

**Arlington County, Virginia  
Master Transportation Plan  
Interim Draft for Public Comment  
Bicycle Element**



**June 2006**



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## Introduction

Arlington County has many of the right ingredients to become a first-class bicycling community. The County's emphasis on mixed-use development, medium-high-density and compact neighborhoods, and human scale streetscapes creates an environment which generates many short trips (between 1-5 miles) where bicycling is most effective. Many of the County's residents and visitors currently use bicycles for transportation and recreation. The County also has a history of working to improve bicycling conditions through its extensive bicycle program. Despite these positive aspects however, many people still perceive bicycling to be a challenging or impractical means of transportation. It is Arlington's vision that everyone— residents, incoming daily commuters and other visitors— feel safe and comfortable bicycling on the County's streets and trails. This document sets forth the plan for making that vision a reality. The ability of Arlington to increase the number of people who bicycle, and frequency with which they do so, will be a measure of the County's ability to preserve and increase overall quality of life.

This document is the *Bicycle Element* of the *Arlington County Master Transportation Plan (MTP)*. It is the central planning and policy document that guides development of bikeways and bicycle transportation programs throughout the County. Initial development of this document began in 2004 as an independent effort to update the *1994 Arlington Bicycle Transportation Plan*. In October 2005, a draft developed by the Bicycle Advisory Committee and staff was integrated into the County's multimodal master transportation planning process and resulted in this document. The Bicycle Element includes the following sections:

- The Role of Bicycling in Achieving MTP Goals;
- Context, which includes a review of existing conditions and programs;
- The Future Bicycle Program and Bikeways Network: Objectives and Recommendations;
- Bicycle Network and Program Implementation; and
- Bicycle Transportation Policy Principles.

Just as the multimodal Master Transportation Plan identifies basic values upon which the Plan's goals and strategies are built, the Bicycle Element establishes guiding principles as underpinnings for its objectives and recommendations.

### Guiding Principles

- Arlington's Bikeway Network and bicycle program will serve bicyclists with a wide range of abilities including children and youth, novice cyclists, recreational and casual riders, and experienced commuters.
- Arlington's Bikeway Network and bicycle program will focus on encouraging and enabling bicycle use for typically short-distance, non-work trips such as errands and social trips as well as bicycle commuting and recreational bicycling which have typically received greater focus in bicycle planning.
- Arlington's design policies will support urban design that is conducive to bicycling. Good urban design accommodates bicycles as a desirable element in public (and semi-public) space. This translates into a) *Complete Street*— streets that are designed to accommodate all modes, b) secure bicycle parking available in the quantities and of a quality to both meet and create demand, c) bicycle compatibility with other travel modes including buses, Metrorail, commuter rail, waterborne transport, etc., and d) bicycle-friendly buildings, parking garages, shopping centers, parks, schools, and commercial areas.

## The Role of Bicycling in Achieving Arlington's Overall Transportation Goals

Arlington's Master Transportation Plan establishes six multimodal, primary goals. Each transportation element, in turn identifies, specific modal objectives, policies, performance measures and recommended actions, all of which are intended to fully support the overarching Plan goals. This section discusses how and why improvements for bicycling will contribute to achieving the MTP's multimodal goals. Section III outlines the objectives for bicycling, along with specific strategies and recommended actions.

### MTP Goals

The multimodal MTP goals articulate what the County is trying to achieve with improvements to and management of the County's transportation system.

### **Reduce Single Occupant Vehicle Trips**

In a congested urban environment, the bicycle is economical, fast and efficient. The challenge is to make it a more viable choice for a larger sector of the population. This means improved safety, convenient and secure bicycle parking at both ends of a trip, commuter support facilities like showers at the office, and better integration with transit. The bicycle can create new and far-reaching travel options when seamlessly linked in an intermodal system of bus, rail and motor vehicle transportation. Implementation of this Plan will encourage residents, inter-regional employees, and visitors alike, to use a bicycle network that connects the many neighborhoods and activity centers of Arlington and links to surrounding jurisdictions.

### **Provide High Quality Service**

Bicyclists need spaces in which to operate safely, and these spaces need to be maintained to a consistent high quality. County efforts to make arterial streets more functional as multimodal facilities, improve intersection safety, expand compliance with Americans with Disabilities Act (ADA) requirements, and manage congestion and goods delivery, all inherently improve conditions for bicycling. Completion of the Bikeway Network, which includes trails, bike lanes and signed bike routes, will enhance mobility and improve access for bicyclists across a wide range of skill levels. The completed bikeway network will provide greater opportunities for making trips along continuous, safe and comfortable bicycle facilities and routes.

### **Establish Equity**

Bicycling contributes to transportation equity by offering a cost-effective means of travel that can be utilized by people of varying ages, abilities, and incomes.

### **Ensure Safety**

For bicycling to become an everyday part of life in Arlington, it is important that the issue of safety (both real and perceived) be addressed. To attract riders, streets must be designed to better accommodate bicycling as well as encourage drivers to exercise more care and drive at reduced speeds. Safety and security must be extended throughout daylight and nighttime hours to enable reliance on the bicycle for round trips, which are often begun before dawn or completed at dusk or after dark.

### **Administrate and Manage Effectively**

In the areas of both capital improvements and maintenance, the Bicycle Element calls for the establishment of a minimum level of annual funding to ensure progress toward achieving the Bicycle Element objectives and the MTP goals. Additionally, bicycle projects and programs have the potential to leverage significant amounts of supplemental funding through 1) federal transportation programs, many of which support bicycle projects, 2) a variety of non-transportation government programs and 3) the private sector. Management and maintenance of the Bicycle Network and general street system is critical for the success of bicycling and must be included in future budgets.

### **Achieve Environmental Sustainability**

Clearly more walking and bicycling will be good for the environment as well as bolster public health and fitness. Each additional trip made by bicycle in Arlington will contribute to the community's achievement of a better environment and healthier population. Use of the bicycle contributes to the quality of life for both those who participate and those who do not, because by definition if someone is riding a bicycle, they are not driving a car and therefore helping to alleviate congestion.

In order to support the overall MTP goals, the Bicycle Element identifies specific bicycling objectives and recommendations for achieving them. These are outlined in Section III.

## **Context**

Arlington supports an extensive bikeway network and a variety of bicycle promotion programs. This section describes the status of these bicycle transportation efforts as of 2006 and how Arlingtonians' bicycle usage is accounted for in national and local statistics.

Arlington County began to develop facilities for bicycles in 1968 when it constructed the first segment of the Four Mile Run shared-use path. Arlington's first plan for bikeways was adopted in 1974 and called for the development of a network of bicycle facilities. Since that time, the County has worked with the National Park Service, Virginia Department of Transportation and Northern Virginia Regional Park Authority to develop and manage a system of trails and on-road bikeways that extends throughout all parts of the County.

## Existing Facilities and Services

Arlington's bikeway network includes shared use paths, on-street bicycle lanes, signed bicycle routes, and other mapped routes that are generally comfortable for bicycling. The system was developed to provide a safe and convenient bicycling environment for transportation and recreation. The bikeway network is intended to provide access to the Potomac River bridges, the Metrorail stations, and the local and regional employment, retail, recreation and government centers. Complementing the bikeway network are Arlington's neighborhood streets (which are generally bicycle-friendly due to low traffic volumes), various public bicycle parking accommodations and bicycle access to bus and rail public transit systems.

