Public Hearing Draft

Countywide Bikeways

Functional Master Plan

A Comprehensive Amendment to the 1978 Master Plan of Bikeways

April 2004

The Maryland-National Capital Park and Planning Commission
The Montgomery County Department of Park and Planning
8787 Georgia Avenue, Silver Spring, Maryland 20910

ABSTRACT

TITLE Public Hearing Draft, Countywide Bikeways Functional Master Plan, A Comprehensive Amendment to the 1978 Master Plan of Bikeways

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ABSTRACT This document contains the text, supporting maps and tables for the Public Hearing Draft of the Countywide Bikeways Functional Master Plan. It serves as a comprehensive amendment to the 1978 Master Plan of Bikeways. The document recommends identification of 180 Countywide Bikeways, totaling nearly 500 miles. The document also contains recommended bikeway design standards for the County, recommends a methodology for implementation, and identifies related policies and programs necessary to effectively and efficiently implement the plan's goals over the next 15 to 20 years.

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

The Maryland-National Capital Park and Planning Commission is a bi-county agency created by the General Assembly of Maryland in 1927. The Commission's geographic authority covers most of Montgomery and Prince George's counties. The Commission's planning jurisdiction, the Maryland-Washington Regional District, comprises 1,001 square miles; its parks jurisdiction, the Metropolitan District, comprises 919 square miles.

The Commission has three major functions:

1) The preparation, adoption, and from time to time, amendment or extension of *the General Plan (On Wedges and Corridors) for the Physical Development of the Maryland-Washington Regional District Within Montgomery and Prince George's Counties*

2) The acquisition, development, operation, and maintenance of a public park system.

3) In Prince George's County only, the operation of the entire County public recreation program.

The Commission operates in each County through a Planning Board appointed by and responsible to the County government. The Planning Boards are responsible for preparation of all local master plans, recommendations on zoning amendments, administration of subdivision regulations and general administration of the parks.

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NOTICE TO THE READER

An area master plan, after approval by the County Council and the adoption by The Maryland-National Capital Park and Planning Commission, constitutes an amendment to The General Plan (On Wedges and Corridors) for Montgomery County. As such, it provides a set of comprehensive recommendations and guidelines for the use of publicly and privately owned land within its planning area. Each area master plan reflects the vision of future development that responds to the unique character of the local community within the context of the Countywide perspective.

Area master plans are intended to provide a point of reference with regard to public policy. Together with relevant Countywide functional master plans (such as the Master Plan of Highways within Montgomery County, Maryland; the Master Plan for Historic Preservation; and the Master Plan for the Preservation of Agricultural and Rural Open Space), they should be referred to by public officials and private individuals when decisions are made that affect the use of land within the plan boundary. Local municipalities also adopt ordinances and approve plans that may provide guidance for public and private decisions.

Master plans generally look ahead about 20 years from the date of adoption, although they are intended to be updated and revised every 10 years. It is recognized that circumstances will change following adoption of a plan and that the specifics of a master plan may become less relevant over time. Generally, sketches or drawings in an adopted master plan are for illustrative purposes only and are intended to convey a general sense of desirable future character rather than a specific commitment to a particular detailed design.

Functional Master Plans such as this plan are developed through a process similar to that of an area master plan and are also considered amendments to the General Plan for the County. Functional master plans provide guidance for the preparation and update of area master plans. Unlike area master plans, functional master plans do not typically recommend changes in existing zoning and are not accompanied by sectional zoning map amendments.

THE MASTER PLAN PROCESS

STAFF DRAFT PLAN – This document is prepared by the Montgomery County Department of Park and Planning for the presentation to the Montgomery County Planning Board. The Planning Board reviews the staff Draft Plan, makes preliminary changes as appropriate, and approves the Plan for public hearing. When the Board's changes are made, the document becomes the Public Hearing (Preliminary) Draft Plan.

