

CHAPTER 1

Introduction

Background

The 1993 General Plan Refinement recommends an interconnected transportation system that provides choices in the modes and routes of travel and establishes a network plan for all modes of transportation. This functional master plan creates the countywide network plan for utilitarian bicycle transportation. It updates the 1978 Master Plan of Bikeways and reflects amendments to the 1978 plan through master plans and sector plans adopted since then. It also complements the 1998 Countywide Park Trails Plan.

Why Bicycling?

Bicycling is an important mode of transportation and a healthful recreational activity in Montgomery County. It is one of the most efficient and cost effective forms of transportation and is available to people of all ages and from a wide variety of socioeconomic backgrounds. For some county residents, the bicycle is a primary or only available vehicle for getting from place to place.

On weekends, tens of thousands of recreational bicyclists enjoy riding on the county's renowned hard surface hiker-biker park trails, on shared use paths adjacent to roads (sometimes called "sidepaths") and on many roads throughout the county. On weekdays, hundreds of bicycle commuters travel to work or to transit stations along the county's roads and hiker-biker trails. Throughout the year, countless residents ride a bicycle to run errands, visit friends and travel to neighborhood destinations.

Bicycling is a particularly efficient and convenient mode of transportation in the county's more urban areas. It provides a high degree of independent mobility and flexibility that allows door-to-door travel for both commuting from home to work or for running errands. In fact, nationwide, travel times for short bicycle trips less than five miles in length are comparable to driving, particularly in urban areas where traffic congestion is high and automobile parking is limited. Bicycling also can be more efficient and flexible than transit, which has fixed routes and schedules.

While it is not possible to replace all motor vehicle work commutes with bicycling, nationwide only 21 percent of total trips involve travel to or from work. With the remaining 79 percent of trips being devoted to non-work trips, there are numerous opportunities to use a bicycle for running errands, shopping, visiting friends, going to a community or recreation center, and other trips. Shifting a small portion of motor vehicle trips to bicycling (and walking) could greatly improve quality of life and help the county and region meet air quality standards.

Plan Scope

This plan focuses on bicycling for transportation or utilitarian purposes as opposed to recreational bicycling. Utilitarian bicycling emphasizes trip origins and destinations for which trip purposes (i.e., commuting to work, shopping, attending a recreational or social event) are of primary importance. The bicycle is simply the mode of transportation chosen for the trip. Recreational bicycle trips, by contrast, are taken primarily for the enjoyment of the trip itself and may or may not include a trip destination. In reality, many trips and most bicycle facilities serve both purposes. For example, many shared use paths and hiker-biker trails, which are popular for recreation, are often located in corridors that serve important community, and sometimes regional, transportation needs. And, of course, a bicycle trip to a grocery store usually involves some level of enjoyment, or recreation, for the rider.

This plan emphasizes bikeways of countywide significance that are located in or provide connections to the county's growth areas as defined by the 1993 General Plan Refinement land use map (see Figure 1-1). These growth areas are the urban ring, residential wedge communities, suburban communities and the I-270 corridor. Ninety-six percent of the county's population lives in these areas.

This plan evaluates and makes recommendations for bikeways and bikeway connections that are either contained in these areas or provide important connections to

these growth areas from other parts of the county or adjoining jurisdictions. This plan also makes recommendations for connecting the county's satellite communities (Damascus, Olney, Poolesville, Barnesville, Laytonsville) to the major population centers and to the overall countywide bikeway network.

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 describes all countywide bikeways in more detail.

It is important to note here that the countywide bikeway network as proposed in Chapter 2 is largely composed of bikeways identified and approved in previous community master plans, sector master plan 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 commu-

nity facilities. The Countywide Bikeways Functional Master Plan attempts to identify the bikeways that provide countywide benefits or benefits wider than just serving the community through which it passes. These bikeways may also provide local benefits as well, but the primary importance is longer distance routes that provide connectivity to major destinations such as transit, employment and activity centers (see Figure 1-2).