Due to its location in the center of the Washington metropolitan region, Arlington serves not only as the origin and destination of many of the region's bicycle trips, but also as a through route for many of the longer commuter and recreational trips. Arlington's relatively small size (26 square miles) means that trips that begin and end in Arlington are, by definition, short in length. Because the bicycle has its greatest advantage, relative to other transportation modes, for short trips (1-5 miles), there is great potential for increasing the number of bicycle trips in Arlington. Nationally, 61 percent of all trips are five miles or less.<sup>1</sup>

## What do you enjoy most about traveling in Arlington?

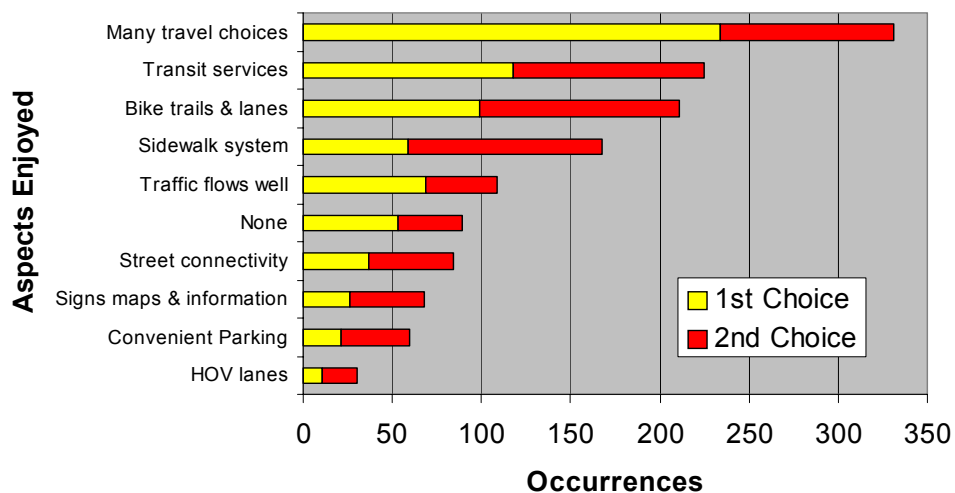


Figure 2: Public Interest in Bicycling (Source: Question #5 in Arlington County MTP online questionnaire, fall 2005.)

## Existing Bikeways

As of 2006, there were 102 miles of bikeways in Arlington (see Figure 1, Map), comprised of 37 miles of off-street shared-use paths, 21 miles of bicycle lanes and 43 miles of signed on-street bicycle routes. In addition to these designated bikeways, Arlington's entire neighborhood street network is an important complement to the bikeways network due to low traffic volumes and speeds. Arlington's bicycle network is one of the most extensive and

<sup>1</sup> 2001 National Household Transportation Survey.

diverse of any jurisdiction in the region, and is well used by Arlington residents and others for both transportation and recreation. In the questionnaire conducted as a part of the MTP planning process, bicycle lanes and multi-use trails were cited among the top three most enjoyable aspects of traveling in Arlington (see Figure 2).

### **Intermodal Bike-Transit Accommodations and Services**

All Metro buses and Arlington Transit (ART) buses are equipped with front mounted racks that can carry two bicycles at no extra charge to customers. Metrorail allows bicycles to be taken onboard trains on weekdays before 7:00 am, from 10:00 am to 2:00 pm, and after 7:00 pm in the evening, as well as all day long on weekends. Virginia Railway Express (VRE) no longer allows bicycles to be taken onboard.

Select Metrorail stations provide bicycle parking using various combinations of equipment including bike racks for short-term parking and lockers for long-term parking needs (see Appendix A for details). Stations at Ronald Reagan Washington National Airport, Arlington Cemetery, Pentagon and Crystal City have no racks or lockers. The VRE station at Crystal City is also lacking in bicycle parking facilities. Locker rental is managed by the Washington Metropolitan Transit Authority (WMATA).

Use of bicycles to access Metrorail has increased substantially over the past 10-15 years, however the quality, quantity and degree of security and weather protection for bicycle parking at the stations has not improved significantly. An April 2004 bike parking assessment made by WMATA found that Arlington's eleven Metrorail stations provide 223 bike rack spaces, and 96 locker spaces.

### **Bike Parking**

Since adopting the current Master Transportation Plan in 1986, Arlington County has given greater attention to providing additional facilities to advance bicycle travel. County procedures now require that site plan developments provide secure bicycle parking for employees and visitors. A similar site plan condition encouraging the provision of showers and changing facilities in office buildings was adopted in 1993. In the mid-1990s, about 300 bike racks were installed at County facilities and in commercial areas. Over time, some of the racks have been removed or destroyed, and many facilities are now in need of additional or new racks. Likewise, most small commercial establishments, by-right developments and older buildings (including County schools and facilities) have little or no secure bicycle parking.

## **Bicycling Conditions**

### **General Safety**

On average, about 50 bicyclists are injured annually in crashes with motor vehicles. However, fatalities are rare. (See Table 1). The Rosslyn Circle area, where the Mt. Vernon and Custis trails converge, remains the location with the most frequent bicycle crashes. While crash statistics show that overall Arlington is a safe place to bicycle; the fear of interaction with motor vehicle traffic remains a primary reason why many people do not travel more often by bicycle.

### **On-Street Bicycling Conditions**

The Arlington street system was largely built decades ago without much thought for bicyclists' needs. Recently, bicyclists' interests have begun to receive greater attention in roadway planning and design. While the County's neighborhood streets are generally bicycle-friendly, arterial roads vary in their suitability. Some roads provide ample width for comfortable use by both bicyclists and motorists. Others, such as Old Dominion Drive and Columbia Pike, are unpleasant or dangerous for bicycling because of their limited travel lane width and high traffic volumes. With employment, shopping and housing becoming increasingly concentrated in the Roslyn-Ballston and Jefferson Davis Highway corridors, there is a greater need for better bicycle accommodations on the primary streets, particularly to and through the most densely developed areas of Arlington.

### **Trail Conditions**

Use of the Arlington's shared-use paths has expanded greatly in recent years. The greater demand and increasing diversity of users sometimes creates conflict among different user types. To promote increased levels of bicycling, popular shared-use paths need to be widened and new pathways constructed. Moreover, older shared-use paths, such as the Arlington Boulevard paths and the Custis Trail, will require major renovations to make them safe and attractive. Some path widening is already underway and an educational program that promotes user safety is

ongoing. Educational efforts include: trail safety messages and etiquette guidance on Arlington bicycle and trail maps on the WALKArlington ([www.WALKArlington.com](http://www.WALKArlington.com)) and BIKEArlington ([www.BIKEArlington.com](http://www.BIKEArlington.com)) websites, in bicycling and walking brochures, and through signs posted at select locations along various trails.

For greater safety and accessibility, both new and renovated shared-use paths should be designed and constructed in accordance with the latest national standards and guidelines. Several County design standards, including shared-use path width and design speed, must be revised to comply with new American Association of State Highway and Transportation Officials (AASHTO) standards and Shared Use Path Level of Service guidelines.

