

- The County's hiker-biker park trails receive more than 2 million annual park user visits. In addition, forty-one (41) percent of respondents to the 1997 Parks, Recreation and Open Space Survey for Montgomery County indicated use of paved park trails for bicycling.

Clearly, bicycling plays a significant role in the County's --and region's--transportation system. Equally clear, however, is that there are many opportunities to increase the levels of bicycling for many types of trips.

Existing County Bikeway System

The County currently has more than 160 miles of existing bikeways on which bicyclists can ride. This includes 45 miles of hard surface hiker-biker park trails, 101 miles of shared use paths along county and state roads, and 17 miles of bike lanes. The County also has an undetermined number of miles of signed shared roadways, i.e., "bike routes". Hiker-biker trails are considered part of the countywide bikeway network, but are not addressed in this plan.

Most of the County's hiker-biker trails have existed since the 1970s and 1980s when the County and MNCPPC were acquiring thousands of acres of parkland, especially along stream valleys, and constructing miles of trails like the Rock Creek Trail, the Sligo Creek Trail and the Paint Branch Trail. The Capital Crescent Trail (CCT) is perhaps the most prominent exception to this; the County and MNCPPC constructed the CCT in the early and mid 1990s on an abandoned rail corridor. Additionally, since the early 1990s numerous park trail connectors and small local park trails have been added through subdivision review and by the parks CIP. Most recently, the County also has initiated several new hiker-biker trail projects, including the Matthew Henson Trail and the North Bethesda Trail.

This contrasts with shared-use paths along County and State roads which, to a large extent, have been constructed in the last ten years, built mostly by developers as part of subdivision approval or by the County or State as part of road improvement projects. The same can be said about bike lanes, which have only been considered and/or added to County or State road improvement projects in the last few years through the County's bikeway program. Shared roadways (aka bike routes) have been designated in the

County for 25 years or more, but many roads have been signed only in the last few years by DPWT and numerous roads that currently serve as key bicycle routes are not yet signed.

Municipal Bikeway Connectivity

Rockville Bicycle Master Plan

The City of Rockville developed a Bikeways Master Plan in 1998, which replaced the 1981 plan. A new plan update is underway and expected to be complete in late 2003. The 1998 plan divided recommendations into five "projects":

- 1) Rockville Bicycle Beltway/Millennium Trail. This project consists of bikeway loop around the City, on Wootton Parkway, MD 28/First Street, and Gude Drive. Most of the loop is shared use path, although one short segment is shared roadway.
- 2) Access to Schools. This series of projects essentially forms the spokes from the beltway to the schools within the City. Most facilities along high volume roadways are recommended as shared use paths or shared roadways, while only a few are bike lanes.
- 3) Link Metro Stops and complete pathways in southeast quadrant of the city. This project mostly consists of new or improved shared roadways that connect the Metrorail and MARC stations.
- 4) Complete pathways in the northeast quadrant. This project provides parallel access to Rockville Pike via bike lanes and shared roadway facilities along a series of roads that parallel MD 355. The draft revision of the Bikeway Master Plan calls for a shared use path along MD 355.
- 5) Miscellaneous Connections. This project recommends a new shared use path on the MD28 bridge across I-270, a shared use path connection from Gude Drive to the Rock Creek Trail, a shared use path along MD 355 from Unity Bridge to the northern City limits, and a shared use path along MD 355 through the Woodmont Country Club property.

The plan also recommends design guidelines for the three basic types of bikeways as well as bicycle parking. It recommends policies for new development, a bikeway maintenance program and the continuation of a citizen bicycle advisory committee.

The Millennium Trail, as well as connections to the Rockville Metrorail and MARC stations, is shown as part of the countywide bikeway network (described in Chapter 2) in order to show important major connections. The Trail also provides important connections to shared use paths on Falls Road, Seven Locks Road, MD 355 and MD 28.

Other bikeways are shown on the countywide bikeway network map because they form parts of important connections to countywide destinations identified in this plan, including the Rockville Metrorail and MARC stations.

Gaithersburg Bikeways and Trails Master Plan

The City of Gaithersburg adopted its Bikeways and Pedestrian Plan as part of the City's Master Plan in 1999. The plan features numerous goals and objectives including Smart Growth policies, education objectives and training/law enforcement. The City is currently updating the plan which is scheduled to be complete by December 2004.

The City's plan includes planning and design recommendations and a pedestrian plan element. The plan seeks to overcome physical constraints by directing staff to work closely with state and county officials when major transportation projects take place in the City. A recent example of this is the bicycle underpass that has been constructed under I-270 along West Diamond Avenue. This connection is nearly complete and will provide a bicycle link between areas west of I-270 (MD 117) and Olde Town Gaithersburg.

The Bikeways and Pedestrian Plan update will include new goals to overcome additional physical constraints in order to create a connection from Olde Town Gaithersburg to the Shady Grove METRO station area. The current plan also has a policy that directs City Staff to take a "multi-modal approach by emphasizing walking and riding to existing and future transit nodes."

New bikeway connections are planned between the City's densely developed areas such as the Kentlands and Lakelands subdivisions and Washingtonian Center. Connections between these densely developed areas and transit stops (such as Shady Grove and the MARC station in the City) will be incorporated into the plan revision. In addition, The Muddy Branch shared use path planned by the county will connect the C&O Canal to the City. The City is working to continue the link into the center of Gaithersburg and to other parks such as Seneca Creek State Park.

Major proposed bikeways in Gaithersburg connect to the countywide bikeway network and also are shown on the map, including:

- Clopper Road (MD 117) - shared use path from Seneca Creek State Park to MD 355
- Muddy Branch Road - shared use path from MD 28 to MD 117
- Longdraft Road - shared use path from MD 124 to MD 117
- Great Seneca Highway - shared use path - whole portion inside City limits
- MidCounty Highway - shared use path - whole portion inside City limits
- Eastern connection to Gaithersburg MARC - signed shared roadway from MD 124 to Stationshouse Court to Victory Farm Drive to Girard Street to Diamond Avenue to Summit Avenue.
- MD 355 - signed shared roadway or bike lanes from City limit to City limit

Finally, the City requires bike parking and bikeway improvements, including the reservation of public improvement easements, on all new development projects (mostly office and residential projects) within the City that are adjacent to a planned bikeway.

Regional Bikeway Connectivity

Many County and State roads cross Montgomery's borders. As such, any existing and proposed bikeways along these roads likewise cross county borders and should not unnecessarily terminate. Bicyclists in Montgomery County frequently travel to destinations outside the County, and bicyclists from adjoining jurisdictions fre-

quently travel into Montgomery County. It is therefore important to examine bikeway plans for, and coordinate with, surrounding jurisdictions. Frederick County, Howard County, Prince George's County and the District of Columbia form the border for Montgomery County, as well as Loudoun and Fairfax counties in Virginia. Howard County does not have an approved and adopted bicycle master plan, but other jurisdictions either have approved and adopted plans or are in the process of updating their bicycle master plans.

Frederick County

Frederick County adopted its Bikeways and Trails Plan in 1999. The plan features at least three designated on-road bikeways and two off-road multi-use trail that connect to Montgomery County. The plan recommends a new shared use path along the I-270 Transitway from the City of Frederick MARC station to the County line, with the expectation that the path would continue to the Shady Grove Metrorail Station, in part along the Corridor Cities Transitway. The plan also recommends two on-street bikeway facilities that connect to Montgomery County, one along MD 80 (Fingerboard Road) and the other along MD 28 (Dickerson Road). The plan does not recommend the type of facility improvement, but rather simply identifies these roads as potential bikeways. The CBFMP identifies signed shared roadways to connect to these bikeways.

Prince George's County

As part of its Master Plan of Transportation, Prince George's County is updating its 1975 Countywide Trails Plan to include a pedestrian, bicycle and trail element. In advance of this update, the county has developed a technical report that outlines the methodology for updating the plan.

Several bikeways connect to Montgomery County's countywide bikeway network as proposed in this plan. A proposed shared use path along MD 198 connects with a shared use path in Montgomery County, as do proposed shared use paths on Greencastle Road, Briggs Chaney Road, Cherry Hill Road and New Hampshire Avenue/MD 650. In addition, the hiker-biker trail along the ICC will span both counties.