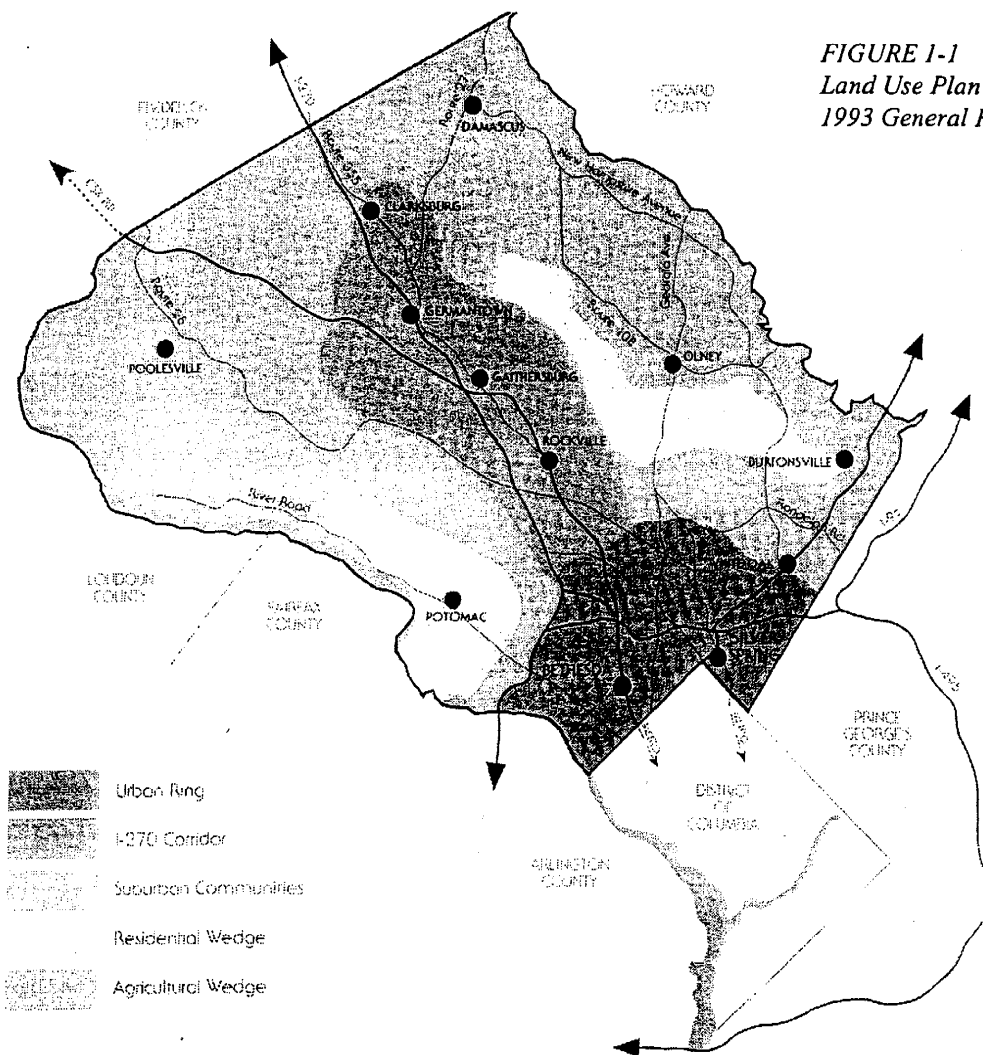


FIGURE 1-1
Land Use Plan Concepts
1993 General Plan Refinement

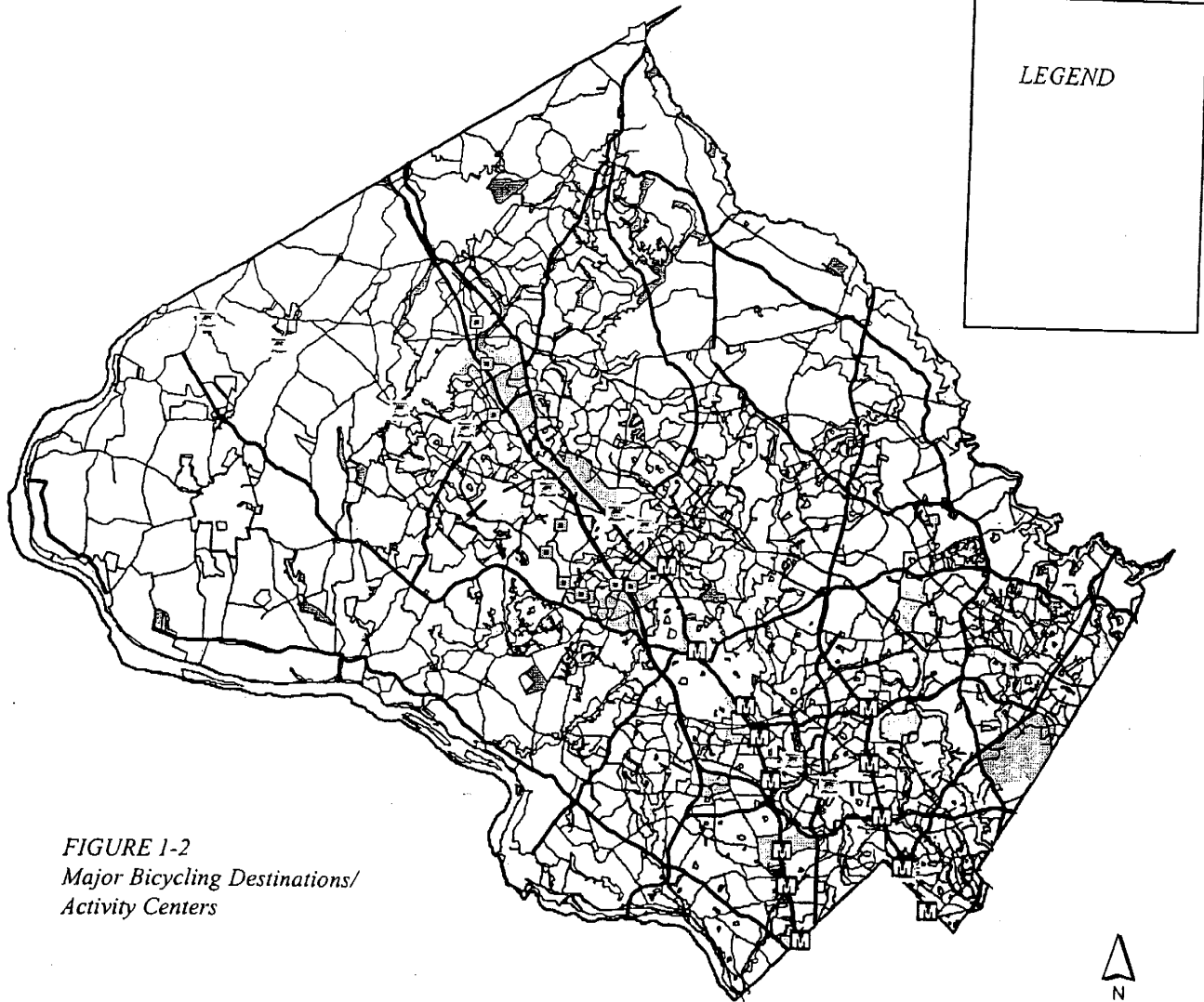


FIGURE 1-2
*Major Bicycling Destinations/
 Activity Centers*

Comprehensive Approach

This plan adopts the comprehensive approach to bicycle transportation planning--as recommended by both the National Center for Bicycling and Walking and the Association for Pedestrian and Bicycle Professionals--covering the "four Es" of Engineering, Education, Encouragement and Enforcement. The plan especially focuses on the physical bikeway network, the "engineering" part of the four Es. Engineering refers to the actual location, placement and design of bikeway facilities.