**Table 1 - Bicycle Crash Fatalities and Injuries in Northern Virginia**

	Bicycle Fatalities--Northern Virginia									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>Arlington County</b>		1								
Fairfax County	1	1	1		1		1	1		
Loudoun County				1				1		
Prince William County		1				2	1			
Alexandria City									1	
Fairfax City										
Falls Church City							1			
Manassas City							1			
Manassas Park City										
<b>Totals:</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>0</b>

	Bicycle Injuries -- Northern Virginia									
	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
<b>Arlington County</b>	<b>57</b>	<b>63</b>	<b>45</b>	<b>55</b>	<b>54</b>	<b>46</b>	<b>41</b>	<b>30</b>	<b>45</b>	<b>28</b>
Fairfax County	34	96	97	89	89	100	77	67	72	88
Loudoun County	14	16	6	14	12	15	17	13	13	22
Prince William County	28	27	28	28	29	21	21	22	20	24
Alexandria City	32	24	23	27	21	24	11	27	25	12
Fairfax City	3	4	4	10	2	2	7	6	5	7
Falls Church City	2	5	3	6	3		3	4	2	
Manassas City	11	5	3	5	6	4	8	9	7	11
Manassas Park City	3		3	1			5	2	4	
<b>Totals:</b>	<b>184</b>	<b>240</b>	<b>212</b>	<b>235</b>	<b>216</b>	<b>212</b>	<b>190</b>	<b>180</b>	<b>193</b>	<b>192</b>

Source: Virginia Department of Motor Vehicles  
Centralized Accident Processing (CAP) System  
Transportation Safety Services/Reporting and Evaluation

## Barriers

Despite having some of the most extensive and well-designed bicycle facilities in the region, the full potential for bicycling in Arlington remains significantly constrained by major man-made barriers. These barriers include the following:

- Shirley Highway (I-395)
- George Washington Memorial Parkway (GWMP)
- VA Route 110
- Arlington Boulevard (US 50)
- Washington Boulevard (US 27)
- Fort Myer
- The Pentagon
- Arlington National Cemetery
- Army-Navy Country Club
- Arlington Hall

While some improvements have been made to improve access across the GWMP, Arlington Boulevard, and Potomac River bridges over the past 25 years, these barriers continue to make bicycle travel between certain parts of Arlington and the District of Columbia very difficult. Both recreational and commuting bicyclists are often faced with choosing between an indirect time-consuming route and a faster, but much less safe route.

North-south bicycle travel is also difficult. Viable bicycle routes are limited because there are few through-streets in this direction and exceptionally heavy traffic and narrow roadways on the two primary arterials making this

linkage– George Mason Drive and Glebe Road. The Mt. Vernon Trail and Washington and Old Dominion (W&OD)/Four Mile Run Trails provide very valuable north-south bicycle access that helps to offset the constraints of the street system.

## **Existing Bicycle Information and Promotion Programs**

### **BIKEArlington**

BIKEArlington, a bicycle promotion program operated by the County in conjunction with WALKArlington and other transportation demand management programs, distributes thousands of bikeway system maps and informational brochures annually. This program also coordinates the annual Bike-to-Work event, various bike rides throughout the year, and coordinates with neighboring and regional bicycle advocacy, promotion and safety education efforts.

Access to information about bicycling is relatively easy to obtain on the BIKEArlington website. However, non-English speaking bicyclists and those who do not have access to a computer may have more difficulty learning about bicycle transportation options and support programs.

### **Safe Routes to School Initiative**

In 1999, Arlington established a Safe Routes to School program to provide greater safety for students traveling to and from Arlington's schools. The program also includes Education, Encouragement, Engineering and Enforcement elements. Currently, pedestrian safety is taught at the elementary school level, however bicycle safety is not addressed in the curriculum that is used. In the high schools the physical education curriculum for all students includes training in bicycle riding, and elective physical education and recreation courses are offered as well.

### **Who Bicycles?**

As is the case in most communities, bicycling data is not plentiful. The County and other agencies that own and manage bicycle facilities, including the National Park Service, the Northern Virginia Regional Park Authority and the Virginia Department of Transportation, collect little data of this type. The Metropolitan Washington Council of Governments (MWCOC) and the U.S. Census provide the most useful data. Following is a summary based on these available sources.

### **Bicycle Commuting**

While extremely limited with respect to bicycling and walking, U.S. Census 2000, Journey to Work data provides the beginnings of a baseline on bicycle use.<sup>2</sup> Based on this data, less than one percent (.69 percent) of working Arlingtonians bicycle to work (See Table 2), however due to the shortcomings of this data, it can safely be assumed that the rate of bicycle use for both commuting and overall transportation is higher.

Table 2 shows how Arlington compares to a variety of other jurisdictions in this region and in the state of Virginia. Table 3 compares Arlington to select communities around the U.S. that are known for their high levels of bicycle activity and public support for non-motorized transportation. Nationwide, 0.38 percent of workers bike to work and 2.93 percent walk. In U.S. urban areas 0.9 percent bike to work and 9.5 percent walk. In the Mid-Atlantic region, 0.8 percent bike and 15.8 percent walk. An advantage of Census data is that it can be used to compare Arlington with other jurisdictions throughout the U.S. It is also useful for comparing levels of bicycle commuting within Arlington.

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<sup>2</sup> This number does not include trips made by the following people: those who are 15 and under, those who are unemployed or underemployed, those who sometimes bike to work but not regularly, those who bicycle to transit and those who use bicycles for non-work trips. Moreover, it is based solely on reported travel patterns for a single week-long period in March, a low bicycle activity month in the mid-Atlantic region.

**Table 2: Journey to Work Mode Split for Arlington and Surrounding Jurisdictions**

Jurisdiction of Residence	2000 Census Commute Mode Share*				
	Number of Workers (2000)	Public transportation	Bicycle	Walk	Car, truck, or van
<b>Arlington County, VA</b>	<b>116,046</b>	<b>23.31%</b>	<b>0.69%</b>	<b>5.58%</b>	<b>66.41%</b>
<i>Washington/Baltimore Metro Region</i>					
Washington, DC	260,884	33.15%	1.16%	11.80%	49.36%
Fairfax County, VA	527,464	7.26%	0.13%	1.32%	86.48%
Loudoun County, VA	92,315	1.46%	0.12%	1.23%	91.38%
Prince William County, VA	150,526	3.12%	0.08%	1.43%	91.46%
Montgomery County, MD	455,331	12.63%	0.27%	1.93%	79.88%
Prince Georges County, MD	397,403	11.91%	0.19%	2.22%	82.95%
Baltimore, MD (City)	249,373	19.48%	0.33%	7.11%	69.93%
Baltimore County, MD	373,496	4.04%	0.12%	2.04%	90.51%
<i>Other Virginia Urbanized Areas</i>					
Richmond, VA	88,924	8.27%	1.09%	4.43%	83.11%
Chesterfield County, VA	134,313	0.25%	0.04%	0.76%	95.32%
Henrico County, VA	136,872	1.09%	0.12%	0.95%	94.60%
Norfolk, VA	112,083	4.59%	0.46%	6.78%	80.97%
Portsmouth, VA	43,922	2.96%	0.60%	3.27%	88.50%
*Row percentages do not include people who commuted by motorcycle, other modes of transportation, or worked at home.					
<i>About Census Journey to Work Data:</i>					
Data were compiled from Census Questionnaire Long Form, Item 23a.					
Data apply to one reference week, which was the week preceeding April 1, 2000 for most Census long-form respondents.					
Data are an estimate (from the census long form) for all workers age 16 and over who worked during the reference week.					
Respondents who had more than 1 job were asked to report only the means of travel to their primary workplace.					
Means of transportation to work refers to the principal mode of travel or type of conveyance that the worker usually used to get from home to work during the referen					
People who used different means of transportation on different days of the week were asked to specify the one they used most often, that is, the greatest number of					
People who used more than one means of transportation to get to work each day were asked to report the one used for the longest distance during the work trip.					
If the respondent worked in a different location than normal during the reference week, they reported their means of travel in that other location.					