PUBLIC HEARING (PRELIMINARY) DRAFT PLAN – This document is a formal proposal to amend an adopted master plan or sector plan. Its recommendations are not necessarily those of the Planning Board; it is prepared for the purpose of receiving public hearing testimony. The Planning Board holds a public hearing and receives testimony on the Draft Plan. After the public hearing record is closed, the Planning Board holds public Worksessions to review the testimony and revise the Public Hearing (Preliminary) Draft Plan as appropriate. When the board's changes are made, the document becomes the Planning Board (Final) Draft Plan.

PLANNING BOARD (FINAL) DRAFT PLAN – This document is the Planning Board's recommended Plan and it reflects the revisions made by the Board in its Worksessions on the Public Hearing (Preliminary) Draft Plan. The Regional District Act requires the Planning Board to transmit the Plan directly to the County Council with copies to the County Executive. The Regional District Act then requires the County Executive, within sixty days, to prepare and transmit a fiscal impact analysis of the Planning Board (Final) Draft Plan to the County Council. The County Executive may also forward to the Council other comments and recommendations regarding the Planning Board (Final) Draft Plan within the sixty date period.

After receiving the Executive's fiscal impact analysis and comments, the County Council may hold a public hearing to receive public testimony on the Plan. After the record of this public hearing is closed, the Council's Planning, Housing and Economic Development (PHED) Committee holds public Worksessions to review the testimony and then makes recommendations to the County Council. The Council holds its own Worksessions, then adopts a resolution approving the Planning Board (Final) Draft Plan, as revised.

ADOPTED PLAN – The Master Plan approved by the County Council is forwarded to The Maryland-National Capital Park and Planning Commission for adoption. Once adopted by the Commission, the Plan officially amends the various master or sector plans cited in the Commission's adoption resolution.

TABLE OF CONTENTS

CHAPTER 1 - Plan Foundation

CHAPTER 2 - Countywide Bikeway Network Concept Plan

CHAPTER 3 - Bikeway Facility Design Guidelines

CHAPTER 4 - Implementation

APPENDICES

LIST OF FIGURES AND TABLES

FIGURES

TABLES

FOLDED MAP (INSERT)

Existing, Planned and Proposed Countywide Bikeways

GLOSSARY OF TERMS

ADT—Average Daily Traffic

AASHTO – American Association of State Highway and Transportation Officials

AASHTO Guide for the Development of Bicycle Facilities (1999) – A document recognized and used by public and private entities throughout the country to ensure safe, consistently designed and implemented bicycle facilities.

Bicycle – Any two- or three-wheeled, human-powered vehicle on which a person rides. Excludes mopeds, scooters and segways.

Bicycle facility – a general term denoting improvements and provisions intended to accommodate or encourage bicycling, including bikeways, bike parking and storage.

Bicycle parking - An area dedicated and designed specifically for storing and locking a bicycle. Includes bicycle racks and bicycle lockers.

Bicycle route – A bikeway that features appropriate directional and informational signage

Bikeway – A transportation or recreational facility designed to accommodate bicycling. May include shared use paths, bike lanes and shared travel lanes/roadways.

Bike lanes (Class II bikeway) - A portion of a roadway that has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists. Consists of a 4'-6' lane in each direction, with traffic flow.

Bike path – See *shared use path*

BLOC – Bicycle Level of Comfort. Refers to score assigned to nearly all State highways in Maryland by the 2003 Maryland Bicycle and Pedestrian Plan. Similar to Bicycle Level of Service (BLOS).

CBD – Central Business District. Refers specifically to Bethesda, Friendship Heights, Silver Spring or Wheaton

CBFMP – Countywide Bikeways Functional Master Plan

CIP – Capital Improvement Program of Montgomery County, Maryland

Class I bikeway – outdated term for a shared use path or bike path

Class II bikeway – outdated term for bike lanes

Class III bikeway – outdated term for a shared roadway

Countywide Bikeways – Bikeways of countywide significance that provide connections to major destinations: municipalities, central business districts, town centers, employment centers, transit centers and regional parks and trails. Function as the skeleton for the County's bikeway network.

