorail Red Line and is an important destination for motorists, transit services, bicyclists and pedestrians.

The Master Plan alignments for the Intercounty Connector (ICC) traverse the Upper Rock Creek Planning Area. The feasibility of the ICC has been reviewed through both state and local transportation studies that have not yet been concluded. This Plan, therefore, does not recommend any changes to the ICC rights-of-way already defined in the Master Plan of Highways and the 1985 Upper Rock Creek Master Plan. Should the state study process conclude that the Master Plan route is not feasible, the transportation recommendations of this Plan would need to be reviewed. The status of the studies and recommendations for interim uses of the right-of-way are described in greater detail below.

This Plan addresses streets and highways, transit, and bikeways in an effort to create a comprehensive system that meets the needs of the local community, provides adequate regional connections, and respects the physical character of Upper Rock Creek.

## TRAVEL FORECASTING

Travel demand is a function of the amount and type of activity generated by land uses and the available facilities and services that connect those land uses. There is a relationship between the amount of development recommended by a master plan and the transportation system capacity required to accommodate the resulting demand for transportation.

The focus of the land use recommendations in this Plan is on the larger portion of land area in the Rural Policy Area. Currently, this area has approximately 1,900 households and 2,000 jobs. This Plan supports measures to reduce the amount of travel demand generated from activities within this Planning Area. A majority of travel demand will be generated by additional development outside the Upper Rock Creek Master Planning Area. Currently, approximately 75 percent of the traffic that crosses the Upper Rock Creek Planning Area boundary is through

traffic; only about 25 percent is generated by local land uses. This ratio is forecast to stay relatively constant as planned development occurs in both Upper Rock Creek, the remainder of Montgomery County, and the rest of the Washington region.

The transportation recommendations in this Plan have been developed using the results of independent regional travel forecasting studies, including a State Highway Administration (SHA) analysis for the Woodfield Road (MD 124) project planning study, and the M-NCPPC analysis of the Muncaster Mill Road (MD 115) corridor. The Appendix provides additional details on the process and findings for each of these studies.

The travel forecasting process is also used to determine the degree of balance between land use and transportation recommendations in master plans by comparing the forecast average congestion index (ACI) to Annual Growth Policy (AGP) standards for policy area transportation review. Many master plan areas and policy areas have coterminous boundaries, so that the AGP policy area standards can be applied directly. The Upper Rock Creek Planning Area, however, does not correspond to a Policy Area. Approximately two-thirds of the Upper Rock Creek Planning Area is located within the Rock Creek Policy Area, one of the County's five rural policy areas. The AGP does not specify ACI indices for rural policy areas, as land use in these areas is controlled by zoning, water and sewer constraints. The remainder of the Upper Rock Creek Master Plan Area is part of the Derwood Policy Area, which has an ACI standard of 0.58. The travel forecasting performed for the master plan analyses indicates that the portion of the Derwood Policy Area within Upper Rock Creek is estimated to have an ACI of 0.55 in 2025. This plan is therefore considered to have a balance between land use and transportation.

## **STREETS AND HIGHWAYS**

Most of the Upper Rock Creek Planning Area is served by a network of two-lane roadways, consistent with the prevailing low-density development pattern. Exceptions to the two-lane roadways are generally located along the edges of the area, and include Airpark Road, Gude Drive, and portions of Woodfield Road. Muncaster Road, Avery Road, Bowie Mill Road and Muncaster Mill Road are currently two-lane roads without curbs or gutters. To support efforts to preserve and enhance the low-density residential character of the Planning Area, this Plan recommends that, where it is consistent with safety and other operational issues such as turning movements or acceleration/deceleration lanes, roads retain their existing two-lane, open sections.

Two proposed new roadways have been retained in the Master Plan to provide east-west transportation. This Plan proposes no changes to those Master Plan alignments until federal and local feasibility studies have been completed and reviewed. The status of the east-west transportation studies and several other recommended changes to the remaining street and highway network are described below.

### **East-West Transportation**

The Intercounty Connector (ICC) is a master planned, 18-mile long freeway connecting Interstate 270 to I-95 and US 1 in Prince George's County. The facility is designated as F-9 in the Montgomery County Master Plan of Highways, with a 300-foot wide right-of-way. Access to the ICC within Montgomery County is envisioned only at six locations: I-370, Midcounty Highway Extended (M-83), Georgia Avenue (MD 97), Layhill Road (MD 182), New Hampshire

Avenue (MD 650) and Columbia Pike (US 29). The Master Plan of Bikeways includes an off-road bike path within the ICC right-of-way. In the Upper Rock Creek Master Plan Area, the ICC right-of-way extends approximately three miles between Redland Road and the North Branch of Rock Creek. Access to the ICC is via the interchange with the Mid-County Highway.

The ICC has twice been studied by the Maryland Department of Transportation under the federal environmental impact statement (EIS) process, resulting in one Draft EIS in 1983 and a second Draft EIS in 1997. Neither study resulted in a signed Final EIS or Record of Decision (ROD) from the Federal Highway Administration. Federal agency comments on the 1997 Draft EIS regarding impacts in the Northwest Branch and Paint Branch stream valleys led then-Governor Glendening to propose abandoning the central portion of the ICC between Georgia Avenue and US 29 and pursuing new roadways in the remaining western and eastern portions of the alignment, subsequently termed Western Connector and Eastern Connector, respectively.

