New River Valley
Bikeway-Walkway-Blueway Plan ~ 2000

this document was prepared by the

New River Valley Planning District Commission
6580 Valley Center Drive, #21
Radford, Virginia 24141-5669
(540)639-9313
FAX (540)831-6093
E-mail: nrvpdc@nrvdc.org
Web site: http://civic.bev.net/pdc/index.html

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New River Valley Bikeway-Walkway-Blueway Plan ~ 2000
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New River Valley Bikeway-Walkway-Blueway Plan
Executive Summary ~ 2000

Purpose

The purpose of this plan is to provide information, guidelines and cohesion in the creation, expansion and coordination of a safe and effective Bikeway, Walkway and Blueway system for the New River Valley Planning District region. This region includes the Counties of Floyd, Giles, Montgomery and Pulaski, the City of Radford, and the Towns of Blacksburg, Christiansburg, Dublin, Floyd, Glen Lyn, Narrows, Pearisburg, Pembroke, Pulaski, and Rich Creek. The plan identifies issues, assets, routes and connections that would provide accessibility to a comprehensive Bikeway-Walkway-Blueway system for all citizens and visitors of the New River Valley region. The plan seeks to build on, supplement and coordinate with existing plans, and recognizes and acknowledges the work and foresight of the local governments, community groups and individuals who have created the excellent and growing network of bikeways, walkways and blueways in this region. Ultimately, this Bikeway-Walkway-Blueway Plan is a valuable resource, both as an overview of existing and proposed bikeway-walkway-blueway routes and facilities; and to those wishing to solicit funds from different sources. This document provides a platform for coordinating plans and soliciting local corporate and non-profit financial support.

Vision Statement

"The New River Valley is committed to the promotion of non-motorized transportation as a safe, reliable, healthy, environmentally friendly alternative to motorized transportation. Opportunities must exist for residents of our community to choose walking, biking, or canoeing as a means of getting to a destination."

Objectives of a Bikeway-Walkway-Blueway System

1. To identify the variety of Bikeway-Walkway-Blueway users.

2. To coordinate a system of bikeways, walkways, and blueways locally and regionally, and to maintain the continuity of the Bikeway-Walkway-Blueway system.

3. To identify and coordinate Bikeway-Walkway-Blueway development with future and imminent Virginia Department of Transportation Projects.

4. To showcase and focus on the natural and cultural opportunities of the New River Valley when proposing bike routes and walking trails, in order to maximize trail effectiveness.

5. To assist in the development of tourism within the district, and to attract visitors from beyond the region to the New River Valley.

6. To promote the health, safety, and welfare of those using the Bikeway-Walkway-Blueway system and to improve the quality of life within the district for the residents of the New River Valley

7. To facilitate the use of recycled materials in the construction of bikeways, walkways, and blueways.

Elements of a Bikeway-Walkway-Blueway System

The New River Valley Bikeway-Walkway-Blueway Plan incorporates different types of facilities. Each has certain advantages or specific purposes. A Bikeway-Walkway-Blueway System for the New River Valley would include these types of facilities:

- **Shared Road** - These are routes that make use of existing vehicular roadways.
- **Wide Curb Lanes** - These are traffic lanes designed substantially wider than the 12 foot standard.
- **Bicycle Lanes** - This facility is defined as a separate lane, designed and constructed into the roadway.
- **Paved Shoulders** - Shoulders exist as a portion of highway right-of-way adjacent to the outside traffic lane.
- **Pedestrian Trails** - These are multi-purpose trails which are compatible with recreational cycling.
- **Multi-purpose Trails** - These are separate paths used exclusively for non-motorized transportation and may run within the right-of-way of an existing road or have its own independent right-of-way.
- **Sidewalks** - Sidewalks are valuable options for providing safe pathways for pedestrian travel within clustered residential and business sections and serve in this plan to connect or provide access to existing and/or proposed routes.
- **River Access and Support Facilities** - New to this plan, blueways require the availability of public access and rest stop points. Included in this are boat ramps, parking areas, bike storage and security racks, canoe rentals, portages, restroom facilities, picnic areas, etc.

Conceptual Overview

The New River Valley Bikeway-Walkway-Blueway Plan is promoting a transportation network, a recreation facility, a wellness asset, and an economic development resource all in one system. This is the integrated conceptual basis for developing this plan for the New River Valley.

Bikeway, walkway and for the first time in this plan, blueway routes, facilities, and connectors are identified and proposed to provide an interconnected and comprehensive network of trails and facilities that will provide opportunities for New River Valley residents and visitors to:
- ride to work, thereby reducing traffic congestion and parking requirements,
- exercise in a safe environment for mental and physical health, and well being,
- go sightseeing on vacation,
- promote eco-tourism, and

- attract local, regional, national, and international naturalists, cyclists, birders, water enthusiasts and related events

As an economic development tool, the implementation of the bikeway, walkway and blueway networks in this document can enhance the overall quality of life in the region, provide an attractive resource for tourism promotion, establish a world class reputation for cycling, hiking, birding, canoeing and other outdoor sports events, and offer a superlative enticement to business professionals looking to start up, expand or relocate their company.

The New River Bikeway-Walkway-Blueway Plan has been developed with the intention of providing population centers in the district with access to an alternative transportation system. The plan proposes a network of routes creating connections within and between local communities and regional and national points of interest throughout the New River Valley.

Multi-Jurisdictional Bikeway-Walkway-Blueway Connections

Many of the routes and proposed routes cross jurisdictional boundaries. Cooperation between these localities will ensure their success and greater access by more individuals. The following is a list of the major cross jurisdictional routes:

- **Rte. 221** - From Floyd County to Roanoke County
- **Rte. 8** - From Floyd County to Montgomery and Patrick Counties
- **Rte. 100** - From Giles County to Pulaski County
- **Rte. 61** - From Giles County to Bland County
- **Rte. 42** - From Giles County to Craig County
- **Rte. 11** - From Montgomery County to the City of Radford and Roanoke County
- **Rte. 114** - From Montgomery County to Pulaski County
- **Huckleberry Trail** - From Montgomery County to Pulaski County
- **Bicentennial Bicycle Route 76** - Crosses the United States from Oregon to Yorktown, Virginia and passes through Montgomery County to Pulaski, Wythe, and Roanoke Counties
- **TransAmerica Bicycle Route** - This 16,000 cross continent trail includes sections in the New River Valley from the City of Radford to Montgomery and Pulaski Counties
- **New River Trail** - From Grayson, Carroll, Wythe, and Pulaski Counties to Montgomery and Giles Counties, The New River Trail was recently connected to the **Virginia Creeper Trail** in Abingdon, Virginia, creating 160 miles of continuous trail.
- **Blue Ridge Parkway** - Creating a scenic route from the North Carolina-Tennessee border to Skyline Drive in the Shenandoah Valley of Virginia, the Blue Ridge Parkway connects Carroll, Floyd, Patrick, Roanoke, and Franklin Counties. Parkway officials encourage bicycling on the Parkway. To ensure a safe trip, they recommend becoming familiar with the Parkway resources and services. To view some tips, go to www.nps.gov/blri/bike.htm
- **Appalachian Trail** - Spanning from Georgia to Maine, the Appalachian Trail connects localities in the Mt. Rogers PDC, NRVPDC, and Roanoke Valley-Alleghany Regional Commission regions.
- **New River Canoe Trail** - Connects Grayson, Carroll, Wythe, and Pulaski Counties with existing New River Canoe Trail in North Carolina.