GLOSSARY OF TERMS *(CONTINUED)*

CPTP – 1998 Countywide Park Trails Plan

CTP – Maryland Department of Transportation's Consolidated Transportation Plan

DDOT – District of Columbia Department of Transportation

DPWT – Montgomery County Department of Public Works and Transportation

Dual Bikeway – A roadway that features two types of bikeways: 1) shared use path and bike lanes; or 2) shared use path and shared roadway/travel lane. The roadway corridor accommodates both on-road and off-road bicycling.

GPR – 1993 General Plan Refinement

Hiker-biker trail – An 8'-10' asphalt path located mainly within local or state parkland. Designed, built and maintained by land management agencies such as the M-NCPPC, Maryland Department of Natural Resources or the National Parks Service. Examples include Rock Creek Trail, Sligo Creek Trail and the Capital Crescent Trail.

Local/Neighborhood Bikeways – Bikeways that provide important connections from Countywide Bikeways to community facilities such as schools, libraries, community and recreation centers and local retail centers. Identified as part of community master plans and sector plans.

MCBAG – Montgomery County Bicycle Action Group. An informal, unofficial body formed by the County DPWT to provide guidance on bikeway implementation

MUTCD – Manual for Uniform Traffic Control Devices. A document recognized and used by transportation agencies throughout the country to ensure consistently designed and implemented signs, pavement markings and other traffic control devices.

M-NCPPC – Maryland-National Capital Park and Planning Commission, Montgomery County Department of Park and Planning

MTA – Maryland Transit Administration

MWCOG – Metropolitan Washington Regional Council of Governments

SHA – Maryland State Highway Administration

Shared use paths (Class I bikeway) – An 8'-10' asphalt or concrete path that is separated from motorized traffic either by barrier or a minimum five-foot landscape panel. These facilities may be located within a roadway right-of-way and parallel the road (Great Seneca Highway) or within an independent right-of-way (North Bethesda Trail). Can also be used by pedestrians, skaters, wheelchair users, joggers and other non-motorized users if properly designed. Designed, built and maintained by transportation agencies such as State Highway Administration, the County's Department of Public Works and Transportation, or the Maryland Transit Administration.

GLOSSARY OF TERMS *(CONTINUED)*

Shared roadway – A roadway open to both bicycle and motor vehicle travel. This may be an existing roadway, street with wide curb lanes or road with paved shoulders. Types include: 1) wide outside curb lane (14'-16'); 2) bikeable shoulder (4'-6'); or 3) low volume, low speed streets.

Signed shared roadways (Class III bikeway) – A shared roadway that has been designated as a preferred route for bicycle use using warning, directional and informational signage.

Right-of-way (ROW) – A general term denoting land, property or interest therein, usually in a strip, acquired for or dedicated to transportation purposes.

WABA – Washington Area Bicyclist Association. The largest bicycle advocacy organization in the Washington, D.C. metropolitan area.

WMATA – Washington Metropolitan Area Transit Authority. Manages Metrobus and Metrorail.

Executive Summary

- This functional master plan establishes the countywide network plan for utilitarian bicycle transportation. It serves as a comprehensive amendment to the 1978 Master Plan of Bikeways and amends all community master plans and sector plans. The plan complements the 1998 Countywide Park Trails Plan.

- The plan recommends nearly 200 bikeways totaling more than 500 miles. This include 167 miles of existing and proposed shared use paths (formerly called Class I bikeways), 77 miles of existing and proposed bike lanes (formerly called Class II bikeways) and 159 miles of proposed signed shared roadways (formerly called Class III bikeways). Two hundred and three (203) miles of bikeways are newly proposed and not included in adopted and approved master plans. Of these new miles, 20 miles are existing or proposed shared use paths, 15 miles are existing or proposed bike lanes and 99 miles are proposed signed shared roadways. The remaining 69 miles of newly proposed bikeways are "dual bikeways".