This Master Plan recommends that the ICC be constructed along the Master Plan alignment, consistent with the Master Plan of Highways as amended by the 1985 Upper Rock Creek Master Plan and subsequent area master plans along the ICC right-of-way for Gaithersburg Vicinity (1990), Aspen Hill (1994), Fairland (1997), and Cloverly (1997). This Master Plan also provides some level of flexibility to allow a Western Connector to be constructed within the ICC right-of-way, based on the results of recent state and local planning studies described below.

In this Plan, the term “Western Connector” refers to a range of east-west roadway options in the vicinity of Muncaster Mill Road generally between Georgia Avenue/Norbeck Road in the east and the termini of Mid-County Highway and I-370 at Shady Grove in the west. Three separate studies have been undertaken within the past five years to examine east-west transportation needs between the I-270 corridor and the central and eastern portions of Montgomery County. These studies, in chronological order are:

The *Intercounty Connector Draft Environmental Impact Statement*, published in 1997, examined a Master Plan Alignment Alternative of the Intercounty Connector and three other build alternates: the Northern Alignment Alternative, the Mid-County Highway/MD 198 Alignment Alternative, and the Upgrade Existing Roads Alternative. Governor Glendening placed the study on hold after the DEIS was published in 1997.

The *Muncaster Mill Road Corridor Study* was an M-NCPPC study designed to respond to a County Council request to determine a preferred alternate for increasing roadway capacity either along existing Muncaster Mill Road or along the Mid-County Highway Extended (M-83) alignment. This study quantified the effects of three build alternates, labeled Alternates A, B, and C. Alternate A would widen Muncaster Mill Road to four lanes in a 100-foot right-of-way between Shady Grove and Norbeck roads; Alternate B would construct the Mid-County Highway between Shady Grove and Muncaster Mill roads, and widen Muncaster Mill Road to four lanes from that point east to Norbeck Road; Alternate C would construct the Mid-County Highway between Shady Grove and Muncaster Mill roads, and extend a new road from that point east in the ICC right-of-way to Norbeck Road. The County Council placed the study on hold in March 2001, based primarily on concerns that drawing conclusions would adversely affect the planning process for both the Upper Rock Creek Master Plan and the Transportation Policy Report. The Appendix contains detailed information on the Study and the alternatives evaluated in it.

The *Transportation Policy Report* (TPR) was an M-NCPPC study designed to examine and prioritize transportation needs countywide. The TPR process included a 35-member Task Force and culminated in two separate documents. The Transportation Policy Report Task Force Report, published as a Final Draft Report on January 17, 2002, summarized the study findings and indicated Task Force member voting on individual transportation projects, but did not develop consensus on a set of complementary projects that should be retained as a master plan network for transportation. In late 2001, recognizing that the Task Force Report would not deliver a recommended network, the Planning Board requested that M-NCPPC staff develop a recommended network, informed by but not limited to the Task Force findings. This network, refined during Planning Board worksessions in December 2001, is described in the Montgomery County Planning Board's Transportation Policy Report, published on January 15, 2002. The network includes four near-term options for east-west transportation improvements through the Upper Rock Creek Planning Area: construction of a four-lane arterial between I-370 and MD 28 east of Georgia Avenue along the ICC's Master Plan alignment (Option 1); constructing the Mid-County Highway between Shady Grove Road and MD 28, using the ICC right-of-way east of Muncaster Mill Road (Option 2); widening Muncaster Mill Road between Redland Road and MD 28 (Option 3); and constructing the Mid-County Highway between Shady Grove Road and Muncaster Mill Road, and widening Muncaster Mill Road between the Mid-County Highway intersection and MD 28 (Option 4).

Each of these three studies is relevant to the Upper Rock Creek Area Master Plan. The *Inter-County Connector DEIS* provides the most robust analysis of environmental impacts associated with the range of roadway alternates investigated. The *Muncaster Mill Road Corridor Study* provides updated transportation analyses and revisited the quantitative environmental and community impacts associated with alternatives limited to the western portion of the ICC study area, between Shady Grove Road and Norbeck Road (MD 28). These analyses were used in part to develop other environmental and transportation recommendations in this Plan.

## Recommendations

- Maintain the Master Plan functional classification and recommended right-of-way, and two-lane section for Muncaster Mill Road (A-93). Do not widen Muncaster Mill Road to increase capacity.
- Maintain the Master Plan functional classification, recommended right-of-way and number of lanes for the Intercounty Connector (F-9) and for the Mid-County Highway Extended.
- Complete the federal Environmental Impact Statement (EIS) process to implement the ICC. If the Final EIS concludes that the full ICC cannot be built as envisioned in the Master Plan, then alternative east-west transportation projects, described as Transportation Policy Report Option 1 and Option 2, may be considered consistent with the Upper Rock Creek Area Master Plan.

## **ROADWAY CLASSIFICATIONS**

The County's road classifications identify road function, service, and ultimate right-of-way width to create a rational road hierarchy and insure room for streetscape, sidewalks, and bikeways. Road classification changes are intended to make roadways consistent with road definitions in the County Code, intended road function, and ultimate road design and right-of-way.

