Loudoun County

Bicycle and Pedestrian Mobility Master Plan

Adopted October 20, 2003

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Executive Summary

Bicycling and walking are popular activities in Loudoun County both for transportation and recreation. Walking and bicycling are pleasant and enjoyable activities in neighborhoods that were built with sidewalks, street trees, and paved trails. The Washington and Old Dominion Trail (W&OD Trail) is a well used and cherished resource that traverses the County from east to west.

In many places, however, travel by foot and bicycle is difficult. Pedestrians face many physical barriers in the public right-of-way, including discontinuous sidewalks, dangerous road crossings, high speed traffic, and sidewalks that are blocked by poles, fire hydrants and other obstacles. There are no bike lanes in the County, and neighborhood bike paths are often narrow and winding and do not connect to destinations.

Washington and Old Dominion Trail

While growth of the road network has accompanied Loudoun's dramatic population growth in recent years, expansion of the bicycle and pedestrian network has not. Bicycling or walking is often not a safe or convenient option. This situation has the greatest impact on County residents who are unable to drive or cannot afford to own and operate an automobile.

In July 2001, the Loudoun County Board of Supervisors adopted the Revised General Plan and Revised Countywide Transportation Plan (CTP) providing a development framework based on smart growth principles. The Revised General Plan calls for completion of a Countywide Bicycle and Pedestrian Mobility Master Plan to help implement Loudoun's vision of a transportation system that:

- Recognizes the intrinsic value of bicycling and walking, and
- Advances bicycle and pedestrian mobility as a transportation goal.

This Bicycle and Pedestrian Mobility Master Plan (Plan) is the product of extensive analysis conducted by a Citizens' Advisory Committee, county staff and consultants, combined with information and ideas offered by residents of Loudoun County.

This Plan identifies many locations that are in need of improvements such as new sidewalks, bike lanes, pathways, and intersection crossing improvements. The Plan focuses primarily on the County's road network. Although the W&OD Trail offers an excellent "car-free" alternative, there are few remaining abandoned rail corridors that can be used to build off-road trails.

In addition to improving roadways and intersections for bicyclists and pedestrians, the Plan calls for the development of a variety of other programs that support and encourage more cycling and walking. More County residents will bicycle and walk for short trips if mixed-use development becomes more common, secure bike parking is provided at destinations, and bike safety and promotion programs are developed. As new bike lanes and sidewalks are built throughout the County, school-based pedestrian safety and traffic law enforcement programs will also be needed to teach users how to share the road safely.

With an adopted bicycle and pedestrian plan, Loudoun County can ensure that bicycle and pedestrian accommodations will be more fully integrated into local, state and regional transportation improvements. State and federal transportation policy with regard to bicycle and pedestrian accommodations continues to evolve and improve, creating new priorities and opportunities for funding. A clear articulation of local bicycle and pedestrian needs is vital to ensure that our transportation investments will improve and expand opportunities for bicycling and walking in Loudoun County.

Why is Bicycle and Pedestrian Mobility Important to Loudoun County?

Bicycling and walking issues are important to Loudoun County residents for a variety of reasons:

Purcellville

Bicycling and walking are a necessary part of the transportation system in Loudoun County.

Already significant numbers of people are walking and bicycling in locations that are not safe. Improving intersections, completing sidewalks, and providing highway overpasses will reduce the potential for bicycle and pedestrian fatalities and injuries from crashes with motor vehicles.

Bicycling and walking can play a vital role in improving the health of Loudoun County residents.

Research conducted in 1999 by the Centers for Disease Control found that "obesity and overweight are linked to the nation's number one killer – heart disease – as well as diabetes and other chronic conditions." The report also states that one reason for Americans' sedentary lifestyle is that "walking and cycling have been replaced by automobile travel for all but the shortest distances."[1]

Increased levels of bicycling and walking will help to improve air and water quality in Loudoun County.

The Washington (DC) metropolitan region, of which Loudoun County is a part, is classified as a severe non-attainment area for ground level ozone by the U.S. Environmental Protection Agency. This means air quality in the County is below federal health-based standards for clean air. Motor vehicle pollution is a major contributor to ozone pollution.

Developing trails, bikeways and walkable communities makes good economic sense for Loudoun County.

Businesses tend to invest more in locations that have a high quality of life, and corporate employers have an easier time attracting employees to these locations. Loudoun County's ability to retain its status as a first class employment location will depend on its perception as a high quality place to live.

Bicycling and walking can improve the overall quality-of-life of Loudoun County residents.

Providing a livable community is a necessary part of attracting and retaining businesses and residents and ensuring that Loudoun County remains competitive in the 21st century. Bicycling and walking are integral to the image of Loudoun County as a safe and welcoming community.

Summary of Vision and Goals

Loudoun County's vision for bicycling and walking provides the public, elected officials, county staff and others a clear picture of the future transportation network. The specific goals speak directly to the particular areas of emphasis that need action and provide a solid framework for the recommendations of this Plan.

Vision Statement

Loudoun County – a place where pedestrians and bicyclists of all abilities have a safe, secure, and convenient alternative transportation network of walkways and bikeways that enable everyone to move efficiently to and from such places as work, school, transit, shopping, libraries, parks and recreation.

To realize this vision the Committee established the following five goals:

Connectivity: *Develop a comprehensive walkway, bikeway and shared-use path network among residential neighborhoods, towns, workplaces, shopping centers, transit stations, historic districts, schools, libraries, recreation centers, parks, etc.*

Diverse Users: *Accommodate the widest possible range of use abilities.*

Education and Promotion: *Educate public officials, business and community leaders and the general public.*

Safety and Security: *Increase the levels of bicyclist and pedestrian safety and security.*

Funding for Construction and Maintenance: *Ensure adequate funding for construction and maintenance of the pedestrian and bicycle network and related facilities.*

Implementation Strategy

Successful implementation of this Plan will require effective partnerships among many agencies, jurisdictions, and community leaders. A sustained effort that identifies high priority actions for early attention and recognizes the long term nature of some improvements is needed. Some actions should be commenced in the near term to build upon the knowledge and resources gained during the development of this Plan. Other actions will naturally follow and will be determined, in a large part, by opportunities that emerge in the future.

High Priority Actions, Years 1-5

1. Establish and dedicate an ongoing source of local revenue to provide a funding base and source of matching funds for the bicycle and pedestrian program.

2. Incorporate policies set forward in this Plan into practice through revisions to the Facilities Standards Manual (FSM), revisions to zoning and subdivision ordinances, and modifications to standard procedures.

3. Ensure that every opportunity is used to improve bicycle and pedestrian conditions along the Major Roads and Connecting Corridors listed in this Plan.

4. Work with the Virginia Department of Transportation (VDOT) to ensure that they integrate these policies into their approach to roadway planning and design in Loudoun County. Work closely with VDOT on specific road projects to ensure bicycle and pedestrian facilities are fully incorporated into the design and construction, per the recommendations of this Plan.

5. Develop an interdisciplinary bicycle program and establish a full-time bicycle and pedestrian coordinator position.

6. Establish an ongoing citizens' bicycle and pedestrian advisory body, with responsibilities as identified herein.

7. Apply for enhancement funding to plan, design and construct a bridge over Route 7, as identified in this Plan.

8. Initiate feasibility studies for off-road corridors identified in this Plan, and proceed with development of those corridors deemed feasible.

9. Encourage the towns to adopt the Network Map, or suggest amendments for the Network within the towns.

10. Ensure that VDOT incorporate bicycle and pedestrian improvements in accordance with this Plan for all projects in Loudoun County.

11. Identify most needed areas for pedestrian and bicycle improvements for implementation as funds become available.

Priority Improvements: Quickest and Least Expensive

1. Request that the Dulles Rail Extension Trail be included in the planning, design and funding activities currently underway.

2. Request that the Route 28 project include appropriate bicycle and pedestrian accommodations through all interchanges.

3. Seek funding to implement one Neighborhood Connector project per year, and one major intersection improvements per year.

4. In partnership with tourism officials, conduct a field study of the two Rural Bicycle Touring Routes identified in this Plan, develop a designation plan and install signs on these routes.

5. Install bicycle storage lockers at all park-and-ride lots.

6. In partnership with the School Board, establish a pilot Safe Routes to School program in Loudoun County, per the recommendations of this Plan.

7. Participate in Walk a Child to School Day in October of each year, encourage more schools to take part in the event each year. Continue to assist/sponsor Bike to Work Day activities.

8. Encourage and support the towns' efforts to implement elements of the network identified in the Plan as well as town plans.

Hillsboro

Conclusion

The Loudoun County Bicycle and Pedestrian Mobility Master Plan sets forward a comprehensive strategy in order to achieve the goals established in the Revised General Plan and the Revised Countywide Transportation Plan. There is growing support for multi-modal transportation not only among residents of Loudoun County, but throughout the Washington, DC region.

[1] JAMA - Journal of the American Medical Association, October 1999.

Chapter 1: Introduction

The Loudoun County Bicycle and Pedestrian Mobility Master Plan: Origins and Purpose

Bicycling and walking are popular activities in Loudoun County both for transportation and recreation. Walking and bicycling are pleasant and enjoyable activities in a number of residential developments throughout the County that were built with sidewalks, street trees, and paved trails. The Washington and Old Dominion Trail (W&OD Trail) is a well used and cherished resource that traverses the County from east to west.

In many places, however, travel by foot and bicycle is difficult. Pedestrians face many physical barriers in the public right-of-way, including discontinuous sidewalks, dangerous road crossings, high speed traffic, and sidewalks that are blocked by poles, fire hydrants and other obstacles. There are no bike lanes in the County, and neighborhood bike paths often are narrow and winding, and do not connect to destinations.

While growth of the road network has accompanied Loudoun's dramatic population growth in recent years, expansion of the bicycle and pedestrian network has not. Bicycling or walking is often not a safe or convenient option.

Physical barriers to bicycling and walking are common.

In July 2001, the Loudoun County Board of Supervisors adopted the Revised General Plan and Revised Countywide Transportation Plan (CTP) providing a development framework based on smart growth principles. The Revised General Plan calls for completion of a Countywide Bicycle and Pedestrian Mobility Master Plan to help implement Loudoun's vision of a transportation system that:

- Recognizes the intrinsic value of bicycling and walking, and
- Advances bicycle and pedestrian mobility as a transportation goal.

This Bicycle and Pedestrian Mobility Master Plan (Plan) is the product of many hours of work by a Citizens' Advisory Committee and extensive public input, and its adoption as part of the County's Comprehensive Plan provides a framework for a multi-modal County transportation system.

The central element of the Plan is the identification of a countywide network of recommended bikeways and walkways to improve non-motorized transportation and access. In addition to the network, policy and program recommendations are provided to support and encourage more cycling and walking. Road and land development policy, and school, park and transit access policy are specifically addressed. Promotion, safety education and enforcement programs are also recommended to encourage everyone to share the roads and pathways safely. An institutional framework discussing funding, network

maintenance, program staffing and ongoing citizen involvement is proposed to begin charting the course for plan implementation.

Because of the Plan's primary focus on transportation, recreational walking activities as well as hiking and horseback riding are not addressed in this plan. However, citizen participation efforts identified the desire to provide connections to recreational facilities.

With an adopted bicycle and pedestrian plan, Loudoun County can ensure that bicycle and pedestrian accommodations will be more fully integrated into local, state and regional transportation improvements. State and federal transportation policy with regard to bicycle and pedestrian accommodations continues to evolve and improve, creating new priorities and opportunities for funding. A clear articulation of local bicycle and pedestrian needs is vital to ensure that transportation investments will improve and expand opportunities for bicycling and walking in Loudoun, as well as for driving and using public transit.

A. The Importance of Bicycling and Walking in Loudoun County

Transportation and Safety Benefits

- Nearly half of all travel trips taken in the U.S. are 3 miles or less in length; 28 percent are less than 1 mile.[2] Most trips of these distances are easily made by bicycle or on foot. To increase the share of these trips that are made biking or walking, bicycle and pedestrian infrastructure is needed to form important connections between residential communities, employment and shopping areas, civic centers, parks, recreational trails and cultural attractions.

Bicycling and walking are a much-needed element of the transportation system in Loudoun County.

- Many people in Loudoun County need a mode of travel that is an alternative to the automobile. Because of age or economic circumstances, many Loudoun County residents - children, low-income residents and retirees - do not have access to an automobile.

- According to national surveys, 36 percent of Americans say they would walk or ride a bicycle to work, or to run errands, if it was safe and convenient to do so.[3]

- Demand is indicated by the significant numbers of people already walking and bicycling in locations that are not safe. Improving intersections, completing sidewalks, and providing highway overpasses will improve safety and reduce the potential for bicycle and pedestrian fatalities and injuries from crashes with motor vehicles.

Health Benefits

- In 1999, the Centers for Disease Control and Prevention estimated that 61 percent of U.S. adults were either *overweight* or *obese*. In 2000, a total of 38.8 million American adults could be classified as obese. [4]

Bicycling and walking can play a vital role in improving the health of Loudoun County residents.

- Today, there are nearly twice as many overweight children and almost three times as many overweight adolescents as there were in 1980. Results of the National Health and Nutrition Examination Survey (1999) showed that 13 percent of children and adolescents are overweight.[5]

- In Virginia, the prevalence of obesity increased by 100% between 1991 and 2001, to 20 percent of the population.[6]

- Research conducted in 1999 by the Centers for Disease Control found that "obesity and overweight are linked to the nation's number one killer – heart disease – as well as diabetes and other chronic conditions." The report also states that one reason for Americans' sedentary lifestyle is that "walking and cycling have been replaced by automobile travel for all but the shortest distances." [7]

- Numerous studies have shown tremendous health benefits from even a brief amount of light but regular exercise each day.[8]

- Total costs attributed to obesity (medical costs and lost productivity) amounted to an estimated $117 billion in the year 2000, 10% of total national health care costs. Poor nutrition and physical inactivity account for some 300,000 premature deaths in the United States each year.[9]

Environmental Benefits

- The Washington metropolitan area is classified as being in "severe non-attainment" for ground level ozone by the U.S. Environmental Protection Agency.[10] This means that air quality in the region is below federal health-based standards for clean air. Motor vehicle emissions are a major contributor to ozone pollution.

- Increased levels of bicycling and walking can play an important role in reducing air pollution. By substituting a bicycling or walking trip for *short* auto trips, area residents can impact the amounts of pollutants generated by automobiles, because short auto trips produce far more pollution per mile than longer trips.[11]

Increased levels of bicycling and walking will decrease motor vehicle use and help to improve air and water quality in Loudoun County and the region.

- Vehicle emissions and other motor vehicle pollutants also contribute to water pollution, which degrades up in Loudoun County's streams, the Potomac River and Chesapeake Bay. Increased levels of bicycling and walking and their associated reductions in auto use and pollution will have a positive impact on local and regional water quality.

Economic Benefits

- Businesses invest in places with a high quality of life, enabling them to attract and retain employees. Loudoun County's ability to maintain its status as a first class employment location will depend on its perception as a high quality place to live.

- Bicycle tourism is big business in the United States bringing millions of dollars in revenue to some parts of the country. For example, in Vermont bicycle touring brings in twice as much revenue than the maple syrup

Developing trails, bikeways and walkable communities makes good economic sense for Loudoun County.

industry.[12] Loudoun County has already gained national recognition for the W&OD Trail and its beautiful rolling hills, horse country and historic towns and villages. Bicycle tourism is part of the county economy and should become a focus of the County's tourism strategy.

- Bicycle and pedestrian access to local markets is good for business, particularly in Loudoun County's historic towns and villages.

B. Bicycle and Pedestrian Mobility as a Goal

Loudoun County has long recognized the need to provide pedestrian and bicycle friendly communities. In 1969, the Proposed Comprehensive Development Plan for Loudoun County identified the need for highways, railroads, and pedestrian areas (p. 38). In 1979, the Resource Management Plan (RMP) identified the need for an efficient transportation system emphasizing pedestrian and bicycle transportation as well as the automobile (RMP, Policy 2, p. 196).

The 2001 CTP clearly and repeatedly articulates the importance of providing bicycle and pedestrian mobility. Five of the eight overall transportation strategies established by the CTP[13] directly reference non-motorized transportation. For example, strategy two states:

> *The primary objective of this transportation strategy is not to merely move motor vehicles, but to provide for the efficient movement of people and goods through a variety of travel mode choices that are safe, convenient, and affordable. The transportation system should contribute to the creation of pedestrian-friendly communities and help achieve a high-quality environment while at the same time meet the mobility and economic development needs of the County. An auto-dominated transportation infrastructure should not dominate citizens' lives or the landscape.* [14]

Moreover, many key goals established by the CTP are related to non-motorized transportation:

> *Goal 2: Establish a safe, convenient, efficient, and environmentally sound, multi-modal transportation system to serve the needs of all members of the Loudoun community and to support the County's planned growth and revitalization in its regional context.*
>
> *Goal 3: Develop a transportation system that encourages use of public transit and other transportation modes as effective alternatives to single-occupancy vehicles.*
>
> *Goal 6: Work with the State to update and adapt its roadway design standards to be consistent with the economic, social environmental and other quality-of –life goals of the County as well as improve the safety and efficiency of the transportation system.*
>
> *Goal 7: Reduce the impact of inter-county traffic on existing communities through the implementation of traffic calming or other measures.*
>
> *Goal 12: Reduce vehicle emissions by a) reducing average per capita vehicle miles traveled by 20 percent …and c) reducing average per capita number of vehicle trips…*[15]

Bicycle and pedestrian mobility are recognized by the CTP as an important element of the multi-modal transportation network as well as the travel demand management strategies. It is also important as a component of County policy to ensure clean air and water, respect valued rural, historic and environmental landscapes, provide transportation choice for everyone, including persons with disabilities, and create walkable and mixed-use communities.

A number of other plans have identified the need for pedestrians and cyclists to be considered in the design of projects including:

- Eastern Loudoun Area Management Plan (1980)
- Leesburg Area Management Plan (1982)
- Dulles North Area Management Plan (1985)
- Waterford Area Management Plan (1987)
- Choices and Changes General Plan (1991)
- Dulles South Area Management Plan (1993)
- Comprehensive Plan Amendment (CPAM) 1992-0010, Greenways and Trails Policies (1994)
- Purcellville Urban Growth Area Management Plan (1995)
- Toll Road Plan (1995)
- Revised Countywide Transportation Plan (2001)
- Revised General Plan (2001)

C. Existing Regulatory Requirements in Loudoun County

Current regulatory requirements pertaining to pedestrian and bicycle access are outlined in the Revised 1993 Zoning Ordinance and the Facilities Standards Manual (FSM). Both documents influence the design of new development.

Zoning Ordinance. Several zoning districts within the Revised 1993 Zoning Ordinance require the provision of pedestrian and bicycle access. For example, the RC (Rural Commercial) and PD-RV (Planned Development-Rural Village) zoning districts call for the promotion of pedestrian travel rather than motor vehicle use. Several residential zoning districts require that active recreation space be accessible via pedestrian walkways to all residents and, in some cases, that pedestrian linkages be provided to nearby existing or planned employment centers,

shopping, or other community support services. Several commercial districts call for transportation and pedestrian access to be designed to avoid conflicts between pedestrians and vehicular traffic.

The PD-TREC (Planned Development-Transit Related Employment Center) and the PD-TRC (Planned Development-Transit Related Center) zoning districts call for the provision of pedestrian, bicycle, and vehicle connections between the different land uses and planned or existing transit stops and transit parking within the district. Pedestrian connections shall be designed to ensure the shortest most direct route possible from point to point. Similarly, the PD-TC (Planned Development-Town Center) zoning district calls for pedestrian linkages within the Town Center and between the Town Center and surrounding neighborhoods or activity centers.

Facilities Standards Manual (FSM). The FSM establishes technical standards for many elements of development projects, including pedestrian and bicycle accommodations. The FSM sets standards for the width of sidewalks and trails as well as construction materials and practices. Additionally, the FSM requires that new development projects study and mitigate transportation impacts to the surrounding area. Bicycle accommodations are to be provided in accordance with the policies and identified locations in the Revised General Plan and CTP and must conform to accepted national standards established by the American Association of State Highway and Transportation Officials (AASHTO).

Amendments to the Zoning Ordinance are needed to ensure that each district requires bicycle and pedestrian accommodations, as appropriate. Revisions to the FSM will implement design guidance of the Bicycle and Pedestrian Plan.

In addition to regulations, there are several active bicycle/pedestrian projects in the County:

- Development of a new multi-use trail from Purcellville to Round Hill
- Implementation, in conjunction with VDOT, of the "Route 50 Traffic Calming Project," a community-based, long-term strategy for managing traffic on Route 50 from Paris in Fauquier County to Lenah
- Planning for the Waterford "Bury the Wires and Tame the Traffic" project, a community-based effort to bury overhead utility lines and implement traffic calming strategies that will contribute to better pedestrian access

D. Regional Context

Transportation systems, and associated impacts, are important on a regional scale. Air quality is degraded by the way the *regional* transportation system functions; useful connectivity is only achieved if the *regional* network is well designed. The Washington metropolitan region's transportation system, including bicycle and pedestrian plans, are the result of individual state and local efforts as well as attempts at regional coordination.

The adoption of this Plan contributes to regional efforts to improve walking and bicycling conditions throughout the Washington metropolitan area. The following public agencies were conducting or had completed related projects during development of this Plan:

- **Virginia Department of Transportation (VDOT)** – VDOT recently completed the Northern Virginia Regional Bikeways and Trails Study that identifies a regional network of roads for bikeway development in Fairfax County, Prince William County, Loudoun County, Arlington County and the City of Alexandria.