Blueways

The New River Canoe Trail will be Virginia's first designated inland canoe trail as well as the Department of Conservation and Recreation's first water trail or blueway. Good canoe trails offer the visitor a well-spaced series of access sites as well as adequate support facilities between those access sites. Support facilities in the New River Canoe Trail include campsites, rest stops, sanitation facilities, potable water, and sources of information to aid in trip planning. Many of these facilities will be jointly used by both New River Trail State Park and New River Canoe Trail users.

A 100 mile canoe trail will be developed on the New River in Virginia through the provision of only a few missing elements. The development of the New River Trail State Park, the efforts of the Partners in River Access Program, and other activities have already developed the majority of the needed public access sites. Some camping areas and support facilities are also present in the corridor. By developing several public use nodes, the entire trail system can be made available. When added to the 30 miles already in place in North Carolina, this system will provide a 130 mile interstate canoe trail with a beginning at the Virginia-North Carolina state line and a terminus at Claytor Lake State Park.

The Blueway system is included in this planning document because bikeways and walkways will be connecting with the blueway system providing opportunities for intermodal alternative transportation systems.

New Partners - Federal Trail Designations

Virginia's Millennium Trails

The Millennium Trail initiative is a joint effort between the White House Millennium Council, the U.S. Department of Transportation, and the Rails to Trails Conservancy. In October of 1999, First Lady Hillary Clinton announced the names of 50 Millennium Legacy Trails which "honor the past and imagine the future." Southwest Virginia was fortunate to receive one of those 50 designations. The New River Trail State Park, which runs from Pulaski County through Wythe, Carroll, and Grayson Counties, received this award due to its efforts to link communities with land, history, and culture. The Trail is currently 57 miles long and is constructed on an abandoned railroad right-of-way through the Blue Ridge Mountains. In May, 2000, at Governor Gilmore's Conference on Greenways and Trails, the Department of Conservation and Recreation and the U.S. Forest Service agreed to connect, via forestry trails, the New River Trail to the Virginia Highlands Horse Trail and the Virginia Creeper Trails. This will result in a 160 mile, multi use trail from Abingdon to Pulaski.

Another Millennium Trail runs partly through the New River Valley. The Appalachian Trail travels through Giles County on its 2,100 mile journey from George to Maine. The Appalachian Trail spans 544 miles in Virginia.

A counterpart to the Millennium Legacy Trails is the **Community Millennium Trails**. These are

trails that are smaller in scale and run throughout individual communities. Southwest Virginia is fortunate to have three more walking paths designated as Community Millennium Trails. They include the 6 mile Huckleberry Trail from Blacksburg to Christiansburg, the half mile Bicentennial Trail in downtown Blacksburg, and the soon to be constructed 2.2 mile Riverway in Radford from Radford University's Dedmon Center to the City's Bisset Park.

The Millennium Trail recognition is important to these areas, because they will now be eligible for federal grants and benefits to improve and support the trails. This will ensure their longevity in the years to come, and allow them to be enjoyed by everyone.

Virginia's American Heritage River

The American Heritage River is an initiative by President Clinton to recognize outstanding rivers in the United States. These designated rivers will receive federal assistance in the form of refocused programs, grants, and technical assistance from existing federal resources. These initiatives focus on community based efforts which restore and protect the environmental, economic, cultural, and historic values of these rivers. The designation and support are good for five years.

Southwest Virginia's New River, along with 13 others, was one of the first rivers designated in 1998. Flowing north, the New River stretches from North Carolina, through Southwest Virginia, into West Virginia. The New River Community Partners is in charge of coordinating the activities of the American Heritage River. The initiative also provides for a River Navigator to aid in development of the activities.

One of the goals of the program is to develop and implement programs that promote the recreational use of the New River Watershed. The New River Valley Bikeway-Walkway-Blueway Plan ~ 2000, integrates recreational use, enhancing natural ecosystems, promoting tourism and connecting and showcasing cultural and historic resources. It is proposing an extension of the New River Trail from Pulaski to Radford and Blacksburg. It will create a network of bicycle routes which will connect the history of the New River Valley. The Mary Draper Ingles Trail will be implemented as a multi use bike, horse, and hiking trail along the New River. This will stretch into West Virginia, Kentucky, and Ohio, and retrace the steps of Mary Draper Ingles. The New River Trail will be extended into Galax. It will build on existing projects, and possibly connect with the Fishers Peak Music Center on the Blue Ridge Parkway. Finally, the New River Trail State Park will be completed in downtown Pulaski, with its terminus at the historic Pulaski Railway Station.

The American Heritage River initiative will bring federal funds into the area, and help support economic development and tourism in an area not widely known for such strong features.

Identification of Proposed Routes

The remainder of the document describes existing bicycle, walkway, and blueway routes, as well as, proposed bicycle, walkway, and blueway routes. These routes will span the New River Area,

including Floyd County, Giles County, Montgomery County, Pulaski County, and the City of Radford, and the Towns of Blacksburg, Christiansburg, Dublin, Floyd, Glen Lyn, Narrows, Pearisburg, Pembroke, Pulaski, and Rich Creek.

The lists of routes included in this document are not meant to represent a recommendation as safe bicycling routes. The Plan is a resource for use by local governments and citizens interested in the development of Bikeway-Walkway-Blueway facilities.

New River Valley Bikeway-Walkway-Blueway Plan ~ 2000

Introduction

The New River Valley Bikeway-Walkway-Blueway Plan is a document that proposes an integrated system of bicycle facilities, river access, and pedestrian corridors for the communities of the Fourth Planning District. This report provides an overview and concept plan to guide local officials and civic leaders as they expand and connect the current Bikeway-Walkway-Blueway systems. The plan identifies particular routes for improvement and prioritizes their development. The intent of this Plan is to inform residents and demonstrate ways in which a Bikeway-Walkway-Blueway system can improve the quality of life in the New River Valley.

Background

There are a number of reasons for preparing, promoting and implementing a regional network of bikeways, walkways, and blueways. The importance of cycling, walking, canoeing, and jogging for health and recreation has become increasingly supported throughout the United States. Furthermore, the bicycle is an inexpensive and efficient form of personal transportation relied upon by many people for commuting, shopping and traveling short, as well as, long distances. In the 1996 Virginia Outdoors Plan, a recreation demand survey conducted in 1992 ranked bicycling as the seventh most popular recreational activity with 31% of all households participating. An additional "9% bicycle to work or school on a frequent basis." These statistics translate into approximately 65,000 cyclists in the New River Valley, a potentially conservative estimate. The large student population attending Virginia Tech, Radford University and New River Valley Community College probably make walking, canoeing, and bicycling even more popular activities than in many other Virginia communities.

The National Bicycling and Walking Study, conducted by the U.S. Department of Transportation (1994), reports that nationally an estimated 131 million Americans bicycle or walk regularly for exercise, recreation and enjoyment of the outdoors. A second report, the Nationwide Personal Transportation Study (NPTS) derived from interviews with 48,385 persons (Research Triangle Institute, 1991) indicates that 7.9 percent of all travel trips are currently made by walking or bicycling. Differentiated from purely recreational trips, travel trips include a point of origin and a destination other than the origin such as work or a store. One goal of the U.S. Department of Transportation was to double the total amount of these walking/bicycling travel trips by the turn of the century. According to the NPTS, in order to reach this national transportation goal, an average of 3 trips per person per week would need to be made on bicycle or on foot rather than in a car. Currently, the average American makes a total of twenty trips per week.

The New River Valley Bikeway-Walkway-Blueway Plan encourages an alternative and intermodal (combination of types) transportation system for the region. This can have many desirable effects above and beyond the health and physical fitness benefits experienced by individuals. In addition to personal advantages, there are energy savings, congestion relief, decreases in noise pollution, air quality improvements, and a reduction of auto emissions. These benefits are the main reasons why a Bikeway-Walkway-Blueway plan has been undertaken.