- The plan introduces a new type of master-planned bikeway: dual bikeway. This type of bikeway meets the needs of the total range of bicyclists. Roads recommended for dual bikeways will ultimately feature both an on-road and an off-road bicycle facility. In other words, a roadway may have a shared use path and bike lanes, or a shared use path and signed shared roadway. The plan recommends 117 miles of dual bikeways.

- The plan emphasizes bikeways of countywide significance and focuses on ensuring bikeway connections to the County's major activity centers: municipalities, central business districts, town centers, transit stations, major employment hubs, countywide park trails and regional parks. Bikeways that provide a direct, or form part of an important, connection to or between these destinations are considered highest priority for implementation under this plan.

- While focusing on countywide bikeways, the plan provides guidance to future community master plan and sector plan efforts to identify and evaluate local bikeway networks. Local bikeways supplement the countywide bikeway network, providing connections to countywide bikeways as well as to basic local destinations such as retail shopping centers, schools, community and recreation centers, libraries, post offices, and local parks.

- The plan strikes a balance between bikeways intended for beginner and intermediate skill levels (shared use paths) as well as more experienced bicyclists (bike lanes and signed shared roadways). The plan highlights the benefits of each type of bikeway and recognizes the desirable application of each type based on land uses, roadway and traffic conditions and destinations.

- The plan reflects basic design characteristics for the three major types of bikeways as recommended in the 1999 AASHTO Guide for the Development of Bicycle Facilities and supported by the Montgomery County Department of Public Works and Transportation (DPWT). The plan appendix contains innovative bikeway design concepts not yet supported by DPWT, but which are currently implemented by other jurisdictions around the country and could be implemented in Montgomery County in the future.

- The plan describes related County and regional programs and policies that will help the County develop a comprehensive bicycle program, including bicycle safety, bicycle education, and bicycle encouragement and promotion.

- The plan does not evaluate bicycle suitability conditions or identify potential bikeways along all County roads and state highways, but rather focuses on ensuring bicycle access and connectivity to major countywide destinations and activity centers.

- The plan does not specify actual alignments of bikeways along roads, but rather leaves that task to the transportation agencies that are responsible for implementation or for permitting implementation by developers and others.

- The plan is consistent with existing bikeway plans (or currently proposed amendments) of municipalities and adjoining jurisdictions.

CHAPTER 1
Plan Foundation

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.

Due to economic circumstances, the bicycle is the only form of transportation for some County residents. At the other side of the spectrum, some residents choose to ride a bicycle for altruistic reasons; it is more environmentally-sound than driving or even taking transit.

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, moderately reduce traffic congestion and help the County and region meet air quality standards.

Plan Scope

This plan focuses on bicycling for transportation or utilitarian purposes. 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.

The 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 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).

It is beyond the scope of this plan to evaluate suitable bicycle conditions and make recommendations for every mile or segment of road or highway. Montgomery County is 497 square miles in size and has approximately 3,261 miles of roads. It would not be practical to evaluate bicycle connections for every neighborhood and subdivision in this long-range planning document.

In theory, all roads (except freeways and highways with posted speeds above 50 mph that do not feature a shoulder) should be suitable for bicycling. **Current State and County policies require that all new roads and highways be designed to accommodate bicycles and that**