The minimum roadway right-of-way width and number of lanes are identified in the Street and Highway Classification Table. These recommendations are used as a guide to right-of-way dedication and other elements such as sidewalks and streetscape. This Master Plan does not make specific recommendations for secondary or tertiary residential roads.

### **Cherry Valley Drive Extended**

The 1985 Upper Rock Creek Master Plan included a primary roadway connection across the North Branch of Rock Creek to connect Upper Rock Creek to Olney. This roadway was an extension of Cherry Valley Drive in Olney and was intended to connect to a realigned Muncaster Mill Road in the vicinity of the ICC right-of-way. Existing Cherry Valley Drive is designated as P-8 in the Olney Master Plan. Within the Upper Rock Creek Planning Area, Cherry Valley Drive Extended was designated as P-10.

Travel demand analyses indicated that if built as one element of an expanded network of east-west roadways, Cherry Valley Drive Extended would ultimately carry between 13,000 and 16,000 vehicles per day across the North Branch, depending upon the assumptions for roadway facilities in the ICC right-of-way. These volumes would approach or exceed the roadway capacity, estimated to be approximately 14,000 vehicles per day.

The high levels of travel demand forecast for Cherry Valley Drive Extended indicate the degree to which the stream valleys act as barriers to regional traffic. More importantly, however, the demand indicates that if built, Cherry Valley Drive would be serving the function of an arterial roadway, not a primary residential roadway, as most of the traffic crossing the North Branch would be traveling between communities east of Cashell Road and west of Muncaster Mill Road. This connection would also result in an increased cut-through traffic on the network of residential streets in Olney.

The environmental impact associated with Cherry Valley Drive is also substantial. This Plan recognizes that any stream valley crossing will have adverse impacts to the natural environment. The transportation benefits of a new roadway crossing must be balanced against the community and environmental effects. In the case of Cherry Valley Drive Extended, this Plan finds that this primary residential street is inappropriate from a transportation network perspective as well as from community and environmental perspectives.

#### **Recommendation**

- Remove Cherry Valley Drive Extended (P-10) from the Upper Rock Creek Master Plan street and highway network.

## **Muncaster Mill Road/Avery Road Realignment**

The 1985 Upper Rock Creek Plan recommended the easterly relocation of Muncaster Mill Road for approximately one half mile to the northwest of its intersection with Avery Drive. In the 1985 Plan, Muncaster Mill Road is classified as a primary residential road, designated P-6 to the northwest of Avery Road and designated P-9 to the southeast of Avery Road. The realignment would reorient the skewed “T” intersection so that the through movement across the top of the “T” would be between Avery Road and Relocated Muncaster Mill Road. This realignment was intended to address sight distance concerns at the existing intersection and anticipated subdivision activity on the parcels traversed by Relocated Muncaster Mill Road.

The 1995 Muncaster Road and Muncaster Mill Road Highway Classification and Alignment Master Plan Amendment reclassified Muncaster Mill Road from a primary residential road to an arterial roadway, designated A-93, throughout the Plan Area. The mapping shown in the 1995 amendment did not show the realignment described in the 1985 Plan, yet the actual amendment text and County Council resolutions did not address the relocation shown in the 1985 Plan. This Plan removes the realignment of Muncaster Mill Road in the vicinity of Avery Road. It supports a minor realignment in this area that is part of ongoing safety improvements on Muncaster Mill Road.

### **Recommendation**

- Remove the realignment of Muncaster Mill Road (A-93) in the vicinity of Avery Road.

## **Bowie Mill Road Relocated**

The Muncaster Mill Road (A-93) intersections with Bowie Mill Road (A-42) and Needwood Road (P-8) are approximately 600 feet apart. Both intersections are controlled by a traffic signal. The Bowie Mill Road intersection is a “T” intersection and the Needwood Road intersection is a four-leg intersection, with the northeastern leg serving the driveway for Casey House, a hospice facility. During the plan development for Casey House, the property line was established to facilitate a southerly relocation of Bowie Mill Road so that it would intersect Muncaster Mill Road directly opposite Needwood Road.

Based on existing traffic counts at the two intersections, approximately 300 vehicles per hour travel in the peak direction (southbound in the morning and northbound in the evening) between Bowie Mill Road and Needwood Road. This dog-leg maneuver would be simplified if Bowie Mill Road were realigned to meet Needwood Road. A four-leg intersection is also generally preferable, in terms of motorist expectations and traffic safety, to two offset “T” intersections.

Consolidating the travel movements to a single intersection by relocating Bowie Mill Road may result in a poorer level of traffic service at the four-leg intersection, by bringing all turning movements to a single point rather than allowing some conflicting maneuvers to occur simultaneously at two separate intersections. If the existing segment of Bowie Mill Road between Muncaster Mill Road and Relocated Bowie Mill Road is closed or otherwise disconnected, traffic moving between the northwest leg of Muncaster Mill Road and the northeast leg of Bowie Mill Road would be relocated, resulting in a longer travel distance and an increase in the critical lane volume (CLV) at the Needwood Road intersection.