Context

The New River Valley Planning District is located in southwest Virginia within the ridge and valley system of the Appalachian Mountains. The district borders the state of West Virginia to the north and is comprised of the counties of Floyd, Giles, Montgomery, and Pulaski, the City of Radford, and the towns of Blacksburg, Christiansburg, Dublin, Floyd, Glen Lyn, Narrows, Pearisburg, Pembroke, Pulaski, and Rich Creek. The New River flows north through the district and the Blue Ridge mountains form the district's southern edge. Federally owned land exists within the New River Valley primarily in the form of the Washington-Jefferson National Forest and the Radford Army Ammunition Plant.

Bikeways and walkways are not new to the New River Valley. In 1975, a comprehensive bikeway plan was created for the Fourth Planning District. This plan was updated in 1994 and again in 2000. The initial plan paralleled a series of bicycle studies completed at the same time in Blacksburg, Virginia. The Blacksburg studies originally responded to the increasing population of student cyclists attending Virginia Tech.

In 1976, the Bicentennial Bike Route (also known as Bike 76) was established and the New River Valley had the good fortune of being located along its route. The trail enters the Town of Christiansburg and the City of Radford while passing through Montgomery and Pulaski Counties. It is identified on maps and roads by signage depicting a bicycle logo below the number 76. The Bicentennial Bike Route crosses the entire United States from Astoria, Oregon to Yorktown, Virginia.

More recently, a network of designated routes known as the Transcontinental Bikeway, has incorporated the Bicentennial Bike Route into its 16,000 mile system. The Transcontinental Bikeway is promoted by a non-profit travel association. For the purpose of this plan, this existing route will be referred to as the Bicentennial Bike Route.

The Town of Blacksburg developed a master plan for their bikeway - walkway initiative which was adopted in 1989 and updated in 1996 (see Appendix 1). The Town of Christiansburg developed their Bikeway/Walkway Plan in 1995 and revised it in 1996. (see Appendix 2) In 1990, Montgomery County also developed a Bikeway/Walkway Plan proposing specific routes and connections (see Appendix 3). One connection, the Huckleberry Trail, which was included in the 1994 NRV Bikeway/Walkway Plan, is now an important off-road trail that lies along, an historic abandoned railroad right-of-way. The Huckleberry Trail is presently in use and serves as a cornerstone for the Bikeway/Walkway network in Blacksburg, Christiansburg and Montgomery County. There are presently plans to connect the Huckleberry Trail to the New River Trail in Pulaski County. With the recently completed connection between the New River Trail and the Virginia Creeper Trail, this would effectively create a bikeway/walkway trail from Blacksburg, Virginia all the way to Abingdon, Virginia (see Appendix 4).

The City of Radford in preparing its 1993 Comprehensive Plan, included a bikeway/ walkway plan and created a master Bikeway/Walkway plan update in 1999 (see Appendix 5). Radford recognizes the importance of providing for the increasing number of bicyclists and walking enthusiasts in the community. The City is anticipating increases in the student population at an expanding Radford University that will contribute to more demand for bicycle and pedestrian facilities.

In the spring of 1993, a stage of the Tour DuPont Bicycle Race came to the New River

Valley and Blacksburg served as a "Host City" for the competition. The international cycling event returned in May of 1994, symbolic testimony to the region's commitment to the sport of bicycle riding. The races began in Wilmington, Delaware and concludes 12 days later in Winston Salem, North Carolina. With professional cyclists competing for a minimum purse of $200,000, the Tour DuPont was the fourth largest cycling event in the world. The Tour DuPont is presently in a hiatus mode for lack of a program sponsor.

The ongoing development and commitment described above, demonstrates the local interests in bikeways, walkways, and now blueways and the value of a regional framework. Numerous trail projects have been funded that have created, or are in the early stages of creating many of the proposed trails and connectors listed in the 1994 Bikeway Walkway document (see Appendix 6). As with the 1994 document, the New River Valley Bikeway-Walkway-Blueway Plan ~ 2000 incorporates general elements of existing plans but does not intend to supersede them in any way. The recommendations within this document are for the purpose of supplementing existing facilities and encouraging more detailed local planning.

Process

A straightforward planning process is responsible for the development of the New River Valley Bikeway-Walkway-Blueway Plan update. Some important factors are considered in the initiation of this process:

- Achieving access to areas recommended by public officials,
- Suggesting facilities along existing highway infrastructure that intuitively reflects traffic volumes, overall cycling suitability, visual quality and future road improvement plans,
- Successfully linking proposed facilities with existing routes, and
- Encouraging the development of long term projects and special off road multipurpose trails unique to each community within the district.

Coordination with the Department of Transportation is essential to ensure that the New River Valley Bikeway-Walkway-Blueway Plan fulfills statewide transportation objectives and is consistent with federal requirements. Cooperation is sought as well from state and federal agencies within the region. Specifically, the National Forest Service, the National Park Service, and the Virginia Department of Conservation and Recreation are among the prevalent parties holding an interest in the New River Valley. Bicycle, canoe, and pedestrian access to national parks, recreation and scenic areas, monuments, historic sites, and military installations is the common goal among the agencies above along with the Planning Commission and the Virginia Department of Transportation.

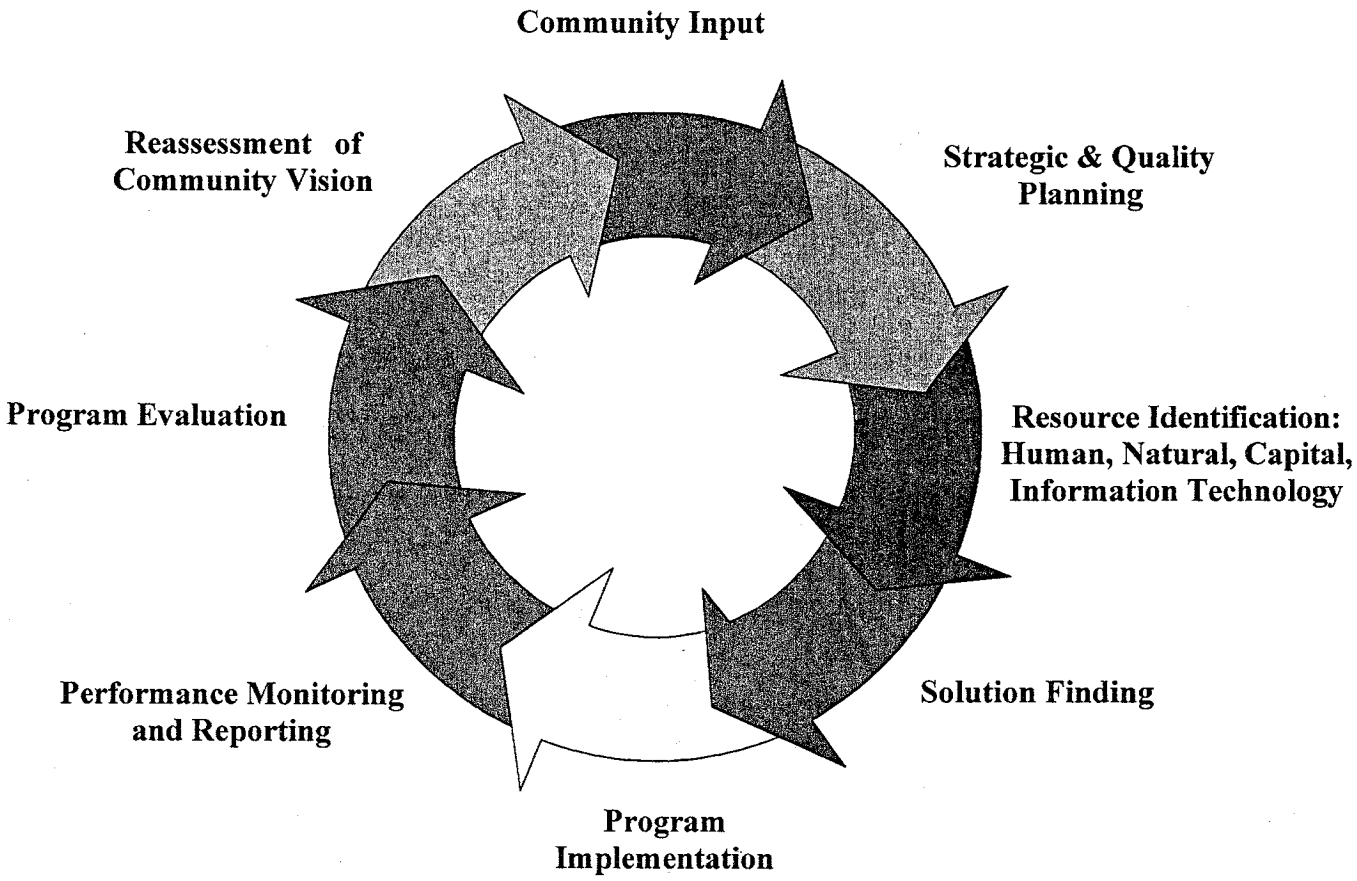
The planning process provides opportunities for community involvement that included a series of public meetings (see Appendix 7). Participatory workshops with citizen groups and Bikeway-Walkway-Blueway advocates are the fundamental component of prioritizing proposed routes and projects within the plan.