Master plans in Montgomery County typically only examine and make recommendations on physical conditions of communities and do not make recommendations for changes to policies that affect the operations of the county. Therefore, education, encouragement and enforcement

issues are only cursorily examined in Chapter 5 which describes recommended changes to policies and programs that will be required to adequately and effectively meet the goals of this plan and to create a comprehensive bicycle program for the county.

While the county has had a bicycle master plan for 25 years, only a small proportion of planned and proposed bikeways, especially on-road facilities, have actually been built or implemented. Some would argue that more facilities have not been built because over most the last 25 years because the bicycle was viewed for more as recreation than transportation. However, it is much more complicated. Effective bikeway implementation requires funding, thorough plan reviews, good interagency coordination and cooperation and due consideration of environmental impacts.

A lot has changed over the past few decades to make bikeway implementation much more important. Traffic congestion and air quality have slowly become worse and in the past few years relieving traffic congestion has become one of the county's top policy issues. Bicycle transportation increasingly is being viewed as a significant measure to relieve traffic congestion and improve air quality in the county and the region. County residents are now demanding more attention to, and investment in, the infrastructure for alternative transportation modes--walking and bicycling. Providing safe bicycle facilities that connect where people live and work is the first step toward getting more people to bicycle for transportation.

Plan Purposes

The Countywide Bikeways Functional Master Plan is intended to serve the following purposes:

- **To update and amend the 1978 Master Plan of Bikeways by reflecting the current and future bicycle travel patterns and consolidating into one document bikeway proposals and policies from approved and adopted master/sector plans since 1978.**

The 1978 Master Plan of Bikeways was the first countywide functional master plan that focused entirely on identifying and improving the county's bicycle transportation network. The plan included an exhaustive inventory of all existing and proposed bikeways in the county, regardless of size or relative importance in the overall transportation system, and made recommendations for the order and timing of bicycle improvements. The plan did not address or recommend policies or programs to encourage more bicycle use for commuting or short trips or make recommendations for educating motorists or bicyclists on sharing the road.

Numerous master and sector plans, as well as the 1998 Countywide Park Trails Plan and other functional master plans, have significantly modified and supplemented the county's bicycle network over the past 25 years, particularly local bikeways. Additionally, bicycling and walking have become high priority issues in the county over the past several years. The county and the Cities of

Gaithersburg and Rockville, are investing millions of dollars studying and building new off-road shared use paths, constructing new trail bridges over I-495 and I-270, improving existing bike paths and park trails, and making other needed bicycle and pedestrian safety improvements.

As a means of coordinating all this investment in improving non-motorized transportation throughout the county, this countywide bicycle master plan integrates previous and on-going planning work with the latest techniques in bikeway planning and design. Providing a framework of planned bicycle facilities, this functional master plan will guide the timing and order of implementation of bikeways of countywide significance by developers, public agencies and others.

- **To reflect bikeway concepts from 1998 Countywide Park Trails Plan.**

The Countywide Park Trails Plan (CPTP) identifies an interconnected system of hard surface and natural surface park trail corridors. The CPTP relies on bikeways to provide access to these corridors and to provide links between corridors. This updated bikeways functional master plan provides connectivity within and between hard surface trail corridors as recommended by the CPTP.

The CPTP includes a chapter on bikeway corridors and non-park trail connectors. It identifies a major bikeway network in the I-270 corridor that would connect the up-county and down-county park trail systems. This updated bikeways master plan also incorporates recommendations relating to non-park trail connectors contained in the CPTP.