This adverse affect could be alleviated by retaining the existing roadways and constructing Bowie Mill Road relocated. This design would increase the number of stream crossings, and is therefore not preferred due to environmental effects. This Plan therefore recommends retaining the dog-leg configuration. The State Highway Administration should conduct further study of operational improvements, such as extending or widening selected turn lanes and examining signal phasing, to enhance safety and reduce delays at these closely spaced intersections. Should a subsequent public agency study or subsequent subdivision proposal satisfy both transportation and environmental objectives by relocating Bowie Mill Road to meet Needwood Road, such a proposal should be consistent with this Plan.

#### Recommendation

- Retain the existing configuration of the intersections of Muncaster Mill and Bowie Mill Roads and of Muncaster Mill and Needwood Roads.
- Support a State Highway Administration study of operational improvements and consider environmentally and operationally appropriate relocations consistent with this Plan.

### Redland Road Classification

The 1985 Plan classified Redland Road as a primary residential street (P-7) from Muncaster Mill Road to the Plan boundary at Crabbs Branch Way. The recommended right-of-way is not specified in the 1985 Plan, but Section 49-34 of the County Code identifies a 70' recommended right-of-way for primary residential roads in cases where a master plan does not otherwise indicate a recommended right-of-way.

This two-mile section of Redland Road operates more as an arterial roadway than as a primary residential roadway. This is due to several factors as described below:

- **Network connectivity:** The 1985 Plan envisioned an extension of Shady Grove Road (M-42) including a direct connection across Rock Creek to Muncaster Road in the vicinity of the Agricultural History Farm Park. The 1995 Muncaster Road and Muncaster Mill Road Highway Classification and Alignment Master Plan Amendment removed the M-42 extension and reclassified Muncaster Road from a major highway to an arterial roadway (A-102) between Olney-Laytonsville Road (M-60) and Muncaster Mill Road (reclassified as A-93 in the 1995 amendment). To the west of the Planning Area boundary at Crabbs Branch Way, Redland Road is classified as a four-lane industrial roadway (I-9) with an 80' right-of-way. Redland Road is the most direct connection between Muncaster Road and the Shady Grove Metrorail station.
- **County Code guidance:** Section 49-34 of the County Code describes an arterial roadway as any road other than a business district road that connects two state or federal roads and will be used primarily for through traffic. Redland Road connects Muncaster Mill Road (MD 115) to Rockville Pike (MD 355). To the southwest of Muncaster Mill Road, Redland Road carries an average daily traffic volume of approximately 13,200 vehicles. This volume is forecast to increase only slightly, to 14,200 vehicles, by 2025, if no other changes are made to the east-west transportation network. This volume of

traffic is within the carrying capacity of a two-lane roadway, but substantially higher than would be generated by the neighborhoods that access Redland Road, indicating that it currently functions as a through roadway.

- **Adjacent land use:** The adjacent land use on Redland Road is inconsistent with the residential road classification, including:
  - Three houses of worship: Shady Grove Presbyterian Church, Derwood Alliance Church, and Inglesia Alianza Derwood
  - Commercial frontage between Muncaster Mill Road and Roslyn Avenue

Approximately 40 single-family residences have driveway access onto this two-mile long segment of Redland Road.

- **Planned intersection capacity improvement:** The intersection of Redland Road and Needwood Road is forecast to exceed the Derwood Policy Area congestion standard. Increasing the intersection capacity to attain the congestion standard requires extending a through travel lane on Redland Road from Crabbs Branch Way to a point north of the Needwood Road intersection.

The recommended right-of-way for a rural arterial roadway is 80 feet (two lanes with paved shoulders and an open section) and other arterial roadways (four lanes with sidewalks and curb and gutter) have the same right-of-way dimension. The existing right-of-way on Redland Road varies, with most areas adjacent to subdivided properties having a 70-foot right-of-way.

While these characteristics of Redland Road are common to arterial roadways, the function of Redland Road has not been compromised by its current classification as a primary residential road.

#### Recommendation

- Retain Redland Road as a Primary Residential roadway (P-7) between Muncaster Mill Road and Crabbs Branch Way, with a 70-foot minimum right-of-way. Between Muncaster Mill Road and Needwood Road, two through travel lanes and an open section are recommended. Between Needwood Road and Crabbs Branch Way, a maximum of four travel lanes is recommended as through lanes between the programmed intersection capacity improvements.

## Woodfield Road

Woodfield Road (M-21), also known as MD 124, forms the boundary of the Upper Rock Creek and Gaithersburg Vicinity Planning Areas between Muncaster Mill Road and Warfield Road. The 1985 Gaithersburg Vicinity Master Plan recommends four to six lanes on this segment of roadway. The Maryland State Highway Administration (SHA) has completed facility planning for this roadway and found that throughout the project study area, from Midcounty Highway to Warfield Road, a six-lane cross-section would be required to accommodate forecast 2020 travel



demand so that intersections would operate within the Montgomery Village/Airpark Policy Area congestion standard. The Planning Board and County Council, in commenting on a preferred alternate, recommended that the facility be staged so that four lanes were constructed initially, but concurred that the section should accommodate future widening to six lanes.

#### Recommendation

- The recommended number of through travel lanes on Woodfield Road (M-21) between Muncaster Mill Road and Warfield Road is six.