- **Maryland Department of Transportation (MDOT)** – MDOT completed the Maryland Statewide 20-Year Bicycle and Pedestrian Plan in 2002. It includes recommendations to provide pedestrian and bicycle access across Potomac River bridges when they are upgraded.

- **District of Columbia Bicycle Master Plan** – The DC Department of Transportation initiated an update of their plan completed in the late 1980s. At the center of the region, the District's effort to identify locations for future bike lanes, as well as a variety of policies and programs to support bicycling, are a key element of regional connectivity.

- **Arlington County Improvements** – Arlington County updated its Bicycle Transportation Plan in 1994, and has installed 12 miles of bike lanes (with plans to install an additional 10 miles in 2003). Arlington County is also in the process of revisiting its functional classification system for roadways in order to accommodate pedestrians and to encourage slower vehicle speeds on arterials.

- **City of Alexandria** - The City of Alexandria developed its Bicycle Transportation and Multi-Use Trail Master Plan in 1998 and has installed several miles of sidewalks, trails and bikeways in the past five years.

Arlington County currently has 12 miles of bike lanes, with plans for 10 additional miles in 2003.

- **Fairfax County** - Fairfax County's Countywide Trails Plan (2002) identifies the general location of proposed public trails for non-motorized users.

- **Fauquier County** - Fauquier County adopted the Fauquier County Preliminary Bicycle and Pedestrian Facility Assessment Plan in 2001.

- **Frederick County –** The Frederick County Parks and Recreation Department is developing several off-road trails in Winchester.

- **National Capital Region Transportation Planning Board (TPB)** – TPB supports a technical subcommittee that focuses strictly on bicycle and pedestrian goals and concerns for the region.

E. Scope and Objectives

The Revised General Plan and CTP establish the overarching objective of the Bicycle and Pedestrian Mobility Master Plan – to identify a network that provides countywide connectivity and recognizes the need for careful and flexible facility design to meet the needs of many types of bicyclists and pedestrians. Specific objectives of the Revised General Plan and CTP include the following:

- Establishment of a Citizens' Advisory Committee (CAC) to guide development of the Plan
- Identification of a comprehensive system of bikeways and walkways
- Development of a policy framework that supports coordination of development proposals and therefore connectivity of emerging neighborhoods
- Development of a policy framework that ensures the integration of bicycle and pedestrian facilities into the road and transit networks
- Implementation and strategies that support rural tourism associated with bicycling in the County
- Bicycle and pedestrian access to residential, office, institutional, civic and retail destinations (including schools, universities, shopping centers, employment centers, parks, libraries, community centers, and other heavily visited public buildings) in suburban neighborhoods. Schools, in particular, need to be well served by bicycle and pedestrian facilities.
- Coordination with towns, and integration of the countywide network with those in towns, villages and large neighborhoods

The development of this Plan included the following activities:

- Analysis of existing conditions
- Identification of opportunities and constraints
- Involvement of Loudoun citizens
- Collaboration with local law enforcement on safety and security issues
- Collaboration with the School Board on school access and education issues
- Development of recommended changes to roadway and development policies and regulations
- Identification of facility development priorities and recommending funding strategies
- Development of implementation strategies

F. The Planning Process

The Board of Supervisors directed that a planning process grounded in careful research and extensive public participation form the foundation of the Plan. An experienced project team of staff and consultants was assigned to conduct research on potential policy directions and current conditions for bicycling and walking in Loudoun. A Citizens' Advisory Committee (CAC) was appointed to guide this effort and to ensure that the needs of Loudoun residents, broadly defined, would be addressed by a final plan.

The Citizens' Advisory Committee

The CTP directed consideration of the formation of a CAC that would recommend "location and design of facilities for inclusion in the Countywide Bicycle and Pedestrian Mobility Master Plan."[16] The Board of Supervisors appointed a 20-member CAC in June, 2002, with a specific mission: *"to identify project goals and objectives, bicycle and pedestrian mobility issues, specific problem locations, solutions, the ultimate planned network, and priority projects."*[17]

The CAC was extremely active during the 9-month planning process. The group met 18 times to guide research, discuss policy options, develop the recommendations of this Plan, and to ensure effective public outreach. To focus the Committee's efforts efficiently, two subcommittees were formed – Vision and Goals, and Outreach. Both subcommittees took on specific tasks during the planning process.

The Interdepartmental Advisory Team

During the research and planning phase, the Loudoun County Planning Department convened a staff team of representatives from a variety of public agencies to review policy options and support research. Participating agencies included the Office of Transportation Services, the Department of Parks and Recreation, the Department of General Services, the Sheriff's Office, the Department of Building and Development, the Office of Mapping and Geographic Information, the Public Information Office, the Department of Economic Development, Loudoun County Public Schools, the Department of Fire and Rescue, and the Virginia Department of Transportation.

During development of the plan, input from incorporated towns was actively sought, and other independent agencies including the Loudoun Convention and Visitors' Association, the Loudoun Museum, and the Northern Virginia Regional Park Authority were consulted.

Public Participation

Active public participation was a key component of this Plan. The planning process included a number of strategies to encourage significant and meaningful public involvement:

Public Outreach Activities

Citizen Advisory Committee
June 2002 – Public invited to participate
July 2002 – CAC members appointed by the Board of Supervisors
August 2002 – CAC begins regular meetings

Public Outreach Workshops
Round 1
October 1 – Eastern Loudoun
November 13 – Western Loudoun

Ongoing Public Outreach
October – December 2002
(CAC compiled and activated public outreach database)
Project Website is created

Public Presentations of Draft Plan
Round 2
March 4, 2003 – Western Loudoun
March 5, 2003 – Eastern Loudoun

- The CAC was appointed by the Board of Supervisors to represent Loudoun communities and to guide development of the plan and lead public outreach efforts.

- Two rounds of public workshops and meetings were conducted, during which participants were actively involved in identifying bicycle and pedestrian needs in the County.

- The County website was used to gather public comments and share information as the plan was developed.

- Media outreach was used to facilitate press coverage and alert the public to the process.

- The CAC developed and implemented its own public outreach strategy. This strategy included establishment of the Outreach Subcommittee as well as procedures for disseminating information electronically to a carefully developed list of citizens, local and regional organizations. The CAC facilitated two-way communication by getting information to the public and receiving public comments.

G. Conclusion

The Loudoun County Bicycle and Pedestrian Mobility Master Plan has grown out of public concern for bicycling and walking and recognition that these activities must be addressed first and foremost as a part of transportation policy, planning and system development.

- Chapter 2 outlines a *Vision* for Loudoun's bicycle and pedestrian network and identifies five key goals that form the foundation of this vision.

- Chapter 3 describes existing conditions, including current levels of bicycling and walking, the extent of existing facilities, and a detailed analysis of bicycling and pedestrian conditions on Loudoun's roadway network.

- Chapter 4 outlines the recommended policy framework that will be needed to improve bicycling and walking conditions and provide a safe and effective bikeway and walkway network. It addresses roadway design policies, facility selection, land development policies, transit system development policy and network maintenance and management.

- Chapter 5 describes the proposed network of primary bikeways and walkways and refers to two maps, which can be found in the map pocket at the end of this document.

- Chapter 6 describes recommended coordination with the towns.

- Chapter 7 describes recommended education and safety programs.

- Chapter 8 proposes an overall institutional framework for the bicycle and pedestrian program.

- Chapter 9 addresses funding strategies.

- Chapter 10 provides a guide for plan implementation.

Chapter 2: Vision and Goals

The Citizens' Advisory Committee developed the following vision statement and a set of goals for bicycling and walking in Loudoun County. The following vision statement will guide implementation of this Plan and all County policy and actions related to bicycling and walking:

Vision Statement

Loudoun County – a place where pedestrians and bicyclists of all abilities have a safe, secure, and convenient alternative transportation network of walkways and bikeways that enable everyone to move efficiently to and from such places as work, school, transit, shopping, libraries, parks and recreation.

This Plan envisions a future transportation system that accommodates bicycles and pedestrians with the same level of comfort and convenience as automobile travel. This system will provide equal access for people who want to travel as pedestrians or by bicycle.

A. Goals and Objectives

To realize this vision the Committee established five primary goals, with associated objectives for each. They are described below:

CONNECTIVITY

GOAL: Develop a comprehensive walkway, bikeway and shared-use path network among residential neighborhoods, towns, workplaces, shopping centers, transit stations, historic districts, schools, libraries, recreation centers, parks, etc.

This goal addresses the need for a seamless network of pedestrian and bicycle connections. While many miles of sidewalks and trails exist throughout the County, they often end at major barriers or do not connect to nearby destinations.

- OBJECTIVE A: Expand the bicycle and pedestrian network of bikeways, walkways, shared roads and other facilities throughout the county to connect developments, neighborhoods, towns, and adjacent counties and states.

- OBJECTIVE B: Incorporate requirements for walkways, bikeways and shared-use paths into all community design and modifications~~,~~ and transportation activities.

- OBJECTIVE C: Expand connections of walkways, bikeways and shared-use pathways to mass transit in order to promote the use of both.

DIVERSE USERS

GOAL: Accommodate the widest possible range of use abilities.

Facilities for pedestrians and bicyclists should be designed to accommodate a wide variety of users, including people with disabilities. In the objectives below, a variety of groups are identified as the primary users of the proposed bicycle and pedestrian network. Due to this Plan's primary focus on transportation, recreational walking activities as well as hiking and horseback riding are not specifically addressed.

- OBJECTIVE A: Provide for the needs of bicyclists, pedestrians (walkers, joggers, runners), in-line skaters, disabled persons, children, the elderly, people pushing strollers, and tourists.

- OBJECTIVE B: Develop policies that address diverse user needs.

EDUCATION & PROMOTION

GOAL: Educate public officials, business and community leaders and the general public.

Community leaders and the general public need to be aware of the importance of bicycling and walking as alternative modes of transportation.

- OBJECTIVE A: Establish a permanent citizen advisory committee for pedestrian and bicycling advocacy.

- OBJECTIVE B: Educate public officials, business and community leaders, and the general public about the values and benefits of bicycle and pedestrian facilities, and associated efforts.

- OBJECTIVE C: Promote walkways, bikeways and shared-use paths and related facilities among county residents and tourists.

- OBJECTIVE D: Promote mass transit that supports the use of walkways, bikeways and shared-use paths.

SAFETY AND SECURITY

GOAL: Increase the levels of bicyclist and pedestrian safety and security.

New bikeways and walkways should be designed to enhance the safety of all users, and residents should have opportunities to learn safer walking, bicycling and driving techniques. This is especially important for children who will use the future network.

- OBJECTIVE A: Incorporate safety and security related design standards for roads, walkways, bikeways and shared-use paths.

- OBJECTIVE B: Educate the public about safe walking, bicycling, and driving rules and practices.

- OBJECTIVE C: Increase safety measures along walkways, bikeways and shared-use paths.

- OBJECTIVE D: Improve signs for pedestrians, bicyclists, and motorists in shared environments.

- OBJECTIVE E: Strengthen laws and other policies to better protect pedestrians and bicyclists.

- OBJECTIVE F: Improve enforcement of laws concerning the safe interaction of pedestrians, bicyclists, and motorists in shared environments.

FUNDING FOR CONSTRUCTION & MAINTENANCE

GOAL: Ensure adequate funding for construction and maintenance of the pedestrian and bicycle network and related facilities.

Adequate funding is needed to build a seamless network of facilities, and to maintain this network in the future.

- OBJECTIVE A: Develop sustaining budget and finance programs for construction and maintenance of walkways, bikeways and related facilities.

- OBJECTIVE B: Clarify jurisdiction and responsibility issues among town, county, regional, and state organizations.

- OBJECTIVE C: Obtain funding from sources outside the County for pedestrian and bicycling improvements.

- OBJECTIVE D: Encourage volunteer projects that make pedestrian and bicycling improvements.

- OBJECTIVE E: Design for low maintenance.
- OBJECTIVE F: Encourage homeowners' associations to adequately maintain community trails.
- OBJECTIVE G: Maintain a current assessment of network and facility conditions and report status to the Board of Supervisors annually.

B. Conclusion

Loudoun County's vision for bicycling and walking provides the public, elected officials, county staff, and others clear direction for the future for bicycling and walking. The goals reflect priorities that were identified during the planning process. Together they provide a solid framework for the recommended policies and actions in this Plan.

Chapter 3: Existing Conditions

A. Overview

Loudoun County is located in the northern Piedmont and Blue Ridge physiographic provinces of Virginia. The area east of Route 15 and the Catoctin Ridge is in the northern Piedmont Culpeper Basin and is characterized by level terrain. The western part of the County lies within the Blue Ridge province and is characterized by gently to strongly sloping terrain. The County is bounded on the north and east by the Potomac River, and the western edge is defined by the Blue Ridge, the first major ridge of the Appalachian Mountains.

Between 1990 and 2000, Loudoun County was the fastest growing county in Virginia and among the fastest in the nation. Population increased from 86,000 to 170,000, a growth rate of 97%. The population topped 200,000 by 2003. Fast-paced residential and commercial development, especially in eastern Loudoun around the Dulles International Airport and along the Dulles Greenway has accompanied this frantic population growth.

Loudoun's scenic farm country and historic small towns have long attracted recreational bicyclists and other tourists interested in weekend getaways, antique shopping and exploring civil war history. The W&OD Trail is one of the oldest and longest rail - trails in the nation, connecting Washington, DC at the heart of the metropolitan area with its exurban fringe. As a conduit to the scenic country roads and rural settlements, it has become a favorite for families and serious cyclists alike. Loudoun County is also bounded by two other major long distance trails - the Appalachian Trail, which runs along its western boundary; and the C&O Canal Towpath, which is on the Maryland side of the Potomac River. These nationally recognized hiking and biking trails draw tens of thousands of people annually.

B. Current Levels of Bicycling and Walking

Census data provides some information about the current levels of bicycling and walking in Loudoun County. These data represent journey to work trips, 20 percent of all trips. In Loudoun County, the average number of pedestrian and bicycle commuting trips is low, approximately 1.35 percent of all trips, compared to the percentage of people who drive alone in an automobile to and from work (82 percent). As shown in Table 3-1, Loudoun is well below the national bicycle and pedestrian commuting rates and below the average for Virginia as a whole.

Table 3-1: Bicycle Commuting and Walk-to-Work Rates
Source: U.S. Census 2000 (Journey to Work)

Jurisdiction	Commute by Bike	Walk to Work	Combined Bike & Pedestrian	Total B/P Work Trips
United States	0.4 %	2.9 %	3.3 %	4,247,479
Virginia (Statewide)	0.2 %	2.3 %	2.5 %	88,417
Loudoun County	0.1 %	1.2 %	1.3 %	1,243
Fairfax County	0.1 %	1.3 %	1.4 %	7,632
Arlington County	0.7 %	5.6 %	6.3 %	7,278
Chesterfield County	0.05 %	0.8 %	0.85 %	1,063

Rates for students bicycling and walking to school in Loudoun County are also low. Eighty percent of the 40,000 students that attend public schools are eligible for bus service to and from school. Of the 20 percent who live close enough to bike or walk to school, school officials estimate that more than half are frequently dropped off from automobiles driven by guardians, or use duplicative bus service that is provided in some safe walk zones. Generally, about 50 percent of high school juniors and seniors drive to school or ride with a fellow student.[18]

C. Existing Bicycle and Pedestrian Facilities

Long Distance Trails

Loudoun County is home to or in close proximity to three of the nation's most notable long distance trails: the Washington and Old Dominion (W&OD) Trail, the Appalachian Trail and the Chesapeake and Ohio (C&O) Canal Towpath.

- Over its entire length, the W&OD Trail receives 2-3 million visitors a year. This trail is a considerable transportation resource - it is used by bike commuters to get to and from work, as well as by school children to get to schools (see Farmwell Station Middle School case study in Appendix G). A 1998 study of the W&OD Trail found that twelve percent of trail users on the W&OD use the trail for regular or periodic transportation purposes.[19]

- The C&O Canal is a popular recreational resource and can be accessed via White's Ferry near Leesburg. It can also be accessed from three highway bridges that cross the Potomac into Maryland; however none of these bridges provide adequate bicycle or pedestrian accommodations. Linkages to the C&O Canal, including access to White's Ferry, are in need of improvement.

- While the Appalachian Trail is strictly a hiking trail, interest in improving access to it via connecting roads and trails was mentioned frequently during public meetings.

Neighborhood Bicycle and Pedestrian Networks

In recent years, Loudoun County has required residential and commercial development to include sidewalks or shared use pathways, or to reserve land for future pathways. In some of the newer suburban residential subdivisions, particularly those developed in the neo-traditional style (e.g. South Riding), the sidewalk system is well designed for walking. The Sugarland Run community is an example of a development that provided for internal pedestrian circulation using an extensive pathway system and fewer traditional sidewalks; street crossings are a problem in this community. A key challenge is to improve these systems by improving connectivity within neighborhoods or to destinations outside of the immediate neighborhoods.

South Riding

Facilities Along Roadways

Loudoun County offers few bikeways, walkways or shared use facilities along roadways. There are no bike lanes in the County and no signed bike routes. Paved shoulders are rare. The width and layout of most neighborhood pathway systems is adequate for walking and jogging, but too narrow for shared use with bicyclists and in-line skaters.

An analysis of 842 miles of roadway included all of the roads in the Revised Countywide Transportation Plan (CTP) and 70 miles of shared use pathway alongside roadways in the County. The analysis did not include the W&OD Trail. Of those 70 miles of pathway, only 12 miles are wide enough to safely support shared bicycle and pedestrian use (eight feet or wider). Only 13.8 percent of the road mileage studied included sidewalks. On many of these roads, sidewalks are provided on one side only, or are discontinuous along the entire length of the road. [20]

D. Barriers to Bicycling and Walking

Barriers to bicycling and walking in Loudoun County are both natural and man-made. The primary natural impediments are the Potomac River, a number of mountain ridges including Short Hill Mountains, Catoctin Mountains and the Blue Ridge along the Loudoun/West Virginia border. Additionally, the County has a number of large creeks and important stream valleys including Sugarland Run, Broad Run, Goose Creek, and Catoctin Creek that have limited numbers of bridge crossings.

Man-made barriers are also significant. Primary among them are Dulles International Airport, the Dulles Greenway (Route 267), US 15, US 50, Route 28, Route 7 and the 7 & 15 Bypasses around Leesburg. Loudoun County has very few grade-separated crossings (bridge overpasses or underpasses) over its

major arterial highways and freeways. As roads like Routes 7, 28 and 50 have rapidly grown in width, traffic speed and volume, pedestrian and bicycle crossings have become extremely difficult, even at signalized intersections.

At the countywide level, the large size of some barriers and the existence of few routes around them sometimes combine to create significant barriers for bicyclists who are interested in traveling longer distances. Frequently there are only one or two roads that make the link and they may be circuitous and have poor bike accommodations. For example: Harper's Ferry Road is fairly isolated from the rest of the County by Short Hill Mountain; South Riding is isolated by Dulles International Airport; Ashburn is bounded by high-speed, high-volume roads (Belmont Ridge Rd., Route 267 and Route 7); and Routes 15 and 50 provide the only connection between Leesburg and Middleburg.

Interchanges where arterial roads cross limited access freeways are also barriers to bicycling and walking. Along Cascades Parkway, bicycle and pedestrian access is not provided at the Route 7 interchange, nor is access provided where major arterials intersect with the Leesburg Bypass. Interchanges along the Dulles Greenway were also reported by the public to be difficult to pass through as a bicyclist or pedestrian.

On many roads, sidewalks are provided on one side only, or are discontinuous.

Residential and commercial land development patterns that were common in the past have also created considerable barriers to bicycling and walking. Frequently, the internal roads and neighborhood streets of residential and commercial developments do not link with those of the neighboring development, establishing each new activity node as an isolated pod. Bicycle and pedestrian trips within and between adjacent developments are made much longer and more indirect, and require use of roads with heavy traffic volumes. Moreover, many developments are designed to limit access to only one or two locations, which often provide accommodations for only motor vehicles, thus making bicycle and pedestrian access difficult.

E. Roadway Conditions for Bicyclists and Pedestrians

On the main roads that traverse the County, bicyclists and pedestrians must operate within a transportation system that is designed primarily for automobiles.

Bicycling

Most roadway cross sections do not include paved shoulders, so bicyclists must share travel lanes with motor vehicles. In rural western Loudoun, increased traffic volumes and travel speeds are reducing attractiveness and safety for bicyclists on many roads that, just ten years ago, provided comfortable riding conditions.

In eastern Loudoun, many new collector and arterial roads are being designed with features that are not bicycle-friendly. These features include pavement and lane widths that facilitate vehicle speeds of 50-60 mph, when posted speeds are 35-40 mph; regular use of free flow right turn lanes; clover leaf interchanges for arterial roads; and dedicated right and left turning lanes at every major intersection. Edge lane striping rarely provides a usable shoulder, and many shoulders remain unpaved. As previously noted, there are no striped bike lanes within the County.

While off-road sidepaths are often provided adjacent to newer developments, they are rarely designed well for bicycling; they are narrow (less than 8 feet wide), have poor pavement or surface quality, and include frequent curves and undulations that reduce their efficiency for utilitarian travel. Often they are provided only on one side of the road, and they end at the property line of the development without connections across frontage of undeveloped property or older parcels that were not designed with sidepaths.

Route 50 in Aldie – high speeds and lack of paved shoulders make bicycling difficult.

In addition to poor roadway conditions for bicyclists, bicycle parking is lacking at most destinations, including schools, shopping centers, along traditional main streets, at parks and other public facilities such as post offices and libraries. Where bike racks are provided, they are often in short supply, hidden from view, or are not of a design that supports the frame of the bike.