- **To address and incorporate bicycle elements in the 1993 General Plan Refinement.**

The transportation chapter of the 1993 General Plan Refinement (GPR) included numerous goals related to improving bicycling conditions in the county and encouraging more county residents to use a bicycle for commuting (Table 1-1 lists the bicycle-related goals from the 1993 GPR). The GPR recommended that the county explore and consider implementing policies and programs

TABLE 1-1. 1993 General Plan Refinement – Bicycle-related Transportation Objectives

- #1 - Develop an interconnected transportation system that provides choices in the modes and routes of travel.
- #2 - Provide appropriate access to, around and within communities by using a full range of travel ways
 - Establish a network plan for all modes of transportation
- #3 - Improve the efficiency of the existing and planned transportation system by managing its supply and demand
 - Establish Transportation Management Districts to reduce the number of vehicle trips.
 - Manage the supply and price of parking to encourage transit use, car-pooling, walking and bicycling.
- #6 - Provide pedestrians and bicyclists safe, direct and convenient means of travel for transportation and recreation.
 - Consider safe bikeways and walkways as integral parts of all land development and transportation projects.
 - Provide a bikeway network that serves a variety of needs for a variety of users.
 - Increase pedestrian and bicyclist access to and within neighborhoods, commercial centers, school grounds and other public spaces.
 - Provide secure bicycle storage at all major transit stations, retail areas, employment centers, and other activity centers.
 - Encourage pedestrian circulation by managing through-traffic in centers...
- #7 - Prevent degradation to the overall quality of the air, land and water in the provision and use of the transportation system.
 - Give priority to transportation projects and policies that promote efficient use of energy and attain clean air standards.
 - Support land use decisions that encourage alternatives to the internal combustion engine and the use of fossil fuels.
 - Support land use decisions that reduce negative impacts to water quality from road runoff and pollutants emitted by the internal combustion engine.
- #8 - Maximize safety in the use of the transportation system
 - Provide improved travelways and transfer points that enhance visibility, personal security, and safety, particularly for pedestrians and bicyclists.
 - Enable automobiles, pedestrians and bicyclists to co-exist safely on roads and streets in residential and commercial areas.

designed to increase the number of people who commute to work by bicycle and generally make bicycling a more attractive travel option. This updated bikeways master plan identifies a number of programs and policies that are necessary to achieve the objectives of the GPR.

- **To reflect current bicycle facility planning and design concepts.**

Improved bikeway design and implementation techniques over the last 25 years have greatly enhanced the safety of bicyclists as well as motorists. This plan incorporates contemporary design guidelines as proposed in the 1999 American Association of State Highway Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities (hereafter referred to as the AASHTO Guide), the 2000 Manual for Uniform Traffic Control Devices (hereafter referred to as the MUTCD) and other documents that provide current guidance and thinking on bicycle facility design.

- **To recommend needed changes to current county policies and programs related to bicycle education, bicycle encouragement and traffic law enforcement.**

Plan Concepts

The 1978 Master Plan of Bikeways sought to develop a continuous interconnected system of bikeways and trails that would serve recreational and transportation needs. To ensure Montgomery County continues to be among the more bicycle-friendly counties in Maryland and the D.C. metropolitan area, it must continue to plan for, develop, implement and enhance its bicycle transportation network and hard surface trail system. Additionally, the plan should highlight policies and programs to encourage the use of bicycles as an alternative travel mode and generally make bicycling safer for bicyclists, motor vehicles and pedestrians.

The goals of this plan are to:

- *Develop an interconnected system of bikeways and trails that serves transportation and recreational needs and accommodates a variety of skill levels.*
- *Guide implementation by developers, public agencies and others.*
- *Increase the number of trips made by bicycle for both transportation and recreation.*
- *Make bicycling safer and more convenient for Montgomery County's residents and workforce.*

The objectives of this plan are to:

- *Provide bikeway connections to transit centers, municipalities, central business districts, employment areas, major shopping centers, regional hiker-biker trails and regional parks.*
- *Connect the Countywide Bikeway Network with bikeways in Rockville and Gaithersburg as well as those in adjoining jurisdictions.*
- *Develop a methodology to prioritize and implement bikeway projects in order to benefit as many cyclists and potential cyclists as soon as possible.*
- *Minimize conflicts between bicyclists and motor vehicles and between bicyclists and pedestrians.*
- *Lead county policy concerning bicycle facility design.*

- *Recommend changes to county programs and policies that will educate residents and non-residents on safe and effective bicycling and encourage more people to use a bicycle for commuting to work or other trips.*