## **BIKEWAYS**

The *Master Plan of Bikeways* is a functional master plan that designates the locations and classes of bikeways throughout the County. There are three bikeway classes. Class I bikeways are separate off-street paths located on one side of a roadway. Class I bikeways are a minimum of eight feet wide and allow two-way bicycle traffic. They can also function as mixed-use paths that can be shared with pedestrians. Class II bikeways are on-street lanes designated for the exclusive or semi-exclusive use of bicycles. They are located on both sides of a roadway, and are designated on the roadway by a five-foot wide marking. Class III bikeways are on-street routes that are designated by signs only. They are shared with motor vehicles.

The purpose of the Bikeway System is to provide routes for people of all levels of experience and ability between parks, schools, neighborhoods and other destinations, as well as to provide direct routes to the Shady Grove Metro Station.

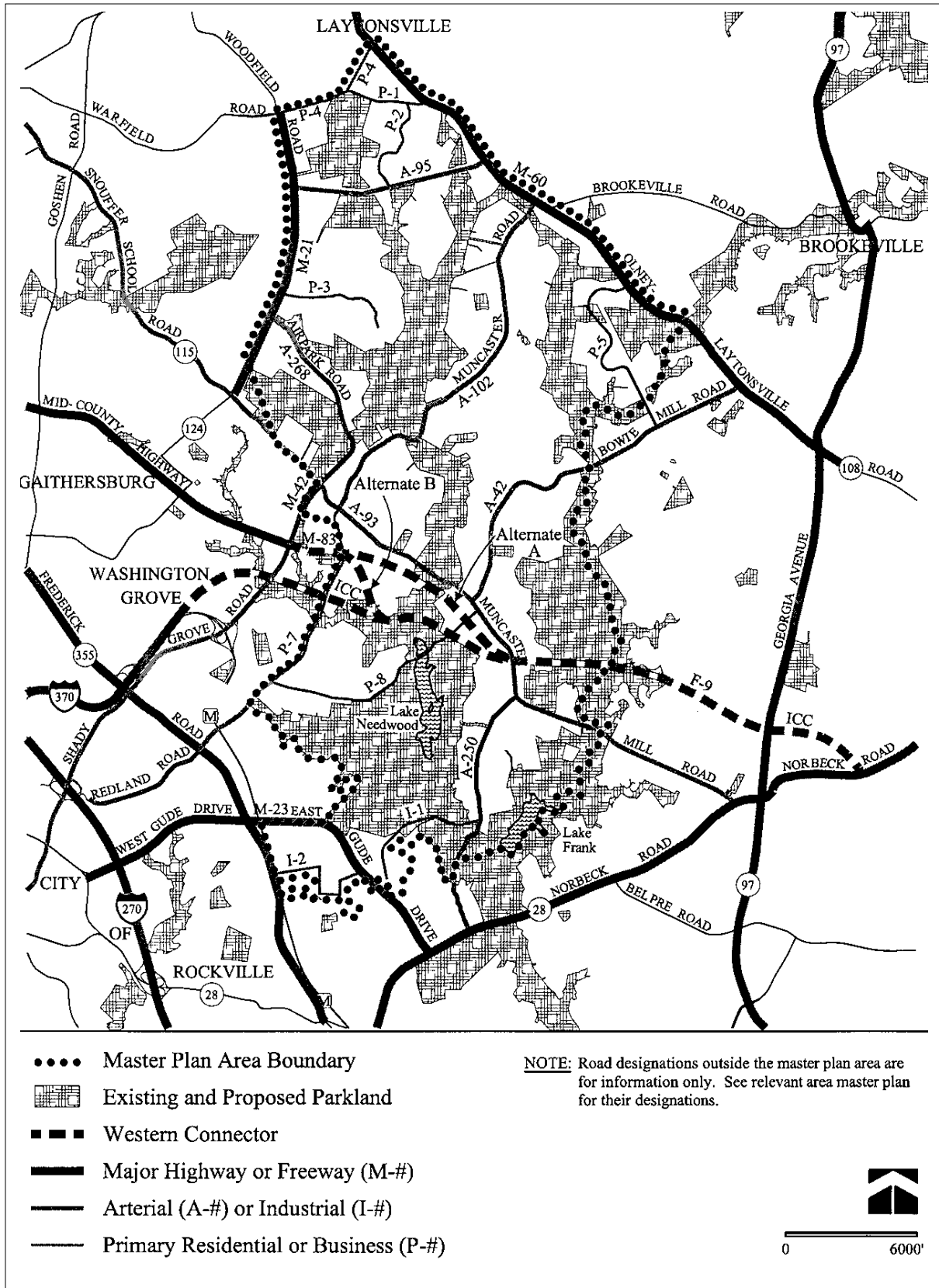
The Bikeway System includes:

- The Agricultural Heritage Bikeway, which will enable bicyclists to reach an important destination, the Agricultural History Farm Park, from both east and west.
- Several bike routes for commuters that lead directly to the Shady Grove Metro Station – Muncaster Road/Redland Road, Bowie Mill Road/Needwood Road, and Woodfield/Shady Grove Road.
- The Magruder Bikeway that runs between Rock Creek and the Shady Grove Metro Station and links two key destinations: Lake Needwood and Magruder High School.

Local bikeways that serve individual neighborhoods should also be provided as new roads and subdivisions are built.