Pedestrians

The availability of sidewalks in the region varies widely. As a general rule, the larger older communities such as Leesburg, Purcellville and Sterling, have the best sidewalk systems, and the town centers are generally pedestrian-friendly. However, there are many places where neighborhoods are not connected to nearby destinations with sidewalks, even in locations where the destination is less than a quarter mile away.

Lovettsville – lack of sidewalks makes walking conditions difficult.

As is the case with many older sidewalk systems, it is common to find an intersection with one or more missing curb cuts, essential for access by wheelchair, strollers, electric scooter, etc. In older communities, because street surfaces have been widened over time, utility poles, signal control boxes, signs, trees and many other barriers share limited sidewalk space and often make passage difficult. In some areas, sidewalks have been well maintained, in others they are in need of extensive repair.

While gaps in the sidewalk system are common in both the oldest and newest communities, the newer neighborhoods are less likely to be missing curb ramps. In many places, the absence of sidewalks is highlighted by worn dirt paths indicating the presence of regular foot traffic.

There is a dearth of crosswalks in the County, and a variety of striping patterns used. Many signalized intersections do not include pedestrian crossing devices such as walk/wait signalheads, or push buttons for pedestrian activation of the signal. Still others have been designed seemingly to discourage pedestrian use—these include use of highway guiderails that block access to the corners or block medians, use of free flow right turn lanes and other features designed solely to facilitate motor vehicle flow.

School Zones

On many roads near schools, special care has been taken to install solar-powered flashing warning lights to warn motorists of the likely presence of pedestrians during school access and egress hours.

In some older communities, pedestrian tunnels have been built under major roads to provide access to schools or shopping centers. While these grade separations dramatically improve safety from traffic, many of these tunnels have drainage and erosion problems, poor sight lines, steep and narrow approaches with sharp turns, and are poorly lit and maintained. Higher standards for underpass design are needed in order to make these alternate routes safe and attractive. Improved maintenance and volunteer patrols during high use hours, such as before and after school, can enhance usage.

Many schools are surrounded by high-speed, four-lane roadways that include only minimal provisions for pedestrians and no accommodations for bicyclists. In many cases students living within a walkable distance to the school must be bussed because a safe walking route is not available.

F. Level of Service

Level of service (LOS) is a term that is used in the traffic engineering discipline to refer to the average speed and travel time for motorists traveling in a particular roadway corridor. In the 1990s, new thinking and research contributed to the development of methodologies for assessing levels of service for other travel modes including bicycling, walking and transit. Specific methodologies and models for bicycle and pedestrian *level of service* have been developed and used by a number of cities and counties around the U.S. since the mid-1990s.

With the recent adoption of the Revised Countywide Transportation Plan, Loudoun County reaffirmed its policy regarding *level of service* for motor vehicles on CTP roads.[21] This Bicycle and Pedestrian Mobility Master Plan adopts *level of service* policies and assessment methods for the bicycle and pedestrian modes as well.

When considering *level of service* in a multi-modal context, it is important to note that LOS measures for the various transportation modes (motor vehicle, pedestrian and bicycle) are based on different criteria and are calculated on different inputs. For automobiles, LOS is primarily a measure of speed, travel time and intersection delay. For bicyclists and pedestrians, LOS is a more complex calculation, which represents the level of comfort a bicyclist or pedestrian experiences (See Appendix B).

G. Bicycle and Pedestrian Level of Service in Loudoun County

During the course of this study, Bicycle and Pedestrian Level of Service models were employed to formally evaluate bicycling and walking conditions on more than 735 miles of Loudoun County roadways (See Table 3-2).[22] These models used measurements of roadway conditions and characteristics that were gathered specifically for this Plan in fieldwork conducted in November and December 2002.

Bicycle Level of Service (BLOS) Model

The BLOS model used is a scientifically calibrated method of evaluating the comfort level of bicyclists on a roadway segment, given existing bicycling conditions. It uses quantitative data to produce a qualitative evaluation. The data includes measurable traffic and standard roadway factors such as:

- Lateral separation between bicyclists and adjacent motor vehicle traffic (measured by the width of the right-most lane)
- Presence and width of a paved shoulder/bike lane
- Volume and speed of motor vehicle traffic
- Percentage of heavy trucks
- Number of travel lanes
- Presence of on-street parking
- Pavement condition (note that unpaved roads do not receive Bicycle LOS grades)

The BLOS model uses score ranges to assign a letter grade (A-F) that describes existing conditions. The BLOS grade has been scientifically calibrated to reflect actual bicyclists' perception (based on a cross section of cyclists and skill levels). Level "A" reflects the best conditions for bicyclists; level "F" represents the worst conditions.

Pedestrian Level of Service (PLOS) Model

The PLOS model assesses the comfort level of pedestrians walking along roads. It uses roadway measurements and inputs that are similar to the Bicycle Level of Service model, and an identical grading scale. It is scientifically calibrated to reflect actual user perception of comfort, however it does not take into consideration the perspectives of disabled travelers or roadway characteristics that specifically impact travelers with disabilities. The roadway characteristics used by the pedestrian model include the following:

- Sidewalk presence and sidewalk width
- Lateral separation between pedestrians and adjacent motor vehicle traffic (measured by the width of the right-most lane, the width of the bike lane or paved shoulder (if present), and the width of the buffer between the roadway and the sidewalk (if present)

- Volume and speed of motor vehicle traffic
- Number of travel lanes
- Presence of on-street parking
- Presence of street trees and spacing between street trees

The Study Network

To ensure the most useful results from a level of service analysis, a study network of 842 miles was recommended by the consultant team and approved by the Citizens' Advisory Committee and County Staff. The network included all CTP roads (both paved and unpaved, as well as those that are planned but unbuilt), and a significant number of other roads based on the connectivity and access that they provide to the primary road system. Most short residential streets and roads were not included. Also, limited access roadways, where bicyclists and pedestrians are not allowed by law, were not included in the study network. A map of the network is provided in the map pocket. A summary, by category of road is provided in the Table below.

Table 3-2: LOS Study Network for Loudoun County

Category of Roadway Type	Miles	Percent of Miles
Total Study Network	842.0	100.0 %
CTP Roadway Network	480.7	57.0 %
Total Network with BLOS Grade	573.8	68.1 %
Total Network with PLOS Grade	735.7	87.4 %
Unpaved Roadways	161.9	19.2 %
Future Roadways	106.3	12.6 %

Note: Percentages do not add up to 100 percent because of overlap within the categories.

H. Level of Service Results for Bicyclists and Pedestrians

Table 3-3 shows Bicycle Level of Service results for Loudoun County roadways. The total mileage of roads receiving BLOS grades included 573 miles in the overall study network and 355 miles of existing CTP roads.[23] Almost half of all roads studied in Loudoun County (49%) have a Bicycle Level of Service "D" or worse and over two-thirds of CTP roads have a BLOS "D" or worse.

These findings confirm what was generally observed when evaluating the County's roadways for bicycling conditions: that most roads are not bicycle-friendly. The data also confirms that the primary factors contributing to these conditions are a lack of roadway space for bicyclists to use, and high traffic volumes and travel speeds in many major corridors. Heavy truck volumes on some roads also play a role in reducing the level of comfort for bicyclists.

Table 3-3: Bicycle Level of Service Grade

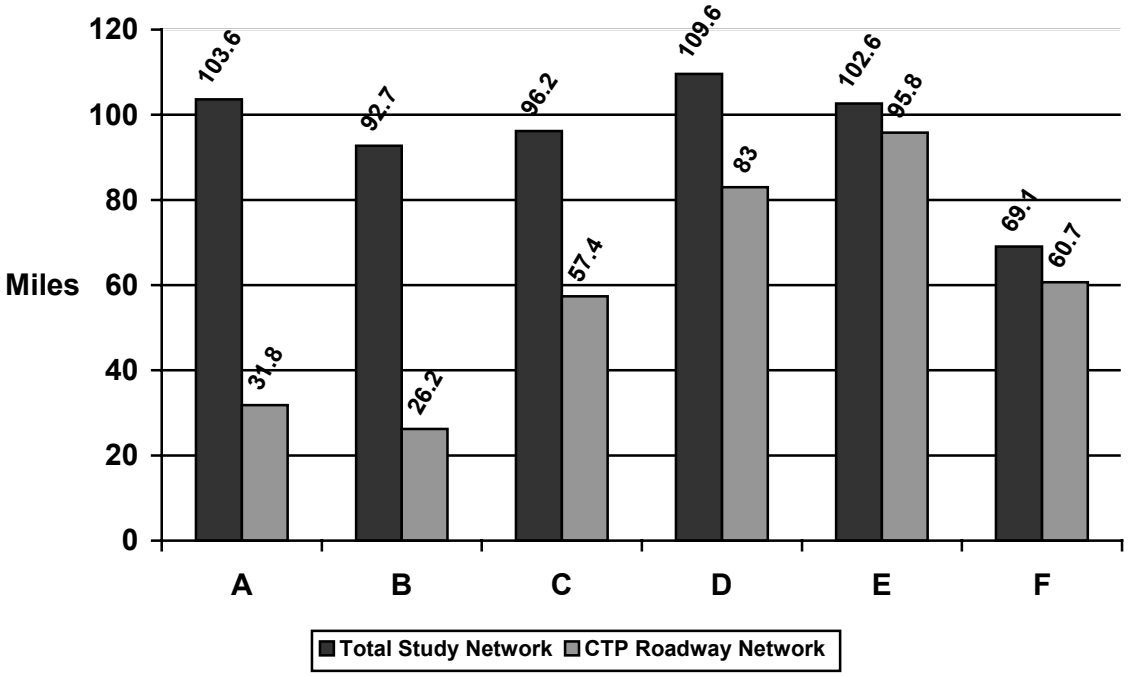
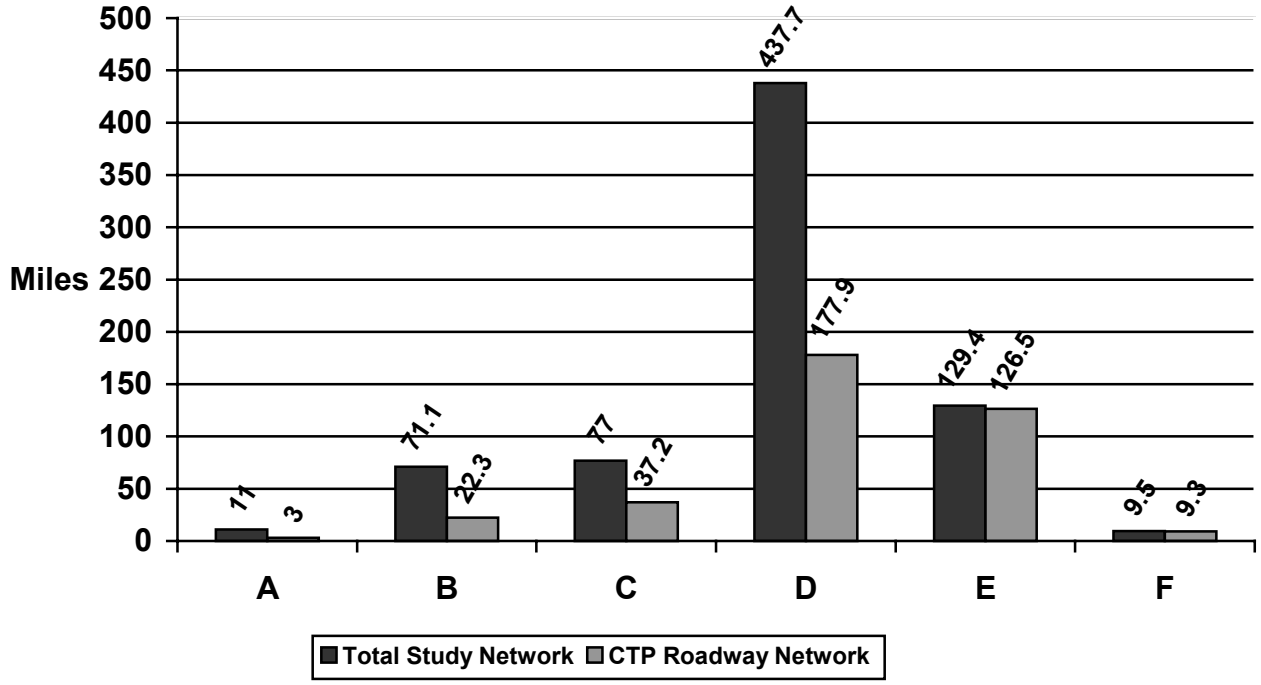


Table 3-4 shows Pedestrian Level of Service results. The total mileage of roads receiving PLOS grades included 735 miles of roadway; with 376 miles designated as CTP roads.[24] More than three-quarters of Loudoun County's roads have a pedestrian level of service "D" or worse and 83% of CTP roads have a PLOS of "D" or worse.

These findings confirm what was generally observed when evaluating the County's roadways for pedestrian conditions: that most roads do not accommodate pedestrians well. The data also confirms that the primary factors contributing to these conditions are a lack of sidewalks (or shoulders on rural roads), minimal use of buffers and street trees, and high traffic volumes and travel speeds on many major roadways.

Table 3-4: Pedestrian Level of Service Grade



I. Conclusion

The level of service analyses conducted for this Plan confirm the comments made by numerous residents and elected officials who attended public meetings held during the planning process, that "there is a great need to improve bicycling and walking conditions throughout Loudoun County." While unsuitable conditions may not be the only factor, certainly, these conditions contribute to Loudoun's low levels of bicycle and pedestrian commuting, as well as under utilization of bicycle and pedestrian modes and trail facilities for other trip making purposes.

The evidence gathered in this planning process suggests that County residents would like more opportunities to bicycle and walk for transportation, more and safer places for recreational riding and walking, and the opportunity to avoid having to drive to their recreational bicycling and walking destinations.

Chapter 4: Recommended Policies and Guidelines

This chapter recommends comprehensive policies regarding incorporation of bikeways, walkways and other facilities into transportation and development projects in Loudoun County. These policies are critical to the implementation of this Plan. A comprehensive set of policies is needed to facilitate development of a functional bicycle and pedestrian network. Policies in the chapter address the following:

- Roadway design
- Land development
- Transit planning and operations
- School access
- Park access
- Additional public facility access
- Facility maintenance and management

The Level of Service Approach

To ensure flexibility in facility design, the County will employ level of service performance target minimums, which can be met using a variety of roadway designs. Moreover, the County recognizes that the same level of service is not required in every situation or location, because significant constraints can prevent the recommended level of service from being feasible.

Table 4-2 provides a quick reference to seven conditions to which level of service target minimums apply. Appendix F provides a more detailed description of each of these conditions as well as what exceptions to the target minimums may be acceptable.

Loudoun's Level of Service Target Minimums are designed to achieve the following objectives:

- Ensure that the newest roads and communities built in the County have high quality bicycling and walking conditions
- Ensure that bicycle and pedestrian conditions are improved when existing roads are upgraded
- Ensure that conditions near and within the walk zones of schools are adequate to encourage safe bicycle and pedestrian access for students and others
- Provide high quality bicycling conditions to the greatest extent possible in rural areas
- Protect and accommodate bicyclists and pedestrians in rural communities, especially in the villages

The Citizens' Advisory Committee spent considerable time studying the level of service concept and evaluated more than one bicycle and pedestrian level of service model. The Committee determined that the models selected for this Plan would provide Loudoun County with a sound methodology upon which to base policy, and would provide credible and effective tools for evaluating the comfort level of bicyclists and pedestrians on both existing and future roadway segments.

A. Roadway Planning and Design Policy

To ensure that new roadways are planned and developed as multi-modal facilities, consistent with the Revised Countywide Transportation Plan (CTP), new design policies are needed. The following policies shall be applied during transportation project and program development:

1. Transportation facilities in Loudoun County (with the exception of limited access freeways) will be planned, designed, constructed and maintained to accommodate shared use by motor vehicles, bicycles and pedestrians.[25]

2. Target - minimum Bicycle and Pedestrian Levels of Service, set forth in Table 4-2, and further described in Appendix F, shall govern all roadway improvements and development projects.

3. Pedestrian and bicycle safety will be of paramount concern on all projects where such access is permitted.

4. Construction of new highways, intersections or major highway improvements shall not sever or eliminate existing bicycle and or pedestrian access routes without providing the same or improved access using safe and convenient accommodations.

5. The County will develop procedures, and revise the Facilities Standards Manual, zoning and subdivision ordinances accordingly, for applying the LOS standards as an element of Traffic Impact Analyses.

6. The County shall maintain a Design Toolkit as a resource for land and transportation planners.

7. The County shall encourage VDOT to integrate the policies of this Plan into its roadway planning and design in Loudoun County.

Implementing these policies benefits pedestrians and bicyclists and improves conditions for motorists, since fewer vehicles on the road means less traffic congestion.

Algonkian Parkway

Transportation Project Development

Pedestrian and bicycle facilities should provide satisfactory linkages and contribute to system connectivity throughout the County. The County will work proactively with VDOT and the development community to facilitate a design approach that successfully addresses the needs of non-motorized roadway users at all stages of project development.

The County will facilitate creative approaches to providing an excellent network for bicyclists and pedestrians. Design requirements should not be rigid, but should allow the system to respond to existing conditions and constraints in a cost-effective manner that yields a safe outcome.

Choosing the right type/level of accommodation for pedestrians and bicycles within the framework of the County and VDOT's functional classification systems and the planning policy areas involves a complex set of decisions. Should bicyclists be provided with on-road facilities or an off-road parallel path? Or both? Which types of roads warrant different types of solutions? Obviously, the right solution for a 4-lane, 45 mph road would not be the same as the solution for a 2-lane residential street. The complexity of these decisions is something that should be expected, considering that two additional modes of travel (bicycling and walking) are being incorporated into a system that was largely based on the functional characteristics of one mode (motor vehicle).

This policy sets forward a recommended procedure for making these decisions, using the general framework that already exists in the Revised Countywide Transportation Plan.

Transportation Project Development Policies

1. Project scoping shall include identification of missing sidewalks, sidewalk gaps, and needed walkway and bikeway connections. Scoping will require a basic field observation to identify pedestrian and bicycle needs. It may be necessary to extend project boundaries to provide continuity to logical terminal points.

2. The County shall require land development proposals to include bicycle and pedestrian design and development program that is consistent with national guidelines, including the AASHTO Guide for the Development of Bicycle Facilities, the Americans with Disabilities Act Accessibility Guidelines (ADAAG), and the Loudoun County Bicycle and Pedestrian Facility Design Toolkit.

3. Proposed concept development plans shall include existing and proposed pedestrian and bicycle features, including sidewalk, walkway and bikeway connections, and intersection crossing safety measures. Concept plans will identify measures by which vehicle speeds will be kept to posted limits through physical measures such as traffic calming.

4. The Bicycle and Pedestrian Facility Selection Guideline (Table 4-1) and Level of Service Target Minimum Standards (Table 4-2) shall be used to determine and design appropriate bicycle and pedestrian accommodations to include in the project. Bicycle and pedestrian facility design needs to respond to roadway design, LOS target minimums, existing conditions and community design goals.

Step 1. Facility Selection (see TABLE 4-1)

The functional classification of the road under consideration, and the planning zone in which it is located, determines broadly the type of facility needed. Table 4-1 provides a general guideline for selecting the appropriate design treatment. For most roadway categories, on-road bicycle accommodations are recommended. There are a number of alternative designs for on-road bikeways (see Bikeway and Walkway Facility Types, page 38). In order to determine what level of on-road accommodation is needed, it is necessary to determine the desired performance of the facility.

Step 2. Design for Target LOS (see TABLE 4-2)

The next step is to determine the quality of accommodation that is desired for the roadway under consideration. Given some basic roadway characteristics, the designer determines the width needed for a bike lane or paved shoulder and/or the amount of separation needed between a path/sidewalk and the adjacent road. If the road is a short residential street or secondary road with low traffic volumes, there may be no need for a "designated" bicycle facility in order to achieve the desired level of accommodation.

5. Use of emerging bicycle and pedestrian design techniques, not yet recognized in existing guidelines shall be considered on a demonstration basis as is appropriate and applicable to the particular project.

6. Roadway construction traffic control plans shall include maintenance of an accessible pedestrian and bicycle route through the construction site whenever an existing route is disrupted.

Table 4-1: Bicycle and Pedestrian Facility Selection Guidelines

Secondary Road	Minor Collector	Major Collector	Major Collector	Minor Arterial	Principal Arterial	Limited Access
Sugarland Run Dr Rt. 722 2 lane	Ashburn Rd Cochran Mill Rd 2 lane or multi-lane	Snickersville Tpke Clarke's Gap 2 lane	Atlantic Blvd Potomac View Rd Sterling Blvd multi-lanes	Ryan Rd Belmont Ridge Rd 2 lane or multi-lane	Rt. 7 Rt. 50 4-6 lanes	Dulles Greenway Rt. 28
On-Road Bicycle Accommodation + Sidewalks [1]			**On-Road Bicycle Accommodation + Off-Road Shared Use Path and Sidewalk [1]**		**Off-Road Shared Use Path**	**Off-Road Shared Use Path, as permitted by state statutes**
See Design Toolkit for Typical Cross Sections						
See cross sections for each roadway type; use target Bicycle LOS and Pedestrian LOS to determine facility design.			**See cross sections for each roadway type; use target Bicycle LOS and Pedestrian LOS to determine facility design.**		**See cross section for roadway type; use target Ped LOS to determine the characteristics of facility separation.**	
[1] Sidewalks shall be provided on both sides in Suburban Policy Areas, Transition Policy Areas, Joint Land Management Areas, and where feasible in Villages in the Rural Policy Area. Sidewalks will not typically be provided along rural road sections with no or few adjacent housing units.						