**Bicycling in the Region**

In addition to census data, information collected in MWCOG cordon counts and the *Commuter Connections State of the Commute Survey* provide clues to bicycle usage trends in the Washington metropolitan region as a whole. A March 2006 draft of the *Bicycle and Pedestrian Plan for the National Capital Region* reports that, “The number of bicyclists entering the Metro core has grown steadily from 474 in 1986 to 1379 in 2002. The number of cyclists crossing the Potomac River bridges grew from 317 in 1986 to 525 in 2002. Bicycle traffic into the Arlington section of the Metro core increased from 409 to 625 bicyclists between 1999 and 2002, while Potomac bridge bike traffic declined slightly over the same period, indicating that more people are bicycling to destinations, probably employment, within Arlington in the morning.” (See Appendix B for detailed documentation.)

**Table 3 - Journey to Work Mode Split, Arlington and Select U.S. Cities**

	<b>2000 Census Commute Mode Share*</b>				
	Number of Workers (2000)	Public transportation	Bicycle	Walked	Car, truck, or van
<b>Arlington County, VA</b>	<b>116,046</b>	<b>23.31%</b>	<b>0.69%</b>	<b>5.58%</b>	<b>66.41%</b>
<i>Select U.S. Cities</i>					
Boulder, CO	53,828	8.34%	6.89%	9.03%	68.51%
Madison, WI	119,707	7.17%	3.19%	10.66%	75.33%
Portland, OR	270,996	12.33%	1.76%	5.24%	75.53%
Cambridge, MA	54,959	25.07%	3.90%	24.40%	40.36%
Evanston, IL	37,655	18.35%	1.67%	11.65%	61.65%

\*Row percentages do not include people who commuted by motorcycle, other modes of transportation, or worked at home.

*About Census Journey to Work Data:*

Data were compiled from Census Questionnaire Long Form, Item 23a.

Data apply to one reference week, which was the week preceding April 1, 2000 for most Census long-form respondents.

Data are an estimate (from the census long form) for all workers age 16 and over who worked during the reference week.

Respondents who had more than 1 job were asked to report only the means of travel to their primary workplace.

Means of transportation to work refers to the principal mode of travel or type of conveyance that the worker usually used to get from home to work during the referen

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People who used more than one means of transportation to get to work each day were asked to report the one used for the longest distance during the work trip.

If the respondent worked in a different location than normal during the reference week, they reported their means of travel in that other location.

*State of the Commute* data cited in the same report reveals that in the Washington region “walking and biking to work are somewhat more prevalent among the low-income (less than \$30,000 household income per year) than among the very high-income (more than \$140,000 per year).” Overall however, bike commuters are more common among low- and high-income people than middle income people. Hispanic (3.8 percent) and White (2.51 percent) ethnic groups have the highest rates of bike and walk to work rates, while African-Americans have the lowest (1.5 percent). In terms of age, “People under 35 and over 65 are more likely to walk or bike to work than the middle-aged.” And finally, as might be expected, people living in households with fewer motor vehicles available are more likely to walk or bike to work (See Table 4: Walk/Bike Mode Share by Number of Vehicles)<sup>3</sup>

**Table 4: Washington Region Walk/Bike Mode Share by Number of Vehicles in Household**

<b>Number of Vehicles in Household:</b>	0	1	2	3	4+
<b>Walk/Bike Commute Share:</b>	11.40%	3.70%	1.20%	1.40%	0.60%
<b>Walk Mode Share - All Trips (NPTS):</b>	41.1%	12.5%	7.8%	6.3% (3 or more)	
<b>Bike Mode Share- All Trips (NPTS):</b>	2.4%	0.7%	0.9%	0.8% (3 or more)	

(Source: Bicycle and Pedestrian Plan for the National Capital Region)

### **Bicyclists and Metrorail**

Bicyclists’ use of Metrorail stations was studied through a 2002 survey of Metrorail passengers conducted by WMATA. Additionally, Arlington County staff conducted a survey of bicycle rack usage at select Arlington Metrorail stations in 2005. WMATA found that, system wide, 0.31 percent of passengers arrive at Metro stations by bicycle

<sup>3</sup> Table found in “Bicycle and Pedestrian Plan for the National Capital Region;” draft 03/16/06, Chapter 2.

which equates to about 2000 people daily out of 650,000 daily patrons. Arlington’s eleven stations account for 245 of these trips, or 12 percent.<sup>4</sup> At Arlington’s stations, bicyclist exit counts were much higher (371), and even more concentrated at the East Falls Church and Ballston stations than the access trips -295 in total.<sup>5</sup> In 2005, the County also found the greatest use of bicycle parking racks to be at the East Falls Church and Ballston stations at 90 and 50 respectively (see Table 5).<sup>6</sup>

The most current bicycle usage data available for this plan was gathered in the fall of 2005, by means of a self-selecting on-line questionnaire that was conducted as a part of the Master Transportation Plan process.<sup>7</sup> More than 700 people participated. Thirty-eight percent of those responding reported that they use a bicycle for transportation frequently or occasionally.

**Table 5: Arlington County Staff Counts of Bicycle Rack Usage at Select Arlington Metrorail Stations**

Metro Station	2005 -- Survey Date		
	20-Jul	28-Jul	14-Sep
East Falls Church	86	90	90
Ballston	45	45	50
Virginia Square	11	16	21
Clarendon	20	18	19
Courthouse	10	8	12
Rosslyn	9	4	7
Pentagon City	6	10	11
Crystal City	7	4	8
<b>Totals:</b>	<b>194</b>	<b>195</b>	<b>218</b>

(Source: Arlington County Transportation Division)

## The Master Planning Process

The Bicycle Element of the Master Transportation Plan is based on a 2004 effort to update the 1994 *Arlington Bicycle Transportation Plan*. In October 2005, the Bicycle Advisory Committee and staff began integrating the draft bicycle plan into the multimodal master transportation planning process initiated by the County in 2005 resulting in this document.

Coordination of Arlington’s plan with neighboring jurisdictions was undertaken in two ways: 1) through direct staff liaison, and 2) by the Bicycle Technical Subcommittee of the National Capital Region Transportation Planning Board (TPB). Concurrently with Arlington’s MTP planning process, the TPB is updating the regional bicycle and pedestrian long range plan.<sup>8</sup> Projects and policies identified in Arlington’s Bicycle and Pedestrian Elements, and the multimodal MTP will be used to inform this regional planning effort.

<sup>4</sup> This survey found that four of Arlington’s Metrorail stations reported no passengers accessing the station by bicycle: Ronald Reagan Washington National Airport, Pentagon City, Pentagon and Courthouse. While this may not be completely accurate, these are among the stations with little or no bicycle parking provided.

<sup>5</sup> <http://www.mwcog.org/uploads/committee-documents/u1pYWV020060320122008.pdf> Data included as an Appendix in the *Bicycle and Pedestrian Plan for the National Capital Region*, March 2006 draft.

<sup>6</sup> Counts include all bicycles and mopeds located in bike racks as well as those in close proximity to bike racks. Does not include usage of bicycle lockers.

<sup>7</sup> Questionnaires were also collected at a variety of public meetings held in conjunction with the master plan process.

<sup>8</sup> The most recent regional bike plan dates to 1995.

Over time, conditions and priorities will change and the Bicycle Element will be updated to remain current. In fact, amendments to the Bicycle Element may be made prior to the next formal revision of the MTP. Revisions, amendments and the general implementation of the document will be open to public participation, with appropriate approvals by the Arlington County Board.

## **The Future: Bikeway Networks, Program Objectives and Recommendations**

### **Bikeway Network**

Similar to the Streets and Transit networks, Arlington's bikeways are classified as either primary or secondary.