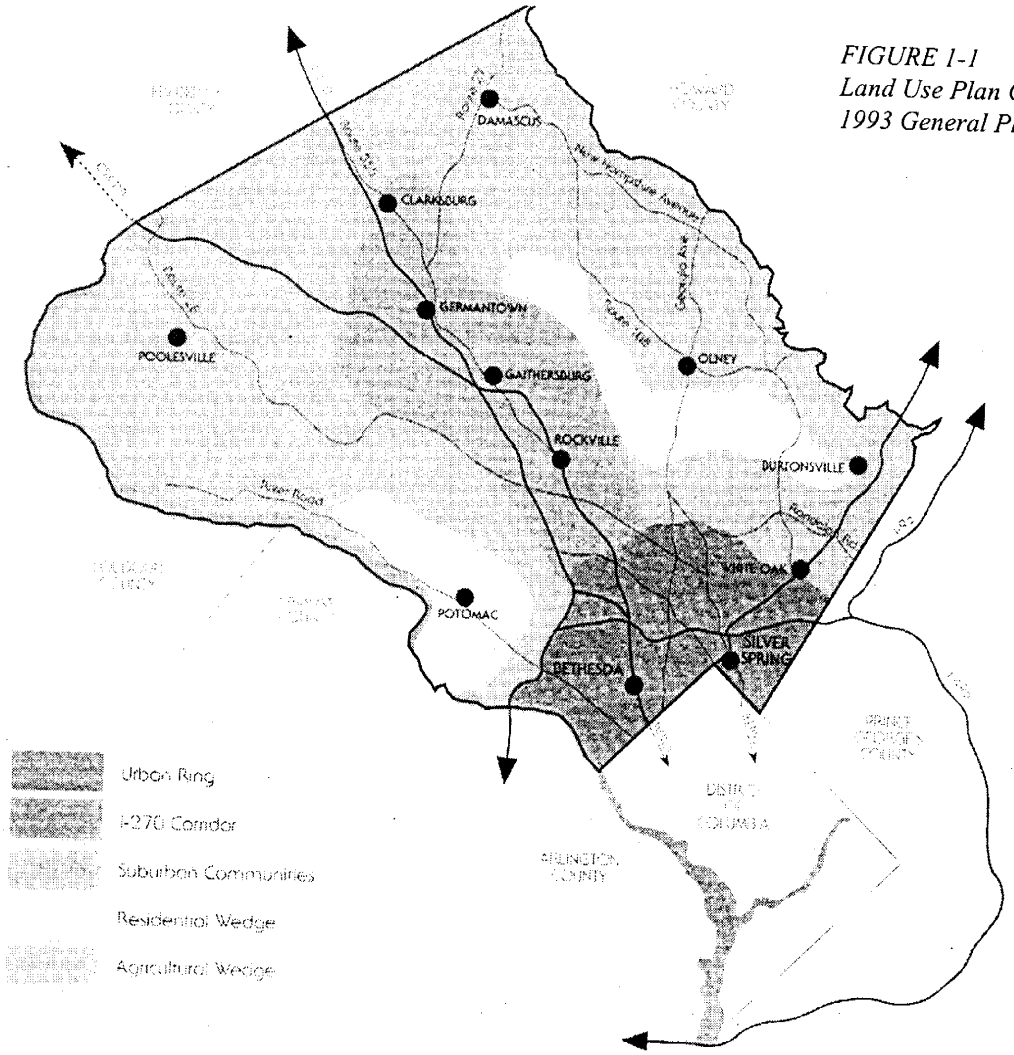
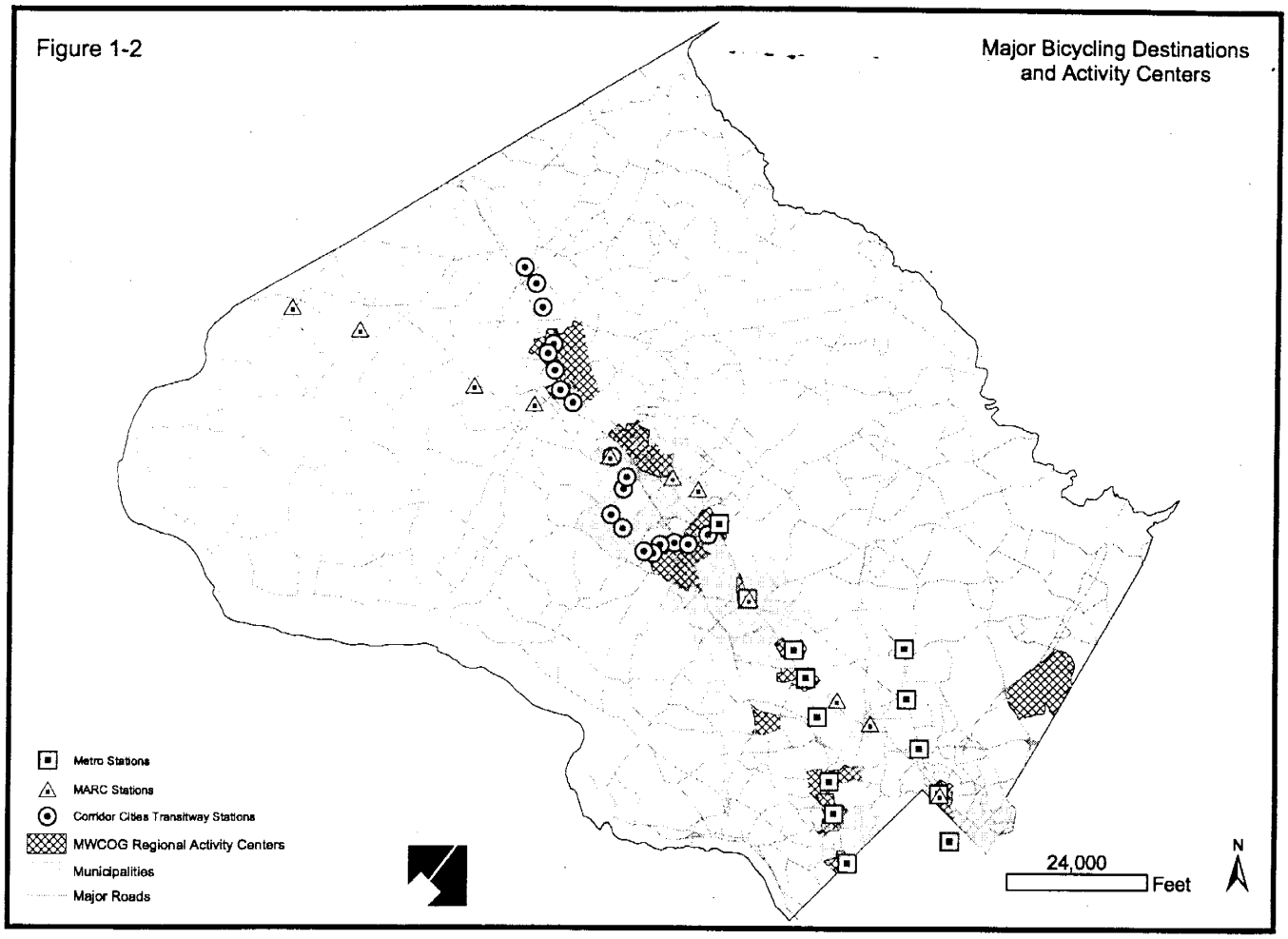


FIGURE 1-1
Land Use Plan Concepts
1993 General Plan Refinement

Figure 1-2



all road improvement projects to incorporate bicycle elements where feasible. This plan only identifies the countywide bikeway network.

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 included in Appendix A for informational purposes only. These policies and programs are recommended 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 recre-

ation 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 potential environmental impacts.

A lot has changed over the past few decades to make bikeway planning and implementation much more important in Montgomery County. 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 plans 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.

Figure 1-3. *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.

- **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 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 Traffiic 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 Goals and Objectives

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.*
- *Provide connections to current or planned bicycle facilities in adjacent counties, the District of Columbia, and municipalities located within the County.*
- *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; many experienced cyclists believe it is safer to ride in the roadway rather than along sidepaths. Others prefer shared use paths completely separate from motorized traffic.

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.

- Helping 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), now complete, the County concentrated on improving bicycle and pedestrian facilities in transportation management districts. Improving bicycle and pedestrian access to TMDs are still important goals for the County.

- 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.

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.