Table 4-2: Loudoun County Bicycle and Pedestrian Level of Service Target Minimums

	Applicability	Target Minimum BLOS	Target Minimum PLOS	BLOS Exceptions	PLOS Exceptions
Condition 1	New roads on new ROW, and in new developments throughout the County.	B	B	*C acceptable in certain situations	*C acceptable in certain situations
Condition 2	Improvements to Roads & Streets in Developed Areas: -Suburban Policy Area -Transition Policy Area -Joint Land Management Areas	C	B	*Major Arterials can be D in certain situations; provision of a shared use sidepath is recommended in these cases	*Major Arterials can be C in certain situations
Condition 2a	Roads & Streets within 1.25 mile radius of elementary, middle & high schools within Condition 2 Policy Areas	B	B	*Major Arterials can be C	*Major Arterials can be C
Condition 3	Improvements to Roads in the Rural Policy Area that have been selected for the Countywide Network	C	N/A	Highest BLOS that can be achieved or provision of an off-road pathway	N/A
Condition 3a	Designated Bike Route System within the Rural Policy Area	C	N/A	BLOS D and traffic calming, or route cannot be designated	N/A
Condition 3b	Rural Villages: Aldie, Bluemont, Lincoln, Lucketts, Paeonian Springs, Philomont, St. Louis, Taylorstown, Waterford	C	C	The highest BLOS feasible using traffic calming	The highest PLOS feasible using traffic calming
Condition 3c (When applicable, this minimum prevails over 3, 3a, or 3b.)	All Roads & Streets within a .75 mile radius of all schools within the Rural Policy Area	B or 5 foot paved shoulder	B or 5 foot sidewalk or paved shoulder	Accommodations sufficient to create a "safe walking route" to school, as determined by the LCPS Transportation Dept.	Accommodations sufficient to create a "safe walking route" to school, as determined by the LCPS Transportation Dept.

Refer to Appendix D for a more detailed explanation of the County's Level of Service policy, including a description of exceptions that are acceptable to the target minimums shown above.

Accessibility of the Network

For the purposes of this Plan, the term pedestrian includes any person with a disability that may limit his or her mobility, sensory or cognitive capabilities. Pedestrians include all people who walk, sit, stand or use a wheelchair or motorized scooter in public spaces. It is estimated that 85 percent of all Americans who live to their full life expectancy will eventually experience a permanent disability.[26] For people with disabilities, smooth surfaces, lack of pathway barriers and clear transition areas are important. Accessible design is the foundation of all pedestrian design.

Accessibility Policy

1. The County shall use, and ensure compliance with, accepted national standards including the Americans with Disabilities Act Accessibility Guidelines and "Draft Guidelines for Public Rights-of-Way (June 2002)."

Walkways & Sidewalks

All streets and roads in Loudoun County (other than limited access highways where pedestrians are prohibited) should be planned and designed with pedestrian use in mind. In the Rural Policy Area, outside of towns and villages, providing sidewalks for pedestrians is typically not desirable or cost effective, though traffic calming techniques can improve pedestrian conditions along rural roads. In western Loudoun County, rural roads within town and village settlements, areas near schools, and other public facilities shall receive a higher level of attention for pedestrian safety.

Walkway and Sidewalk Policies

1. CTP roads in or near villages, schools or other public facilities such as, libraries and community centers in the Rural Policy Area should have sidewalks with a minimum width of 5 feet. Where buildings, valuable trees, historic characteristics or other factors present physical constraints, sidewalks may be narrowed, limited to one side, or striped, paved shoulders of 3-5 feet may be used to create space for pedestrian travel. Vegetative buffers of 2 feet or greater between roadway and sidewalk, should be used when space allows. Traffic calming measures will be used to discourage speeding and/or allow motor vehicles to be accommodated safely with narrow lane widths.

2. In the Suburban and Transition Policy Areas, the Joint Land Management Areas, and in new villages, the following minimums will apply:

    a. Residential streets should have sidewalks with a minimum width of 5 feet. Vegetated buffers of no less than 2 feet shall be provided. Sidewalks shall be provided on both sides of the street, unless there is an insurmountable physical constraint or it can be demonstrated that there is no need for the facility. Physical design measures will be used to discourage speeding.

    b. Collector and arterial roadways should have sidewalks on both sides, with a minimum width of 6 feet, unless ROW is limited due to the close proximity of buildings, or environmental or cultural resources. Vegetated buffers of no less than 4 feet shall be provided. Roadways that have buffered and continuous sidepaths, of a width of 6 feet or greater, shall be considered to have met the minimum sidewalk requirements. Physical design measures will be used to discourage speeding.

Bicycle Amenities

Adequate provision of bicycle parking is essential for increasing use of bicycles for transportation. In addition, amenities such as showers, lockers and changing facilities are as important to the bicycle and pedestrian network as parking is to office buildings.

Bicycle Amenities Policies

1. The County shall develop bicycle parking policy and bike commuter facility standards for use throughout the county to ensure that adequate and appropriate bicycle parking is located at places of employment, within shopping centers and districts, at transit centers and park and ride lots, parks, at public buildings and at other appropriate public facilities.

    a. The County shall recommend bicycle locker and rack equipment types, and address equipment siting, protection from the elements, maintenance, replacement and security.

    b. The County shall establish minimum quantities of bicycle parking capacity required in new developments, based on the type of location served and the applicable requirements to provide vehicle parking spaces; provision of bicycle parking may lower requirements for vehicle parking, accordingly. It shall also address expansion of capacity over time to ensure that all demand is met.

    c. At places of employment of a certain age, size and type, the County shall establish guidelines to encourage the provision of showers, clothing lockers and changing rooms.

    d. These policies and standards shall be compiled in a manual and provide procurement guidelines and resources.

2. The County shall develop a single bicycle rack and locker procurement, distribution and installation program to expedite and simplify the process of providing bicycle parking to serve destination locations throughout the County. This program should be designed to simplify procurement by consolidating it for various county agencies, the towns, and other public entities, and realize cost savings by applying a countywide economy of scale. It should also be designed to extend its benefits to serve small businesses and small non-profit organizations.

The "Inverted U" rack is recommended by the Association of Pedestrian and Bicycle Professionals. The older "grill" style rack is not recommended.

B. Land Development

Loudoun County has made great strides in recent years in improving accommodation for pedestrians and bicyclists during the land development process. Continued inclusion of bicycle and pedestrian design into the land development process is critical. Important bicycle and pedestrian issues include access to and through developments, connections to adjacent developments, and circulation within development sites and residential neighborhoods. Other important features should include provision of bicycle parking, amenities such as showers and lockers for bicycle and pedestrian commuters, sheltered transit stops in commercial developments, and wayfinding systems in residential and mixed use communities.

Land Development Policies

The following policies provide a framework for how land development should address the needs of bicyclists and pedestrians. Land development projects often include new or improved roadways, and all policies guiding roadway development apply to land development as well, when transportation improvements are a project element.

1. Zoning and/or subdivision development policies and codes shall be modified to ensure pedestrian and bicycle access in order to prevent congestion in public streets.

2. All land development applications shall apply level of service standards to provide adequate internal bicycle and pedestrian circulation systems in the form of on-street bicycle accommodations and sidewalks (per the LOS target minimums).

3. All land development applications are encouraged to provide off-street bicycle and pedestrian circulation and pathway systems that augment the on-street system in order to provide the highest quality linkages to the primary destinations and reduce travel distances for pedestrians and bicyclists.

4. All land development applications shall provide necessary improvements to the roadways in the adopted Network within the determined area of impact (per the LOS target minimums).

5. All land development applications shall provide bicycle, pedestrian and transit access linkages to the adopted Network outside of the development, but within 0.50 miles of it.

6. All land development applications shall provide bicycle and pedestrian access through the development in various directions, so as to prevent it from becoming a barrier between other trip origins and destinations in the community.

7. All land development applications shall provide a sufficient number of bicycle and pedestrian access points to ensure efficient connections to and from the various activity nodes within the development and linkages to existing or future adjacent developments.

8. All land development applications shall provide appropriate forms of bicycle parking, located in the appropriate places throughout the development. The County shall also encourage the provision of showers and changing facilities in places of employment, per County guidelines for bicycle amenities.

    a. All land development applications shall provide appropriate wayfinding systems and other amenities to ensure the safety, comfort and security of bicycle and pedestrian travelers.

    b. All land development applications shall meet or exceed minimum national, state and county bikeway and walkway design standards for all of the accommodations outlined above.

9. New development shall be planned to meet Board of Supervisors' and School Board policies regarding the safety of bicycle and pedestrian facilities in school walk zones. Specific design criteria, particularly for bicycle and pedestrian facilities that meet School Board safety policies shall be identified for development in school walk zones.

10. To the extent possible, bicycle and pedestrian facilities should be incorporated into the public right-of-way.

11. The County will study and determine the scale of development needed to allow for placement of bicycle and pedestrian facilities, located along public roadways, in public access easements on private property. This study will also consider the ability of homeowners' associations to maintain bicycle and pedestrian facilities.

12. The County will allow reductions to setback requirements to accommodate a desired bicycle or pedestrian facility design that cannot be accommodated in the existing public ROW, provided that any required buffers are not negatively affected.

13. The County supports both public and private ownership of the public trail system, and through policy and regulation the County will ensure that all bicycle and pedestrian facilities are well-maintained and well-operated.

14. The Design Guidelines for the CTP (Appendix 1) will be amended to call for 150' of ROW for the following roadways:
    - Loudoun County Parkway (Route 607)
    - Gloucester Parkway
    - Waxpool Road (Route 625)
    - Belmont Ridge Road (Route 659)
    - Route 659 Relocated
    - Tri-County Parkway (Route 606 Extended/Route 621)
    - Tall Cedars Parkway (Route 50 South Collector Road)
    - Ryan Road (Route 772)
    - Old Ox Road (Route 606)
    - Russell Branch Parkway (Route 7 South Collector Road)

15. The County will study additional CTP roadways to determine if additional ROW is necessary to accommodate all public facilities.

C. Transit and Demand Management

Loudoun County provides established bus transit services within the County, and ridesharing facilities and programs have been growing as residential and employment based development expands in Eastern Loudoun. Currently, services include six fixed bus routes in greater Leesburg, the 7 to 7 on 7 between Leesburg and Town Center Plaza on Drainsville Road, and two commuter bus services (Cascades Town Center to West Falls Church Metrorail Station and service from Purcellville, Hamilton, Leesburg and Dulles N. Transit Center to Washington, DC). Eleven Park-and-Ride lots serve carpools, vanpools and the commuter bus routes; only one has bicycle parking (Dulles North). There is a telework center located in Sterling.

Even though Loudoun County's transit services are small today, maintaining and developing high quality pedestrian and bicycle access is important for today's success and the future. As a suburban jurisdiction with lower densities, integrating bicycle and transit services will widen the service or "catchment" area of a bus line or transit center and thus increase transit ridership.

The W&OD Trail running the length of the County presents new and creative opportunities. There may be potential to develop "drive-park-and-ride" trips, where commuters drive their car (with their bike on the back) to a W&OD trailhead, and bicycle to an employment site near the trail in the Dulles area, Fairfax County, Arlington or Alexandria. Some pedestrians would also benefit. Given today's lifestyles and traffic congestion on the roads, there may be a significant market of people who are interested in combining regular exercise with commuting, but don't have the luxury of living adjacent to the trail.

The most significant opportunity Loudoun County has to maximize the effectiveness of transit is to ensure high quality bicycle and pedestrian access to the future transit stations that will come with the Dulles Metrorail extension project.

Transit and Demand Management Policies

1. All future transit planning efforts undertaken by the County, the Washington Metropolitan Area Transit Authority (WMATA), the Northern Virginia Transportation Commission (NVTC), VDOT or others shall thoroughly address bicycle and pedestrian access to and integration with transit, including the following:

    a. provision of concrete pads and shelters at transit stops and stations, consistent with County transit policies

    b. curb ramps and other sidewalk improvements around bus stops to ensure accessibility

    c. secure and sheltered long-term bike parking at park and ride lots

    d. bicycle access on buses using front-mounted racks

2. The County will explore with the NVRPA the potential for encouraging bicycle commuting by facilitating "drive-park-and-ride" use of the W&OD Trail.

3. The County will ensure high quality bicycle and pedestrian access to, and urban design around, the future transit stations that will serve the Dulles Metrorail extension project in Loudoun County.

4. The County will continue to plan, fund and implement installation of on-bus bike racks to enable existing and future bus transit services operating in the County to transport bicycles.

D. School Access

Local and national estimates suggest that up to thirty percent of morning peak hour vehicle trips are school bound trips or include dropping students at schools.[27] The environmental, social, health, traffic safety and direct costs of a system that delivers most students to school via school buses and personal automobiles are significant. While increasing the numbers of students that bicycle and walk to school can help mitigate the negative impacts of the current system, safe routes to school must be created before parents and school officials will feel comfortable encouraging students to use them.

Creating safe routes to school requires action on a number of fronts. For access to be effective, both the school grounds and nearby roads and developments need to provide safe accommodations. New schools and new developments adjacent to schools need to be designed and built using the bicycle - and pedestrian - friendly policies and techniques advocated by this plan. Existing schools and neighborhoods must be retrofitted. In addition to the physical improvements, education of students, especially those of elementary school age, is needed to ensure adequate skill levels and encourage safe walking and biking behavior. Moreover, enforcement and guidance is needed in the form of crossing guards and policing of motorists and all travelers in school zones.

Sterling Middle School

School Access Policies

The following policy framework lays a foundation for improving bicycle and pedestrian access to Loudoun County Public Schools:

1. The County will encourage the School Board and relevant towns to review and provide advisory consent for the Level of Service policy elements that relate to schools and the creation of safe bike and walk routes around new and existing schools.

2. The County will encourage the School Board to initiate a "Safe Routes to School" Pilot Program designed to increase the number of students safely bicycle or walk to school. This pilot program shall be based on existing models used in Maryland and elsewhere to plan physical improvements and implement safety education programs and enforcement initiatives at one or two schools, with the intent toward expanding its implementation over time.

3. The County will encourage the School Board to establish a bicycle parking accommodation policy and procurement procedure that has been customized for the public school administration; it might use a similar but more flexible approach than that mentioned in the Bicycle Parking Policy section above.

4. The County will collaborate with the School Board to develop criteria for bicycle and pedestrian facilities in school walk zones to guide new development and transportation improvement projects to ensure that the designated walk zone is functional for students and staff of each Loudoun County school.

5. The County, in consultation with the School Board, will develop implementation strategies for improving walk zones.

E. Park Access

Loudoun County is served by sixteen large, regional parks, including nine that are managed by the County Parks, Recreation, and Community Services Department, six that are managed by the Northern Virginia Regional Park Authority (NVRPA), and one that is managed by the Town of Leesburg. The road and shared use path improvements that are identified on the Network Map include those that need to be made to improve access to the regional parks, as well as smaller neighborhood parks. Because of the Plan's primary focus on transportation, it is the intent to provide access to recreational facilities rather than the development of recreational trails.

Some of the larger parks offer opportunities to improve overall bicycle and pedestrian connectivity because key components of longer inter-community routes and short neighborhood linkages can be located within them. For example, improvements to the "short cut" trails across Claude Moore Park could improve connections between Sterling and the Dulles Town Center and Route 28 corridor. Connections through Ashburn Park could be part of improved linkages between the various Ashburn neighborhoods and the W&OD Trail. Any changes must be consistent with the mission and physical setting of each park.

Bicycle parking accommodations are also important facilities that should be provided in parks.

Park Access Policies

1. The County will identify and implement small-scale access improvements including directional signage, installation of bicycle parking and trail paving in Loudoun County parks, consistent with historic, environmental and other site constraints as well as park mission and physical setting.

2. The County will identify small-scale access improvements including directional signage, installation of bicycle parking and trail paving that are needed in NVRPA, Town of Leesburg, private, state or federal parks and coordinate implementation with the appropriate managing agencies.

3. The County will inventory bicycle parking accommodations at Loudoun County and NVRPA parks and ensure that a bicycle parking policy and procurement procedure for parks is included in the Countywide policy and program identified in the previous section on this topic.

F. Public Facility Access (excluding Parks and Schools)

Loudoun County's library system currently consists of seven facilities: Rust Library in Leesburg, Eastern Loudoun Regional Library in the Cascades area, Sterling Park Library, Middleburg Library, Purcellville Library, Lovettsville Library, and Ashburn Library. The County is also home to ten full-service community centers in Arcola, Bluemont, Purcellville, Leesburg, Lovettsville, Lucketts, Middleburg, Philomont, Sterling, and Sterling Park. Additionally, a senior center is located in Sterling and senior cafes are located within Arcola, Leesburg, and Purcellville. All of these public buildings play an important role in neighborhood and community identity.

Pedestrian and bicycle connections to public facilities could be included as part of neighborhood and village linkages. For example, improvements to Route 15 could provide access to the Lucketts Community Center; corridor connections to the Cascades Town Center could also include access to the Eastern Loudoun Regional Library, etc.

Bicycle parking accommodations are also important facilities that should be provided at public sites.

Public Facility Access Policies (excluding Parks and Schools)

1. The County will identify and implement small-scale access improvements needed for public facilities including libraries, community centers, senior centers, etc. Access improvements could include directional signage and bicycle parking for County owned public facilities. The County will coordinate with the Towns for implementing those facilities located within Town boundaries.

2. The County will require all land development applications to include bicycle and pedestrian access to existing and planned public facilities within 0.5 miles of the subject site.

3. The County will inventory bicycle parking accommodations at Loudoun County public facilities and ensure that a bicycle parking policy and procurement procedure is included in the Countywide policy and program identified in the previous section on this topic.

G. Network Maintenance and Management

Because the County owns and manages very little of the roadway system, ensuring good maintenance will require coordination with a variety of other parties. This includes VDOT, NVRPA, developers and property managers, HOAs and others. VDOT will maintain approved bicycle and pedestrian facilities located within the right-of-way of roadways that are under its operational control, except for snow and ice removal (as per VDOT policy of Dec. 19, 2002). Until the County is able to expand its public works development and maintenance capacity, other facilities will have to be maintained by their respective owners.[28]

A first step in developing a maintenance program is to identify what tasks need to be undertaken and who is responsible for these tasks. Responsibility is largely determined by facility ownership. Tasks are largely divided between on-street bikeway maintenance tasks, "off-street" sidewalk and sidepath tasks, and multi-use trail maintenance tasks. Recommended maintenance practices include:

- Sweeping bicycle lanes and shoulders regularly to remove debris
- Repairing roadway surfaces and sidewalks to ensure a continuous facility and smooth surface that is free of cracks, potholes, bumps and other physical problems
- Careful repair of utility cuts to prevent rough surfaces for cyclists and sidewalk interruptions for pedestrians
- Cutting back vegetation including intrusive tree roots to prevent encroachment
- Maintenance of bicycle and pedestrian signs, striping, and markings, especially replacement of signs that are damaged by vehicle crashes and other incidents
- Maintenance of drainage facilities including catch basins and drainage grates
- Snow removal
- Signal maintenance

The NVRPA has a model maintenance and management program for the W&OD Trail, as well as a long history of working with trail support groups to augment the agency's maintenance resources with those of volunteers. Practices and procedures from this model should be studied and considered for maintenance to existing paths in the County, and any new pathway facilities that are added to the network by VDOT or developers.

Additional practice recommendations for network maintenance are provided in Appendix F.

Network Management and Maintenance Policy

1. The primary action recommended for maintenance and management is that the County identify a lead agency and establish a system to address both regular and remedial inspection and maintenance of the on-road and off-road bicycle and pedestrian network. Once a system is established, a "Maintenance Action Request Form" could give citizens an easy means of reporting maintenance concerns.

Bikeway and Walkway Facility Types

Following is an overview of the basic facility types that are recommended within this plan. Design details for many of these facilities and treatments are provided in the Design Toolkit.

Recommended Bikeway Types – On-Road

Shared Roadways

- Shared Roadways are those streets and roads where bicyclists may be adequately served by sharing the travel lanes with motor vehicles. Usually, these will be streets with very low traffic volumes and/or low speeds, which do not need special bicycle accommodations.

Striped/Paved Shoulders

- There is no minimum width for paved shoulders, however a width of at least 4 feet is required to be formally designated as a bike lane. Generally, at least two feet of paved roadway surface outside the lane edge stripe are needed to support bicycle travel. On urban roads, where there is not enough space for a designated bike lane, striping the vehicle travel lanes to provide two or more feet of paved shoulder improves comfort and safety for bicyclists. On rural roads, any amount of paved shoulder improves safety conditions for bicyclists.

Bike Lanes

- A bike lane is a portion of the roadway that has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists. Bike lanes are always located on both sides of the road (except one way streets), and carry bicyclists in the same direction as adjacent motor vehicle traffic. The minimum width for a bicycle lane is 4 feet; five- and six-foot bike lanes are typical for collector and arterial roads.

Recommended Walkway Types

Sidewalks

- Sidewalks are the central ingredient of the countywide pedestrian network. Provision of sidewalks along streets and roads should be routine in Towns, villages and in the Suburban, Transition and JLMA policy areas. They should be included on both sides of the street and be a minimum of five – six feet wide. In most locations sidewalks should be separated from the roadway with a vegetated buffer.