District of Columbia

The District of Columbia is updating its Bicycle Master Plan in 2003/2004. Numerous on-road and off-road bikeways connect with Montgomery County facilities. More than 18 miles of the Rock Creek Trail provides a nearly continuous off-road shared use path from Lake Needwood to the District. The Metropolitan Branch Trail is a eight mile shared use path/on-road bikeway connecting Union Station with downtown Silver Spring and the Silver Spring Metrorail Station. Other connections to the countywide bikeway network include:

- MacArthur Boulevard - Bike lanes for the first few hundred feet that pass through Sibley Memorial Hospital will connect to newly proposed bike lanes in county, as well as the shared use path scheduled to be upgraded in 2004-2005.
- River Road - shared roadway connects with newly proposed shared roadway in the county
- North Portal Drive - shared roadway will connect to newly proposed shared roadway and proposed shared use path along Colesville Road (MD 384) via the 16th Street traffic circle
- Piney Branch Road - proposed bike lanes in the District will connect to proposed shared roadway in the county
- New Hampshire Avenue - proposed bike lanes or shared roadway in the District will connect to planned shared use paths in the county

Loudoun County

Loudoun County will adopt its first ever bicycle and pedestrian mobility master plan in the fall of 2003. The draft plan is very comprehensive, including the following elements:

- A physical network of on- and off-road bicycle and pedestrian facilities,
- Policies to guide future planning and design of roads and land development and to ensure a high level of bicycle and pedestrian service
- Policies that address school, park, transit and trail access
- Policies that address facility maintenance and management, education, encouragement, safety, enforcement and institutional capacity,
- Guidance regarding funding strategies and opportunities, a design toolkit, and four case studies

The plan identifies more than 18 points along the borders of the county where interjurisdictional connections are important; three of these are on the Frederick County Border and three on the Montgomery County border, along the Potomac River.

The Loudoun Plan indicates the county's interest in exploring the potential to expand ferry connections across the Potomac River to Montgomery County from Algonkian Regional Park or at the historic Edwards Ferry Location. Connectivity to the C&O Canal Towpath (National Park Service) and other destinations in Montgomery County are desired. The potential ferry services would be for bicycles and pedestrians only (no automobiles) and might be only seasonal or weekend services. Currently, White's Ferry provides the only cross-river bicycle and pedestrian access between Montgomery and Loudoun Counties.

The Loudoun Plan also stresses the importance of improving bicycle and pedestrian access on the three Maryland SHA bridges that cross the river, when these bridges are rehabilitated or replaced: U.S. 340, MD 17 (Brunswick Br.), and U.S. 15 (Point of Rocks Br.). The last two are important for access to the MARC stations in Maryland, all three are important for access to the C & O Canal. Improvements to these bridges would increase overall connectivity to Virginia destinations for Montgomery County bicyclists, and increase the number of loop ride options that would be available.

Plan Response:

- *This plan recognizes the importance of maintaining and improving connections between Loudoun and Montgomery counties, including improving conditions along Whites Ferry Road. The bicycle-pedestrian ferry concept is worth further study. However, it is unclear what additional benefits the Edwards Ferry location would provide; the crossing at Whites Ferry is only a few miles upstream. A location further downstream would be more desirable, although there appear to be few potential locations for additional crossings.*

Fairfax County

The American Legion Bridge provides the only connection between Montgomery and Fairfax counties. The bridge currently is not designed to accommodate bicycles. This plan recommends that a shared use path be added to the American Legion Bridge when a new deck is constructed. This path most likely would connect to the MacArthur Boulevard shared use path in Montgomery County, and since it would pass over the C&O Canal Historic Park, would require coordination with the National Park Service. Connections to the Fairfax County bikeway system require further study. The September 2003 draft of the Northern Virginia Regional Bikeway and Trail Network Study identifies the bridge as a connection point between the counties as well.

Multimodal Travel

The local one-way average commute to work is approximately 15 miles (2001 State of the Commute). Not many people are willing to bicycle that distance. However, bicycling offers numerous opportunities for shorter, multimodal trips in the County. Bicycling can be an easy and inexpensive way to get to a Metrorail or MARC station. Providing opportunities for bi-modal travel (biking and transit) is a major focus of this plan.

Montgomery County features one of the most extensive transit networks in the region. The County is serviced by Metrorail, MARC, Metrobus, Ride-On and other smaller locally-oriented bus systems. Improving connectivity to Metrorail and MARC stations, as well as proposed Corridor Cities Transitway stops, is the first step to ensuring bi-modal transportation options are available to the County's residents.

A limited amount of parking for automobiles exists at many Metrorail stations. Arriving by bicycle could alleviate the need for people to compete for limited parking and allow them to get some physical activity at the same time. As noted previously, ninety percent of county residents live within a five mile radius of a Metrorail station and 76 percent live within a three mile radius. Therefore, these are tremendous opportunities to increase the number of people who travel to transit by bicycle.

Bicycle Accommodations - Transit

Metrorail

As part of WMATA's Ride on Rail Program, bicycles are permitted on Metrorail during non-peak hours. In addition, all Metrorail Station feature a limited amount of bicycle parking. Therefore, ensuring connections to Metrorail stations is a major goal of this plan.

The Metrorail system Red Line passes through some of the most densely populated communities in both the west and east-central areas of the County. There are 13 Metrorail stations in Montgomery County along the Red Line: Bethesda, Forest Glen, Friendship Heights, Glenmont, Grosvenor, Medical Center, Rockville, Shady Grove, Silver Spring, Takoma Park, Twinbrook, Wheaton and White Flint.

The Washington Metropolitan Area Transit Administration (WMATA), which operates and manages both Metrorail and Metrobus, has installed bicycle racks or lockers at all of its Metrorail stations in the County. Appendix A describes bicycle parking and bicycle access conditions for all Metrorail and MARC stations. Racks are free and available on a first-come, first served basis. Lockers must be rented by the month.

WMATA completed an initiative in 2002 to install additional bike racks and lockers at all Maryland stations. WMATA planners estimate that current facilities should meet demand for at least the next five years. WMATA does not anticipate the need to study bike parking at Maryland Red Line stations again until 2008.

WMATA can only install bicycle racks and lockers on property owned by WMATA. The County owns property around certain stations; however, it has not yet installed bike-parking facilities on these properties. To date, only WMATA has installed bike parking near Metro stations.

Local and Regional Bus Transit

All 1,450 of the region's Metrobuses are equipped with racks to carry up to 2 bikes per bus. The bikes on-bus program completes an important missing link in mass transit access for bicyclists in the Washington D.C. region. Bike racks are also mounted on the front of most of Montgomery County's Ride On buses, making longer distance bike-on-bus connections possible. There is no fee for bringing a bike on a bus or on Metrorail. Unlike Metrorail, bikes are allowed on buses even during rush hours.

MARC

There are eleven MARC stations in Montgomery County: Silver Spring, Kensington, Garrett Park, Rockville, Washington Grove, Gaithersburg, Metropolitan Grove, Germantown, Boyds, Barnesville and Dickerson. Only 5 of these are fully operational, staffed stations with large parking lots and only two feature adequate bicycle parking, largely due to being located adjacent to Metrorail stations. Bicycles are not permitted on MARC Trains, however, MTA has considered the issue in the past and may revisit it again in the future should the demand for such service increase.

Future Transit Corridors

Providing connections to other future transit corridors is an important component of this plan as well.

- Bi-County Transitway will provide high capacity transit from Bethesda to New Carrollton. It incorporates the former Georgetown Branch Purple Line western segment (Bethesda to Silver Spring) and eastern segment (Silver Spring to New Carrollton) into one comprehensive project. Both light rail and bus rapid transit alternatives are being evaluated. Maintaining a high quality shared use path along the western segment remains an essential element of the project.
- Corridor Cities Transitway is a proposed transit alignment within the I-270 corridor. It is approximately 13.5 miles in length and generally runs northwest beginning at the Shady Grove Metrorail Station and travels into Frederick County. The CCT passes through or adjacent to the numerous business and research parks that dot the I-270 Corridor. Two alternatives are still under consideration: 1) a double track Light Rail Transit system; and 2) Bus Rapid Transit. Both alternatives feature 17 stops and a hiker biker trail along its entire length. Numerous countywide bikeways connect to the CCT.
- Georgia Avenue Busway. A busway route is also planned for the Georgia Avenue corridor connecting Olney with Glenmont Metrorail station. The 9-mile route would accommodate both express and local bus service primarily in the median. A shared use path along the busway's entire length

is planned as well. This path will connect with numerous countywide bikeways and park trails including MD 108, the ICC bike path, MD 28/Norbeck Road, Bel Pre Road and the Matthew Henson Trail.