#### **Primary Bikeway Network**

The Primary Bikeway Network (see map in Figure 1) should be constructed, improved and maintained to provide the highest quality bicycling conditions reasonably feasible. This network includes those on-street facilities, signed routes, and off-street trails that achieve at least one of the following:

- serve the most important and well-used bicycle transportation corridors
- provide access to the most important destinations within and immediately outside the County
- provide connections to all neighborhoods within the County.

Providing high quality bicycle facilities will be a priority when considering improvements to the streets in the Primary Bikeway Network. However, some streets in this network are also significant for other modes' networks. In situations where limited right-of-way exists to adequately accommodate the highest quality facility for each user group, the priorities of each mode will be considered on a case-by-case basis and balanced to the greatest possible extent. This balancing will consider the overall MTP goals and the need to complete the Primary Network for certain modes. (See the Streets Element for a discussion of modal priorities on particular corridors.)

The Primary Bikeway Network includes existing, planned and proposed facilities. It includes planned and proposed projects that can be accomplished in the near term, as well as projects that will be accomplished in the long term. It includes routes along major arterial roads, neighborhood principal streets and low volume side streets. It includes signed routes, bike lanes, shared lane markings, sidepaths, shared use trails, and a variety of other bicycle treatments that provide accommodations and safety features for convenient bicycle transportation. Much of the Primary Bikeway Network exists today. This plan calls for steady progress in upgrading facilities in the network and adding new facilities and routes that are needed to fill gaps, provide conditions that more adequately serve a wide range of bicyclists, and improve safety.

#### **The Secondary Bikeway Network**

The Secondary Bikeway Network should be implemented and maintained to meet basic quality and safety standards for bicyclists. The Secondary Network includes those on-street facilities, signed routes, and off-street trails that achieve at least one of the following:

- serve secondary bicycle transportation corridors which supplement the primary network by feeding and distributing bicyclists to and from the primary system, or
- by virtue of their utility, location and/or configuration serve primarily recreational bicycle activity, or
- provide access to destinations of lesser importance within and outside the County, as well as linkages to and through residential neighborhoods.

The Secondary Bikeway Network also includes existing, planned and proposed facilities. It includes planned and proposed projects that can be accomplished in the near term, as well as those that should be viewed as long-term goals. It includes a few routes along major arterial streets which the MTP establishes the highest priorities for transit, pedestrian and/or motor vehicle travel improvements. It includes mostly neighborhood principal streets and low volume side streets. It includes signed routes, bike lanes, shared lane markings, sidepaths, shared-use trails, and a variety of other bicycle treatments that provide accommodations and safety features for convenient bicycle transportation. Much of the Secondary Bikeway Network exists today. This plan calls for steady progress in

modifying routes in the Secondary Network, and adding new facilities and routes that are needed to fill gaps and provide conditions that more adequately serve a wide range of bicyclists and improve safety.

## **The Bicycle Element: Objectives, Recommendations and Performance Measures**

Arlington has made significant progress implementing past bicycle plans and providing facilities and programs that facilitate and support bicycling. The Bicycle Element of the MTP puts forth five objectives that build on the existing foundation of bicycle master planning. A series of specific recommendations are related to each objective. These recommendations include strategies, actions and tasks that will enable the County to realize its bicycle transportation objectives.

To assess progress toward achieving the Bicycle Element objectives, performance measures must be established. To establish appropriate and helpful measures, new baseline data should be gathered. Currently, Census *Journey-to-Work* data are the only data available to the County that allow usage rates of all modes to be tracked and compared. However, this data set is not sufficiently accurate for multimodal comparisons, excludes non-work trip, and is updated only every ten years, as a part of the U.S. Census. A new data source needs to be identified. This MTP recommends implementing a new data collection methodology that utilizes a biennial resident trip diary. This method enables a statistically significant portion of the Arlington population to record a full week of daily trips made by all modes. With data collected in this manner, including spot bicycle counts and an associated opinion survey, specific performance measures can be used to track each of the Bicycle Element objectives.

The five objectives of the Bicycle Element of the MTP are to:

1. Complete the Primary and Secondary Bikeway Networks;
2. Increase bicycling use to a level where 50 percent of residents report using a bicycle for transportation purposes at least occasionally;
3. Improve bicycling safety and bring public perception about the safety of bicycling in Arlington in line with actual conditions;
4. Manage and maintain the existing and future network of bicycle facilities and services to ensure that it can safely accommodate greater demand; and
5. Make intermodal trips involving bicycles convenient and time efficient.

The following section elaborates on each objective, provides a list of corresponding recommendations for County implementation, and identifies the performance measures that shall be used to gauge progress.

### **Objective One: Complete the Primary and Secondary Bikeway Networks**

Expand and complete a diverse network of bikeway facilities that overcome existing barriers and improve connectivity between and among residential neighborhoods, retail and commercial districts, recreation centers and parks, employment sites, transit stations and activity centers in neighboring jurisdictions.

#### *Objective One Recommendations*

- Implement funded projects listed in Appendix C.
- Fund and implement planned projects listed in Appendix C.
- Develop the Primary Bicycle Network by installing proposed bike lanes, signed bike routes and other bicycle facilities on arterial roadways and neighborhood principal roadways in conjunction with street/bridge improvements or as independent bicycle projects (see map, Figure 1) and projects listed in Appendix C.
- Ensure that state-of-the art bikeways are provided on new or existing streets and roads in conjunction with major new development or redevelopment activities in Pentagon City, Crystal City, the Potomac Yard North and South Tracts, Rosslyn, and other areas.
- Ensure that state-of-the art bikeways are 1) provided on and across VDOT owned arterial roadways and 2) within or across interstate (VDOT) and parkway (NPS) corridors, in conjunction with all VDOT or NPS projects to improve, upgrade, widen or reconstruct these roadways (including bridges). Such roadways include: I-66, I-395, GWMP and Spout Run Parkway. Additional VDOT corridors where particular attention should be given to providing bicycle facilities include Routes 27 (Washington Boulevard), 29 (Lee Highway), 110, 120 (Glebe Road), 123, 233 (Ronald Reagan Washington National Airport Access Viaduct), 237 (Fairfax, Washington Boulevard, 10<sup>th</sup> St.), 244 (Columbia Pike) and 309 (Old Dominion Drive).
- Improve bicycle safety and access through the priority intersections shown on Figure 1 (Map).
- Plan, fund and construct new shared-use paths and trails in conjunction with private and public developments.

- Upgrade existing trails, add trail connections and extensions, and improve trail/roadway crossings as 1) identified in Appendix C, 2) shown on the Bikeways Network Map—Figures 1) recommended in the Four Mile Run Restoration Master Plan.
- Seek Congressional assistance and coordinate with the National Park Service to complete implementation of four remaining trail improvement projects identified in the 1990 National Capital Region Trail Plan (See Appendix C for project list).
- Add grade-separated crossings of major highways where feasible; improve existing crossings of major highways; and develop improved alternatives for crossing or circumnavigating the large federal institutions and properties, such as Fort Myer, the Pentagon complex and Arlington National Cemetery.
- Implement facility designs that are new to Arlington (and conduct testing as necessary to determine the effectiveness if the measure is not in the current MUTCD), including:
  - Shared lane pavement markings (*sharrows*) on streets that are not wide enough to support bike lanes (See Appendix D for a description of the *sharrow* and its appropriate use),
  - Colored Bicycle Lanes.
  - Bicycle Boulevards on appropriate streets, such as North 26<sup>th</sup> St. and others (see Appendix C for a list; see Appendix D for an explanation of bicycle boulevards).
  - Bike Boxes, marked waiting areas between cross-walks and stop lanes
  - Bicycle specific traffic signalheads
- Evaluate and upgrade the signed bike route system and improve wayfinding information for bicyclists.
- Improve bicycle access to and through isolated employment centers, shopping districts, residential neighborhoods, and neighboring jurisdictions, such as Pentagon City, Crystal City, Shirlington, Fairlington, Arlington View, Glen Carlyn, the Pentagon, Avalon Bay, Georgetown in DC, and others.