Intersection Treatments

- Street intersections are perhaps the greatest barrier that pedestrians face in Loudoun County. A lack of pedestrian safety at intersections is a significant deterrent to walking. Appropriate treatments include a wide variety of features, including high visibility crosswalks, wheelchair ramps, curb extensions, median refuges, countdown signals, in-median safety bollards, mid-block crossings, and more. The Design Toolkit provides more detail about the application and design of many of these treatments.

Recommended Shared Use Facilities

Shared Use Pathways

- Shared use pathways or trails are an important component of a bicycle and pedestrian transportation system, because they can provide a high quality walking and bicycling experience in an environment that is protected from traffic. Generally, shared-use paths should be a minimum of ten feet wide and paved.

Hybrid Shared Roadway

- A hybrid, shared roadway is a unique treatment that is more commonly used in Europe. It may be appropriate for rural roads in Loudoun County where existing road-way cross sections are narrow, road widening to provide increased paved shoulder width is not feasible, traffic speeds need to be controlled, and bicycle and pedestrian safety improvements are warranted. This treatment provides combined bicycle/pedestrian ways on the outside edges of the roadway with striping and a distinctive pavement coloring and requires motorists to share this space with non-motorized road users.

Overpasses, Bridges, Tunnels and Bicycle/Pedestrian Ferries

- These are shared use facilities that provide access across barriers such as rivers, streams, railroads, freeways, interchange ramps and arterial roads. These facilities are used in conjunction with any of the other types of bikeway and walkway facilities. They provide important linkages where safe and direct bicycle and pedestrian access can be better provided with facilities that are separate from the existing roadway system.

Recommended Traffic Calming Treatments

- Transportation professionals define traffic calming as "the combination of mainly physical measures that reduce the negative effects of motor vehicle use, alter driver behavior and improve conditions for non-motorized street users." Traffic calming treatments, or measures, are intended to modify driver behavior, reduce vehicle speeds and increase safety and access for all street users.

Some of the engineering techniques and treatments for implementing traffic calming measures include the following:

- Vertical changes in the street - speed bumps, speed tables, raised intersections, raised crosswalks
- Lateral changes in the street - offset intersections, lateral shifts
- Constrictions in the street - narrowed travel lanes, narrowed pavement widths, pinch points, islands, traffic circles or roundabouts, entrance features, small corner radii
- Related streetscaping - surface textures, edge treatments, colors, landscaping, street trees and street furniture. (See the Revised CTP for additional policy guidance on traffic calming)

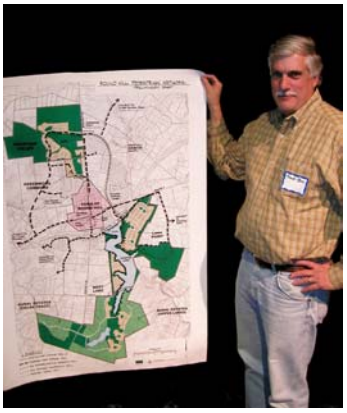
Chapter 5: Recommended Bicycle and Pedestrian Network

A. Network Overview

Identifying a network of existing and proposed bikeways and walkways is a central element of this Plan. It is the first step toward achieving the goal of countywide bicycle and pedestrian connectivity among residential neighborhoods, towns, villages, workplaces, shopping centers, transit stations, schools, parks, libraries, community centers, and other important destinations. Development of a network is also important for achieving the goals of meeting the needs of a diverse set of users, ensuring their safety and increasing the numbers of people who will use bicycling and walking for a greater portion of their daily transportation.

The Bicycle and Pedestrian Network Map (see map pocket) shows the primary routes and locations that should be improved to provide a connected bicycle and pedestrian network. Elements shown on this map include the following:

- High Priority roads and streets proposed for bicycle and pedestrian accommodations
- Proposed neighborhood linkages
  -Short path connectors
  -Bridges
  -Bicycle & pedestrian ferries
- Proposed off-road, shared use path corridors
- Pedestrian improvement areas
- Key linkages to neighboring jurisdictions



The purpose of the Network Map is to establish a vision of what can be created through sustained effort. It provides a geographically comprehensive framework that addresses the County's primary bicycle and pedestrian connectivity needs. It should be noted that the map is not intended to suggest that bicycle and pedestrian improvements are not necessary in locations that are not designated on the map, nor is it intended to designate specific facility types for particular roads.

B. Analysis Process

To select the roads, corridors and features in the proposed Network, the planning team used a variety of exercises and considered many inputs. First, ideas for bicycle and pedestrian improvements and desired locations for access were gathered from CAC members at working sessions of the committee and the general public at four evening meetings and via the project website. Additionally, field visits were conducted by the CAC, agency staff and consultant team. Input was also received from members of the

Interdepartmental Advisory Team (IDAT), which is composed of County agency staff and the Virginia Department of Transportation (VDOT).

Roadway and intersection designations in the Revised Countywide Transportation Plan (CTP) were studied and mapped, and CTP roadway design policy and functional classifications were also reviewed. This was augmented by a thorough study of road and street connectivity, identification of planned future roads, a review of existing and planned population density, and identification of key destinations such as parks, schools, employment centers, shopping centers, etc.

In addition to review and mapping of the County's Policy Areas - Suburban, Transition, Rural and Joint Land Management, a number of planning documents were reviewed, including:

- Town bicycle, pedestrian and vehicular circulation plans and trail and greenway plans
- County, VDOT, Route 28 Improvement District and other roadway improvement plans and programs
- studies identifying existing and proposed transit routes

Finally, the bicycle and pedestrian Level of Service results described in Chapter 4, and the bicycle and pedestrian Latent Demand Analysis conducted as a part of the Northern Virginia Regional Bikeways and Trails Study, were factored into the analysis.

Pedestrian Improvement Areas

Pedestrian Improvement Areas (identified on the Network map) represented on the map with black circles, include both *high use areas* and *problem areas* - some improvement areas are both (for more details about the inputs used to select improvement area locations see Appendix F).

- *High Use* areas are locations where significant levels of pedestrian traffic are already present or where higher levels of use are desired or likely due to latent demand analysis or future land uses and projected development.
- *Problem Areas* are locations where pedestrian accidents are occurring, where street crossings are difficult or dangerous, where connectivity is desired but blocked by large roads, lack of facilities or other barriers, or where poor pedestrian conditions or personal security concerns are a deterrent to pedestrian use.

C. Network Development Priorities

The connectivity goal identified in this Plan calls for increased bicycle and pedestrian access among a diverse set of activity nodes. Improved access to the W&OD Trail, the C&O Canal Towpath in Maryland, the Appalachian Trail and the scenic western Loudoun countryside are important connectivity objectives. Non-motorized access to the future Potomac Heritage National Scenic Trail and other planned trails is a strong concern of the Citizen Advisory Committee.

As described in Chapter 3, the primary barriers to increased connectivity are poor levels of service on existing roads and bridges, gaps in the existing bicycle and pedestrian network, large intersections that are intimidating to bicyclists and pedestrians, multi-lane roads that are difficult to navigate along and cross, and large features such as Dulles International Airport and the Potomac River. The following set of recommendations address these issues and provide a detailed guide for future actions that will improve bicycle and pedestrian connectivity in future years. Projects and proposed facilities within the boundaries of incorporated Towns are the jurisdiction of those Towns.

The Network recommendations have been organized into seven groups:

1. **Baseline Connecting Roadways**
2. **Major Road and Connecting Corridors**
3. **Off-Road Path Corridors**
4. **Neighborhood Connectors**
5. **Rural Bicycle Touring Routes**
6. **Pedestrian Improvement Areas**
7. **Connections to Neighboring Jurisdictions**

1. Baseline Connecting Roadways

A baseline network of connecting roadways is identified on the map in orange. This set of roads includes most existing and future CTP roads, as well as additional routes that were selected to provide comprehensive connectivity throughout the County and its most populated areas. For the most part, these roads will need to serve both bicyclists and pedestrians, however on some segments of the rural roads in western Loudoun, the need and opportunity to serve pedestrians with dedicated facilities does not exist. The composition of this baseline network fulfills the following criteria:

- It connects all major and minor population centers
- It links each village and rural town into the Network
- It includes most roads currently used for rural bicycle touring
- It links most public schools and associated recreation facilities into the Network[29]
- It links all major parks into the Network
- It provides access to all major employment centers and shopping areas
- It provides multiple linkages to transit stations and services
- It includes all primary connections to neighboring jurisdictions
- It includes both VDOT and Town controlled roads within Leesburg and Purcellville, but is not based on a comprehensive bicycle and pedestrian planning analysis of either of these communities

- It includes most, but not necessarily all, roads that are likely to need improvements to bicycle and/or pedestrian accommodations over time

Baseline Connecting Roadways Policy

1. Exercise every opportunity to improve bicycle and pedestrian conditions in the Baseline Network of Connecting Roadways by integrating appropriate accommodations into roadway improvement projects as they arise in the transportation or land development process.

2. Major Roads and Connecting Corridors

Drawing from the baseline network of connecting roadways and from the neighborhood connectors (explained in section C-4) a subset of major roads and connecting corridors was developed (see Table 5-1). This subset was developed to identify a smaller set of primary corridors that will serve the bicycling and walking needs of a large number of non-motorized travelers. They connect key destinations and serve major population centers, and activity nodes throughout the county. The primary criteria used to select these corridors included public input, roadway network analysis, latent demand analysis, and an assessment of origins and destinations.

Major Roads and Connecting Corridors Policy

1. The County in collaboration with affected stakeholders will ensure that every opportunity is used to improve bicycle and pedestrian conditions along the Major Road and Connecting Corridors. Because of their complexity and large scope these routes will be developed on a segment-by segment basis.

Table 5-1: Primary Roads and Connecting Corridors

#	Corridor Name	Primary Roads/Facilities Used	Rationale & Areas Linked	Key Issues & Needs
1	Lowe's Island-Cascades Town Center (CTC)	Neighborhood Streets such as Lowe's Island Blvd, Westwood, Sugarland Run Dr & Cottage Rd, & New Connector Trails	Link residential areas to shopping, employment, & transit	Improve tunnel at Great Falls Shopping Center & provide bridge over Sugarland Run & connections through neighborhood streets
2	Dulles Town Center-CTC	New Connector Trails & Bridge over Rt. 7	Link mixed-use areas and provide safer crossing of Rt. 7	Potential new bridge over Rt. 7 just west of Cascades Pkwy interchange
3	NOVA Criminal Justice Training Academy-CTC	New Connector Trails, Winding Rd, Rt. 7 corridor	Link multiple residential areas to shopping, employment, & transit	Bridge over Broad Run, sidepath along Rt. 7
4	Algonkian Reg. Park-Sterling & Herndon	Cascades Pkwy, Middlefield or Broadmore Drs, Potomac View Rd New Connector Trails, Amelia St, Church, Lincoln & Crestview, spur on Church Rd east & west of Sterling Blvd	Link Algonkian Reg. Pk to CTC & Sugarland Run neighborhood. Link Sterling neighborhoods to CTC, link Cascades neighborhoods to W&OD & Herndon destinations	Potential for partial grade separated crossing of Rt. 7 near Potomac View. Potomac View Rd presents an opportunity for bicycle lanes by paving a gravel shoulder and re-striping part of the roadway
5	Rt. 7 East (See corridors 2-4 above)	Rt. 7: Fairfax Co. Pkwy to Rt. 28	Improve access along Rt. 7 from Fairfax Co. Pkwy to Rt. 28	Can be planned & implemented in discrete segments, sidepath layout & alignment will need to vary; may not be needed on both sides in all segments
6	Riverside Pkwy/Rt. 7	Rt. 7, Riverside Pkwy or both from River Creek Pkwy to Rt. 28/Broad Run; New Connector Trails & Bridge	Link Leesburg w/Cascades; the W&OD Trail is too far south. Links in Lansdowne, Loudoun Hospital Center, & educational institutions north of Rt. 7	Determine if facilities are provided on Riverside Pkwy, will they also be needed on all of Rt. 7. Proposed new interchanges along Rt. 7 will be a design challenge. Use same bridge over Broad Run as Corridor 3
7	W&OD Trail-Algonkian Reg. Pk	Church, Cascades Pkwy, New Connector Trails	Link major recreational destinations & activity areas between	Use same new bridge over Rt. 7 as Corridor 2; improve on-road conditions
8	Algonkian Pkwy	Algonkian Pkwy, Holly Knoll Dr	Link resources along Algonkian, residential areas, parks, schools, Fairfax Co trail system, Dulles Town Center	Coordinate w/Fairfax Co, developers who made proffers & HOAs
9	Lovettsville-Brunswick, MD	VA 287, Berlin Tpke	Link Lovettsville w/C&O Canal & N.B., MD MARC train station	ROW acquisition may be necessary, abandoned road may present opportunity for sidepath
10	Purcellville-Lovettsville	VA 287, Berlin Tpke	Link Purcellville & W&OD Trail to Lovettsville & C&O Canal Towpath	ROW acquisition may be necessary; selecting a bikeway facility may require a study
11	Round Hill-Hamilton	Business Rt. 7	Link Towns via their Main Sts: Round Hill, Purcellville, & Hamilton. Improves access to Franklin Pk, W&OD Trail & local schools	Bikeway/walkway facility design will need to vary throughout this long & diverse corridor. Intersection design & multi-modal traffic flow are key
12	Clarke County-Round Hill	Rt. 7	Link W&OD Trail & Round Hill w/Bluemont & Appalachian Trail	ROW acquisition may be necessary; selecting a bikeway facility may require a study

13	W&OD Trail-Lovettsville	Rt. 9, Clarke's Gap, Milltown Rd	Link W&OD Trail w/Waterford, Lovettsville	The Rt. 662 ROW is narrow & corridor has constraints presented by historic/ environmental characteristics. Good location to try an innovative treatment
14	White's Ferry-Ball's Bluff Access	King St. from Market St., US 15, White's Ferry Rd; spur on US 15 Bypass from Ft. Evan's Rd to the merge w/Rt. 15, spur on Dry Hollow & Ball's Bluff Rds	Link Leesburg w/White's Ferry & C&O Canal. Provide access to Ida Lee & Ball's Bluff parks	Proper facility design on high speed, high volume, arterial roadways. An opportunity exists to utilize Dry Hollow & Ball's Bluff Rd to link into the Ball's Bluff Reg. Pk. Combines w/old Ball's Bluff-a riverside rte to White's Ferry might be possible
15	White's Ferry-Point of Rocks MD	US 15	Link Leesburg Town Center, Lucketts & Point of Rocks MARC station. Provide access to Temple Hall Farm Reg. Pk	Road widening may be necessary. Managing traffic speed, intersection design, safety & potential historic & natural resource impacts are key
16	S. King Street	King St from Market St to Harmony Church Rd; spur on Evergreen Mill Rd from King St to Heritage H.S.; spur on Masons Ln & Battlefield Pkwy	Link Leesburg Town Center, W&OD Trail, South Leesburg neighborhoods, three new schools & a park	Facility design through interchange at Rt. 7 Bypass
17	Market St/Ft. Evan's Rd	Market St (& Loudoun St) from western Town Line to Ft. Evan's Rd to River Creek Pkwy	Link Leesburg Town Center w/Ft. Evan's Plaza shopping area & Corridor 6 at Founders' Field	See NoVA Bikeway Study Case Study for issues along Market St, reconnecting Ft. Evan's Rd at Rt. 7 Bypass intersection, & crossing intersection, is key for bike & pedestrian linkage
18	Edwards Ferry Rd/River Creek Crosstrail	Edwards Ferry Rd from Market to Shoal Creek, River Creek to Rt. 7, Crosstrail to Evergreen Mill Rd	Link Leesburg Town Center w/Red Rock Reg. Pk & River Creek community. River Creek to W&OD Trail & new development in S. Leesburg	Intersection crossing improvements at Rt. 7 bypass. On- & off-road facilities will be needed on River Creek & Crosstrail
19	Sycolin/Plaza	Plaza St in Leesburg and Sycolin Rd to Belmont Ridge Rd	Links northern Leesburg, W&OD Trail, new neighborhoods in southern Leesburg, Leesburg Airport, & mid-Ashburn	Improved access is needed at W&OD Trail crossing in Leesburg; plans to develop interchange at Sycolin Rd & Rt. 7 bypass will present design issues
20	Farmwell /Waxpool East	Ashburn Farm Pkwy from Belmont Ridge Rd to Farmwell Rd to Waxpool Rd to W&OD Trail	Link middle Ashburn w/Dulles employment area, W&OD Trail & Sterling/Cascades	Integrating bike/ped improvements into various road improvement projects; design of accommodations through new interchange at Rt. 28
21	Waxpool West	Waxpool Rd from Belmont Ridge to MCI campus, spur on Broadlands Blvd/Shellhorn Rd/Faulkner Pkwy to Waxpool	Link southern Ashburn w/Dulles employment area, W&OD Trail & Sterling/ Cascades. Provide linkages to local schools in Ashburn	Integrating bike/ped improvements into various road improvement projects, improving local linkages within the various campuses of the Dulles employment area
22	Gloucester Pkwy/Hay Rd	Uses Gloucester Pkwy from Belmont Ridge Rd to Nokes Blvd to Dulles T.C. & Cascades Pkwy; spur on Hay Rd to W&OD Trail to Farmwell MS; & spur on City Center Blvd to Rt. 7	Link northern Ashburn with Dulles employment area, Dulles Town Center & Sterling/Cascades. Provide linkages to local schools in Ashburn	Integrating bike/ped improvements into various road improvement projects; design of accommodations through new interchange at Rt. 28

23	Loudoun Co. Pkwy	Presidential Dr from GWU-VA campus & Loudoun Co Pkwy to South Riding & Manassas Battlefield in Prince William Co	Link Potomac Heritage Nat'l Scenic Trail (PHNST) & Rt. 7 w/ Dulles employment area, South Riding & Prince William Co	Facility design, & ensuring utility of bike & ped features as the Pkwy is implemented in phases that will be spread over a significant time period
24	Ashburn Rd	Lansdowne Blvd, Ashburn Rd, Shellhorn Rd, Ryan Rd & short off-road trail connector	Link Lansdowne, Ashburn Village, W&OD Trail & future Moorefield metrorail station. Provide linkages to local schools in Ashburn	Integrating bike & ped facilities into this often-narrow ROW & through Ashburn Village. Completing the linkage to the future rail station near Ryan Rd/267 interchange
25	Ashburn Village Blvd/Ryan Rd	Janelia Farm Blvd, Ashburn Village Blvd, Ryan Sq. Rd, Ryan Rd (or East-West Connector)	Link Rt. 7, central Ashburn, future Moorefield metrorail station, Belmont Green, & Brambleton Reg. Pk. Provide linkages to local schools in Ashburn & western parts of the Dulles employment area	Retrofit of recently built Ashburn Village Blvd & Ryan Sq. Rd.
26	Belmont Ridge Rd	Upper Belmont Place, Xerox Dr, Belmont Ridge Rd & Gum Springs Rd	Links PHNST, Xerox/ Lansdowne w/W&OD Trail, eastern Ashburn, Brambleton Reg. Pk, South Riding, & Prince William Co	Facility design, & ensuring utility of bike/ped features as road widening is implemented in phases that will be spread over a significant time period
27	Old Ox Rd	Loudoun Co Pkwy & Old Ox Rd from US 50 to Herndon; spurs on Moran Rd & Cedar Green Rd	Links South Riding w/Dulles employment center, future 606 metrorail station, Dulles Airport, W&OD Trail, Cascades & Sterling. Will be a major component of a circumferential route around Dulles Airport	Facility design, & ensuring utility of bike/ped features as road widening is implemented in phases that will be spread over a significant time period
28	Atlantic Blvd/Shaw Rd	Existing & future Atlantic Blvd, Shaw Rd, a short connector trail, Innovation Ave, & Rock Hill Rd	Links Algonkian Pkwy, Rt. 7 & Dulles Town Center w/W&OD Trail, Dulles employment area, a future metrorail station & Herndon in Fairfax Co	Alignment of future Atlantic Blvd, connections w/W&OD Trail, facility design in high speed, commercial corridor, ensuring utility of bike & ped features as roadways are implemented in phases, ensuring good linkages in Fairfax Co near Dulles Toll Rd
29	US 50 East	US 50 from Fairfax Co to US 15	Links South Riding to western Loudoun & Fairfax Co	Providing a safe & attractive bike/ped accommodations on this high speed, high volume highway; designing these facilities through multiple proposed interchanges
30	US 50 West	US 50 from US 15 to Fauquier Co	Links South Riding & Middleburg & Fauquier Co	Providing improved bike accommodations in conjunction w/planned pedestrian-oriented traffic calming measures
31	Claiborne Pkwy	Lansdowne Blvd, Claiborne Pkwy	Links Lansdowne w/western Ashburn & new Ashburn developments south of 267. Links w/Loudoun Co Pkwy on southern end	Some sidepaths have already been built along Claiborne Pkwy. This route is slated to become the major north/south corridor serving traffic that now uses Ashburn Rd

32	Leesburg to Middleburg	Gleedsville Rd, Oatlands Mill Rd (650), Rt. 15, Lime Kiln Rd, 734, 748, Rt. 50, spur on The Woods Rd (771)	Links Leesburg w/Middleburg while using only small portions of Rts. 15 & 50	Lime Kiln Rd is now a paved road. With the spur, this route will provide access to future Banshee-Reeks Park & provide a connection between Leesburg & Middleburg that largely avoids the high speeds, volumes, & trucks on Rts 15 & 50

3. Off-Road Path Corridors

Over the course of this study, seven potential trail corridors were identified through public input and analysis of future land development patterns; in addition to being summarized below (Table 5-2), each are represented on the Network Map.