Park and Ride

Many of the County's 18 park and ride lots feature bicycle racks and/or lockers. Bike-and-ride provides yet another option for bicyclists who do not want to bicycle commute for long distances, but are willing to bicycle for shorter distances perhaps less than five miles in length. Since many of the park and ride lots are located along major highways and arterials, for which most have an existing or proposed bikeway, bicycle access to these parking lots is expected to be adequate. A major future challenge for the County will be the proper administration of bike lockers at these facilities.

Bike Stations

The County and WMATA are coordinating to develop the Silver Spring Transit Center. A small but significant component of this transit center is a Bike Station. The goal of a Bike Station is to accommodate and encourage multimodal connectivity. With the Metropolitan Branch Trail, the Georgetown Branch Trail and the Wayne Avenue Green Trail all connecting to or passing near to the Silver Spring Transit Center, the county recognizes that offering bicyclists the facilities they need to park their bike and take transit is important.

The Bike Station likely will feature a changing area, showers, bike lockers, bike rentals and valet bicycle parking. It also likely will have a bike store where bike commuters could purchase supplies and small items. There are only a few dozen bike stations throughout the entire U.S., and this would be the first in Maryland and the D.C. region.

Bicycle Parking

Adequate bicycle parking at destinations is a critical element of the County's bicycle network. Bicycle racks increasingly can be found throughout the County at major employment centers and shopping centers. They also can be found extensively in the County's central business districts.

Section 59-E-2.3 of the County's zoning ordinance will ensure that all future development provides bicycle parking facilities. It currently requires that all parking facilities containing more than 50 parking spaces shall provide one bicycle parking space or locker for each 20 automobile parking spaces in the facility. Not more than 20 bicycle parking stalls or lockers shall be required in any one facility.

In addition, the ordinance states that bicycle parking facilities shall be so located as to be safe from motor vehicle traffic and secure from theft. Interior storage and lockers are encouraged in order to provide protection from the elements. They shall be properly repaired and maintained. The County's subdivision review policies are discussed in more detail in Appendix A.

The Planning Process

The countywide bikeways plan update began as part of the then-called Master Plan of Countywide Trails and Bikeways. When the planning process began in 1997, the work program and time frame for the trails plan and the bikeways plan were the same.

An update to the 1978 Master Plan of Bikeways map and text within the Trails Master Plan timeframe was anticipated. However, due to other work program priorities, updating the 1978 Master Plan of Bikeways was not possible as part of the trail plan.

The Planning Board decided to separate the plan for park trails from the plan for bikeways and directed staff to complete the park trails plan and to defer the bikeways plan. At the conclusion of the July 17, 1998 work session the Planning Board directed staff to re-title and re-format the plan to become the Countywide Park Trails Plan.

The plan process for the countywide bikeway plan stalled until October 2002 when the Commission hired a new bikeway planner. After months of research, internal staff coordination, and interagency coordination, an initial staff draft of the countywide bikeway map showing nearly 500 miles of existing and planned bikeways was released to the public in June 2003. The Commission hosted three public forums designed to solicit feedback and comments on this new countywide bikeway network. During sum-

mer 2003, staff compiled and responded to all the comments received and presented the staff draft of the plan to the Planning Board on October 23, 2003. A public hearing was held on December 11, 2003 at which 16 people testified and an additional 15 people submitted written testimony. The Planning Board held the first of three worksessions on February 5, 2004 and the second on March 11. The third is scheduled for April 22, 2004 during which the Planning Board expects to approve the public hearing draft as the Planning Board (Final) Draft and transmit the plan to the County Council and the County Executive.

In preparation of this countywide bikeways plan, transportation planning staff regularly consulted an informal technical advisory group. The Plan's TAG members are listed in Appendix G. In addition, the Montgomery County Bicycle Action Group (MCBAG), the Washington Area Bicyclist Association (WABA) and the Montgomery bicycle Advocates (MOBIKE) also provided regular input and guidance to the plan.

CHAPTER 2

Countywide Bikeway Network Concept Plan

Background

This plan focuses on identifying the “countywide bikeways network”, which includes bikeways of countywide significance. **Countywide bikeways form the basic structure or framework of the County’s bikeway network.** These bikeways are expected to carry a substantial share of long distance bicycle traffic in the county, for recreation and transportation, as well as most of the bicycle traffic to transit centers, activity centers, municipalities and central business districts.

This plan attempts to achieve a balance of on-road and off-road bicycling accommodations, providing bikeway facilities separated from motorized traffic (e.g., shared use paths and bike lanes) as well as shared use roadways (Class III bikeways) that often provide critical local connections or long distance recreational bicycling in the County’s rural areas. Where both on-road and off-road accommodation may be desirable, the plan also recommends certain roadways for dual bikeways, which are road corridors with two types of bikeways, either shared use path and bike lanes, or shared use path and shared roadway.

The countywide bikeway network is largely composed of bikeways identified and approved in previous community master plans, sector plans, and functional plans such as the 1998 Countywide Park Trails Plan. Several new bikeways are proposed by this plan, mostly to fill in gaps and improve regional, countywide connectivity, as well as to enhance access to transit stations and community facilities. The plan occasionally makes a recommendation for a different type of bikeway for a particular segment of road than currently proposed in existing plans.

Table 2-2 at the end of this chapter describes all countywide bikeways in more detail. The recommended countywide bikeway network is depicted on the large map that accompanies this plan.

Bikeway Types and Desirable Applications

There are generally three types of bikeways recognized by this plan for including in the countywide bikeway network:

- 1) Existing or proposed shared use paths
- 2) Existing or proposed bike lanes; and
- 3) Key signed shared roadways that provide direct or indirect connections to transit centers, activity centers, employment centers and central business districts. Signed shared roadways are often simply called bike routes.

Certain types of bikeways are generally more appropriate for certain types of roads. Shared use paths are more appropriate where there are fewer driveways and intersecting roads. Bike lanes are more appropriate in more urban areas where a defined space for bicyclists is desired. Shared roadways are appropriate where motor vehicle speeds and volumes are lower, where inadequate right-of-way make bike lanes or a shared use path infeasible, or in more rural areas or areas where adequate right of way exists for bikeable shoulders. In many cases, more than one type of facility may be appropriate or desirable, what this plan calls “dual bikeways.”

Table 2-1 on the following pages includes general characteristics, benefits, desirable applications and issues associated with the three main types of bikeways. The information about desirable applications is partly derived from research conducted by Michael King on bicycle facility selection guidelines. These guidelines are not intended to be unbreakable rules, but rather guiding principles that help determine which type(s) of bikeways are more appropriate for certain types of roads and traffic conditions.

Table 2-1
Types of Bikeways and Applications

Bikeway Type	General Characteristics	Benefits	Desirable Applications	Discussion
Shared Use Path (formerly called Class I Bikeway)	<ul style="list-style-type: none"> ▪ Two-way bikeway located within right-of-way of a road or Transitway ▪ Separated from travel lanes by a landscape panel ▪ If along road, located on one side of a road and intended for two-way bicycle travel ▪ 8-12 feet wide ▪ 8-10 feet vertical clearance ▪ Built to AASHTO standards ▪ Signs meet MUTCD guidelines ▪ Asphalt or Concrete ▪ Implemented by transportation agency, or under supervision of transportation agency ▪ Maintained by transportation agency ▪ Motor vehicles are prohibited ▪ May be part of a dual bikeway (road also is proposed for bike lanes or shared roadway) ▪ Signed as a bike route, unless part of a dual bikeway in which case the on-road bikeway is signed and marked as the official bike route 	<ul style="list-style-type: none"> ▪ Offers dedicated facility completely separate from motor vehicle traffic, fewer potential conflicts with motor vehicles ▪ Preferred type of facility for beginner or intermediate skill levels, especially child bicyclists ▪ Meets the needs of 90-95% of bicyclists ▪ Intended/designed for bicycle travel, but accommodates other users (pedestrians, joggers, roller-bladers) 	<ul style="list-style-type: none"> ▪ Along roads with high speeds (40 mph and higher) and high traffic volumes (15,000 ADT and higher) where complete separation from motor vehicle lanes is desired ▪ Along roads with few driveways and intersections, especially commercial driveways unless it connects to a local designation (retail center, school, library, community center, neighborhood park) ▪ Along roads that provide a connection to other shared use paths or to hard surface park trails ▪ In suburban or semi-rural crossroad communities (Olney, Potomac) 	<ul style="list-style-type: none"> ▪ Proper design (good signage and lighting) at intersections and driveway crossings is very important to minimize risk of conflict with motor vehicles ▪ Shared use paths should not be confused with sidewalks which are more narrow and are designed and intended for pedestrians. ▪ Shared use path must be maintained and cleared of debris and overhanging branches to effectively encourage people to use them ▪ For dual bikeways, the on-road bikeway should be recognized as the primary bicycle facility (e.g., signs and marking). The shared use path is considered supplementary.