Guiding Principles

The following principles have guided preparation of this plan:

- *Maintain a countywide perspective. Focus on major roadway connections, and hiker-biker trails that form the basic framework for the countywide bikeway system.*
- *Provide access. Bikeways should connect residential areas with commercial, community and activity centers. Bicycle parking facilities should be provided at all key destinations such as transit stations, employment centers, shopping centers, libraries, community centers, and civic buildings.*
- *Emphasize connectivity and continuity. Existing and proposed bikeways should be continuous within and between existing and planned communities as well as with municipalities and neighboring jurisdictions.*
- *Provide variety and balance. To the extent possible, ensure that various bicycling experience levels are met by developing a balanced system of shared use paths, bike lanes and shared use roadways.*
- *Ensure that transportation, environmental and community concerns are addressed during bikeway facility planning and implementation.*

What This Plan Is and What This Plan Is Not

This Plan IS a functional master plan that:

- *Focuses on shared use paths, bicycle lanes and shared use roadways.*
- *Focuses on primary and secondary roads and addresses neighborhood and local streets only to fill in gaps and make important connections to transit, activity, and employment centers.*
- *Uses the 1978 Master Plan of Bikeways and subsequent community master plans and sector plans as a starting point for the Countywide Bikeway Network.*
- *Proposes potential future bikeways that are either of countywide or regional significance, or local bikeways that connect to major destinations.*

This Plan IS NOT:

- *A detailed plan intended to evaluate bicycle suitability conditions or identify potential bikeways on all county roads and state highways.*
- *A plan to identify actual alignments along roadways. Alignments are typically determined during the facility planning process or as part of subdivision and/or site plan review processes.*
- *A bikeways management plan that attempts to assign certain bicycle experience levels to certain bikeway types.*

Types of Bicyclists

Bicyclists have the same mobility needs as motorists, however this plan recognizes that there are varying levels of bicycle experience. Skills, level of confidence and preferences vary dramatically. Some bicyclists are comfortable riding on any roadway where they are legally allowed, while others prefer separated shared use pathways. Most adult riders are less confident and prefer to use roadways that have ample designated operating space or shared roadways with low traffic volumes and speeds. Adolescent bicyclists may be more confident and have adequate bike handling skills but do not have experience riding with traffic and may not understand traffic rules and regulations.

The National Center for Bicycling and Walking estimates that fewer than five percent of the nearly 100 million bicycle owners would qualify as or consider themselves experienced or highly skilled bicyclists. Therefore, roadway treatments intended to accommodate bicycle use must address the needs of moderate and inexperienced riders. Generally speaking, there are three basic groups of riders:

- 1) Advanced or experienced cyclists are generally using their bicycle as they would a motor vehicle and can operate under most traffic conditions. They are comfortable riding with motor vehicle traffic, they prefer to ride along roads that feature few delays (i.e., traffic signals) and that provide direct access to destinations. Improvements to facilities on-road (signed shared roadway, bike lanes) will most benefit experienced cyclists or cyclists that fit somewhere between basic and advanced.
- 2) Basic cyclists are less confident, casual adult riders who also may be using their bicycle for transportation but avoid using roads with fast or busy motor vehicle traffic unless there is ample designated operating space. Therefore, they typically prefer to ride along neighborhood streets, hiker-biker trails, shared use paths and well-designed bike lanes. Improvements to facilities that separate bicycles from motor vehicles (shared use paths and bike lanes) will most benefit basic cyclists.

3) Child cyclists require access to key destinations such as schools, community centers, recreational facilities, libraries and local retail stores. They typically ride on their own or with parents, and prefer neighborhood streets with low traffic volumes and speeds, hiker-biker trails or shared use paths. Improvements to local or neighborhood bikeways and shared use paths will benefit all cyclists, but mostly children.