Five of the seven are directly related to the plans for extending the Metrorail system to Loudoun County along the Dulles Access Road and Greenway. The rationale for development of these trails is directly tied to a strategy of maximizing bicycle/pedestrian access to the Dulles rail extension transit stations, improving bicycle and pedestrian access to the thousands of job sites at and around Dulles International Airport, and realizing cost savings by building trail and transit infrastructure at the same time. Current County land use and transit policies stress mixed-uses and pedestrian-friendly urban design at the future 772 metrorail station, however development of off-road paths and other bicycle and pedestrian facilities radiating from the Route 606 station is also important, to ensure high quality non-motorized access to and from the many employment sites that will be developed around this station. The following is a brief description of each corridor and the linkage it would provide.

Off – Road Path Corridors Policies

1. Initiate feasibility studies and collaborate with affected stakeholders for Off-Road Path Corridors 1-7.

2. Ensuring environmental protection of all sensitive areas is a goal of the study of corridors.

Table 5-2: Off-Road Path Corridors

#	Trail Corridor	Linkage	Purpose	Opportunity
1	Lovettsville/Rt. 287	Town of Lovettsville to Brunswick Bridge	Provide high quality facility in this high use corridor serving recreational trips, river access & commuters to the MARC rail station in Brunswick	An abandoned road may present an opportunity to develop a shared use path in this corridor
2	Bluemont Connector	Round Hill to Bluemont	Further extend the W&OD Trail, link Round Hill & Purcellville with the Appalachian Trail near Bluemont	Other than Rt. 7, assembling easements appears to be the only opportunity to create a public corridor
3	Moorefield Station-Greenway West	Rt. 772 metrorail station to Belmont Ridge Rd	Link Brambleton Reg. Pk, schools, & new residential development to transit	Receive proffers from developers; use new road corridors & stream corridor
4	Moorefield Station-Greenway North (Beaverdam Run)	Rt. 772 metrorail station to W&OD Trail in Ashburn Village following Beaverdam Run	Link Ashburn residential communities to transit. Link W&OD Trail, Ashburn Park, Greg Crittenden Park & local schools. Provide off-road alternative to Ashburn Rd	Receive proffers from developers; use new road corridors & stream corridor. River and Stream Corridor Overlay District (RSCOD) policies would apply.
5	Moorefield Station-Greenway Northeast	Rt. 772 metrorail station to Rt. 7	Link new transit station to Ashburn neighborhoods, W&OD Trail, employment areas around MCI campus, and new development west of Broad Run	Receive proffers from developers; use stream corridor. RSCOD policies would apply.
6	Dulles International Airport Ring Route	Rt. 606 metrorail station to US 50 to new Air & Space Museum to Sully Rd metrorail station	Link South Riding with northeast Loudoun Co & western Fairfax Co	Include route as part of roadway upgrades to Rt. 606, Rt. 28 & the Rt. 50 N. Connector
7	Dulles Rail Extension Trail	Sully Rd metrorail station to Rt. 772 metrorail station	Complete loop around airport, link loop to the airport terminal, provide access to employment sites in Rt. 28/Dulles business center, link the airport loop to Ashburn & Herndon	Include in Loudoun Co request to WMATA & the Northern Virginia Transportation Commission (NVTC)

4. Neighborhood Connectors

On the Network Map, neighborhood connectors are shown using two symbols - purple lines and purple triangles. These projects are usually relatively simple and often inexpensive. Many of these proposed connector facilities are components of the major corridors already discussed, others will be discussed as part of a later section addressing W&OD Trail crossings and access. Within Ashburn, Cascades and Sterling there are additional locations for small connector paths that would provide more efficient local connections. These include the following:

- upgrading the pathway connection across Claude Moore Park, consistent with Park mission and physical setting
- connecting some of the isolated subdivisions of Countryside with pathways

- upgrading and extending path connectors around Ashburn Park, and better connecting central Ashburn neighborhoods with the W&OD Trail (see also Corridor 4 above)

- providing pathways across the open space at Northern Virginia Community College Campus linking Cottage, Potomac View and Campus Drive to Cascades Town Center

- improving neighborhood connections to the Sugarland Crossing Shopping Center area on the south side of Route 7

- linking the W&OD Trail to Severn Way West across Broad Run with a bridge and path

- linking Rte. 287 and Lovettsville Elementary School with the pool and community center on Broadway with a path along the Town boundary

Neighborhood Connectors Policy

1. The County will seek funding for planning, design and construction of at least one Neighborhood Connector project per year over the next ten years. Seven projects are listed here; others are identified on the Network Map.

5. Rural Bicycle Touring Routes

Western Loudoun remains very popular as a recreational bicycle touring area. Its scenic farm country and historic towns and villages are popular destinations for bicyclists from around the region. Some long distance touring routes use western Loudoun's roads as well. Both the W&OD Trail and C&O Canal Towpath connect the heart of the Washington region with rural Loudoun, bringing long distance cyclists, racers on training rides, club rides and even families. Moreover, many Loudoun County residents love to bicycle in the area.

Unfortunately, population growth in Loudoun and in West Virginia and Frederick County, Maryland have increased traffic volumes and speeds on Loudoun's rural roads. The Bicycle Level of Service analysis performed for this plan found that most rural roads in western Loudoun had levels of service "D" or lower.

However, an opportunity exists to initiate a network of designated bicycle touring routes in western Loudoun. Designated routes can be signed, mapped, and promoted by local business and economic development entities. In addition to the economic benefits that can be realized by designating routes, it can also create an impetus for towns, villages and private sector entities on the route to provide amenities that support recreational bicycling. These amenities might include rest stops, information kiosks and bike parking in towns, as well as new business development such as bed and breakfasts, bike shops, restaurants, and tour guide services.

Given current Bicycle Levels of Service, this Plan identifies two potential routes that could be designated with a small amount of effort, including field study and sign installation:

a. Waterford to Tarara Vineyard & Winery (VA Rte. 662)

b. Purcellville to Middleburg to Round Hill (VA Rtes. 722, 728, 731, 734, 748, 50, 626, 719)

Bicyclists frequently use a number of additional routes. Other routes would likely need more significant LOS upgrades before they could be designated. These routes include Loyalty Road, Taylorstown Road, Lovettsville Road, Milltown Road, Rte. 287, and a variety of roads around Hillsboro, Round Hill, Purcellville and Hamilton.

Rural Bicycle Touring Route Policies

1. The County will conduct a field study of specified rural bicycle touring routes, develop a designation plan and signage design, and implement designation.

2. The County will conduct studies for additional rural bicycle touring routes for which demand exists, and which have the potential for being established as safe routes. The study will determine the type of facility most conducive for each of the specified roadways such as, multi-use pathways along roads, bike lanes, wide curb lanes, paved shoulders, retrofitted intersections, traffic calming techniques, etc.

3. The County will develop a designation plan, signage design, and implementation designation for the bicycle touring routes deemed feasible.

4. The County will designate bicycle touring routes in association with traffic calming policies identified in the subsequent section on this topic.

5. The County will coordinate with the Virginia Department of Transportation to ensure that future road improvements along rural roads identified as feasible, provide bicycle accommodations and provide for a design that retains the rural character.

6. The County will work with the Loudoun Convention & Visitors Association (LCVA) to help promote designated bicycle touring routes.

7. The County will continue to seek funding for the Route 9 Corridor Study and follow the recommendations of the study.

8. In developing and regularly updating the Design Toolkit, particular attention shall be given to identifying innovative designs for multi-modal use of rural roadways.

6. Pedestrian Improvement Areas

Pedestrian improvement areas (PIAs) include both *high use areas* and *problem areas* – some pedestrian improvement areas are both. The Network Map identifies 66 improvement areas, representing a wide variety of situations. For the purposes of discussing PIAs in the Plan, they have been organized into the following classes (see table 5-3). For a complete list of PIAs see Appendix F.

Table 5-3: Pedestrian Improvement Area Classes & Types

Class	Improvement area Type	Number of Improvement Areas
1	Activity Centers, Town Centers, Village Centers, Shopping/Employment Areas, School Areas, Future Rail Transit Centers	29
2	Intersections	9
3	Planned/Existing Interchanges	22
4	W&OD Trail/Road Intersections, Road Segments, Potomac River Bridges	8
5	Traffic Calming	8

Class 1 - Activity Centers: Typical pedestrian issues in Class 1 improvement areas include ADA accessibility, crosswalks and intersection safety, wayfinding aids, gaps in the sidewalk network, a need for bus stop improvements or parking and personal security concerns. Bicycle parking in the form of racks or lockers is usually a need as well. Town Centers typically have the most complex and diverse set of needs. In communities like Leesburg and Middleburg, which are historic and based on traditional town plans with Main Streets, key needs are typically traffic calming, mid-block crossings, intersections improvements and ADA accessibility. The newer town centers, such as Cascades Town Center, have fewer ADA accessibility issues, but there is a need to address the large, high-speed roads and complex intersections, improve neighborhood linkages with connector paths, provide bike parking and add wayfinding signs. Needs in Village Centers and school areas tend to be smaller in scope and center around adding sidewalks or eliminating gaps in the sidewalk system, improving key crossing points, and utilizing gateway treatments as a part of traffic calming measures.

The Cascades Town Center Case Study included in this Plan (see Appendix H) provides an example of a more detailed town center study with ideas for improving intersections and walkability.

Activity Centers Policy

1. Provide planning leadership for pedestrian improvement areas in unincorporated areas. Each improvement area should receive a walking audit and field assessment of needs. Improvement projects shall be initiated as stand alone projects or based upon opportunities that arise such as new developments, road improvements, or construction of public facilities.

Class 2 - Intersections: Seven intersection improvement areas are identified on the Network Map, highlighting pedestrian crossing problems at nine specific intersections (see table 5-4). Each of these intersections was identified as a problem during the public outreach and comment process.

Other problem intersections are identified in the plan as a part of Class 1 improvement areas. Those include intersections along Algonkian Parkway; Main Street in Purcellville; throughout Ashburn; within South Riding along US 50 and the Loudoun County Parkway; in Hillsboro; at Lucketts and White's Ferry Road on US 15; and along various roads that serve the Dulles/Route 28 employment area.

Public comment in this planning process clearly identified great difficulty for pedestrians and cyclists to cross Loudoun County's major roads including Route 7, Business 7, Route 50, Route 15, Route 9 and the Bypasses around Leesburg. Despite the difficulty, there remains a high public desire to make these crossings.

Table 5-4: Key Problem and High Use Intersections

1	Route 9 & Clarke's Gap Road
2	Route 15 Bypass & Edwards Ferry Road
3	Route 15 Bypass & Fort Evans Road
4	Route 7 & Campus Drive (NOVA Com. College)
5	Route 7 & Potomac View Road
6	Route 7 & Palisades Parkway
7	Route 7 & Countryside Blvd.
8	Palisades Parkway & Southbank Street
9	Palisades Parkway & Potomac View Road

Implementing intersection improvements designed to increase both perceived and actual safety should be a central element of Loudoun County's future bicycle and pedestrian program. The application of specific treatments and designs must be evaluated on a case-by-case basis. New minimum intersection design standards are described in the Design Toolkit. Additionally, the following types of improvements should be considered for intersections identified in this Plan:

- high visibility crosswalks and textured pavement treatments
- smaller curb radii and curb extensions
- tactile warning devices and audible pedestrian signals
- pedestrian countdown signals and advanced green lights
- in-median pedestrian safety bollards
- median refuge islands and median noses
- right turn on red prohibitions
- appropriate landscaping

All four Case Studies included in this Plan provide more detailed examples of what is possible with regard to intersection improvements and retrofits.

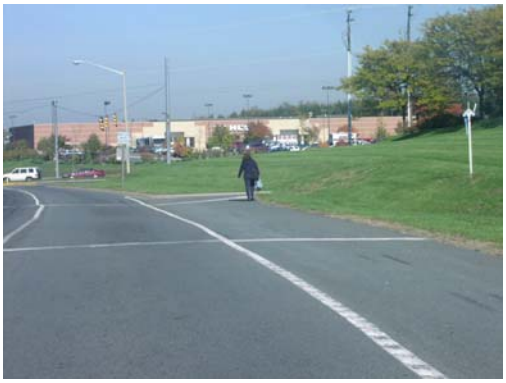
Intersections Policies

1. Within an overall implementation plan, initiate planning and design of at least one major intersection improvement project per year.

2. Ensure that all VDOT and Town initiated improvement projects for intersections that are in PIAs make pedestrian and bicycle safety and access central objectives of the projects.

Class 3 - Interchanges: The CTP identifies 28 locations for major highway interchanges. Interchanges are roadway crossings where some or all of the turning movements are removed from signalized control and facilitated by continuous flow ramps and merge lanes. Future interchange locations are located primarily on VA Routes 7 and 28, and US Route 50, also along the Route 7 and 15 Bypasses around Leesburg.

Typical highway interchanges create significant bicycle and pedestrian barriers and safety hazards. Historically, interchange design has not accommodated bicyclists or pedestrians, such as the Route 7/US 15 Bypass interchange on the east side of Leesburg. This interchange has effectively severed bicycle and pedestrian access between the Town of Leesburg and the shopping centers between Route 7 and Ft. Evans Road. Yet close proximity, and the lack of access to a car, has resulted in shoppers and workers continuing to cross high-speed roads and ramps on foot and bicycle because no formal pedestrian crossing is available. The Town of Leesburg has acted to address safety concerns in this area.



<u>Future Route 7, 50 and Bypass Interchanges</u>: With increased development projected along Routes 7, 50 and the Leesburg Bypasses, it is critical that future interchanges on these roads include bicycle and pedestrian crossing accommodations. Moreover, new designs for these interchanges should be explored which are easier and less costly to make safe crossings for non-motorized travelers. It may be the case that the need for an interchange should be reconsidered in light of the need for the roads to carry significant amounts of bicycle and pedestrian traffic. The funds saved from not constructing two or three planned interchanges could be used to provide bicycle and pedestrian accommodations through other interchanges or used to design highly efficient and safe at-grade intersections.

<u>Route 28 Interchanges:</u> A number of interchanges along Route 28 are already in design. Because Route 28 is being upgraded to a limited access highway, interchange ramps are the only way to accommodate access and crossing roads. However, because of its strategic location between Ashburn and Sterling, Route 28 has the potential to become a major barrier to bicycle and pedestrian travel between two of the largest communities in Eastern Loudoun. Currently, the W&OD Trail is the only bicycle and pedestrian access across Route 28, and its SE/NW alignment limits its ability to serve many future bicycle and pedestrian trips that need to cross Route 28. Additional access across Route 28 is planned in the Moran Road overpass and at Riverside Drive.

Interchange Policy

1. Request that the Route 28 project include appropriate bicycle and pedestrian accommodations within the corridor to facilitate east-west and north-south travel for non-motorized and consider an exclusive bicycle and pedestrian crossing at Severn Way West.

Class 4 - W&OD Trail Crossings and Access Needs: Three at-grade road crossings of the W&OD Trail are identified in the Plan as PIAs in need of crossing safety improvements: Belmont Ridge Road, Ashburn Road and Sterling Blvd. Additionally, seven locations for access improvements (see Table 5-5) are indicated on the Network Map as Neighborhood Linkages (purple triangles).

Trail crossing safety improvements: Current Northern Virginia Regional Park Authority (NRVPA) policy requires that all new roads and road widening projects must provide overpasses or underpasses for the Trail. NRVPA underpass standards prohibit tunnels and include high quality guidelines to ensure safe and secure underpasses, or modestly sloped trail overpasses.

Current CTP roadway plans will result in future grade separations at Belmont Ridge Road, Claiborne Parkway (under design), Smith Switch Road, Pacific Blvd., Atlantic Blvd., and Church Road (under design).

However, for trail/road intersections that are likely to remain at-grade for many years, crossing safety improvements should be implemented. The following types of treatments should be considered: upgraded warning signs, use of high visibility crosswalks, use of median refuges, painted rumble strips for the roads, trail bollard or chicane designs that require slower bicycle/skater crossings and allow cyclists to stop without dismounting, and lighting and/or electronic trail sensors tied to motorist warning lights.

Trail access improvements: Maintaining bicycle and pedestrian access from bikeways and walkways along the crossing road is not a part of the current NVRPA requirements and is frequently reduced or lost with grade separation projects. In Loudoun County an example of this is where Loudoun County Parkway crosses the Trail. Moreover, grade separation design does not always favor trail users. Frequently roadway design requirements dictate that the trail be taken up and over the road, requiring the trail users (who travel without motorized power) to raise their elevation, rather than road users.

Locations where new or improved access to the trail is proposed in this Plan are listed in table 5-5. In some cases connector trails are needed, in others, ramps from the crossing road. Some locations might be appropriate for increased trailhead parking.

Table 5-5: Proposed Trail Access Improvements

	Community	Location	Need
1	Ashburn	Belmont Green Park & Forest Farm Lane	Connector trail
2	Ashburn	Between Belmont Ridge and Ashburn Road	Connector trails from neighborhoods on north and south sides of the trail.
3	Ashburn	Ashburn Village Blvd.	Improved connector trails, ramps and signs.
4	Dulles/ Rte 28 Business Dist.	Loudoun County Parkway	Ramps and connector trail west across Broad Run.
5	Dulles/ Rte 28 Business Dist.	Pacific Blvd.	Ramps
6	Dulles/ Rte 28 Bus. Dist.	Atlantic Blvd.	Ramps

W&OD Trail Access Policies

1. Where new roadway construction triggers grade separation of the W&OD Trail and the crossing roadway, access ramps and/or trails from each side of the crossing road must be provided as a part of the grade-separation project. Moreover, design of the crossing structures shall minimize the elevation changes required for the trail or use a trail underpass design, which creates more favorable grade change sequences for trail users.

2. The County will seek funding for improving safety at the three at-grade trail intersections identified above.

3. In collaboration with the Town of Leesburg and the NVRPA, the County will seek funding for planning, design and construction access improvements at the eight sites listed above.

4. All new developments located along the W&OD Trail within 0.50 miles are required to establish publicly accessible linkages and connector trails to the W&OD Trail for use by residents of the development and trail users in adjacent neighborhoods and developments.

Class 5 - Traffic Calming: In the CTP, the County has already adopted policy to "promote and implement traffic calming measures in all policy areas." Moreover the County will "seek to expand traffic calming through community based programs in the Suburban, Transition, Rural Policy Areas and Towns through the proposed Community Plan process, new development applications, and collaboration with VDOT on rural collector and arterial roads." [30]

Traffic calming is one means of improving bicycle and pedestrian safety and access within improvement areas. This Plan identifies the following improvement areas where traffic calming measures are needed. There are other important locations where traffic calming would benefit bicyclists and pedestrians and this list is not intended to be exclusive.

- Planting Field Road in South Riding
- White's Ferry Road
- Business Route 7 from Hamilton to Round Hill. This roadway serves as Main Street for Hamilton, Purcellville and Round Hill. The County, in coordination with these Towns, is developing an integrated economic development, planning and historic preservation effort based on the "Main Street" model to support Town and County goals, that the Towns serve as functional, multi-modal centers in the Rural Policy Area. A traffic calming project similar to the Route 50 effort would be a strong complement to this ongoing effort.
- Route 9 through Town of Hillsboro. Route 9, from the West Virginia line to Route 7, is a fast, 2-lane road that is also the Main Street of Hillsboro. It is county policy not to increase the capacity of Route 9 to serve long distance commuters, which is consistent with efforts to make Hillsboro somewhat more negotiable by foot or bike. Traffic calming the length of the Town, if deemed beneficial by Town leadership, should be considered.
- Route 15 through Lucketts
- Route 287 through Lovettsville
- Broadway East in Lovettsville
- Intersection of Routes 662 and 9

Point of Rocks Bridge

Traffic Calming Policy

1. Ensure that traffic calming projects address the needs of non-motorized users and coordinate the design and development of improvements in the County's bicycle/pedestrian mobility system so that they will enhance traffic calming projects in the countywide transportation system.

7. Connections to Neighboring Jurisdictions

Making connections to neighboring jurisdictions is especially important to bicyclists in Loudoun County, but also to pedestrians. These connections are most important on the eastern and southern boundaries with Fairfax and Prince William Counties. Access to the Appalachian Trail and across the Potomac River to the C&O Canal Towpath, Montgomery and Frederick Counties in Maryland is also important for recreational access and linkage to commuter rail services into Washington, DC. Purple stars are used on the Network Map to indicate all of the key inter-jurisdictional linkages.

The Network Map highlights the three Potomac River bridges as facilities that should provide improved bicycle and pedestrian accommodations when they are upgraded or rebuilt. These bridges are owned and operated by the Maryland Department of Transportation. The Plan also proposes consideration of new "bicycle and pedestrian only" ferry services. Two locations have been identified for further study, the old Edward's Ferry Crossing and Algonkian Regional Park. These could be public or private operations and start-as only limited seasonal and/or weekend services. They would augment the current White's Ferry service and enable recreational loops to be made using the C&O Canal Towpath.

Connections to Neighboring Jurisdictions Policies

1. Initiate further study of the bicycle and pedestrian ferry opportunities.

2. The County will cooperate and share location and other information about each inter-jurisdictional linkage with the appropriate agencies in each respective jurisdiction.

D. Summary of Case Studies

The Plan includes four case studies (see Appendix G) that illustrate the types of bicycle and pedestrian improvements that can be made in typical situations within the County.

1. The Cascades Town Center study shows how intersections can be made more pedestrian friendly and how large collector roads can have bike lanes added within the existing right-of-way. This study also shows that with the use of connector trails, bike parking, and pedestrian access at the periphery, neo-traditional suburban retail development can be made more accessible to the residential communities surrounding them.