On the following page, a flow chart has been included that generally represents the process described above.

Purpose

As stated in the Executive Summary, the purpose of this plan is to provide information, guidelines and cohesion in the creation, expansion and coordination of a safe and effective Bikeway, Walkway and Blueway

A Planning Process



This graphic is designed to illustrate the interrelationship between key planning and implementation components. In practice it is frequently not sequential and it is almost always ongoing.

system for the New River Valley Planning District region. The plan identifies issues, assets, routes and connections that would provide accessibility to a comprehensive Bikeway-Walkway-Blueway system for all citizens and visitors of the New River Valley region. The plan seeks to build on, supplement and coordinate with existing plans, and recognizes and acknowledges the work and foresight of the local governments, community groups and individuals who have created the excellent and growing network of bikeways, walkways and blueways in this region. Ultimately, this Bikeway-Walkway-Blueway Plan is a valuable resource, both as an overview of existing and proposed bikeway-walkway-blueway routes and facilities; and to those wishing to solicit funds from different sources. This document provides a platform for coordinating plans and soliciting local corporate and non-profit financial support.

VISION STATEMENT

"The New River Valley is committed to the promotion of non-motorized transportation as a safe, reliable, healthy, environmentally friendly alternative to motorized transportation. Opportunities must exist for residents of our community to choose walking or biking as a means to getting to a destination.

Policy Statements

- This plan encourages the Virginia Department of Transportation to pave the shoulders of all primary highways in the New River Valley enhancing these routes for non-motorized uses.
- All bridge reconstruction along Virginia Highways in the New River Valley should be designed and implemented with an additional width to accommodate non-motorized uses. AASHTO minimum requirements recommend a four foot shoulder, with five feet being preferred.
- All road design within the New River Valley should include additional width for non-motorized uses. Fourteen foot outside lanes are suggested in the Federal Highway Administration publication "Accommodating Bicycle and Pedestrian Travel: A Recommended Approach" (FHWA, 1994 see Appendix 8).
- New residential, commercial and industrial development in the New River Valley should propose non-motorized transportation facilities that supplement the proposed Bikeway-Walkway-Blueway system. Focusing on the development of Bikeway-Walkway-Blueway connections between residential, commercial, and industrial areas to facilitate non-motorized transportation opportunities.
- A New River Valley Bikeway-Walkway-Blueway Advisory Board should be created to administer and implement this Bikeway-Walkway-Blueway Plan.
- The Advisory Board should be responsible for prioritizing projects and coordinating interconnections and cooperation among neighboring districts and regions.
- All agencies and organizations in the region should promote the New River Valley as a place that is safe and enjoyable for cyclists, canoeists and pedestrians.
- All County, City, and Municipal jurisdictions within the New River Valley should be encouraged to endorse the New River Valley Bikeway-Walkway-Blueway Plan.
- All County, City, and Municipal jurisdictions of the New River Valley should be encouraged to adopt a local Bikeway-Walkway-Blueway plan into their respective comprehensive plans.

Objectives of a Bikeway-Walkway-Blueway System

1. To identify the variety of Bikeway-Walkway-Blueway users.

2. To coordinate a system of bikeways, walkways, and blueways, locally and regionally, and to maintain the continuity of the Bikeway-Walkway-Blueway system.

3. To identify and coordinate Bikeway-Walkway-Blueway development with future and imminent Virginia Department of Transportation Projects.

4. To showcase and focus on the natural and cultural opportunities of the New River Valley when proposing bike routes, water trails, and walking trails, in order to maximize trail effectiveness.

5. To assist in the development of tourism within the district, and to attract visitors from beyond the region to the New River Valley.

6. To promote the health, safety, and welfare of those using the Bikeway-Walkway-Blueway system and to improve the quality of life within the district for the residents of the New River Valley

7. To facilitate the use of recycled materials in the construction of bikeways, walkways, and blueway access and support facilities.

OBJECTIVE 1 - To identify the variety of Bikeway-Walkway-Blueway users.

Pedestrian Use

Inherent in the title of this document is the suggestion that three very different activities will be considered at the same time. Being sensitive to the needs of pedestrians and cyclists while trying to minimize the conflicts between them is vital to the creation of a successful multi-purpose trail system. It is also necessary to be cognizant of, and provide for, the different levels of users within each of these two categories. It is also important to plan for opportunities that will enable individuals to move from one mode of alternative travel to another (i.e., bicycling to canoeing).

A simple breakdown of pedestrian use reveals many different kinds of users, including jogging, strolling, and running. For a jogger or a runner to utilize a trail system it must be clear of obstacles, close to home, and must provide adequate site distances and clearances around turns and curves to allow for adjustment when passing or being passed. Off-road trails that avoid intersecting with major vehicular roadways are preferred.

A trail might appear to function in relatively the same way for people who walk for health reasons and for people walking for relaxation and enjoyment. However, it is important to program these activities differently. A fitness trail component might cater to the health minded user, while attractive plantings and pleasant views can be enjoyed by all.

Hiking is another form of pedestrian use of a trail system and the New River Valley has many excellent opportunities for this activity. Many hiking trails differ from multi-purpose trails in that they are usually not surfaced and are found in remote locations away from population centers. The purpose of hiking, in most cases, is to experience the natural environment and it is not unusual for the activity to extend over night and for many miles. It is also important that day hikers are provided with convenient access to trails.

Bicycle Use

According to the Virginia Outdoor Plan referred to earlier in this document, the majority of bicycle use is recreational but even within this classification there exists differences in the riding levels of cyclists. They often have different expectations of the biking experience and require different kinds of facilities for their enjoyment and fulfillment. A sport cyclist would require long distance routes and would prefer the ability to travel at high speeds. The more passive bicycle rider enjoys slower speeds, scenic quality, and points of interest.