Table 2-1
Types of Bikeways and Applications

Bikeway Type	General Characteristics	Benefits	Desirable Applications	Discussion
Bike Lanes (formerly called Class II bikeway)	<ul style="list-style-type: none"> One-way facility in roadway, adjacent to motor vehicle travel lanes Bicyclists travel in same direction as motor vehicles Bike lane located on each side of the road (should not be located on just one side) 4-6 feet wide, delineated by striping and marking 4-foot minimum on open section roads, 5-foot minimum on closed section roads, 6-feet may be desirable on high-speed roads (40 mph or higher) If on-street parking is permitted, bike lane is located between parking lane and outermost motor vehicle travel lane Identified by bike lane symbol and signage Designed and constructed to AASHTO and MUTCD standards Signed as a bike route 	<ul style="list-style-type: none"> Provides separated space for bicyclists in the roadway Designed and intended as a travel lane for bicycles only 	<ul style="list-style-type: none"> Urban streets where on-road bicycling is encouraged to minimize need for bicyclist to ride on sidewalks and separation from motor vehicles is desirable. Because urban streets often feature on-street parking, bike lanes are more desirable than shared travel lane; traffic volumes are high, but speeds are low On closed section highways, arterials and primaries with posted speeds under 40 mph; roads that feature wide outside lanes or extra pavement width that easily could be restriped to provide dedicated bike lanes Open section highways, arterials and primaries with posted speeds under 50 mph and that feature shoulders wider than 5 feet and upon which parking along the shoulder is not desired or legal. 	<ul style="list-style-type: none"> Two-way bike lanes on one-side of a road is not recommended; wrong-way riding is leading cause of bicycle accidents Bike lanes must be maintained as part of the roadway; should not collect debris, etc.
Signed Shared Roadway (formerly called Class III bikeway)	Four categories			

Table 2-1
Types of Bikeways and Applications

Bikeway Type	General Characteristics	Benefits	Desirable Applications	Discussion
1) Wide outside (curb) lane	<ul style="list-style-type: none"> Along closed section roads, outermost travel lane is at least 14 feet wide, but less than 16 feet wide Unlike bike lanes or bikeable shoulders, do not feature dedicated, marked space for bicyclists Signed as a bike route 	<ul style="list-style-type: none"> Provides adequate space for bicycle travel in the roadway Allows bicyclist to share the travel lane with motor vehicles, but allows vehicles to pass without having to leave the travel lane or cross the centerline 	<ul style="list-style-type: none"> Along any closed section highway, arterial or primary that features adequate right of way and/or pavement width 	<ul style="list-style-type: none"> County policy requires bicycle accommodation for all new roads and as part of all roadway and intersection improvement projects. This is a minimum application that helps the County meet this policy Wide curb lanes wider than 16 feet encourage the undesirable operation of two motor vehicles in one lane Must be maintained properly to keep debris from accumulating along the curb
2) Bikeable shoulder on closed section road	<ul style="list-style-type: none"> Along closed section road, the space (2-3 feet) between the outermost lane markings and the curb. Signed as a bike route, but does not feature any special pavement markings other than stripe between motor vehicle travel lane and curb 	<ul style="list-style-type: none"> If insufficient space exists for bike lanes, this extra space simply provides added level of comfort for bicyclist. Striping the outermost travel lane gives the appearance of narrower roadway and has a traffic calming effect. 	<ul style="list-style-type: none"> Along roads with wide outside lane 15 feet or less but for which designated space for bicyclists is desired and/or traffic calming is needed. 	<ul style="list-style-type: none"> Should not be signed or marked as a bike lane. Bike lanes must be at least five feet on closed section roads. Must be smooth pavement, free of obstructions, and maintained as part of the roadway to keep debris from accumulating along the curb.

Table 2-1
Types of Bikeways and Applications

Bikeway Type	General Characteristics	Benefits	Desirable Applications	Discussion
3) Bikeable shoulder on open section road	<ul style="list-style-type: none"> 2-3 foot space between shoulder stripe and vegetation Smooth pavement (extension of road surface) and free of obstructions 	<ul style="list-style-type: none"> Allow bicyclists to travel along the road edge, which in turn allows motor vehicles to pass without having to cross the centerline. 	<ul style="list-style-type: none"> Along rural or semi-rural roads on which bicycling is popular or desired, but feature narrow travel lanes 	<ul style="list-style-type: none"> Not to be confused with standard 8 foot shoulders intended for motor vehicle emergency pullovers. Must be smooth pavement and maintained as part of the roadway.
4) Local or neighborhood street	<ul style="list-style-type: none"> Bicyclists simply share the road as is; no special accommodations needed Signed as a bike route 	<ul style="list-style-type: none"> Encourages bicyclists to travel along low volume, low speed street to reach major destinations, even if road is only open to local traffic or is one-way permanently or for only for part of the day 	<ul style="list-style-type: none"> Along neighborhood or local streets providing a direct connection to a countywide or local destination. Along road serving as part of an important route to a countywide destination. Along roads making a vital link between two major bikeway corridors 	<ul style="list-style-type: none"> Because routes along local streets tend to be complex and feature numerous turns, effective, well-designed and placed directional signage is paramount.

OTHER BIKEWAY-RELATED FACILITIES

Hiker-Biker Trails

Hiker-Biker trails are hard surface paths mainly located on parkland. These paths provide continuous, long distance bicycling opportunities separated from motorized traffic. Existing and proposed hard surface, hiker-biker trails are identified in the 1998 Countywide Park Trails Plan (see Figure 3-9).

Examples of hiker-biker trails include Rock Creek Trail, Sligo Creek Trail, Paint Branch Trail, Magruder Branch Trail, Matthew Henson Trail (proposed), the Capital Crescent Trail and C&O Canal Towpath.

These bikeways not only offer excellent recreational opportunities, but many also provide direct and convenient access to major local and regional destinations, activity centers and employment centers. A few even provide access to Metrorail and MARC stations. Most of the trails are located within or closely follow stream valleys.

Sidewalks

Sidewalks are often the only option for bicycling along certain roads, especially roads with very limited right of way or with high speeds or traffic volumes.

State law prohibits the use of sidewalks for bicycling except where allowed by local jurisdictions. However, Montgomery County permits bicycling on sidewalks. Some early bikeways used sidewalks as bike routes. While in rare instances this type of facility may be necessary (U.S. 29 crossing the Rachel Carson Greenway), or even desirable for use by small children (near schools, for example), in most cases it should be avoided. Bicyclists travel at a much higher speed than pedestrians, which often leads to conflicts.

Sidewalk bikeways differ from roadside shared use paths. Shared use paths are typically constructed using asphalt and are at least 8 feet wide. Sidewalks, on the other hand, are typically constructed using concrete, are often five feet wide (sometimes four feet) and may feature twists and turns causing poor sight distances. Sidewalks also may feature street furniture such as benches, bus shelters and trash receptacles, whereas these devices are typically not installed on shared use paths. Sidewalks are designed

primarily for pedestrians, while shared use paths are designed primarily for bicycle travel, but can accommodate other users.

Cyclists are safer when they are allowed to function as vehicle operators, rather than as pedestrians. Where constraints do not allow full-width walkways and bikeways, solutions should be sought to accommodate both modes (e.g. narrowing travel lanes or reducing on-street parking). Except for short segments that connect two other bikeways, or segments that function as a designated bike route to a local or countywide destination, sidewalks should not be signed for bicycle use - the choice should be left to the user.