2. The Clarke's Gap study addresses rural road and intersection design, traffic calming on arterial roads and accommodations for bicyclists and pedestrians in the highway environment. This difficult intersection is very near to the W&OD Trail and is a major connecting point for cyclists and runners heading to and coming from the attractive country roads around Waterford.

3. The Maple Avenue study in Purcellville looks at gaps in the sidewalk network and at improvements that can make intersections safer for pedestrians, especially young people going to and from a local high school.

4. The Farmwell Station Middle School study in Ashburn looks at basic school access and safety issues. Because this school is adjacent to the W&OD Trail it will also examine trail security and how a major trail corridor can serve student bicycle and walking trips.

Chapter 6: Recommended Coordination with Towns

The seven incorporated Towns in Loudoun County play an important role in the bicycle network; the W&OD trail provides access to Leesburg, Hamilton and Purcellville, and an extension to Round Hill will be completed in the near term. Lovettsville, Hillsboro and Middleburg already see a great deal of bicycle traffic. In addition, the Towns include some of the most walkable communities in the County but are also the location of needed pedestrian improvements.

The Revised General Plan emphasized the value and importance of Town-County collaboration, and in the Bicycle and Pedestrian Mobility Master Plan, this collaboration has two key elements:

- Coordination of bikeways and walkways so they connect appropriately and productively
- County support of Town goals, both programmatically and financially

The Bicycle and Pedestrian Mobility Master Plan is intended, among many other goals, to support Main Street Loudoun (MSL), a collaborative economic and community development program that recognizes the value of Loudoun's historic Towns. Roadways in and near Towns should be designed to be great assets – visually pleasing, integral parts of the streetscape. Bicycle and pedestrian facilities should generally be included in MSL strategies for streetscape improvements.

This section notes County policy related to each Town. It also provides an overview of current bicycle and pedestrian facility needs in each Town and current related planning efforts.

Leesburg

Leesburg is the largest incorporated Town in Loudoun County, with a population of approximately 30,000. Land use in Leesburg is extremely diverse, and includes regional destination retail, historic downtown, a variety of residential neighborhoods, numerous schools, Town and County government, medium and small office developments, W&OD Trail, parks and an executive airport. While this represents a healthy mix of uses, as in many parts of the County, development has not carefully integrated bicycle and pedestrian linkages. Town officials are eager to improve non-motorized transportation options.

Pedestrian mobility in the historic downtown is vital to the economic health of the historic district. Brick sidewalks, narrow streets, convenient bicycle parking and slow traffic speeds are important elements of pedestrian mobility. Barriers continue to exist, however, and Leesburg's strategy for improving pedestrian mobility intersects with its efforts to support economic development in the historic district.

Improvements to Route 15, just north and south of the Town, are underway. On the south side of the Town, a multi-use trail on the west side of Route 15 is planned, and on the north side, to White's Ferry, wide shoulders are being paved to accommodate bicycles. The Town, County and VDOT have collaborated on this effort.

Town/County Interface

There are several important locations where Town/County coordination is needed and where the County should support Town plans for bicycle and pedestrian accommodations:

- On the north side of Leesburg, bicycle and pedestrian improvements along 15 and associated with the elementary and middle schools planned for the area must be designed to connect the growing neighborhoods of north Leesburg to the new schools, existing elementary schools (Leesburg ES and Balls Bluff ES) Ida Lee Park, Balls Bluff Regional Park and the Countywide trail network. Neighborhoods include Exeter, Potomac Crossing, Edward's Landing and Tanglewood. There are some existing trails in these neighborhoods, as well as a paved trail into Ida Lee Park that any new county facilities should consider during design.

- Improvements to Sycolin Road should be coordinated with the Town, since bicycle and pedestrian access to downtown and Market Street, planned parks, several large residential developments and numerous employment areas could be provided.

- Improvements to River Creek Parkway and plans for Crosstrail Boulevard should be coordinated so that non-motorized accommodations are included.

- Bicycle and pedestrian facilities along Edward's Ferry Road and Ft. Evans Road should be designed to connect the variety of residential, commercial, school and park uses that exist in the area. For Edward's Ferry Road, the bicycle and pedestrian accommodations will be sited to preserve the Civil War battlements that frame the roadbed of Edward's Ferry Road, just east of the Town/County boundary.

- The W&OD Trail is an important transportation facility in Leesburg. When needed, the County should support Leesburg's plans to enhance access to the W&OD Trail for residential and commercial properties.

- Bicycle access in the Route 7 corridor should be coordinated carefully with Leesburg so that a transition to potential bikeways on Market Street is planned.

Lovettsville

Lovettsville is the northernmost incorporated Town in Loudoun and has easy access to two transit stations on the MARC system, just across the Potomac in Brunswick and Point of Rocks, MD. Lovettsville and its environs have seen great deal of new development in recent years, and the Town has taken an aggressive position in trying to focus that investment in development that integrates seamlessly with the existing Town and, as a high priority, is well served by bicycle and pedestrian trails, sidewalks crossings and other needed facilities. The *Lovettsville Town Center* project will realign Route 287, the major north-

south connector that extends from Brunswick, MD to Purcellville, so that Route 287 functions as a neighborhood street as it passes through Lovettsville. Town officials have aggressively pursued the support of VDOT for this alignment as well as the installation of well-designed multi-use trail in the 287 corridor through Lovettsville.

Town/County Interface

Key issues for Town/County collaboration include the following:

- The County shall work with the Town and VDOT to identify and implement the best approach to providing bicycle facilities along Route 287, which would tie Lovettsville's trail to the Potomac, the C&O Canal Towpath and the Brunswick MARC station to the north and to Purcellville and the W&OD Trail to the south.

- The demands on Town resources associated with the Town Center development and the realignment of Route 287 are great. At Lovettsville's request, the County will facilitate problem solving with state agencies, including VDOT, to support implementation of the Town Center project.

- The County shall collaborate with Lovettsville to develop a bicycle and pedestrian connection between the Lovettsville Elementary School and the Lovettsville Community Center, along the Town/County boundary.

- East Broadway is the street which is the focus of Lovettsville's MSL programming. The county will support Lovettsville plans and policies regarding pedestrian improvements and traffic calming along East Broadway.

Hamilton

Hamilton, which is surrounded by a Joint Land Management Area (JLMA) which is jointly planned with the County, is the locus of a great deal of residential development. The need for bicycle and pedestrian access is growing. A new middle school, Harmony Intermediate, was completed in 2002, and the Town desires to develop an identifiable town center as a community focal point for the Town and JLMA. Hamilton completed revisions to its Comprehensive Plan in 2003 and is preparing to move toward implementation. Non-vehicular access will play an important role.

Town/County Interface

Key issues for Town/County collaboration include the following:

- Hamilton seeks improved connection to the W&OD Trail. The County will support this effort as needed.

- The recently constructed Harmony Intermediate School lacks bicycle and pedestrian connectivity to Hamilton and surrounding neighborhoods. The County will collaborate with the Town and the School Board to plan for and construct the appropriate facilities.

- The Hamilton Elementary School lacks bicycle and pedestrian access from the main street of Hamilton. The County will collaborate with the Town and the School Board to plan for and construct the appropriate facilities.

- As an element of a Route 7 traffic calming project, the County will collaborate with the Town to identify ways to mitigate traffic impacts and integrate vehicular travel into the streetscape of historic Hamilton.

Purcellville

Purcellville is an important crossroads for a countywide bicycle network. It has historically been the business hub of western Loudoun, and it is the terminus of the W&OD Trail. The Town is also the location of several important destinations, including two public schools, a private college, an historic downtown and retail. Bicycle access to these areas is a priority for the Town. The County and Towns of Purcellville and Round Hill and now engaged in development of a trail extension through Franklin Park to Round Hill. The W&OD and the trail extension both terminate in Purcellville.

In 2003, Purcellville and the County will jointly update the Purcellville Urban Growth Area Management Plan, the Town's comprehensive plan. Town goals for bicycle and pedestrian master planning should be addressed during this process. Purcellville has a current strategic plan for its Parks and Recreation programming, which articulates the Town's overarching goals and approach to prioritization for bicycle and pedestrian mobility. This strategic plan provides a foundation for additional planning and project development in the Town and JLMA.

Town/County Interface

Key issues for Town/County collaboration include the following:

- As an element of a Route 7 traffic calming project, the County will collaborate with the Town to identify ways to mitigate traffic impacts and integrate vehicular travel into the streetscape of Purcellville.

- As part of the revision for the Town comprehensive plan, the County will support, as needed, additional analysis and planning for bicycle and pedestrian mobility.

- Through implementation of the revised master plan for Purcellville and the JLMA, the County will facilitate development of important bicycle and pedestrian facilities as well as improved connectivity to the schools.

Round Hill

Round Hill is the County's westernmost incorporated Town. The historic character of the downtown has been substantially retained, even as several new neighborhoods are being constructed immediately adjacent to the Town.

Round Hill has actively planned for bicycle and pedestrian mobility, to ensure that this asset is retained as new development is approved and constructed. A draft master plan for the Town has been completed.

Connection through Franklin Park to Purcellville and the W&OD Trail are currently being engineered and will be constructed in the near future. Connection to neighboring subdivisions as well as Alder School Road, a feeder trail to the W&OD, are noted on the Town's draft plan. A key goal is to ensure that the Route 7 bypass does not become a barrier for bicycle and pedestrian connections.

Town/County Interface

Key issues for Town/County collaboration include the following:

- As an element of a Route 7 traffic calming project, the County will collaborate with the Town to identify ways to mitigate traffic impacts and integrate vehicular travel into the streetscape of historic Round Hill.

- Aggressive County implementation of the Town's bicycle and pedestrian plan during development review as well as planning and construction of bicycle and pedestrian facilities, such as the trail connection to the W&OD is needed.

Middleburg

Middleburg has a strong tourism base and attracts many bicyclists. The Town is currently developing a public rest area that will serve as a meeting place and include an information kiosk and bathroom facilities to accommodate tourists, including bicyclists. Middleburg is also active in the Route 50 Traffic Calming project, supported by the County and VDOT that will improve conditions for bicyclists on Route 50, as traffic speeds are reduced.

Additional goals for Middleburg may include improved pedestrian connection from the Hill School to downtown, including streetscape improvements, sidewalk construction and improvements around the Middleburg Elementary School and general attention to sidewalk gaps throughout the Town.

Town/County Interface

Key issues for Town/County collaboration include the following:

- The County should be attentive to bicycle accommodations at Middleburg's gateways, such as a potential pull-off at Mt. Defiance, that bring bicycle tourists into Town and to the new rest area.

- The County shall continue to support implementation of the Route 50 Traffic Calming project and support the Town, as needed, in formalizing subsequent elements of the project.

Hillsboro

Hillsboro straddles Route 9, which has become a busy commuter thoroughfare between West Virginia and Leesburg and other employment centers in Northern Virginia. The overwhelming issue for Hillsboro in improving bicycle and pedestrian mobility in the Town is the speed and volume of through traffic experienced on Route 9.

County policy, articulated in the Revised General Plan, is to collaborate with the Town and VDOT on both long and short-term projects that would mitigate the impact of traffic on Hillsboro. Town officials support the process and outcome developed through the Route 50 Traffic Calming project and are pursuing a similar effort.

Hillsboro, in the foothills of the Blue Ridge, is at the crossroads of several popular bicycle routes, and the Town supports associated bicycle tourism. Pedestrian improvements are badly needed within the Town limits to increase accessibility to residences and businesses.

Town/County Interface

Key issues for Town/County collaboration include the following:

- The County shall support Hillsboro in development of a strategic approach, in collaboration with VDOT that meets Town goals for improvements to Route 9.

- The County will support the Towns efforts to identify financing for traffic calming planning and implementation efforts.

Chapter 7: Recommended Education and Safety Programs

A. Educating the Public and Community Leaders

Educating the public and community leaders about the values and benefits of improving conditions for walking and bicycling is important for at least two reasons. First, for this Plan to succeed it needs to have broad support from the general public, the business community, and elected officials who set policy and approve budgets, not only in Loudoun County, but in Richmond and Washington, DC. Second, education of the general public is key to supporting the promotional efforts identified in the Plan. Increasing the numbers of people who choose bicycling and walking, and choose them more often, requires information exchange and education about the opportunities and benefits. For these reasons the Plan recommends a number of actions to ensure that this education process gets started.

Public and Community Education Policies

1. An ongoing citizens bicycle and pedestrian advisory body (see next chapter for details) shall develop a media outreach plan to educate and promote the Plan to various constituencies within the County.

2. A field visit shall be conducted and led by the advisory body to educate public officials and community leaders about the Plan and the benefits of bicycling and walking.

B. Promoting Increased Bicycle and Pedestrian Activity

The National Capital Region Transportation Planning Board maintains a strong interest in local jurisdiction involvement in various types of promotional programs that are designed to reduce single occupant vehicle trips. They range from promoting carpools and vanpools and providing park and ride lots to promoting bike-to-work day, and telecommuting. Loudoun County is already involved in annual bike-to-work day activities; however additional promotional opportunities can be undertaken to expand the numbers of people bicycling and walking for transportation. More bicycle and pedestrian trips will translate directly in terms of congestion relief and pollution reduction.

Marketing the recreational bicycling and hiking areas of western Loudoun and the County's great access to long distance trails is also an opportunity for strategic promotional activities. Realizing economic benefit from appropriate use of trail and rural road resources can support the County's goals of preserving and protecting the western Loudoun landscape. Hiking and bicycle touring is a low impact tourist experience that can bring dollars to many small town businesses, villages, rural museums, and other cultural institutions that need support and visitation, but do not desire overwhelming numbers of cars or people.

For transportation as well as recreation-oriented improvements, facility and service development and promotion and marketing need to be coordinated. As Loudoun County develops new facilities, new routes and services, it should schedule and implement promotion of those improvements to ensure early acceptance and recognition, which will lead to sustained growth in use over time.

The key to successful bicycle and pedestrian promotion activities is to provide staff and financial resources and develop a program that can guide a sustained effort. The same is true for safety education activities (see section C). For this reason, this Plan recommends a start up phase (years 1-3) where promotion and safety education activities are merged into one program with combined staff support.

Moreover, stepping up promotion activities in phases is also recommended - starting with small tasks with measurable impact and building toward the highest impact programs.

Promotion Policies

1. Initiate a combined Bicycle and Pedestrian Promotion and Safety Education Program in the near future. An outline of a phased promotion component follows:

<u>Bicycle and Pedestrian Promotion and Safety Education Program</u>

Phase 1: Provide increased support to promotion initiatives that are already underway in Loudoun County and in the region.

a. Increase the intensity of County participation in national/regional Bike to Work Day/Month (each year in May), Walk to School Day (October each year), and the Regional Bike Commuter Assistance Program (ongoing).

b. Develop a bicycle and pedestrian information website.

Phase 2: Initiate small-scale efforts in select neighborhoods and with select populations.

a. Organize community-based rides and walks to promote participation at the neighborhood level and market early improvements.

b. Collaborate with chambers of commerce, hotels and other tourist/visitor venues and organizations to promote biking and walking in the county.

c. Work with employers to establish employee incentive programs that promote bicycling and walking as healthy alternatives to automobile travel.

d. After installation of equipment to transport bicycles on buses, promote awareness of this new service.

e. Design and implement Pedestrian Wayfinding Sign projects and Signed Rural Bike Route Demonstration projects.

Phase 3: Launch Larger Initiatives

a. Collaborate with existing non-profit organizations based in Loudoun County or the region that can work effectively with government and the private sector to implement promotional strategies, such as a large - scale bicycle ride or walking event.

b. Develop a Bicycle and Pedestrian Suitability map.

C. Traffic Safety Education

A significant amount of the public comment received over the course of this planning process expressed a desire for motorists to have a greater respect toward bicyclists and pedestrians who are lawfully using roads and streets in the County. An effective strategy for addressing these problems must use the combined forces of three approaches: engineering, education and enforcement. Engineering approaches to safety and signage are addressed in the Design Toolkit. Education and enforcement are addressed below.

The Citizens' Advisory Committee strongly believes that safety education is needed for all road users, but especially for child bicyclists and pedestrians, and young drivers, because these efforts will reduce the future needs for adult education. Educating the public about safe walking, bicycling, and driving rules and practices is a major objective of this Plan. Loudoun County is fortunate to realize that safety education and enforcement initiatives are needed well before bicycle and pedestrian fatalities and injuries have reached alarming levels. Significant County action in this area can be an effective preventative measure that can keep public safety issues from becoming as problematic as it has for some surrounding jurisdictions. Two key policy recommendations follow below, along with a set of activities that should be pursued under a safety education program.

Traffic Safety Education Policies

1. Encourage the School Board to adopt a bicycle and pedestrian safety curriculum for use in K-5 and seek funding to initiate a Bicycle and Pedestrian Safety Education Pilot Project. (The state of Maryland has recently developed and tested a curriculum that would serve Loudoun County well, and is in the process of expanding its use throughout the state.)

2. The County will support distribution of bicycle and pedestrian safety education materials with particular focus on educating communities most likely to benefit from safety information on bicycling and walking in the County, (i.e. parents with children, new residents, those likely to use the bicycle and pedestrian network frequently).

3. The County will develop a safety education program that can guide a sustained effort, where promotion and safety education activities are merged into one program with combined staff support. Recommended activities follow:

<u>Safety Education Component: Bicycle and Pedestrian Promotion and Safety Education Program</u>

Phase 1: Provide increased support to promotion initiatives that are already underway in Loudoun County and in the region.

a. Collaborate with existing regional and state pedestrian and bicycle safety education initiatives.

b. Modify beginning-of-the-year safety education activities currently undertaken in Loudoun County Public Schools to include bicycle and pedestrian safety.

c. Initiate dialogue with the Loudoun County School Board about adopting a bicycle and pedestrian safety education curriculum for Loudoun County Public Schools, and pursue state funding to support implementation of a pilot program.

d. The County will facilitate interjurisdictional communication on law enforcement issues and coordination.

Phase 2: Initiate medium-scale efforts with select populations and for select facilities.

a. Catalogue existing safety-related classes and courses and expand such course offerings by collaborating with local and national organizations with expertise in this area.

b. Make bicycle and pedestrian safety educational activities and materials accessible to residents and workers in Loudoun County whose first language is not English.

c. Organize outreach and education programs to inform users of the bicycle and pedestrian network how to be safe while traveling and encourage citizen groups to monitor the trail network on a volunteer basis.

d. Encourage the School Board to evaluate the Driver's Education Curriculum currently used in the Loudoun County Public School system, and recommend appropriate changes.

e. Educate County law enforcement personnel about traffic safety enforcement issues related to bicyclist and pedestrian safety.

f. Coordinate with the Northern Virginia Regional Park Authority (NVRPA) and affected neighborhoods, to explore the potential to light certain segments of the W&OD Trail to enable safe commuting in winter months.

Phase 3: Maintain Ongoing Programs and Launch Larger Initiatives

a. Develop a system of changeable message signs at 1-3 select locations on major highways to use primarily for communicating bicycle, pedestrian and motor vehicle traffic safety messages.

b. Provide regular media releases that communicate bicycle, pedestrian and motor vehicle traffic safety messages.

D. Security and Enforcement

Maintaining personal security for public activities and in public places is always an important aspect of bicycling and walking. Actual and perceived personal security is a significant factor that influences a person's decision to bicycle or walk, especially for women and children, and especially during non-daylight hours. Public perception of safety and security in a neighborhood and on public streets is a key component of determining an area's walkability and bikeability.

One of the single biggest factors that influence security in a public space is the level of use it receives. The greater the numbers of people that are out bicycling and walking on streets, sidewalks and trails, the safer they will be. The best deterrent to crime on streets and trails is the likelihood that it will not go unnoticed. Now that many people routinely carry mobile phones, quick access to authorities is usually available wherever people are out and about. Professional police patrols and volunteer neighborhood patrols provide formal support to the base of security that results from regular use.

Information shared by the Loudoun County Sheriff's Office for this Plan provides good background about current security trends and enforcement practices. County law enforcement officials are responsible for policing the W&OD Trail. Despite use increasing over the past ten years on this trail, both the Sheriff's Office and managing agency (NVRPA) report few problems with crime or other incidents on the trail. The W&OD Trail has seen very few serious crimes over its 40 plus miles, and in Loudoun County especially. Nonetheless, a few incidents in the past have received a large amount of media coverage and raised community concerns.

Sheriff's Office patrol resources include a number of police cruisers with bicycle racks and bicycles, and officers who have received bicycle patrol training. The W&OD Trail is sometimes patrolled by officers on bicycles, and is accessible to police cruisers as well. Bicycle patrols are also used sometimes on community policing beats in eastern Loudoun.

Security and Enforcement Policies

1. To ensure a sufficient level of personal safety and security on Loudoun's Bicycle and Pedestrian network will require application and coordination of a variety of approaches. Security activities should be targeted to the areas where problems are most likely to occur. Activities and approaches shall include the following:

    a. Taking a strategic approach to landscaping, lighting, berming and other design issues that can enhance a sense of security.

b. Ensuring proactive management including proper signage, and adopting and communicating rules for facility use and etiquette.

c. Installation of emergency response technology as needed, such as call boxes.

d. Designing facilities such as off-road paths, trail access points and bridges such that access for emergency response vehicles and personnel is not precluded.

e. Providing adequate levels of professional law enforcement throughout the various settings of the Network.

f. Supplementing professional law enforcement with volunteer and community-based patrols. This approach can be used with great success on multi-use trails, and along walking and biking routes to school. Security at pedestrian underpasses used regularly by students going to and from school can be enhanced with regular or periodic volunteer patrols.