#### *Objective One Performance Measures*

Because Arlington has a well developed bikeway system, traditional measures of miles added to the network, or number of facilities installed, are not useful measures of progress in completing the system. Many of the remaining segments of the network are more expensive and difficult to implement than what has been completed in the past. For this reason, it is more effective to measure progress in terms of amounts of funding allocated or leverage from non-County sources as well as simply checking off projects or completed segments, which often are not significant in link but represent the final piece of a route that eliminates or surmounts a major barrier.

- Establish a target minimum amount or percentage of annual transportation spending that is dedicated to bicycle and shared-use facilities. Additionally, biennial targets for leveraging of federal transportation funds, developer contributions and other agency budgets (such as the NVRPA, DoD, NPS) should be established and monitored.
- Utilize the list of projects provided in Appendix C as a checklist to monitor completion of the planned Bicycle Network.

#### **Objective Two: Increase Bicycle Use**

Make using a bicycle for transportation, at least occasionally, a normal and accepted lifestyle feature for more than 50 percent of the Arlington residential population. Two key strategies for achieving this objective include 1) attaining a 40 percent walk/bike to school rate among Arlington County students (see Objective Two in Pedestrian Transportation Element) and 2) increasing use of the bicycle for short trips within Arlington, such as access to transit, and non-work-related travel needs.

#### *Objective Two Recommendations*

- Develop a method of bicycle use data collection and measurement; establish a baseline, and continue regular measurement to monitor progress and trends related to this objective.
- Continue the encouragement programs of BIKEArlington including map publication, Bike-to-Work Day, community bike rides and route assistance. Maps showing on and off-street bikeways and bicycle-related amenities, program brochures and safety education materials should be distributed widely, and include guidance and regulations for safe and courteous use of shared-use paths and streets.
- Refine and adopt bicycle parking standards per detailed recommendations in Appendix F.
- Maintain current efforts to provide bicycle rack installation upon request on streets and at public facilities; establish a goal of installing 50-100 racks a year.
- Expand the Bicycle Parking program to address the needs of residents living in existing multi-family apartments, coops and condominiums. Provide convenient, weather protected and secure bicycle parking that makes daily bicycle use secure and convenient.
- The program should include an incentive and partnership program with managers/owners of private commercial property and multi-family residential property to provide high quality bicycle parking at existing businesses and apartment complexes. The program should also focus on improving bicycle parking

at transit stations, in commercial and shopping areas, with large employers and managers of large office buildings.

- Creation of such a program will require dedicated funding and staff, should be operated for a limited time period (5 years), and should include parking space installation goals in the 500 - 1000 range.
- Institute site plan conditions and other County development requirements for private/commercial bicycle parking to ensure the network of bikeways is complemented by well distributed, secure bicycle parking facilities convenient to activity centers.
- Require all commercial and multi-family residential buildings to provide convenient and secure bicycle parking through the County's zoning ordinance
- Undertake regular surveys or focus groups to determine what measures might encourage greater bicycle use. Identify new marketing approaches to reach populations that are not currently regular bicyclists through the provision of bicycle program information and encouragement messages.
- Promote bicycling as an activity that will improve citizen health and fitness and provide convenient recreational opportunities. The American public has shown declines in fitness activity and increased obesity among all age groups, and corresponding increased health risks. To counter this trend, the County should develop a variety of new programs to encourage bicycling for transportation, fitness and fun:
  - Establish bicycle fitness and training programs at the Department of Parks, Recreation and Community Resources. Encourage similar programs in County schools.
  - Establish periodic cycling race and/or mass-ride days.
  - Establish cycling recognition awards and incentives - e.g., awards honoring citizens who pedaled 1,000/2,000/3,000 miles to work in a year; awards for businesses and citizens who helped make Arlington a better place for cycling; awards for exemplary bicycling support in schools/businesses/youth organizations Promote bicycle touring in Arlington.
  - Evaluate the construction of an Arlington Velodrome (i.e., an indoor arena for bicycling)
- Incorporate information about the County Police Department bicycle registration program in County publications and the BIKEArlington website.

#### *Objective Two Performance Measures*

- Use data collected in the trip diary described above to measure progress on this objective. The following periodic performance measures provide interim goals:
  - Year 2008, establish baseline bicycle usage rates for transportation and recreation using the trip diary described above.
  - Year 2011–show a doubling of the Bike Journey to Work rate from 0.69 percent in 2000, to 1.4 percent in 2010
  - Year 2010, 2012, 2014 steadily increase bicycle usage above the Year 2008 rates.
  - Year 2015, reevaluate and set new usage goals for work and non-work trips based on trip diary data.
  - Year 2030, achieve a goal of fifty percent of the populations using a bicycle for transportation at least occasionally, with 20 percent using a bicycle for transportation frequently and 10 percent regularly.
- Additionally track the amount of resources allocated to activities directly related to achieving this objective such as amounts of money spent on encouragement and marketing programs, numbers of staff dedicated to the task, numbers of customers served, and numbers of bicycle racks installed and available at locations serving commute and non-commute trip types. Establish a set of strategic locations where annual or bi-annual bicycle counts can be made and volumes can be compared over time to determine increases in usage. Actual use of selected bicycle racks should be part of such a count.

#### **Objective Three: Bicycle Safety**

Change the public image of bicycle transportation in Arlington from one of being a potentially unsafe travel mode to one that is safe, secure, and easy to use. This will include improving actual bicycle safety, as indicated by bicycle crash rates and injury severity, as well as the public's perception of bicycle safety and security.

#### *Objective Three Recommendations*

- Develop an ongoing Safe Routes to School program utilizing new Federal funding and County revenue to support a comprehensive approach including Education, Enforcement, Encouragement and Engineering interventions. This program would build on the existing Safe Routes to School initiative and should be developed in conjunction with the Arlington Police Department and the Arlington County Schools, including administrators and school principals, teachers, parents, and students. While it may be started with a select number of schools, the goal over time should be to include all public, and most private schools located in the County.

- Provide all Arlington elementary school and middle school students training in pedestrian and bicycle operations and safety and continue offering bicycle and pedestrian training and safety in the high school physical education program.
- Develop and designate recommended walking and bicycling routes to school within the one-mile walk/bike zone for elementary schools and 1.5-mile walk/bike zone for secondary schools (grades 6-12).<sup>9</sup>Criteria for “safe” routes should be established jointly among the staff of the ACS, Transportation Division, and County Police, who provide crossing guards at necessary locations for pedestrian safety. Continue to make necessary engineering improvements to increase the number, length and coverage of routes that can be recommended for walking and bicycling to school.
- Enhance pedestrian safety at and near designated school bus stops to enable safer student access to school-provided transportation.
- Conduct a countywide school transportation survey in homerooms on select days in 2006-2007 school year and develop a multimodal, multi-trip type profile of student, teacher and staff trips to and from school (see Pedestrian Element for details).
- Request that community colleges, recreation programs, bicycle organizations, fitness clubs and other educational institutions provide adult bicycle safety courses and safety information. Consider providing County financial assistance to institutions offering the program, or students, as an incentive to encourage participation.
- Coordinate with local law enforcement officials to design and implement bicycle safety stings directed toward bicyclists and motorists who commit traffic violations that endanger cyclists. Other enforcement programs may also be necessary to protect the integrity and intended use of bicycle facilities, such as parking racks, and bike lanes.
- Prioritize trail widening and trail/roadway intersection projects; especially in those areas where multiple crashes or near-crashes have been documented. Where feasible, identify and mark on-street routes as alternative bicycle routes for shared-use path segments with severe congestion problems.
- Teach proper shared-use path behavior through signs, centerline striping, brochures, video education programs and recreation program classes.