SHA "Bicycle Areas"

As of early 2004, SHA is implementing a new policy in which all reconstructed roads feature a wide (16') outside travel lane. On some roads, they are striping the road to create bike lanes if they are recommended in local plans like this one. But along the rest of the roads, they are creating "bicycling areas."

Bicycling areas can be defined as the space between the outermost lane marking and the curb and gutter pan. This space is often less than three feet wide and therefore does not qualify as a bike lane. (See Figures 2-1 and 2-2). It also is not signed as a bike route unless recommended by this or another master plan, therefore it is not technically a signed shared roadway either. See Chapter 3 for photographs of bike lanes and signed shared roadways.

This space does provide adequate bicycling space along closed section roads where space is constrained and traffic volumes and speeds are too high to officially designate the road as a bike route. (See Appendix E for more information on SHA policies).

Relationship Between Countywide and Local/Neighborhood Bikeways

While this plan focuses on countywide bikeways, it does not preclude the implementation of local/neighborhood bikeways identified in community master plans and sector plans (See Figure 2-7 for map showing local bikeways) or making improvements to existing roads to more safely accommodate on-road, shared roadway bicycling. However, the bikeways in this plan should receive priority consideration for inclusion in the County's Capital Improvements Program (CIP) and/or the state's Consolidated

Transportation Program (CTP) since they form the basis of the County's bikeway network. See chapter 4, Bikeway Implementation, for a detailed discussion of the CIP and CTP.

Unless it provides a vital connection to an employment center, activity center, central business district (CBD) or transit center, or makes a vital connection between two countywide bikeways, this plan does not prioritize and make recommendations for bikeways at the neighborhood level. Neighborhood bikeways are considered community facilities and are only identified, evaluated and designated in community master plans and sector plans. Since some community plans have more adequately addressed and identified local bikeways than others, this plan recommends a methodology for community planners to use during future community planning efforts to identify bikeways and potential bicycling suitability along neighborhood streets. The proposed methodology, intended to provide some consistency to future local bikeway planning efforts. Additional guidance to local planners is provided later in this chapter under "Bicycle Facility Selection Guidelines."

The intent of this plan is to implement countywide bikeways as a first priority over the next decade to ensure that at least the major roads and highways in the county can safely accommodate bicyclists, and that major bikeway connections are being provided. The role of community master plans and sector plans are to identify key neighborhood bikeways that connect to the countywide bikeway network and make connections to local destinations such as schools, libraries, community centers and neighborhood parks. Local bikeways will be implemented in a number of ways including by developers as part of subdivision approval.

Transit Stations/Centers

All Metrorail and MARC stations also were identified as major destinations. Providing opportunities for multi-modal transportation is a major goal of this plan. The County has 13 Metrorail stations and 11 MARC stations. These transit lines take residents to employment centers, CBDs and other destinations throughout the region.

Not everyone is willing or able to ride a bicycle to work. Often the distance to their jobs is a major barrier. However, since many people live within a few miles of transit

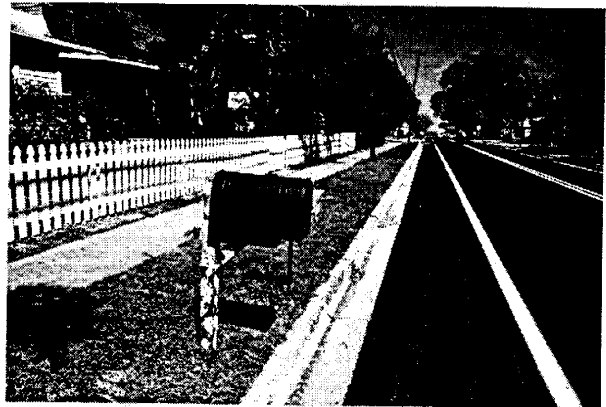


Figure 2-1. Bicycle Area along a road with curb and gutter



Figure 2-2. Bicycle Area along a road without curb and gutter

- Community plans should identify countywide bikeways within the plan boundaries and determine whether these bikeways are existing or proposed at the time of plan adoption.

Relationship to Countywide Park Trails Plan

The Countywide Park Trails Plan (CPTP) discusses how bikeways can “enhance connectivity both between and within park trail corridors.” The Plan states bikeways that have the following characteristics provide the most desirable type of bikeway connectors to parks:

- Safety
- Attractiveness
- High quality pavement surface
- Security
- Good maintenance
- Safe intersection crossings
- Clear, informative signs

The CPTP emphasizes the importance of the I-270 Corridor Bikeway (see Figure 2-3), because “bikeways here will connect the Upcounty and Downcounty hard surface park trail” systems.

Creating an Integrated Bikeway and Park Trail System

The primary focus of the CPTP is trails within the park system. The CPTP map also identifies existing and proposed bike paths that would enhance connectivity between park trails corridors.

Bikeways along roads can be important components of a trail network especially when they offer an opportunity to avoid sensitive environmental features in parks. In Clarksburg, shared use paths along future roadways will be part of the Clarksburg Greenway Trail system so that sensitive environmental features in certain stream valleys can be avoided. This same approach will be used in the Muddy Branch Stream Valley Corridor. Future trail users will leave the park in the lower portion of the stream valley and follow a proposed shared use path along Travilah Road in order to protect high quality forests and avoid steep slopes.

The Countywide Bikeways Functional Master Plan has been developed in accord with the goal of providing connectivity to major park destinations and the major park trail corridors.

Bikeway Planning Recommendations from Countywide Park Trails Plan

The Countywide Park Trails Plan included a number of recommendations to strengthen the bikeway planning process and to help assure that the bikeways provide good access to the Countywide Park Trails system. See Appendix B *Countywide Park Trails Plan recommendations and Countywide Bikeway Functional Master Plan responses*

Activity Center Analysis

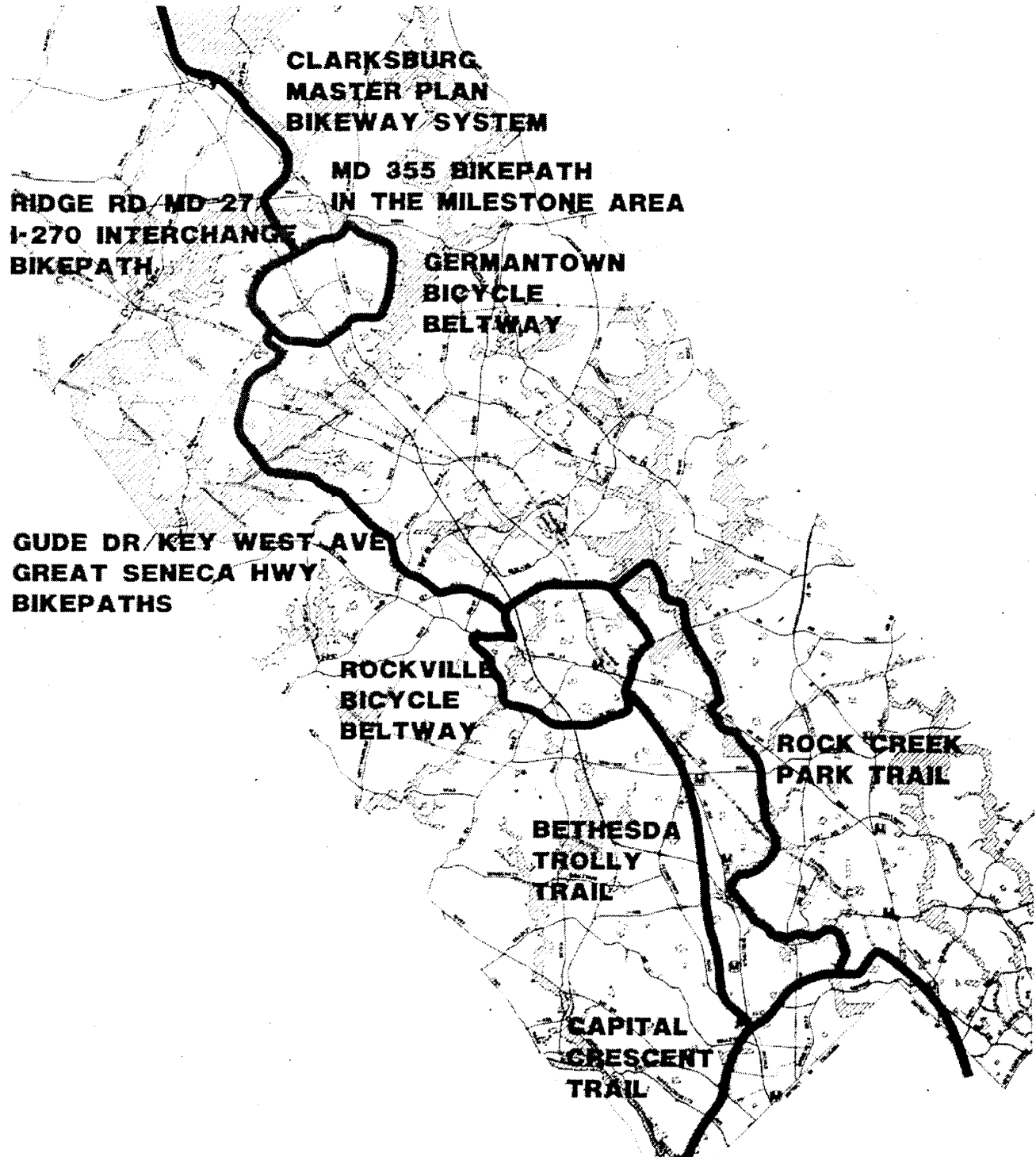
The plan identifies the following activity centers as major destinations and strives to provide adequate bicycle access to each.