Benefits of a Comprehensive Bikeway Network

According to the 1990 Nationwide Personal Transportation Study, bicycling produces multiple potential benefits, both for the individual and their community, and there is a great potential to increase the number of trips taken by bicycle in Montgomery County and the region. Nationally, approximately sixty percent of all daily trips are less than five miles, fifty percent are less than three miles, and twenty five percent are less than one mile. These distances are all well within the range of an average cyclist.

Transportation benefits

Bicycling can relieve traffic congestion and improve quality of life. It offers a number of benefits to the transportation equation in Montgomery County, including:

- Reducing the number of trips made by automobile. Only 21% of all motor vehicle trips are made for commuting to work. More than half of all trips are made for running errands and shuttling children to and from activities. Developing a safe, continuous bikeway network that provides access to key destinations could encourage more children to travel independently to activities and encourage adults to bicycle to the grocery store and run other simple errands by bicycle.
- Enhancing non-motorized mobility, access and connectivity. A comprehensive, continuous bikeway network will afford residents with a viable option to travel by means other than driving.

- Helps county employers located within Transportation Management Districts (TMDs) meet mode share commuting goals. TMDs are special policy areas created by the county in which certain employers must develop strategies and create programs to encourage their employees to travel to work by transit, carpooling, bicycle or walking (as well as teleworking). The county currently has five TMDs for which employers with more than 25 employees must develop a plan to reduce the number of workers driving to work, and increase the number of employees traveling to work via transit, walking and bicycling. A safe, continuous and convenient bikeway network will help these employers, and the county, attain important traffic mitigation goals.

Environmental benefits

Bicycling as a non-motorized form of transportation provides a number of benefits to the environment:

- Helps the region attain air quality standards. Bicycles offer clean, energy efficient travel. Transportation is the largest single source of air pollution in the United States. It causes nearly two-thirds of the carbon monoxide, a third of the nitrogen oxides, and a quarter of the hydrocarbons in our atmosphere. Trips made on a bicycle emit no air pollution, contribute less to road congestion, and may take less time, especially if convenient and safe bike parking is provided at destinations. Through the Transportation Emissions Reduction Pilot Program (TERP), the county is concentrating on improving bicycle and pedestrian facilities in TMDs.
- Improves water quality. Particulate matter released into the atmosphere ultimately falls back to the landscape when it rains. Some of this pollution, as well as other petroleum-based pollutants falling from automobiles onto the road surface, ends up in the county's streams and eventually to the Chesapeake Bay. The 2000 Chesapeake Bay Agreement requires all local governments to develop strategies to reduce the amount of emissions caused by motor vehicles. This can partly be accomplished by getting people out of their cars and onto transit and bicycles.

Health, fitness and recreation benefits

Bicycling also provides numerous personal health and lifestyle benefits. Bicycling as a form of exercise improves physical fitness, enhances strength, improves cardiovascular fitness, prevents and manages high blood pressure, reduces the risk of heart disease, reduces prevalence of obesity, and helps to reduce stress and counter anxiety and depression.

Existing Conditions

Bicycle Usage

Bicycling is an enormously popular activity in the Washington, D.C. area. Although exact figures are not available, there are perhaps several tens of thousands of bicyclists in the county. Most ride their bicycle for recreation. However, an increasing number are using a bicycle for transportation. According to the 2000 Census, 1,231 county residents rode a bicycle to work at least one day per week. This represents a 34% increase over 1990 Census figures for which only 916 residents indicated they rode a bicycle to work and suggests a modest increase in levels of bicycling commuting over the past 10 years.

As noted previously, these data only record those people who ride their bicycle from home to work. It does not account for the people who may use a bicycle to travel to transit centers or for other trip purposes. Several more thousand people likely regularly ride a bicycle to transit, especially during the warmer months. The nearly full bicycle racks and fully reserved bike lockers at many of the Metrorail stations confirm this assumption.

Nationally as well as locally bicycling continues to be among the most popular recreational activities. Several sources estimate that bicycling participation levels are high:

- The 1994 Household Travel Survey, developed by the Washington Regional Council of Governments, reveals that there are approximately 10,300 bike trips within, to and from Montgomery County every weekday.