A recent variation on the recreational biking theme is mountain biking. This form of cycling involves off road travel on durable bicycles. There can be an environmental impact resulting from this form of riding. Trail wear can be accelerated and erosion and sedimentation problems can develop as a result.

This activity offers a limited compatibility with other uses. The United States Forest Service has issued a brochure as a guide to responsible trail riding (see Appendix 9). The Forest Service encourages mountain biking on its multi-purpose trails in the New River Valley. The brochure discusses the importance of staying on the marked trails to minimize the environmental impact in the forest and also encourages trail bikers to be conscience of their potential conflict with other users, especially horse back riders. Horses are frequently uneasy around bicycles.

Commuter bicycle usage occurs with less frequency and typically involves riders in close proximity to, as well as within, the population centers. This information is verified by the 1996 Virginia Outdoor Plan and 1990 census data described in the "Journey to Work" survey. The 1975 New River Valley Bikeway Plan describes the zone of commuter biking to be approximately three miles beyond corporate limits of Towns and Cities. It is not the intention of this current Bikeway-Walkway-Blueway Plan to express specific limits to the commuting opportunities in the New River Valley. With the development of more facilities and the encouragement of alternative transportation, opportunities to commuting by foot or bicycle can be expanded.

Canoe Use

In addition to opportunities to rent canoes, good canoe trails offer the visitor a well-spaced series of access sites as well as adequate support facilities between those access sites. Support facilities in the New River Canoe Trail include campsites, rest stops, sanitation facilities, potable water, and sources of information to aid in trip planning. As an element of this intermodal Bikeway-Walkway-Blueway Plan, it is also important to provide secure long and short term parking for bicycles as trail users switch from cycling to canoeing. Many of these facilities will be jointly used by both New River Trail State Park and New River Canoe Trail users.

People with Disabilities

Physically challenged individuals should be of primary consideration in planning any public recreation project. It is essential not only to provide access, but to accommodate wheelchair use by considering design standards, minimum slopes, and proper outdoor furnishings. Providing this access has been mandated by the federal government in the 1990 Americans With Disabilities Act.

Other Potential Users

Additional uses such as roller skating, skate boarding and people using in-line skates, may occur on the trails. It will be necessary to plan for and structure trails that can accommodate these activities in an effective manner. Where it has been decided that certain activities are

incompatible, signs can restrict activities to a certain degree. A more tactical solution might accomplish the goal of discouraging incompatible trail uses. For example; using a compacted granular surface would accommodate walking and cycling but would cause difficulty for those with smaller wheels. Unfortunately this strategy might also hinder walking with a baby stroller or add difficulty to someone in a wheelchair. It is possible to provide facilities for roller skating, skate boarding and in-line skating in a safe, creative way, while at the same time maintaining the enjoyment and safety of others. Baby strollers and bicycle trailers are additional concerns and jurisdictions should decide how to accommodate these uses.

OBJECTIVE 2 - Coordinating a system of bikeways, walkways and blueways, locally and regionally, and maintaining the continuity of the Bikeway-Walkway-Blueway System.

An assortment of trails and recreational projects exist and/or are being planned in the New River Valley. The Towns of Blacksburg and Christiansburg, and Montgomery County have current agendas for bikeway and walkway development. The City of Radford has included a bikeway, walkway and blueway section in their most recent comprehensive plan. The New River Trail State Park is under development in Pulaski. Other towns and counties within the district have not articulated comprehensive plans, but share the aspirations of those jurisdictions with existing facilities. The Bikeway-Walkway-Blueway Plan for the New River Valley recommends connections between different localities. It also encourages more local trail development in jurisdictions that do not presently have comprehensive Bikeway-Walkway-Blueway plans.

This plan also supports connections to neighboring regions. The New River Trail State Park begins near the Town of Pulaski and enters into Wythe County from the southwest comer of Pulaski County. This trail extends to Galax, Virginia and a spur continues on to Fries, Virginia. In May, 2000, the Department of Conservation and Recreation and the U.S. Forest Service agreed to connect, via forestry trails, the New River Trail to the Virginia Highlands Horse Trail and the Virginia Creeper Trails. This will result in a 160 mile, multi use trail from Abingdon to Pulaski. (see Appendix 4) This is an example of a trail spanning two planning districts and giving local residents the ability to travel beyond the boundaries of a single system. Inter-regional connections are possible among other major points of interest and population centers in southwest Virginia. Potential links include Smith Mountain Lake, the Roanoke River Bike Path, and the Blue Ridge Parkway.

The New River Valley is associated with the TransAmerica Bicentennial Bike Route. This bike route is now part of an elaborate cross country network that reaches all regions of the United States. With participation in this association comes the responsibility to maintain our position along this network as a viable link and biking destination.

OBJECTIVE 3 - Identifying and coordinating Bikeway-Walkway-Blueway development with future and imminent Virginia Department of Transportation Projects.

There are a number of reasons for planning a regional Bikeway-Walkway-Blueway in conjunction with work being done by the Virginia Department of Transportation. Foremost is that costs are significantly lower when linear construction of a bike lane or trail can occur simultaneously with roadway improvements within the same right-of-way. These savings occur due to shared efficiency in the mobilization of a construction crew,

accessibility for machinery and materials, and bulk purchases of construction materials. Costs are also reduced when the acquisition of land can be minimized.

State transportation agencies are now able to fund pedestrian and bicycle facilities under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA). This legislation allocates federal money that can be used for transportation "enhancements". ISTEA stipulates that not less than 10 percent of all federal surface transportation moneys granted to State Departments of Transportation be spent on such projects. With state governments poised and determined to meet this criterion, the Department of Transportation is receptive to proposals that include one or more of the following:

1. Provision of facilities for pedestrians and bicycles,

2. Acquisition of scenic easements and scenic or historic sites,

3. Scenic or historic highway programs,

4. Landscaping and other scenic beautification,

5. Historic preservation,

6. Rehabilitation and operation of historic transportation buildings, structures or facilities including historic railroad facilities and canals,

7. Preservation of abandoned railway corridors, including the conversion and use thereof for pedestrian and bicycle trails,

8. Control and removal of outdoor advertising,

9. Archaeological planning and research,

10. Mitigation of water pollution due to highway runoff,

The criteria above have been established through the Enhancement Program in ISTEA. Other funds are also available for bikeways and walkways, such as National Highway System Funds, Congestion Mitigation & Air Quality (CMAQ) Funds, Federal Lands Highway Funds, Scenic Byway Funds and the National Recreational Trails Fund. Grants are also available through many state agencies. Private organizations and industries also are potential funding sources.

OBJECTIVE 4 - Enhancing the benefits of natural and cultural opportunities of the New River Valley, in order to maximize trail effectiveness,

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) encourages the creation and enhancement of alternative transportation routes, as well as, the acquisition and preservation of scenic easements and historic sites. Cultural and natural amenities are abundant in the New River Valley and can serve to advance trail development in particular locations. These points of interest will highlight the Bikeway-Walkway-Blueway System and can help qualify a project for the additional funds available through ISTEA. This ultimately can benefit the system and the community.

Within many small communities of the New River Valley, inventories of historic resources have been conducted and many historic buildings, building sites, and even entire districts have received state or federal historic designation. It is essential that the historic assets of each community be linked to Bikeway, Walkway and Blueway development.

Many natural and scenic sites exist throughout the New River Valley from the National Forest land to the north to the Blue Ridge Parkway National Park on the southern edge of the district. Running north through the center of the region, the New River, one of the oldest rivers

in the world, provides the setting for many excellent recreational facilities and access to outdoor opportunities in the natural environment.