Municipalities, Central Business Districts (CBDs) and Town Centers

These areas feature the majority of the county’s employers, office and commercial space, retailers and services. Providing bicycle access to the following areas was of primary importance during the planning process:

- City of Rockville
- City of Gaithersburg
- City of Takoma Park
- Town of Laytonsville
- Town of Poolesville
- Town of Barnesville
- Town of Kensington
- Silver Spring CBD
- Bethesda CBD
- Wheaton CBD
- Germantown Center
- Clarksburg Town Center
- Olney Town Center
- Damascus Town Center

FIGURE 2-3.
I-270 Corridor Bikeway Concept
(1998 Countywide Park Trails Plan)



stations, riding a bicycle to transit is a realistic option. This plan makes recommendations for improving access to Metrorail and MARC stations and for ensuring these connections are safe and as convenient as possible.

Major Employment Areas/Office Parks

The plan also examined bikeway connectivity to employment areas and major office parks not located within a CBD or municipality. The Corridor Cities Transitway and adjacent shared use path will provide excellent connectivity for office and employment areas in the I-270 Corridor. Other employment areas of concern included:

- US29 Corridor/West Farm Technology Park/
Montgomery Industrial Park
- North Bethesda/White Flint
- Rock Spring Park
- Medical Center/NIH

A particularly interesting trend in the county involves people who travel to their jobs from Metrorail stations in reverse-commute style. WMATA bike locker rental records reveal that a substantial percentage of people who rent bike lockers at Metrorail stations in Montgomery County live in other jurisdictions. Transit planners speculate that some of these people commute by rail into the County then ride a bicycle from the transit station to their office.

Guidance to Local Plans

The updated Countywide Bikeways Functional Master Plan focuses on improvements to bikeways of countywide significance. Countywide bikeways are defined as existing or proposed shared use paths along roads (Class I bikeways, sometimes called "sidepaths"), bike lanes (Class II bikeways) and key signed shared roadways (Class III bikeways), that provide direct or indirect connections to municipalities, transit centers, activity centers, employment centers and central business districts. These bikeways also provide connections between ma-

jor activity centers and regional recreational park destinations, and connect satellite communities like Damascus, Laytonsville and Poolesville to the countywide bikeway network.

Despite this focus on the countywide network, the plan recognizes that bicycling is inherently a local activity. Most bicycle trips are less than a few miles in length, and most trips begin and end in a residential area. Therefore, designating bikeways and making bicycle improvements at the neighborhood level are vital to the success of the county's bicycle transportation system.

Over the past 25 years, community master plans, sector plans and functional master plans have amended the 1978 Master Plan of Bikeways numerous times by designating local or neighborhood bikeways. Community plans assess local conditions in more detail. Furthermore, local bikeways are not only considered part of the local transportation system, they also are considered community facilities and amenities.

This plan recommends that community planners continue to develop local bikeway networks, with guidance from transportation planners. Local bikeway networks should not only connect to local destinations defined below, but also provide connections to the countywide bikeways. While circumstances and conditions will vary from one community to another, and from one planning area to another, the guidelines below will help community planners better understand the basic issues that should be addressed when designating local bikeways.

Access to Community Destinations

Neighborhood or local bikeways must provide an important connection to a local destination. Local bicycling destinations or local bicycle trip generators are defined as:

- Schools (public and private)
- Local parks and playgrounds
- Local or countywide hard surface trails
- Libraries
- Community centers

- Post offices
- Retail centers and strip malls
- Grocery and convenience stores
- Central business district or crossroads retail areas (e.g., MD 97 at MD 108 or MD 27 at MD 108)
- Transit station
- Business parks or employment areas

Other Issues to Consider

- Most neighborhood bikeways will be signed shared roadways along neighborhood streets.
- Community plans must include a program to implement and/or sign these bikeways.

Countywide Bikeways

Table 2-2 identifies and describes the bikeways that are included in the countywide bikeway network. Each bikeway description contains the following information:

Route Number. A unique route number identifies each bikeway in the county, similar to the system developed for the 1978 plan and the system used for the Master Plan of Highways. Assigning a number allows for quick reference. "SP" indicates a shared use path, "BL" indicates bike lanes, "SR" indicates shared roadway, and "DB" indicates dual bikeway. The types of bikeways in a dual bikeway are listed under *Bikeway Type*. Bikeways are generally numbered west to east, south to north direction with only a few exceptions.

1978 Route Number. The column adjacent to the Route Number column identifies the corresponding number from the 1978 plan, if applicable.

Bikeway Name. Each bikeway is assigned a bikeway name, which usually corresponds to the name of the road on which it is located. Roads with multiple types of bikeways along their length are subdivided into segments corresponding to the stretch of road or transit for which each type applies.

Bikeway Type. This column highlights the type(s) of bikeway facility proposed or existing: shared use path, bike lanes, signed shared roadway or dual bikeway.

Limits. The starting point and ending point are identified, generally west to east, south to north.

Plan Reference. This column identifies in which master plan(s) the bikeway is already proposed or recommended, if applicable.

Status/Condition. The condition of each bikeway is briefly described, including pavement condition, safety issues/hazards and major gaps.

Maryland Department of Transportation BLOC score. Each state highway in the County received a Bicycle Level of Comfort (BLOC) score as part of the 2003 Maryland Bicycle and Pedestrian Master Plan. The score which ranges from A (excellent) to F (poor), reflects the level to which the roadway currently meets the needs of bicyclists. A poor BLOC score typically indicates a higher priority in this plan.

Discussion. This column includes a generalized discussion of implementation issues, including important connections and presence of existing segments that may already be implemented or built.

Countywide Bikeway Numbering System

Locating specific bikeways or segments of bikeways on a map can be difficult, especially when readers are not familiar with actual locations of roads. Most master plans include a table listing all existing and proposed bikeways that includes a unique identifier: a number or combination of letters and numbers. Page-size maps are often too small to include street names. M-NCPPC has traditionally developed numbering systems in order to make it easier for readers to more quickly and efficiently identify bikeways on a map and refer to an accompanying table to obtain important bikeway attribute information.

The 1978 system used a series of letters and numbers to help readers determine whether a bikeway was existing (E), scheduled/planned (S) or proposed (P). This system becomes outdated as facilities are built or implemented.

This plan takes a new approach that groups countywide bikeways into three general categories: 1) Shared Use Paths; 2) Bike Lanes; 3) Signed Shared Roadways; and 4) Dual Bikeway. Based on this approach, this plan recommends a new system of letters and numbers:

- “SP” for shared use path
- “BL” for bike lanes; and
- “SR” for signed shared roadway.
- “DB” for a dual bikeway

As such, each countywide bikeway has been given a unique identifier (e.g., SP-1, BL-1, SR-1, DB-1, etc.). Numbering order is generally west to east, south to north. As such, SR-1, Bradley Lane is located in the southwest corner of the County, while DB-30 (Woodfield Road - North) is located in the northeast corner.

This numbering order coincides with Table 2-2, which lists countywide bikeways in this general order as well. These numbers are for planning purposes only. DPWT will be responsible for developing a system for numbering bike routes for wayfinding purposes as part of its annual bikeways program.