This Bikeway System reflects several changes to the previous bikeway plan. These changes provide improved environmental protection of the streams by moving several proposed bikeways out of the stream valleys and replacing them with other routes, improved direct routes for commuters to the Shady Grove Metro Station; added bike paths to provide routes that are separated from traffic, and improved connections to regional bike routes that extend beyond the Planning Area.

# ROADWAY DESIGNATIONS



## Street and Highway Classifications

Roadway		Limits	Minimum ROW Width (feet)	Number of Travel Lanes <sup>1</sup>
<b>Freeways</b>				
F-9	Intercounty Connector	Redland Road to North Branch of Rock Creek	300	6, divided, plus transitway facility
<b>Major Highways</b>				
M-21	Woodfield Road (MD 124)	Muncaster Mill Road to Warfield Road	120-150 <sup>2</sup>	6, divided
M-23	East Gude Drive	CSX Railroad to Southlawn Lane	120	4, divided
M-42	Shady Grove Road	Mill Run Drive to Muncaster Mill Road	120-150 <sup>2</sup>	6, divided
M-60	Olney-Laytonsville Road (MD 108)	Laytonsville Town Boundary to Plan Boundary	120	4, divided
M-83	Midcounty Highway	Redland Road to F-9	150	4-6, divided
<b>Arterials</b>				
A-42	Bowie Mill Road	Muncaster Mill Road to North Branch of Rock Creek	80	2
A-93	Muncaster Mill Road (MD 115)	Woodfield Road to Redland Road	100	4, divided
A-93	Muncaster Mill Road (MD 115)	Redland Road to North Branch of Rock Creek	80	2
A-95	Fieldcrest Road	Woodfield Road to Olney-Laytonsville Road	80	2
A-102	Muncaster Road	Muncaster Mill Road to Olney-Laytonsville Road	80	2

<sup>1</sup> These are the number of planned through travel lanes for each segment, not including lanes for turning, parking, acceleration, deceleration, or other purposes auxiliary to through travel

<sup>2</sup> Current design plans for these roadways call for six lanes within a 120-foot right-of-way. These plans should be implemented. Future subdivisions should require 150-foot rights-of-way for long term planning purposes.

Roadway		Limits	Minimum ROW Width (feet)	Number of Travel Lanes <sup>1</sup>
A-250	Avery Road	Plan Boundary to Muncaster Mill Road	80	2
A-268	Airpark Road Extended	Woodfield Road to Shady Grove Road	80	4
<b>Primary Residential</b>				
P-1	Dorsey Road	Warfield Road to Olney-Laytonsville Road	70	2
P-2	Sweet Meadow Lane/Belle Chase Drive	Dorsey Road to Fieldcrest Road	70	2
P-3	Cypress Hill Drive	Woodfield Road to Road End	70	2
P-4	Warfield Road	Woodfield Road to Laytonsville Town Boundary	70	2
P-5	Wickham Road	Olney-Laytonsville Road to Plan Boundary	70	2
P-7	Redland Road	Crabbs Branch Way to Needwood Road	70	4
		Needwood Road to Muncaster Mill Road	70	2
P-8	Needwood Road	Redland Road to Muncaster Mill Road	70	2
<b>Industrial</b>				
I-1	Southlawn Lane	Gude Drive to Avery Road	70	2-4
I-2	Dover Road	Gude Drive to Horners Lane	70	2
I-2	Horners Lane	Dover Road to Westmore Avenue	70	2
I-2	Westmore Avenue	Horners Lane to Westmore Road	70	2
I-2	Westmore Road	Westmore Avenue to Road End	70	2

## Overall Recommendations

- Bikeway System routes as described in this Master Plan should be implemented as well as a “finer” system of neighborhood routes. The neighborhood routes should be designated and built when new roads and neighborhoods are built. They should provide connections to the main bike routes as well as circulation within the neighborhoods and connections to local destinations such as nearby parks and schools.
- Roadways that include Class II or Class III bikeways should be improved to meet safety standards before bikeway signs or markings are placed on the road. Two roads in particular are likely to require such safety improvements: Muncaster Road and Redland Road.
- Bikeways should provide access to park trails, which are important destinations.

This Plan makes these recommendations for individual bikeways:

- The Agricultural Heritage Bikeway creates bicycle connections to this important park from east and west. From MD 124 on the west, a Class II bike path should be designated on Cypress Hill Drive. Land newly acquired as part of the development of the Hoover property also can be used. To reach the park from the east, Class I or Class II bike paths should be designated as part of the development of the Fraley and Hendry properties.
- Bikeways can be used as commuter routes to the Shady Grove Metro Station. This Plan recommends a Class II or Class III bikeway on Redland Road, depending on the availability of right-of-way. Class II or Class III bikeways on Muncaster and Bowie Mill Roads should be designated to allow longer distance commuters the opportunity to reach Shady Grove. On Needwood Road, a Class I bike path should be designated and constructed from Redland Road to Muncaster Mill Road to provide access to Rock Creek Park. The Park and Trails section of this Plan contains additional information on connecting bike paths between Rock Creek Park and the Intercounty Connector bike paths. A Class I bike path is included as part of improvements to MD 124.
- The Magruder Bikeway allows connections between Rock Creek and Shady Grove. The Class I bikeway on Needwood Road provides access from Shady Grove to Muncaster Mill Road near Magruder High School. Connecting bike paths should be designated and built as part of the development of the Casey property to serve Magruder High School and connect to the park.
- Class I bikeways should be designated and constructed in the rights-of-way for the Intercounty Connector and the Mid-County Highway.
- A Class II bikeway should be designated on MD 108 from Laytonsville to the Planning Area Boundary near North Branch. A Class I bike path would be desirable along this route, should improvements be programmed for MD 108.