OBJECTIVE 5 - Assisting in the development of tourism within the district to attract visitors from beyond the region to the New River Valley,

The New River Valley Bikeway-Walkway-Blueway Plan is an attribute that will assist community leaders in the ongoing efforts to promote tourism in the Valley by establishing the region as a destination for nature enthusiasts. The Plan will provide an alternate transportation system that accesses and protects the scenic beauty and historic sites of the region. Encouraging people to experience the Appalachian culture and the natural and historic features of the New River Valley can be successfully accomplished by enticing visitors to see the region on foot or bicycle or in a canoe.

Serious cyclists that come to the New River Valley, via existing cross country routes and inter-regional trails, should find our system to be a welcome and inviting alternate route or side trip.

Downtown walking tours can be adapted for bicycle riders and the historic elements within each small town should be easily identified. Multi-purpose trails should interface with downtown walking tours and directional information should be provided when convenient connections do not exist between the two.

OBJECTIVE 6 - Promoting the health, safety, and welfare of those using the Bikeway-Walkway-Blueway System and improving the quality of life within the district for the residents of the New River Valley,

It is important to minimize the risk associated with a Bikeway-Walkway-Blueway system. For the operation of a safe system, it is necessary to develop a set of rules and regulations that will be posted along the trail, possibly accompanied by graphic symbols and/or universal pictographs. A safety manual should be available for users of the New River Valley Bikeway-Walkway-Blueway System. This manual would address safety issues and emergency procedures. It might also restate the rules and define a code of conduct. (see Appendix 10 for examples)

A Bikeway-Walkway-Blueway Advisory Committee should be created to advise on all aspects of the system and should respond to health, safety, and welfare issues through the appointment of a safety coordinator. This coordinator can develop a maintenance and inspection program, solicit feedback from user response forms, and review and evaluate existing facilities.

Security along secluded, off-road trails is of concern and patrolling the trail can be a necessary part of the Bikeway-Walkway-Blueway operation. A trail patrol will function as a deterrent against unauthorized use and illegal activities. Patrolling the trail can also serve other purposes, such as vandalism prevention, first aid administration, trail maintenance review, and providing information. A trail ranger could be a volunteer who rides a bicycle or an employee of the jurisdiction in which the trail occurs. This ranger might use a motorized bicycle or buggy and would carry a two-way radio to communicate with local law enforcement and emergency personnel.

Emergency Plans should be set up in advance, identifying access points to trails and enabling emergency personnel to respond as quickly and effectively as possible to a Bikeway-Walkway-Blueway related accident. Barriers should be removable at specific locations and corridors

should adequately accommodate the emergency vehicles.

Bicycle education programs might be sponsored in part by schools, local recreation departments, citizen advocacy groups, and in coordination with the Virginia Department of Motor Vehicles. An information seminar could further the cause of safety when using the trails and roadways that make up the system. Public awareness can help extend driving courtesies to cyclists that share the roads with cars and trucks.

Many of the inherent risks of bicycle riding or pedestrian uses along trails and roads can be avoided if upkeep and maintenance are a part of the Bikeway-Walkway-Blueway Plan. This would include; cleaning and clearing of routes after storms, pickup of trash, removal of graffiti and vandalism, and repair and replacement of furnishings when necessary. Pavement markings should be repainted when they fade. Cracks in the pavement or severe erosion of trails and roads should be attended to immediately. Vegetation should be trimmed allowing for adequate clearances and site distances.

OBJECTIVE 7 - Facilitating the use of recycled materials in the construction and maintenance of a Bikeway-Walkway-Blueway.

While there are many possible applications for various recycled materials in the implementation of this Bikeway-Walkway-Blueway Plan, one in particular deserves serious consideration in the design and construction of bicycle and pedestrian trails. Scrap rubber, primarily from used automobile tires, is available as a building material for constructing vehicular and pedestrian pavements.

Techniques include mixing scrap tire chips ($^3/_8$" nominal) with the normal aggregate, or mixing powdered rubber with the asphalt cement to produce a durable long wearing surface, or laying an insulating base of tire chips (3" nominal) down beneath a gravel surfaced roadbed.

These innovations are aimed at reducing the stockpile of rubber tires in the U.S. by utilizing their beneficial civil engineering properties. It converts a visually undesirable and environmentally hazardous situation into a resource with potential economic opportunity. This approach would begin reducing the more than two billion discarded scrap tires that have accumulated in large open piles across the country (EPA 1991). Several of the localities in the New River Valley currently have a contract with a commercial tire shredding operation which reduces scrap tires to a usable tire chip. The resulting chipped tire material is suitable for use in some civil engineering applications, such as subgrade fill. It is recommended that trail construction in the New River Valley utilize this material when it is appropriate and available in the construction of Bikeway-Walkway-Blueway trail projects.

Other recycled materials can also be used in the development of the Bikeway-Walkway-Blueway System. Recycled plastic, rubber and aluminum for example, may be used in signage, fencing, railing, trash collectors, benches and bollards.

Recycled plastic lumber could be particularly appropriate for use in interfaces between bikeway/walkway trails and blueway access points. Recycled plastic lumber would also be effective in any wetland, marshy or boggy areas for long term durable raised trails. And because it is basically impervious to water and stable it is environmentally and structurally superior to treated lumber, which will rot eventually and has been demonstrated to leach into soil and water.

Elements of a Bikeway-Walkway-Blueway System

The New River Valley Bikeway-Walkway-Blueway Plan incorporates the use of different types of facilities. Each has certain advantages or specific purposes. A Bikeway-Walkway-Blueway System for the New River Valley would have these facility types:

- Shared Road
- Wide Curb Lanes
- Bicycle Lanes
- Paved Shoulders
- Pedestrian Hiking Trail (foot trail)
- Multi-purpose Trails
- Sidewalks
- River Access and Support Facilities

Other forms of recreational trails might also occur. Recognizing that equestrian trails and canoe trails already exist in the district. Furthermore, variations will undoubtedly complement the list and accommodate special uses such as mountain biking or universal, barrier free, access trails.

Shared Road

The TransAmerica Bicycle Trail, which passes through the New River Valley, is an example of a shared road designation. Shared roads are routes that make use of existing vehicular roadways. No major improvements to the road are suggested other than the placement of signs to increase awareness of automobile drivers that the road is traveled by bicyclists. Signs also provide directional assistance to the user. A road receives the status of a shared bicycle route by meeting certain criteria, such as low traffic volume and good driver visibility.

Wide Curb Lanes

Wide curb lanes, also called wide outside lanes, are traffic lanes that are designed substantially wider than the 12 foot standard. "Most practitioners agree that 14 feet, usually measured from the lane stripe to the edge of the gutter pan . . . is the minimum width necessary to allow a bicyclist and motorist to share the same lane without coming into conflict..." (Federal Highway Administration, 1994)

Bicycle Lane

This facility is defined as a separate lane, designed and constructed into the roadway. Added pavement, special pavement markings, and signage create an adjacent bicycle domain with a preferred width of 5 feet along the existing pavement edge. The American Association of State Highway and Transportation Officials (AASHTO) suggests 5 foot lanes and recommends a minimum width of 4 feet. (AASHTO, 1991)

An important issue to consider when proposing bicycle lanes is the presence of on street parking. Given this situation, a bicycle lane should be positioned between the traffic lane and the parallel parking spaces. The bicycle lane should be a minimum of 5 feet wide. Both sides of the bike lane should be marked with a stripe. Signage should alert cyclists and motor vehicle operators of the situation. Bike lanes should not be routed where angled parking occurs.