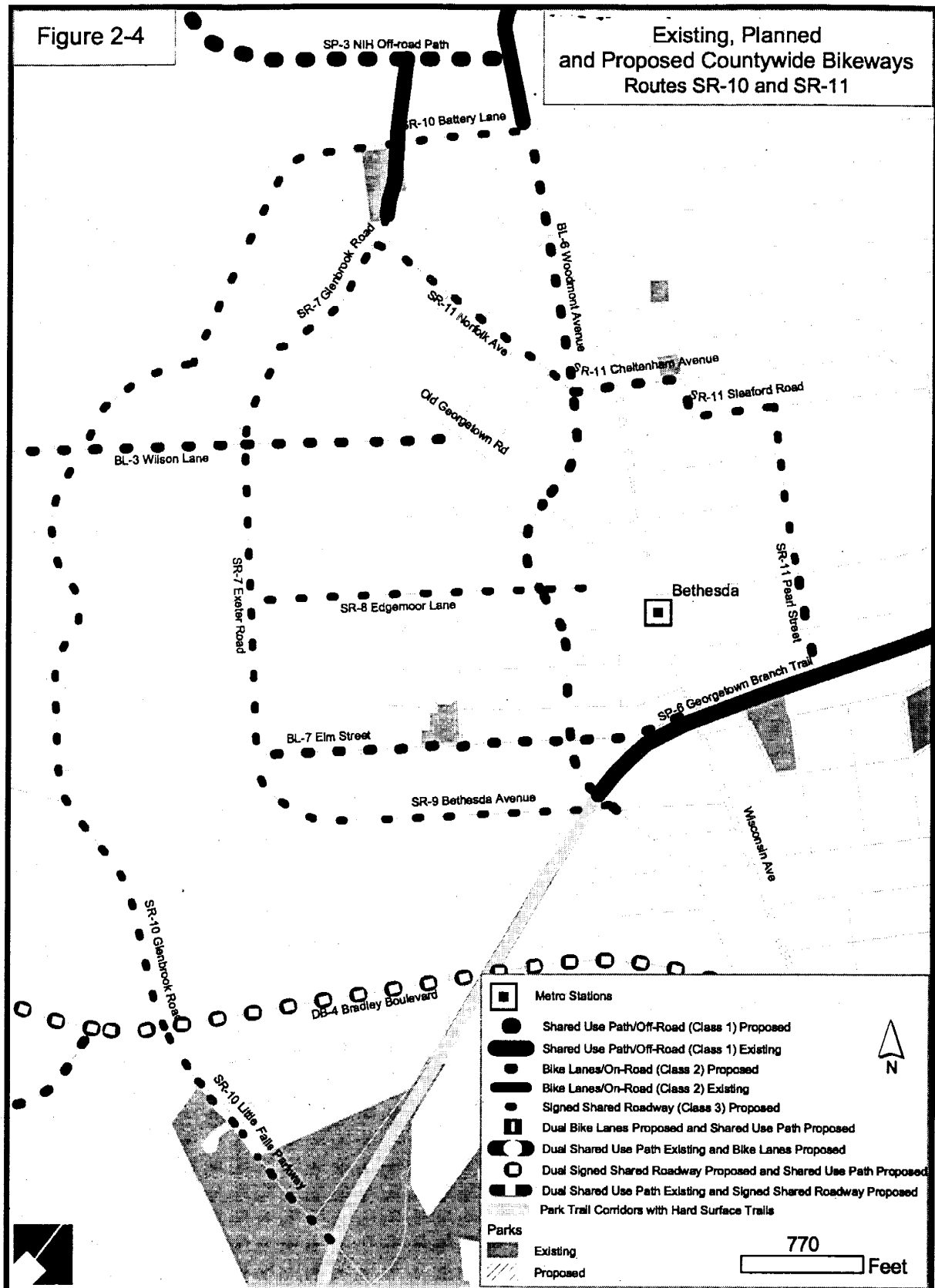
In addition, countywide bikeways tend to be concentrated in areas of the County in which street networks are dense. Again, the countywide map cannot accurately show the precise routes these bikeways follow. Therefore, figures 2-8 through 2-15 are detailed page-size maps of the following areas of the County:

- Bethesda/Friendship Heights
- Silver Spring/Takoma Park
- Wheaton/Aspen Hill
- North Bethesda/White Flint
- Rockville
- Gaithersburg
- Germantown/Clarksburg