#### *Objective Three Performance Measures*

- Continue to collect and analyze bicycle crash data, however parallel bicycle usage data is needed to determine the meaning of crash rates relative to exposure and total population. Improve crash reporting, data collection and compiling methods used by law enforcement agencies and provide reports to the Bicycle Advisory Committee (BAC) and public every two years. Collect perception of safety data as part of a public opinion survey conducted in association with the trip diary.
- Use data collected by the schools or within the Countywide Trip Diary to measure progress.<sup>10</sup> The following periodic performance measures provide interim goals:
  - 2007 establish baseline, re-evaluate goals and start pilot program.
  - 2009-15 slowly expand program.
  - 2015 achieve 50 percent bike/walk to school rate for students living within the school bike/walk zones (typically within 1 mile of school campus) and not using school provided transportation.

#### **Objective Four: System Management and Maintenance**

Successfully manage and maintain the existing and future network of bikeways (including the general road and street system) and associated infrastructure and services to provide sufficient bicycle travel capacity, an attractive level of service, functional reliability, safety and security.

#### *Objective Four Recommendations*

- Continue to manage and utilize the current e-mail/listserv bicycle information/hazard alert program. Improve and expand program to 1) achieve full coordination and participation of all relevant County, state, and federal agencies and bicycling organizations,<sup>11</sup> 2) ensure that the entire Arlington Bikeway Network, and regional bicycling network, are addressed in information alerts, and 3) that additional communication methods are utilized such as radio and television traffic reports, traffic alert websites, cameras and/or other technologies.

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<sup>9</sup> Current Arlington Public School policy is to locate bus stops for elementary school students no closer than 1 mile from the school; for secondary schools no closer than 1.5 miles from the school.

<sup>10</sup> For additional details, see discussion of data status and data collection issues in the Pedestrian Transportation Element.

<sup>11</sup> At a minimum this should include the Virginia Bicycling Federation and the Washington Area Bicyclist Association

- Identify and encourage a representative from each of the coordination agencies to participate in the Bicycle Advisory Committee (see coordination agencies box in section IV, E.)
- Continue operation of the County spot improvement request system that allows individuals to report maintenance problems in writing, over the phone, via e-mail, through the County's website, and other methods as they become widely available.
- Dedicate sufficient local funding to ensure the regular maintenance of bikeways including surface repaving, sign replacement and maintenance of pavement markings.
- Adopt the Maintenance Program and Practices outlined in Appendix G.
- Incorporate County trail repaving/repair into a regular maintenance cycle similar to that used for County roads and sidewalks. This process would include periodic pavement quality assessments and incorporation of necessary funding into the appropriate County maintenance and operating budgets.

#### *Objective Four Performance Measures*

- Determine which maintenance tasks need to be measured, such as number of spot improvements made, miles of bike lane swept, miles of bike lane re-stripped, etc. (See Appendix G for Maintenance Program Details.) Set an internal measure of these tasks in terms of person-hours dedicated to the task or dollars budgeted or spent.
- Develop a component of the public opinion survey associated with the trip diary to assess general public and bicycle user opinion on maintenance and management of the system.
- Community Acceptance and Accreditation: Strive to achieve the Gold Standard awarded by the League of American Bicyclists (LAB) for communities with exemplary bicycle programs and commuting usage of bicycles. Achieve Silver award in 2008 and Gold by 2012.

#### *Objective Five: Intermodal Integration*

Continue to integrate various transit and HOV travel modes with bicycling to ensure the seamless integration of bicycling with other travel modes and choices.

#### *Objective Five Recommendations*

- Initiate regular coordination communications between the County Bicycle Program staff and WMATA to increase bicycle parking at WMATA stations, initiate new bike/transit integration services, and manage existing services. Specifically, the quality and quantity of bicycle parking should be upgraded at Metrorail stations, including Rosslyn, Crystal City, Pentagon City, Ballston, Clarendon and East Falls Church. To attract riders in new markets, it is critical to provide on-demand parking that offers a level of security and weather protection approaching a locker, but which does not have to be pre-arranged or involve a fee.
- Develop at least one full service bicycle station in the County at or in close proximity to a Metro station such as Rosslyn, Ballston or Crystal City.
- Assess the market for and initiate integration of bicycle transportation with on-call transportation (i.e., pedi-cabs), carpools, vanpools, car-sharing programs, slug lines, commuter bus and commuter rail services.
- Research, and if appropriate, plan and initiate a shared bicycle program.

#### *Objective Five Performance Measures*

- Measure modal integration in terms of types, quantity and quality of intermodal services provided, such as number of buses equipped to carry bicycles, amount of high security bike parking provided at transit stations, and number of new services initiated.
- Working with WMATA and ART, develop a method to assess usage of bike-on-bus services and bike parking (both lockers and racks) at Metrorail stations. Track numbers of customers served at bicycle stations and through shared bicycle programs.

## **Network and Program Implementation**

### **Prioritizing Proposed Facility Improvements**

During development of this Bicycle Element, prioritization of bikeway projects was conducted in an iterative manner. Proposed priorities were developed using input from three sources: 1) the Arlington County Bicycle Advisory Committee, 2) the County Bicycle Program staff, and 3) the consulting team that developed the Bicycle and Streets Elements and the overall MTP. The Bicycle Advisory Committee identified and prioritized a number of near term projects determined to be the most pressing needs. The County staff developed proposed priorities for

a variety of mid-term and long-term projects. The staff and consulting team jointly prioritized new projects identified as a result of designating the Primary and Secondary Bikeway Networks.

Appendix C provides a number of project lists in table format. These tables include project descriptions and locations as well as proposed prioritization and near-term, mid-term and long-term designations. Prioritizing projects remains a dynamic process that will continue to evolve as the MTP moves through a public process of review and Board adoption.

### The Prioritizing Process and Criteria

Bikeway Network projects should be evaluated and reprioritized, every two to three years. Prioritization should take place through a formal process that accommodates the involvement of people who bicycle in Arlington and the general public, Bicycle Advisory Committee members, Bicycle Program staff, select staff from other County Departments, such as Parks, Planning, or others, and representatives of other agencies as appropriate. Project priorities should be presented to the County Board for their endorsement or amendment.

Project priorities should also be reported to neighboring jurisdictions and regional transportation planning bodies. When possible, first order of magnitude cost estimates should be associated with top priority projects. Funding strategies should be identified and developed to maximize the amount of state, federal and private funding that can be leveraged for the Bikeway Development Program over and above the annual County allocation. These strategies should include opportunities for allowing project timing to be determined by associated/proximate roadway work of a larger scope, and the potential to fund bicycle elements through larger County or State roadway improvement budgets.

A draft list of prioritization criteria (see text box) are provided that should be considered for use in a project scoring and ranking system. Such a system should be developed and used to determine final project priorities. However, other methods for receiving input also should be employed such as public meetings or hearings, an online survey, or other means as appropriate.