- A Class II bikeway should be designated on Fieldcrest Road between MD 124 and MD 108. A Class I bike path is desirable, if improvements are programmed for Fieldcrest Road.
- A Class II or Class III bikeway should be designated on Muncaster Mill Road between MD 124 and North Branch.
- A Class II or Class III bikeway should be designated on Avery Road between Muncaster Mill Road and the entrance to Rock Creek Regional Park.

This Bikeway System reflects coordination with the *Countywide Parks Trails Plan*. The system includes a Class I bikeway along Needwood Road to connect the ICC bike path and Shady Grove Metro. It also includes a Class I bikeway on Emory Lane, avoiding the North Branch biodiversity area.

## **PEDESTRIAN NETWORK**

This Plan proposes two key concepts for a pedestrian system: a park trails plan that serves both the local community and the entire County, and safe walking routes to local destinations such as schools, local parks, commercial areas and transit, particularly the Shady Grove Metro Station.

Improvements are needed to insure that people who live near these destinations can safely walk to them, instead of driving. For this reason, particular attention should be given to providing for crossings of main roads – such as Bowie Mill Road at Sequoyah Elementary School, and the North Branch Trail crossing at Muncaster Mill Road.

The concept shows the local destinations that should be studied to determine what improvements are needed to provide good access. For schools, this study should be coordinated by MCPS and DPWT through their on-going work to ensure safe routes to schools. Walking routes should be provided within a one-half mile radius of a destination. MCPS standards should be applied when determining appropriate walking distances to local schools.