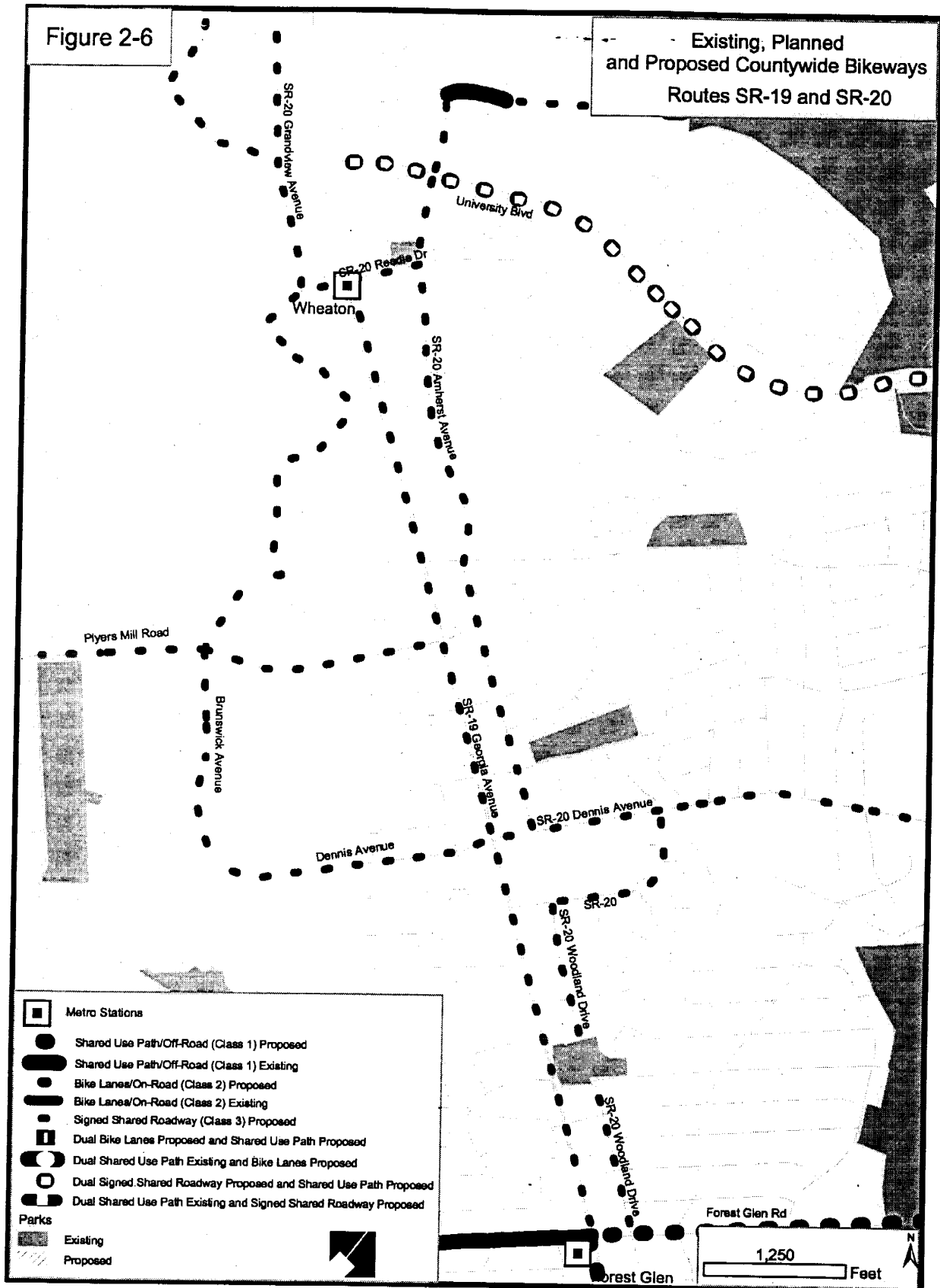
Complex Routes

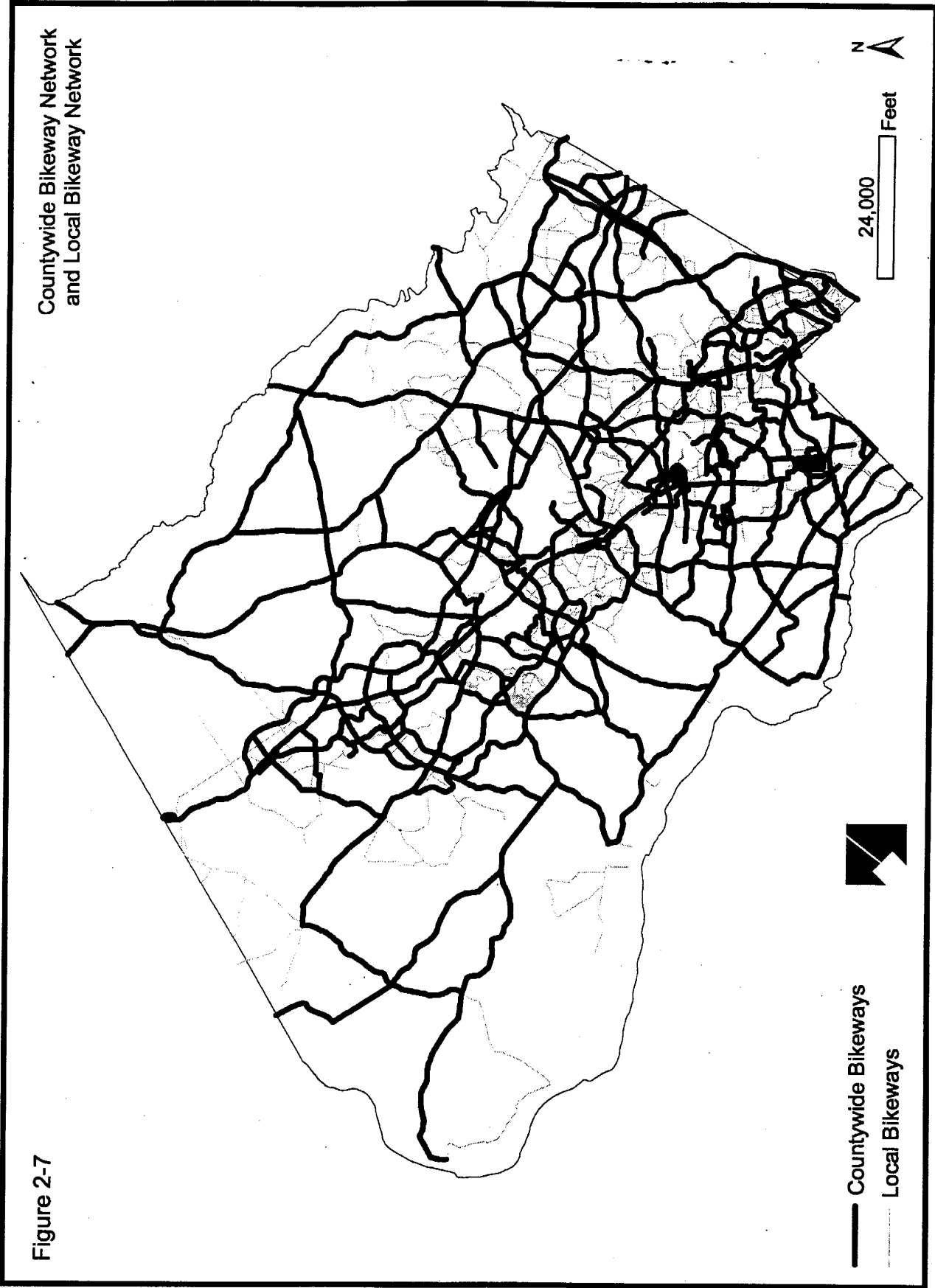
Several routes follow complex routes along local and neighborhood streets. The countywide map included in this plan cannot depict these detailed routes very well. Therefore, figures 2-4 through 2-6 are page size maps to help the reader better understand the precise routes these bikeways follow:

- SR-10, NIH-CCT Connector
- SR-11, NIH-Georgetown Branch Trail Connector
- SR-17, Connecticut Avenue (MD 185) Corridor
- SR-19 & SR-20, Georgia Avenue (MD 97) and Georgia Avenue Alternative
- SR-21, Veirs Mill Road (MD 586) Alternative









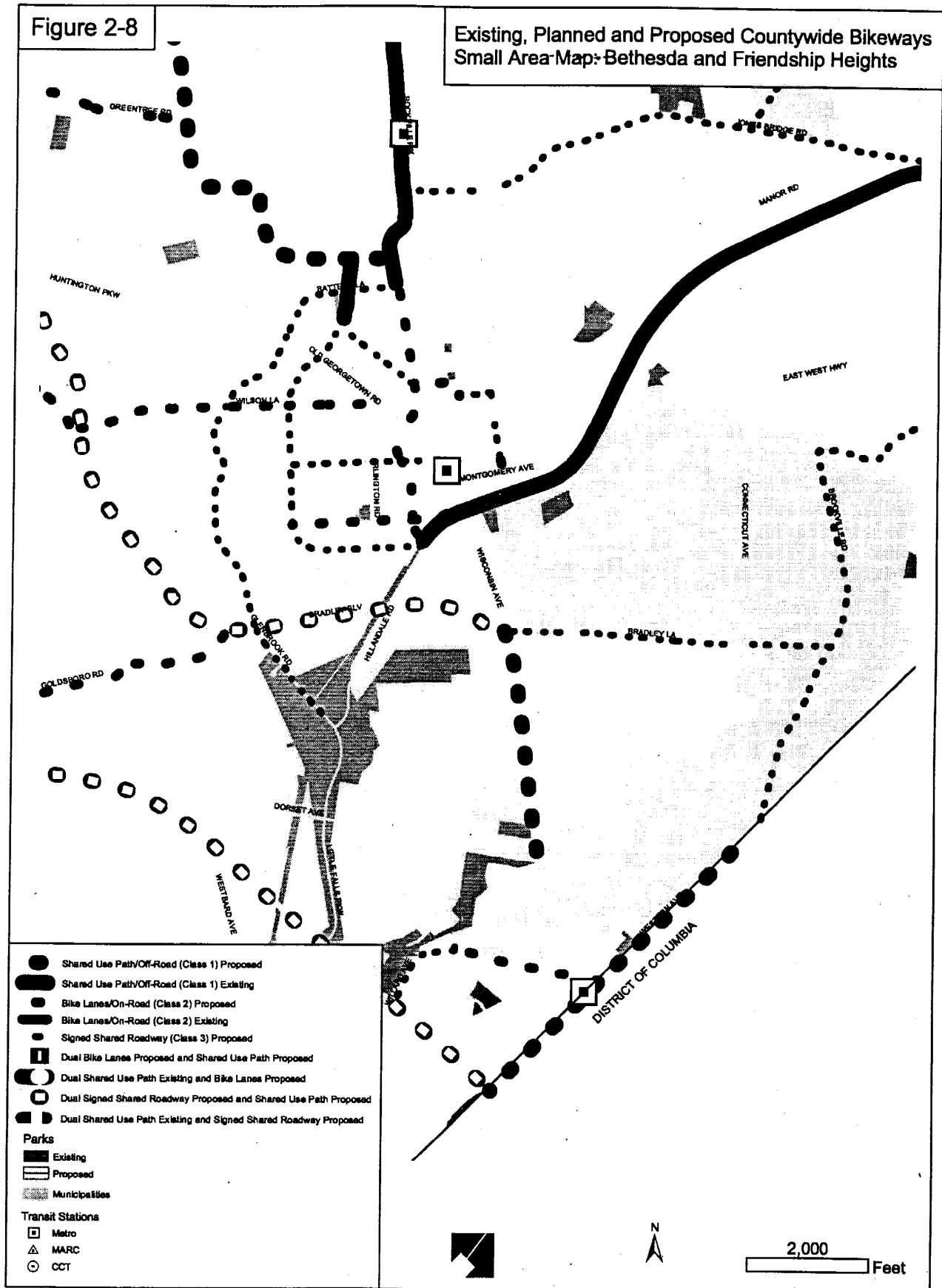


Figure 2-9

Existing, Planned and Proposed Countywide Bikeways
Small Area Map: Silver-Spring/Takoma Park