### Role of Arlington County Agencies

The Arlington Department of Environmental Services Transportation Division is responsible for implementing and applying the policies, principles and recommendations of this element of the MTP to ensure that bicycling accommodations and considerations are appropriately integrated into land development and regional transportation plans and projects reviewed by the County. This Division will also manage the design and construction of priority bicycling improvements undertaken directly by the County, and work in consultation with the agencies that are responsible for projects on land not controlled directly by the County.

Coordination with other County agencies is an essential function of the Division of Transportation and bicycle program, especially agencies such as Parks, Recreation and Cultural Resources (PRCR), Police, Community Planning, Housing and Development (CPHD) and Arlington County Public Schools (APS). For example, PRCR maintains Arlington's trails and is involved in bicycle promotion and recreation. The Police Department is responsible for

#### Draft Project Prioritization Criteria

- Cost relative to Annual Budget
- Ease of implementation
  - Planning: Degree of neighborhood consultation, feasibility study, environmental clearance or conceptual work required.
  - Right-of-way: Who owns/controls needed property? (VDOT approval needed or not, private land acquisition required, NPS lands involved, interests of public landholding agency.)
- Opportunity/advisability of allowing project timing to be determined by associated/proximate roadway work of a larger scope (and potential to have funding of bicycle elements come from larger roadway improvement budgets)
- Importance for overall Bikeway Network connectivity
- Safety needs and implications
- Estimated demand for usage: high, medium, low
- Potential to attract new bicyclists
- Existing alternatives available (are there any? of what quality? how direct? hills or other impediments? Etc.)
- Importance of destinations served
- Proximity to population density
- Within the Primary or Secondary Network
- Serves pedestrians as well as bicyclists
- Evidence of public support (Neighborhood endorsement, other endorsements, calls and letters, counts taken on the route, other survey data, etc.)

traffic law enforcement and crash reporting. CPHD provides leadership in neighborhood and sector planning, zoning and development review, and ACPS will be responsible for guiding Safe Routes to School initiatives, providing safety education and addressing school transportation issues.

Coordination with civic associations, tenant and coop boards, other neighborhood-based groups and business associations is also important for the successful implementation of the Bicycle Program.

## Staff

Currently (2006), the County applies the equivalent of one to one-and-a-half full time employees for staff to implement BIKEArlington activities, which include project development and management as well as encouragement and education activities. Additionally, other staff are responsible for work on projects and activities that are bicycle related, such as 1) managing multimodal projects that include bicycle facilities and elements, 2) operating transportation demand management programs that include services and promotional activities related to bicycling, and 3) working on safety, traffic operations and other multimodal transportation activities. To increase bicycle mode share in the near future, it will be necessary to increase bicycle program staff in a manner consistent with the intended growth in the BIKEArlington program activities.

## Project Implementation Mechanisms

Bicycle facility projects will continue to be implemented in a variety of ways. Many will be done as opportunities arise, such as street resurfacing or rehabilitation projects. In these cases, it is often important for project limits to be expanded so that striping can be continued to the most logical terminus, or to a direct connection with an existing facility. Signing as well should be implemented beyond the limits of the resurfacing activity in order to provide a functional and continuous information system for the bicyclist.

Bicycle projects will also be implemented as independent bicycle improvements, meaning that the sole purpose of the project is to install a facility for bicycling. Frequently, these projects may be both bicycle and pedestrian related.

There are a variety of project types that are typical for County or State transportation agencies to undertake in urban areas, including the following:

- Street repaving, rehabilitation or reconstruction
- Bridge rehabilitation or reconstruction
- Intersection improvements
- Interchange improvements
- Area-wide curb ramp installation
- Area-wide crosswalk and other striping/re-striping
- Area-wide curb, gutter, drainage facility and sidewalk repair.
- Traffic Calming projects
- Neighborhood Conservation projects

It is important that bicycle accommodations and issues are considered in the planning and scoping phases of every new project in Arlington County, whether they happen through the programs listed above or others. The County will seek to avoid missed opportunities, even if it means that only parts of a whole facility are installed with a particular project. The County will also seek to avoid implementing roadway, transit or other transportation improvements that make bicycling less convenient or safe because bicycling was not fully considered early enough in the life of the project.

## Coordination

Much of the arterial road right-of-way within Arlington is in federal or state jurisdiction and is not directly subject to County policy. As a result, many bicycle infrastructure

### Coordination Entities

- National Park Service (NPS): George Washington Parkway and Arlington Cemetery Units: The National Capital Region
- Department of Defense (DoD), The Pentagon, Arlington Cemetery, Fort Myer, US Army National Guard, etc.
- Northern Virginia Regional Park Authority, W&OD Trail (NVRPA)
- County of Fairfax, City of Falls Church, City of Alexandria, and the District of Columbia
- Virginia Department of Transportation (VDOT)
- Washington Metropolitan Area Transit Authority (WMATA)
- Northern Virginia Transportation Commission (NVTC), Virginia Railway Express (VRE).
- And various regional transportation planning agencies:
  - The National Capital Region Transportation Planning Board (and Bicycle Technical Subcommittee).
  - The Northern Virginia Transportation Authority

projects will be implemented by other agencies or in conjunction with other agencies. It is critical that Arlington Bicycle Program staff continue to coordinate closely and directly with other local, regional, state and federal agencies before and during project implementation, to ensure that projects undertaken by these agencies are designed to appropriate standards and contribute to the completion of Arlington's Bikeway Network. Arlington County staff will also work directly with other neighboring jurisdictions on bicycle improvements within these jurisdictions that are of particular interest to Arlingtonians who bicycle to other communities. See box for a list of agencies and entities for which coordination is important.

## Financial Framework

**Minimum Funding Amount** - In the areas of both capital improvements and maintenance, an adequate amount of funding should be appropriated on an annual or biennial basis to ensure basic progress toward achieving the bicycle objectives of the MTP.

**Funding Sources:** Funding for bicycle facilities may include the most diverse set of sources among all of the modes. Because projects tend to be implemented through various mechanisms, facilities are managed by a variety of agencies and landowners, and flexible transportation laws make bicycle facilities eligible for many funding sources. Managing the funding and project development can be difficult. The County will continue to research and identify new sources of funding to implement bikeways, bicycle parking and other bicycle-related projects and programs.

Following are the main funding sources and/or mechanisms that Arlington will use to pay for bicycle projects and programs:

- County transportation funds on County owned streets and roads (independent bicycle projects or in conjunction with larger roadway improvement projects.)
- County park funds for trails in County owned parks
- State or federal transportation funds as a part of roadway improvement projects on state owned arterials and highway rights-of-way.
- Federal transportation funds with or without County matching funds.
  - Transportation Enhancements—Independent projects (\$100,000 to \$2 million)
  - Recreational Trails Program—Independent projects (less than \$100,000)
  - CMAQ (Congestion Mitigation and Air Quality)—Independent projects and programs (\$50,000 and up)
  - Surface Transportation Program
  - Safe Routes to School—Bike/Pedestrian improvements and programs at and around schools K-8; \$10k to \$100k)
  - Safety Program
  - Special Earmarks for large projects (once every six years in reauthorization legislation.)
- NVRPA funds for W&OD Trail and other facilities in NVRPA parks
- NPS funds and federal appropriations (potentially available on an annual basis)
- DOD or other federal agency funding through annual appropriations
- Transit or Transit Enhancement funding (bike parking at transit stations)
- Developer contributions for bicycle improvements near the development or related to traffic mitigation, or developer investment in facilities on private property. In conjunction with development, redevelopment, or major addition to or rehabilitation of existing development, the property owner should provide required bicycle parking facilities, complete missing links of shared-use paths and connect to nearby shared-use paths.