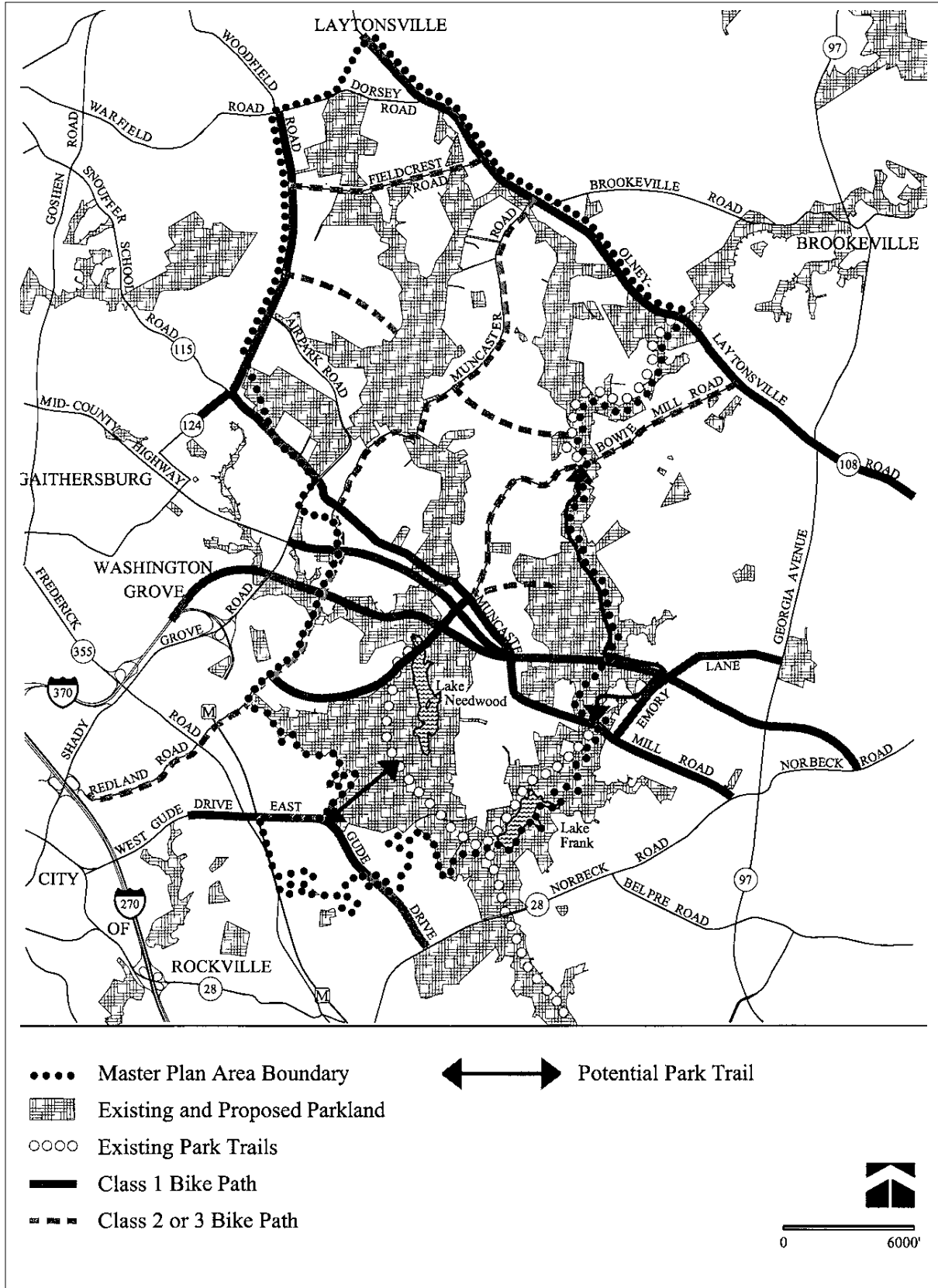
## **PUBLIC TRANSIT**

Travel forecasts indicate that the Upper Rock Creek Planning Area will become increasingly congested in the next twenty years, but a primary goal of this Plan is to preserve the area's low density residential character. A greater emphasis on transit and travel demand management can increase the efficient use of the roads and help reduce congestion. Continued planning for public transit should further examine opportunities to expand public transit services in the Planning Area to complement the environmental goal of the Plan and the two-lane road policy. Because of the area's low density residential character, this Plan does not envision the introduction of rail or other fixed-guideway transit services in the Planning Area. The transit objectives must be met through expansion of efficient bus services and consideration of transit priority projects that enhances these bus services. These planning activities should include consideration of bus priority treatments such as auxiliary "queue jumper" lanes that may require additional right-of-way beyond that indicated in the Street and Highway Classification table.

## Bikeways

<b>Ref. No.</b>	<b>Bikeway</b>	<b>Location</b>	<b>Type</b>
DB-14	Needwood Road	Redland Road to Muncaster Mill Road (MD 115)	Shared-use path (Class I)
DB-19	Woodfield Road (MD 124)	Gaithersburg Vicinity Plan Boundary to Warfield Road	Dual bikeway (Class I and either Class II or Class III)
BL-20	Bowie Mill Road	Muncaster Mill Road (MD 115) to North Branch of Rock Creek	On-road (Class II or III)
SP-28	Muncaster Mill Road (MD 115)	Gaithersburg Vicinity Plan Boundary to North Branch of Rock Creek	On-road (Class II or III)
BL-29	Redland Road	Crabbs Branch Way to Muncaster Mill Road	On-road (Class II or III)
BL-30	Shady Grove Road	Muncaster Mill Road (MD 115) to Midcounty Highway	On-road (Class II or III)
BL-31	Fieldcrest Road	Woodfield Road (MD 124) to Olney-Laytonsville Road (MD 108)	On-road (Class II or III)
SP-36	Olney-Laytonsville Road (MD 108)	Town of Laytonsville to Olney Plan Boundary	Shared-use path (Class I)
SP-40	ICC	Redland Road to North Branch of Rock Creek	Shared-use path (Class I)
SP-51	East Gude Drive	CSX Railroad to Southlawn Lane	Shared-use path (Class I)
SP-55	Airpark Road	Woodfield Road (MD 124) to Muncaster Mill Road (MD 115)	Shared-use path (Class I)
SP-70	Midcounty Highway Extended	Redland Road to ICC	Shared-use path (Class I)
B-1	Muncaster Road	Olney-Laytonsville Road (MD 108) to Muncaster Mill Road (MD 115)	On-road (Class II or III)
B-2	Cypress Hill Drive	Woodfield Road (MD 124) to Rock Creek Stream Valley Park	On-road (Class II or III)
B-3	Casey property internal street system	Muncaster Road to North Branch Stream Valley Park	On-road (Class II or III)
B-4	Avery Road	Muncaster Mill Road (MD 115) to Rock Creek Regional Park	On-road (Class II or III)
B-5	Agricultural Bikeway	Hendry property internal street system from Muncaster Road to Little Spring Road, Little Spring Road from Hendry property to Fraley Farm Road, Fraley Farm Road from Little Spring Road to Griffith Farm Road, Griffith Farm Road from Fraley Farm Road to Fraley property, Fraley property internal street system from Griffith Farm Road to North Branch Stream Valley Park	On-road (Class II or III)

# BIKEWAYS





Public transit serves two constituencies. Some users choose transit as a competitive alternative to auto travel; others are transit-dependent and auto travel is not an option. Upper Rock Creek has both types of users and requires a transit plan which addresses the needs of both groups. Transit is an attractive option where development densities are sufficiently high to generate travelers on shared routes. Areas can then be served by vehicles operating on fixed routes or schedules. The existing fixed-route bus services are generally oriented toward the Shady Grove Metrorail Station.

## **TRAVEL DEMAND MANAGEMENT**

Travel Demand Management (TDM) describes a range of policies and programs designed to discourage use of the single-occupant auto and to encourage alternative forms of travel, including transit, ridesharing, bicycling, and walking. These policies and programs range from regional and countywide information and education programs to employer-based financial incentives.

Montgomery County has legislated TDM activities in areas of concentrated commercial development with high traffic congestion. In these areas, a Transportation Management Organization (TMO) is established to implement and monitor TDM activities. The Shady Grove Share-a-Ride District includes a portion of the Derwood area near the Shady Grove Metrorail Station.