Paved Shoulders

Shoulders exist as a portion of highway right-of-way adjacent to the outside traffic lane. They accommodate stopped vehicles for emergency use and also perform pavement structural functions. A Virginia Department of Transportation Memorandum states that

"...AASHTO and many States explicitly recognize that adding or improving shoulders is often the best way to accommodate bicycles - especially in rural areas." (VDOT, 1992)

As VDOT establishes a policy of paving shoulders along the primary highways in the State of Virginia, the New River Valley Bikeway-Walkway-Blueway Plan will encourage this practice.

Pedestrian Trails (hiking trails, foot trails)

Joggers, runners, and those taking walks would have complete access to independent trails as described above. These independent trails are created as multi-purpose recreational, linear parks and common pedestrian uses appear to be compatible with most if not all leisurely recreational cycling. It would be unreasonable however, to expect pedestrians to walk along shared roads or even in bicycle lanes. This is not to say that joggers or runners wouldn't use these routes at their own discretion. However, the needs of pedestrians are provided by a good sidewalk plan and the pedestrian use discussed in this document is only intended to supplement that system.

Foot trails and hiking trails are paths that would be used exclusively by pedestrians and are not designed with proper clearances or surfaces for a bicycle. The terrain might also be prohibitive to "normal" bicycle use but attractive for mountain biking. Trail restrictions must be more explicitly posted to assure that improper uses do not occur. This plan advocates the creation of a mountain biking course and proposes to develop such trails in the Washington-Jefferson National Forest.

FHWA Virginia Bicycle and Pedestrian Facility Policy including cost estimates for each of the bikeway/walkway facilities, as well as, signage and long and short term bicycle parking storage are included in Appendix 11.

Multi-purpose Trails

This is a separate path used exclusively for non-motorized transportation and may run within the right-of-way of an existing road, or have its own independent right-of-way. Projects such as the New River Trail State Park beginning in the Town of Pulaski and the Huckleberry Trail are good examples of this. Construction costs and land acquisition costs for this kind of trail, are frequently higher than many other options.

Sidewalks

Sidewalks are valuable options for providing safe pathways for pedestrian travel within clustered residential and business sections and serve in this plan to connect or provide access to existing and/or proposed routes. Three examples include the sidewalks recommended to provide safe pedestrian travel in Christiansburg, in Floyd from the Floyd County High School and Elementary School to the Floyd Recreation Park, and the inclusion of a sidewalk on the bridge over the New River into the town of Narrows.

River Access and Support Facilities

New to this plan, blueways require the availability of public access and rest stop points. Included in this are boat ramps, parking areas, long and short term bike storage and security racks, canoe rentals, portages, restroom facilities, picnic areas, etc.

Other Bikeway-Walkway-Blueway Components

The minimum width of any path or lane should be 4 feet. The anticipation of heavy traffic and a wide variety of expected uses may require additional widths greater than four feet. Frequent two-directional bicycle traffic will warrant a minimum width of 8 feet. High levels of motor vehicle traffic at speeds greater than 35 m.p.h. will also necessitate wider bike lanes along the roadside.

Grades steeper than five percent should be avoided for any recreational path other than a

hiking trail or mountain biking course. Grades exceeding five percent should have no more than a 500 foot length and should provide a wider trail cross-section. Grades in excess of three percent may be inappropriate for crushed stone surfaces. A cross-slope (super elevation) should be designed and constructed at a two percent grade.

Pavement markings might occur along routes being used by bicycles and in all likelihood, a bicycle lane. Often striping and large message stencil markings get painted directly on pavement surfaces, indicating to cyclists, as well as automobile drivers, that a designated bike lane exists. Many times the painted surface becomes slick and hazardous when wet. To ensure safety, more skid resistant materials are available and should be specified. Edge lines and center lines can help direct two-way traffic, particularly at points with limited sight distance.

Signage is an important aspect of the Bikeway-Walkway-Blueway System, particularly for shared road bicycle routes. This provides motorists with advanced notice that they might encounter a cyclist on the road. Bike route signs also provide directional information to the user, indicating how the route continues from busy intersections. Signs can function as warnings or regulatory devices. Other signs might be interpretive. Special signage might include a community symbol or the name of a particular trail with possibly some historical significance. Signage is important in keeping non-intended motor vehicle uses from entering the off-road path system. A physical barrier is often used in restricting unauthorized uses. The design and implementation of specific projects should include the use of appropriate signs. (see Appendix 12 for signage specifications)

It is important to supplement a bikeway plan with strategically located bicycle parking facilities. Two kinds of bicycle parking facilities should be considered. Long-term bicycle parking is necessary for commuting. These devices should occur near employment areas and should allow the commuter to secure the frame and both wheels, while also offering weather protection. Short-term parking facilities should be placed in convenient locations close to shopping centers, schools, libraries, recreation centers, and public buildings. Other possible features of a bikeway, walkway, or blueway are picnic areas, benches, water fountains, and restroom facilities. All features and parking facilities should be well marked and indicated on locally available maps.

Automobile parking should also be provided at prominent points along the system and at trailheads. In many cases existing parking facilities, such as those at a nearby church or an established recreation site, can provide necessary parking for Bikeway-Walkway-Blueway users. If a need for automobile parking is identified along a route, local standards and design requirements should govern the design of such a facility. Small lots with drop off points for disabled individuals should be provided in such a way as to not impact the trail that the parking facility services.

Another very important consideration when implementing a bikeway is the design and/or replacement of dangerous drainage grates in the road. The most hazardous condition for the bicycle is " parallel-bar grates which can trap a bicycle wheel causing a serious crash. ... The best design is the curb-face inlet. These present no obstacle at all to the bicycle as long as the slopes to the inlets are not excessive." (Williams, Bicycle Forum, 1989)

FHWA Virginia Bicycle and Pedestrian Facility Policy including cost estimates for each of the bikeway/walkway facilities, as well as, signage and long and short term bicycle parking storage are included in Appendix 11.

New Partners and Program Strategies

The New River Valley Bikeway-Walkway-Blueway Plan ~ 2000 incorporates some new ideas and strategies with the inclusion river canoe trails as part of the comprehensive alternative transportation system, and some new federal and state partners in developing, promoting, and funding trail systems.

Blueways

The New River Canoe Trail will be Virginia's first designated inland canoe trail as well as the Department of Conservation and Recreation's first water trail or blueway. Good canoe trails offer the visitor a well-spaced series of access sites as well as adequate support facilities between those access sites. Support facilities in the New River Canoe Trail include campsites, rest stops, sanitation facilities, potable water, and sources of information to aid in trip planning. Many of these facilities will be jointly used by both New River Trail State Park and New River Canoe Trail users.

A 100 mile canoe trail will be developed on the New River in Virginia through the provision of only a few missing elements. The development of the New River Trail State Park, the efforts of the Partners in River Access Program, and other activities have already developed the majority of the needed public access sites. Some camping areas and support facilities are also present in the corridor. By developing several public use nodes, the entire trail system can be made available. When added to the 30 miles already in place in North Carolina, this system will provide a 130 mile interstate canoe trail with a beginning at the Virginia-North Carolina state line and a terminus at Claytor Lake State Park.

The Blueway system is included in this planning document because bikeways and walkways will be connecting with the blueway system providing opportunities for intermodal alternative transportation systems.