- According to a 1995 COG survey conducted in 1995 at three trails and three Metrorail stations, the average bicycle commute was 9.9 miles and the average bicycle trip to a metro station was 2.6 miles. With nearly 76% of the County's population living within 3 miles and nearly 90% living within 5 miles of a Metrorail or MARC station, ample opportunities exist to increase the number of County residents who bike to transit.

- 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, MD28/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 MD355. 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 MD355 from Unity Bridge to the northern City limits, and a shared use path along MD355 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, MD355 and MD28.

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 con-

structed 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 (MD117) - shared use path from Seneca Creek State Park to MD355
- Muddy Branch Road - shared use path from MD28 to MD117
- Longdraft Road - shared use path from MD124 to MD117
- 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 MD124 to Stationshouse Court to Victory Farm Drive to Girard Street to Diamond Avenue to Summit Avenue.
- MD355 - 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 frequently 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 MD80 (Fingerboard Road) and the other along MD28 (Dickerson Road). The plan does not recommend the type of facility improvement, but rather simply identifies these roads as potential bikeways. The MPCB 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 MD198 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/MD650. 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 8-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 (MD384) 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. 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

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.

Metrobus

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.

Other 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 MD108, the ICC bike path, MD28/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 are expected to be adequate.

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 and bike rentals. 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

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 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. They shall be properly repaired and maintained. The county's subdivision review policies are discussed in more detail in Chapter 5.

Additionally, several organizations have their own bicycle rack programs. For example, the Bethesda Urban Partnership/Bethesda Transportation Solutions has a bicycle rack program that racks on request from business and employers who are part of the Bethesda Transportation Management District. The Silver Spring and North Bethesda TMDs also install bicycle racks upon request.

The Planning Process

The schedule and work program for the Countywide Bikeways Functional Master Plan is shown in Figure 1-3. The process began in earnest in October 2002 after several years of incremental progress.

Transportation planning staff regularly consulted an informal technical advisory group over the past year. The Plan's TAG members are listed in Appendix B. The Montgomery County Bicycle Action Group (MCBAG) and the Washington Area Bicyclist Association (WABA) also provided regular input and guidance to the Plan.

Figure 1-3. Planning Process for CBFMP

<i>Date</i>	<i>Action</i>
October 2002	Formation of Technical Advisory Group (see Appendix B)
October 2002 - December 2002	Preliminary research and field work, individual meetings with technical advisory group members
December 2002 - January 2002	Meetings with all community planning teams to discuss strategy and focus of CBFMP; cursory field work of all bikeways in the county
December 2002 - present	Planning process updates at monthly Montgomery County Bicycle Action Group (MCBAG) meetings
January 2003	First technical advisory group meeting
January 2003 – present	Rigorous research, writing and editing
May 2003 – September 2003	Intensive field work and mapping to develop countywide bikeway network concept
January 2003 - present	Meetings with MNCPPC and DPWT staff to discuss and resolve controversial bikeways; meetings with community planners to coordinate Plan with on-going community plans and sector plans
March 2003	Presentation of preliminary plan concepts to representatives of local and regional bicycle advocacy groups
May 2003	Second technical advisory group meeting; initial drafts of first four chapters circulated to all M-NCCPPC divisions and units for comment; June public meetings were advertised in all Planning Board agendas during May and early June.
June 2003	Evening public meetings in Silver Spring (June 3), Bethesda (June 11) and Germantown (June 18); initial plan concepts and proposed countywide bikeway network were presented.

July 2003	Plan concepts and proposed countywide bikeway network maps were presented to MWCOG's Regional Bicycle and Pedestrian Subcommittee and to the Prince George's County Bicycle and Trails Advisory Group (BTAG)
August 2003	Meeting with representatives from local and regional bicycle advocacy groups to address unresolved issues; coordination of countywide bikeway network with Rockville, Gaithersburg and adjoining jurisdictions
October 2, 2003	Third and final TAC meeting
October 2003	Staff Draft presented to the Planning Board