2. To ensure that security and safety enforcement activities can be cost-effectively targeted toward real, rather than perceived problem areas, data related to incidents and law enforcement response should be tracked and tabulated for reports to the permanent advisory body. Specific statistics shall be kept by the Loudoun County Sheriff's Office regarding reported personal security incidents involving bicyclists or pedestrians while using public roads, sidewalks, trails and paths. These data shall track incident location and type of crime, and if a vehicle is also involved. This data shall also track 911-emergency calls from bicyclists and pedestrians, and their geographic origin, even if an incident report is not ultimately filed. (Currently traffic crash data involving bicyclists and pedestrians is already tracked and compiled by the Sheriff's Office.)

E. Conclusion

Facilitating communication among stakeholders is key to ensuring that the Network is funded for development, managed, maintained, protected and used. Accordingly, the Plan places strong emphasis on education and safety programs.

Chapter 8: Recommended Institutional Framework

Improving conditions for bicycling and walking in Loudoun County will require a sustained effort. Because this is the County's first non-motorized transportation plan, the institutional resources to guide this effort are not yet in place. This section of the Plan recommends key actions that will begin the process of building institutional capacity to implement a multi-dimensional bicycle and pedestrian program.

A. Permanent Citizens' Advisory Body

The Citizens' Advisory Committee studied the question of establishing a permanent advisory body and concluded that doing so would be key to ensuring success of the Plan. A body of citizens able to educate, advise and act in formal relationship to County government is a common and proven approach for the advancement of bicycling and walking. It is used in jurisdictions across the country at all levels of government. In Loudoun, it should include citizen representatives from all parts of the county and each incorporated Town; it should also be representative of the variety of users of bicycle and pedestrian facilities.

Advisory Body Policies

1. The Board of Supervisors shall appoint and charge a permanent bicycle and pedestrian advisory body, and direct the appropriate County agency(s) to provide staff resources to support the committee's work.

2. The following tasks are recommended for inclusion in the body's charge:

    a. Monitor implementation of the Bicycle and Pedestrian Mobility Master Plan, and report to the Board of Supervisors regarding annual progress toward Plan completion.

    b. Advise the Board of Supervisors, Planning Commission, and County agency staff, regarding County policy and planning efforts with regard to their relationship to and impact on bicycling, walking and non-motorized travel.

    c. Maintain liaison with interdepartmental team of local government staff.

    d. Prepare periodic Plan updates (every 3 years).

    e. Review and make recommendations regarding the annual work plan of the bicycling and walking program, prioritize implementation tasks and develop list of priority projects.

    f. Review and make recommendations regarding current and proposed VDOT and County capital improvement programs to ensure that bicycle and pedestrian needs are incorporated into planning, design and construction of transportation projects.

g. Provide a forum for the public to identify needs and concerns of bicyclists and pedestrians, and opportunities for improving safety and access, and implementing educational programs.

h. Recommend and help implement education, promotion and safety programs.

i. Facilitate partnerships with the private sector to involve them in program implementation noted above as well as facility funding, construction and maintenance, where appropriate.

j. Maintain liaison with other County advisory bodies that address issues of common concern.

B. Program Implementation and Staffing

The most successful local jurisdictions to implement bicycle and pedestrian programs have hired staff with professional training in the area of bicycle and pedestrian transportation or related field. However, other communities have started programs by identifying interested existing staff and providing significant support in the early years toward professional development and training. Still others have developed successful programs by providing minimal core staff and utilizing consultants to accomplish specific program activities. In any case, it is critical to identify and dedicate a meaningful measure of staff resources to the program.

Because a range of tasks and types of expertise will be needed to implement this Plan, a team of dedicated staff working part-time on these issues may be able to be as effective as assigning the entire job to one or two people. Rather than recommend a particular approach to staffing, this Plan offers a list of the specific tasks that will need to be undertaken at the staff level.

Program Implementation Tasks

1. Provide ongoing technical support to various staff and the permanent citizens' advisory body regarding use and maintenance of the Level of Service database, and implementation of the Level of Service Policy.

2. Coordinate and implement bicycle and pedestrian safety education priorities and programs identified in the Plan.

3. Coordinate and implement bicycle and pedestrian promotion programs, in conjunction with the permanent advisory body.

4. Provide technical support to staff involved in review of development plans to ensure proper inclusion of bikeways and walkways and related facilities.

5. Coordinate with VDOT staff to:

    - Ensure a thorough orientation to and education about the Plan
    - Initiate and maintain discussions around proposed new bikeway and walkway design standards
    - Initiate special joint VDOT/County studies identified in the plan related to intersections, interchanges, traffic calming and other issues
    - Provide ongoing communication about the various plan priorities and actions to the appropriate departments, offices and staff within VDOT
    - Identify and discuss budgetary and resource allocation opportunities and implications and prepare annual funding requests
    - Ensure that location specific, roadway improvement planning studies properly address bicycle and pedestrian needs and considerations

6. Review new roadway design and construction plans and roadway improvement project designs to ensure proper treatment of bicycle and pedestrian facilities.

7. Provide staff support to the permanent advisory body.

Interdepartmental Advisory Team

In addition to ensuring that specific initiatives and ongoing tasks receive the attention needed, there will be a need for staff and agencies to coordinate their efforts. An interdepartmental advisory team was convened by the Planning Department for this project, and proved to be very effective at involving different county agencies and ensuring that all perspectives on issues were considered. The staff that participated in this group were also a valuable source of information about existing programs and issues that are central to bicycling and walking.

Implementation and Staffing Policies

1. The Board of Supervisors shall provide direction to the County Administrator (and appropriate Department Directors) with regard to staffing strategies that should be used to launch implementation of the adopted Plan. The Board shall provide funding authority to support its staffing strategies.

2. Formalize the interdepartmental advisory team that supported development of this Plan. Expand its membership to include representatives from town planning or public works staff.

C. Progress Assessment and Reporting

While the concepts of assessing and reporting progress are imbedded in the tasks of the citizens' advisory body and the staff, it is important to establish a framework for reporting that can be used to ensure successful implementation of the Plan. There are some assessment and reporting procedures that will need to be made routine. These include refreshing and updating the Level of Service database, prioritizing and budgeting for program initiatives and projects, periodic updating of the Plan, training staff and citizen advisors, and reporting on progress and achievements. These tasks may have resource

implications as well and will need to be budgeted for. A general timetable for these activities is provided below (Table 8-1).

Table 8-1: Recommended Maintenance Tasks

Program Maintenance Task	Frequency
Update and refresh Level of Service database.	Every 2 years.
Program budgeting and prioritizing projects for funding.	Annually
Updating the Plan.	Every 3 years.
Reporting on progress and achievements.	Annually, to the BOS and the public.
Training staff and advisory committee members.	One session offered annually.

Chapter 9: Funding Resources and Strategies

Developing a sustainable source of funding is necessary to budget for and implement construction and maintenance of walkways, bikeways and related facilities and programs. Commitment of federal, state, county and town transportation dollars will be necessary. To a small degree, funds from budgets outside of the transportation agencies can be used to supplement transportation funds when the project has a strong relationship to the mission of other agencies. Some components of the system will be built or funded by the private sector during the land development process. Contributions from foundations and local business can also be important, primarily for safety education and promotion programs or small-scale physical improvements.

The following nine recommendations provide a strategy for developing a sustainable and growing source of revenue for Loudoun's bicycle and pedestrian projects and programs.

A. Local Funding Base

Establishing an ongoing and dedicated source of local revenue to provide a funding base and source of matching funds for the bicycle and pedestrian program is essential.

This funding will be used to fund all types of activities including education, promotion, enforcement, planning and construction and maintenance of facilities. It will be used to fully fund certain activities, but also as matching funds to leverage a wide variety of other sources, including VDOT funds, federal transportation funds, non-transportation funding sources and grants from private foundations. An amount of $500,000 annually is recommended for the first 1-2 years, with eventual increases to $2-3 million and an aggressive effort to leverage this investment.

Potential Sources for Local Funding Base:

- County General Fund Revenue
- Local Gas Tax, until such time as dedication of these funds to transit is initiated
- Use 10-20% of the 5% Transient Occupancy Tax
- Annual VDOT allocation for the County's Secondary Roads Program
- Bond Referendum (many communities across the nation have had success in this area)
- Local Sales Tax (a number of communities have included set-asides of a portion of local sales tax for transportation or "alternative" transportation)
- HUD Community Development Block Grants
- Use one of the innovative funding measures noted in the Revised Countywide Transportation Plan (CTP) policy #1: special taxing districts, Community Development Authorities (CDAs)[31]

Local Funding Sources

The CTP has a chart summarizing Funding Sources by Facility Type.[32] A number of important funding sources are not checked for bicycle or pedestrian facilities. However, CTP policy statements reference use of a number of these funding sources for alternative transportation modes. If necessary, legislative or policy changes should be made to ensure that the following funding sources can be used to fund bicycle and pedestrian facilities and programs: Business Professional and Occupancy License (BPOL), Local Gasoline Tax, Special Tax Districts, and Impact Fees.

The revenue stream generated by the Public Private Partnership created for the Route 28/Dulles Airport area to fund the Route 28 improvements should provide full funding of bicycle and pedestrian facilities on all roads and bridges crossing Route 28 and going through interchanges with Route 28. Additionally, this funding source should be used for the bikeways planned for Atlantic and Pacific, which were selected by the County as alternates to providing an off-road bikeway in the Route 28 corridor.

Local Funding Policies

1. Establish and dedicate an ongoing source of local revenue to provide a funding base and source of matching funds for the bicycle and pedestrian program.

2. Ensure that policies that govern existing local transportation funding sources cited above can be used for bicycle and pedestrian facilities and programs.

B. Federal Transportation Funding

An aggressive strategy for utilization of federal transportation funding programs is essential. Discretionary grant programs as well as congressionally directed federal funds should be pursued. The key to accessing federal transportation funding is identifying what programs are most compatible for bicycle and pedestrian projects.

The following five discretionary grant programs are a good place to start: the Transportation Enhancements Program, the Recreational Trails Program, the Scenic Byways Program, Section 402 Safety Program and the Hazard Elimination Program (safety set-aside).

A specific strategy will need to be developed for each program based on the funding cycles, project eligibility, and amounts of funding that are generally available. Most of these programs are administered by VDOT. The Scenic Byways Program is a national discretionary grant program, but states must sponsor local applicants, and the Recreational Trails Program is administered by the Virginia Department of Conservation and Recreation.

Funding for County projects can be directed by Congress, as well. Emphasis should be placed on identifying candidate projects to Congressional Representatives for funding through the six-year national transportation authorizing legislation (TEA-3 High Priority projects) and annual federal appropriations bills.

This funding strategy is ideal for projects that have widespread community support, are high profile, have higher costs, or are related to other large federally funded transportation or other projects. Some examples include:

- The proposed trail in conjunction with the Metrorail Extension to Dulles International Airport and Loudoun County
- A new bicycle/pedestrian bridge over Route 7 in the Cascades Town Center area
- Improvements to W&OD Trail/Road Intersections and points of access
- The proposed trail around Dulles International Airport

This funding strategy is also recommended as a way to access the Transportation and Community and System Preservation Pilot Program (TCSP) of TEA-21. This program is oriented to "cutting-edge" transportation projects with an orientation toward pollution reduction, single occupant auto trip reduction and other community benefits.

Federal Funding Policies

1. The County will prepare 2-3 federal funding requests annually for the programs identified in this section.
2. The County will identify candidate projects to Congressional Representatives for funding through appropriate federal legislation.

C. Virginia Transportation Six-Year Program

Where there is overlap with existing programmed roadway improvements, bicycle and pedestrian facilities can be integrated into road projects already identified in the Virginia Transportation Six-Year Program and the Secondary Roads Program for Loudoun County. Timing is an issue here. This may be an effective approach only for projects that are programmed for the "out years."

It is also important to ensure that future updates of the VTP include needed bicycle and pedestrian facilities. These may be in conjunction with road improvements or as independent projects.

- Take advantage of new VDOT policy, as of 12/19/02, which allows routine VDOT road construction funds to be used for independent bicycle facility projects, i.e. those that are not a part of a larger road improvement project.
- Existing VDOT policy allows local jurisdictions to request inclusion of bicycle and pedestrian facilities as a part of requested road improvement projects on the Primary System, Secondary System or Urban System. Local jurisdictions must share the construction costs with VDOT 50% / 50%, however, VDOT will fund 100 percent of additional preliminary engineering and right-of-way costs that result from adding the bikeway elements. Cost Sharing for Urban System projects is the same for the bicycle facility costs as for regular road improvement projects.

- Procedures for local jurisdictions to fund walkways and bikeways in this manner are detailed in both the VDOT Bicycle Facility Resource Guide and in the Loudoun County Revised Countywide Transportation Plan.

State Funding Policy

1. Where there is overlap with programmed roadway improvements, integrate bicycle and pedestrian facilities identified in this plan into projects already listed in the Virginia Transportation Six-Year Program (VTP) and the Secondary Roads Program for Loudoun County.

D. Regional Transportation Funding

Certain projects may be those most suited for funding through the federal Surface Transportation (STP) and Congestion Mitigation and Air Quality Improvement (CMAQ) programs, and other VDOT funding programs where the Metropolitan Planning Organization coordinates the programming of available funds.

Regional Funding Policy

1. Identify candidate projects for funding requests through the Transportation Coordinating Council of Northern Virginia.

E. Non-Transportation State Programs

The state of Virginia has a few state programs for which some bicycle and pedestrian projects are eligible. The following programs may be a worthwhile source of revenue:

- State Revenue Sharing
- State Recreational Access Funds
- Virginia Tourism Corporation (Cooperative Marketing Fund or the Matching Grants Marketing Program)

Non-Transportation State Programs Policies

1. The County will actively research and track potential funding sources from non-transportation related programs.
2. The County will prepare requests for these funding sources as eligible projects are identified.

F. Private Funding Sources

Some key private funding sources and strategies include the following:

- The Bikes Belong Coalition (The Bicycle Industry's Advocacy Funding Arm)
- Large, locally based corporations
- Targeted community- or project-based fundraising efforts
- Develop partnerships with individual Home Owner Associations (HOAs)

Private Sector Funding Policy

1. Request funding from private sources, develop public/private partnerships and encourage the formation of a local non-profit organization that can seek and receive funding from private foundations.

Chapter 10: Implementation Strategy

Implementation of this Plan will require effective partnerships among many agencies, jurisdictions, and community leaders. A wide variety of policies, programs, and construction projects are recommended in this Plan, with the vision of making Loudoun County fully accessible to pedestrians and bicyclists. The task will not fall on any one single jurisdiction or agency alone – rather it will require a cooperative effort among state and local jurisdictions, the development community, and citizen advocates.

The strategies and actions in the preceding chapters set forth tasks critical for success. Some actions should be commenced in the near term to build upon the knowledge and resources gained during the development of this Plan. Other actions will naturally follow and will be determined, in a large part, by opportunities that emerge in the future.

Implementation priorities for the initial 5 years of the Plan is provided in this chapter, however the timing for each action will ultimately be determined through discussion and consensus-building, as well as the availability of financial resources. Priority actions that are considered the most "doable" are listed separately. This chapter establishes a work plan as a starting point – as items on this list are accomplished, the work plan should be reevaluated to assess new priorities and actions that are needed.

High Priority Actions: Years 1-5

1. Establish and dedicate an ongoing source of local revenue to provide a funding base and source of matching funds for the bicycle and pedestrian program.

2. Incorporate policies set forward in this Plan into practice through revisions to the FSM, revisions to zoning and subdivision ordinances, and modifications to standard procedures.

3. Ensure that every opportunity is used to improve bicycle and pedestrian conditions along the Major Road and Connecting Corridors listed in this Plan.

4. The County shall seek endorsement by VDOT of the Loudoun County Pedestrian and Bicycle Design Toolkit. Work with VDOT to ensure that the agency also integrates these policies into its approach to roadway planning and design in Loudoun County. Work closely with VDOT on specific road projects to ensure bicycle and pedestrian facilities are fully incorporated into the design and construction, per the recommendations of this Plan.

5. Develop an interdisciplinary bicycle program and establish a full-time bicycle and pedestrian coordinator position.

6. Establish an ongoing citizens' bicycle and pedestrian advisory body, with responsibilities as identified herein.

7. Apply for enhancement funding to plan, design and construct a bridge over Route 7, as identified in this Plan.

8. Initiate feasibility studies for off-road corridors identified in this Plan, and proceed with development of those corridors deemed feasible.

9. Encourage the Towns to adopt the Network Map, or suggest amendments for the Network within the Towns.

10. Insist that VDOT incorporate bicycle and pedestrian improvements in accordance with this Plan and in all projects in Loudoun County.

11. Identify most needed areas for pedestrian and bicycle improvements for implementation as funds become available.

12. County staff shall develop funding strategies that use local revenue as matching funds to attract state, federal and private commitments to development of the bicycle and pedestrian network.

13. Implementation projects will be included in the annual Capital Improvement Program as well as the long-term capital needs projections.

Priority Improvements: Quickest and Least Expensive

1. Request that the Dulles Rail Extension Trail be included in the planning, design and funding activities currently underway.

2. Request that the Route 28 project include appropriate bicycle and pedestrian accommodations through all interchanges.

3. Within an overall implementation plan seek funding to initiate planning and design of one Neighborhood Connector project per year.

4. Within an overall implementation plan, initiate planning and design of at least one major intersection improvement project per year.

5. In partnership with tourism officials, conduct a field study of the two Rural Bicycle Touring Routes identified in this Plan, develop a designation plan and install signs on these routes.

6. Install bicycle storage lockers at all park-and-ride lots.

7. In partnership with the School Board, establish a pilot Safe Routes to School program in Loudoun County, per the recommendations of this Plan.

8. Participate in Walk a Child to School Day in October of each year, encourage more schools to take part in the event each year. Continue to assist/sponsor Bike to Work Day activities.

9. The County shall identify the appropriate bicycle and pedestrian facilities along CTP roadways in the Suburban Policy Area. The CTP appendix shall be updated to incorporate these recommendations.

10. The County shall collaborate with School Board staff to identify criteria for evaluation of safety of school walk zones and recommend regulatory changes to ensure the safety of school walk zones.

[1] JAMA - Journal of the American Medical Association, October 1999.
[2] Nationwide Personal Transportation Survey, Federal Highway Administration, 1990.
[3] Pathways for People II, Rodale Press commissioned Harris Poll, 1995
[4] Obesity Trends web page, Center for Disease Control, National Center for Chronic Disease Prevention and Health Promotion Website, 2003 (http://www.cdc.gov/nccdphp/dnpa/obesity/trend/maps/index.htm)
[5] ibid
[6] ibid
[7] JAMA - Journal of the American Medical Association, October 1999.
[8] U.S. Department of Health and Human Services. The Surgeon General's call to action to prevent and decrease overweight and obesity. 2001 http://www.surgeongeneral.gov/library
[9] Obesity Trends page, Center for Disease Control, National Center for Chronic Disease Prevention and Health Promotion Website, 2003 (http://www.cdc.gov/nccdphp/dnpa/obesity/trend/maps/index.htm)
[10] Effective March 25, 2003. U. S. Environmental Protection Agency. (www.epa.gov/oar/oaqps/greenbk/ofr2rpt2.html).
[11] "..for a 7.5 mile trip, starting the car cold generates about 16 percent more NO_x and 40 percent more CO than starting the car when it is warm." Federal Highway Administration Website: Transportation Air Quality – Selected Facts and Figures, Vehicle Emissions. http://www.fhwa.dot.gov/environment/aqfactbk/factbk13.htm
[12] Study conducted by Bruce Burgess, Bicycle Holidays, Inc., Middlebury, VT, 1992
[13] Revised Countywide Transportation Plan (CTP), p.1-2.
[14] Revised Countywide Transportation Plan (CTP), p. 1-2, July 2001.
[15] Ibid, pp. 1-3 – 1-4
[16] Revised CTP, Policy 17, p. 2-14
[17] July 15, 2002, Board of Supervisors Action Item
[18] Based on survey data and information provided by Loudoun County Public Schools, Department of Transportation.
[19] Washington and Old Dominion Trail: A Study of Trail Users, Northern Virginia Regional Park Authority, March 1998
[20] This analysis was conducted for this Plan. A summary is provided in Appendix C.
[21] *Level of Service Standards,* CTP 4-5 – 4-6
[22] Loudoun County selected the Bicycle Level of Service Model (Version 2.0) developed by Sprinkle Consulting, Inc. It is based on research documented in Transportation Research Record 1578, published by the Transportation Research Board (TRB) of the National Academy of Sciences. For pedestrian level of service the County selected the Pedestrian Level of Service Model developed by Sprinkle Consulting, Inc. in cooperation with the Florida Department of Transportation, documented in TRR 1773 by the TRB. For details about these models see Appendix D.
[23] All major and a few minor roads in Loudoun County were included in the study network. Dirt roads studied were not assigned a BLOS grade; nor were unbuilt CTP roads.
[24] Dirt roads were assigned a PLOS grade, because pavement quality is not a factor in PLOS evaluation.
[25] In some developed areas of the county, constraints may exist that make it difficult to provide typical sidewalks and bikeways. Alternative solutions should be explored in order to accommodate these users.
[26] University of North Carolina Highway Safety Research Center. *Florida Department of Transportation, Florida's Pedestrian Planning and Design Guidelines,* Tallahassee, FL, 1999.
[27] Presentation by Dan Burden, March 2003.
[28] See County policy regarding options for local control and management of roads, CTP 4-6 – 4-7
[29] Some elementary schools that are located on minor roads are not directly linked by roads selected for the Network.
[30] Revised Countywide Transportation Plan, 2001, pp. 3-15 – 3-16
[31] CTP p. 5-1
[32] CTP p. 5-7