Federal Trail Designations

Virginia's Millennium Trails

The Millennium Trail initiative is a joint effort between the White House Millennium Council, the U.S. Department of Transportation, and the Rails to Trails Conservancy. In October of 1999, First Lady Hillary Clinton announced the names of 50 Millennium Legacy Trails which "honor the past and imagine the future." Southwest Virginia was fortunate to receive one of those 50 designations. The New River Trail State Park, which runs from Pulaski County through Wythe, Carroll, and Grayson Counties, received this award due to its efforts to link communities with land, history, and culture. The Trail is currently 57 miles long and is constructed on an abandoned railroad right-of-way through the Blue Ridge Mountains. In May, 2000, at Governor Gilmore's Conference on Greenways and Trails, the Department of Conservation and Recreation and the U.S. Forest Service agreed to connect, via forestry trails, the New River Trail to the Virginia Highlands Horse Trail and the Virginia Creeper Trails. This will result in a 160 mile, multi use trail from Abingdon to Pulaski.

Another Millennium Trail runs partly through the Commonwealth. The 2,100 mile Appalachian Trail spans 544 miles from Damascus north through the Shenandoah National Park and continuing into Maryland.

A counterpart to the Millennium Legacy Trails is the **Community Millennium Trails**. These are trails that are smaller in scale and run throughout individual communities. Southwest Virginia is fortunate to have three more walking paths designated as Community Millennium Trails. They include the 6 mile Huckleberry Trail from Blacksburg to Christiansburg, the

half mile Bicentennial Trail in downtown Blacksburg, and the soon to be constructed 2.2 mile Riverway in Radford from Radford University's Dedmon Center to the City's Bisset Park.

The Millennium Trail recognition is important to these areas, because they will now be eligible for federal grants and benefits to improve and support the trails. This will ensure their longevity in the years to come, and allow them to be enjoyed by everyone.

Virginia's American Heritage River

The American Heritage River is an initiative by President Clinton to recognize outstanding rivers in the United States. These designated rivers will receive federal assistance in the form of refocused programs, grants, and technical assistance from existing federal resources. These initiatives focus on community based efforts which restore and protect the environmental, economic, cultural, and historic values of these rivers. The designation and support are good for five years.

Southwest Virginia's New River, along with 13 others, was one of the first rivers designated in 1998. Flowing north, the New River stretches from North Carolina, through Southwest Virginia, into West Virginia. The New River Community Partners is in charge of coordinating the activities of the American Heritage River. The initiative also provides for a River Navigator to aid in development of the activities.

One of the goals of the program is to develop and implement programs that promote the recreational use of the New River Watershed. The New River Valley Bikeway-Walkway-Blueway Plan ~ 2000, integrates recreational use, enhancing natural ecosystems, promoting tourism and connecting and showcasing cultural and historic resources. It is proposing an extension of the New River Trail from Pulaski to Radford and Blacksburg. It will create a network of bicycle routes which will connect the history of the New River Valley. The Mary Draper Ingles Trail will be implemented as a multi use bike, horse, and hiking trail along the New River. This will stretch into West Virginia, Kentucky, and Ohio, and retrace the steps of Mary Draper Ingles. The New River Trail will be extended into Galax. It will build on existing projects, and possibly connect with the Fishers Peak Music Center on the Blue Ridge Parkway. Finally, the New River Trail State Park will be completed in downtown Pulaski, with its terminus at the historic Pulaski Railway Station.

The American Heritage River initiative will bring federal funds into the area, and help support economic development and tourism in an area not widely known for such strong features.

Conceptual Overview

The New River Bikeway-Walkway-Blueway Plan was developed with the intention of providing population centers in the district with access to an alternative transportation system. The plan proposes a network of routes creating connections between local communities and regional points of interest throughout the New River Valley. In addition to making integral connections, the plan supplements existing facilities with a comprehensive Bikeway-Walkway-Blueway System.

The majority of the population in the district exists in Montgomery County and Pulaski County. The City of Radford is geographically centered within this population pattern, as well as, the district. This population concentration contains some Bikeway, Walkway and Blueway facilities. In this plan, these facilities are developed and extended into a network.

Giles County is in the northern part of the district. The southern edge of the district is comprised of Floyd County. These two counties have relatively sparce populations with only a few developed bikeway, walkway, or blueway facilities, most notably the Appalachian Trail and the New River in Giles County and the Blue Ridge Parkway in Floyd County. Both counties, however, possess a high concentration of scenic beauty and natural, cultural and historic amenities. The purpose of this document is to outline meaningful connections between the central population concentration and the natural areas to the north and south.

The New River Valley Bikeway-Walkway-Blueway Plan is promoting a transportation network, a recreation facility, a wellness asset, and an economic development resource all in one system. This is the integrated conceptual basis for developing this plan for the New River Valley.

On the following pages (the remainder of this document), lists of proposed bikeway-walkway-blueway facilities are accompanied by maps of the jurisdiction in which those facilities are proposed. The maps depict facilities and describe the type of proposed routes that are recommended. Existing facilities are also included on the maps.

Those responsible for community development within the jurisdictions of the New River Valley Planning District should encourage the adoption of this plan or some thoughtful and feasible variation, into their respective comprehensive plans. The policy statements that appear earlier in this document can serve as a guide. Community leaders should be aware that throughout the State of Virginia and the entire Country, local governments are taking similar Bikeway, Walkway and Blueway initiatives.

Future Issues and Considerations

In addition to continuing to design and implement a superlative interconnected bikeway-walkway-blueway network in the New River Valley region, it is important for this planning document to address issues and concerns that have been highlighted during the planning process. One such issue is bicycle access on limited access highways. There have been numerous and ongoing comments, questions and requests at public meetings and through direct contacts for bicycle access on limited access highways in the region, most notably along several major sections of Route 460, in both Giles and Montgomery counties.

Many long distance and commuting cyclists desire access to the limited access routes because they can provide experienced cyclists with safe, well designed facilities to use for travel. Limited access highways can provide good sight distances, direct access between business areas, gentle grades, higher construction design standards, better ongoing maintenance, and very wide shoulders. Limited access highways can also significantly reduce "conflict points", such as intersections, narrow road lanes, parking cars, and "visual clutter" (i.e., signs, oncoming traffic, store fronts, etc.)

Limited access highways also place bicyclists in the same right-of-way as high speed vehicles, including tractor trailers, especially at entry/exit ramp interchanges.

Bicyclists in Virginia are not automatically excluded from limited access facilities. The Commonwealth Transportation Board does have authority (Section 46.27208 of the Code of Virginia) "to prohibit certain uses of controlled access highways in order to promote safety . . ." And it is frequently decided to prohibit bicycle traffic on controlled access highways.

This is clearly an issue that would be well served by a series of facilitated meetings. The goal of the meetings would be to:

- bring all of the interested parties together,
- assess all of the available information, ideas, and concerns, and
- devise strategies that would incorporate the legitimate concerns and desires of experienced cyclists, transportation planners, and Virginia Department of Transportation personnel,

all working together to accomplish the Federal and State goals of a truly effective alternative transportation option.

List and Description of Proposed Bikeway/Walkway Routes
Floyd County

Proposed Bicycle Lane Development

Key	Route Number	Description	Length	Daily Motor Traffic
1	Rte. 221	from Willis at Route 787, north to the Town of Floyd corporate limits	12 miles (63,360 LF)	*4,510
2	Rte. 221	from the Town of Floyd corporate limits, north to Roanoke County line	20 miles (105,600 LF)	*6,920
3	Rte. 8	from the Blue Ridge Parkway, north to the Town of Floyd corporate limits	5.5 miles (29,040 LF)	*1,550
4	Rte. 8	from the Town of Floyd corporate limits, north to the Montgomery County line	10 miles (52,800 LF)	*5,550

Proposed Shared Road Designation

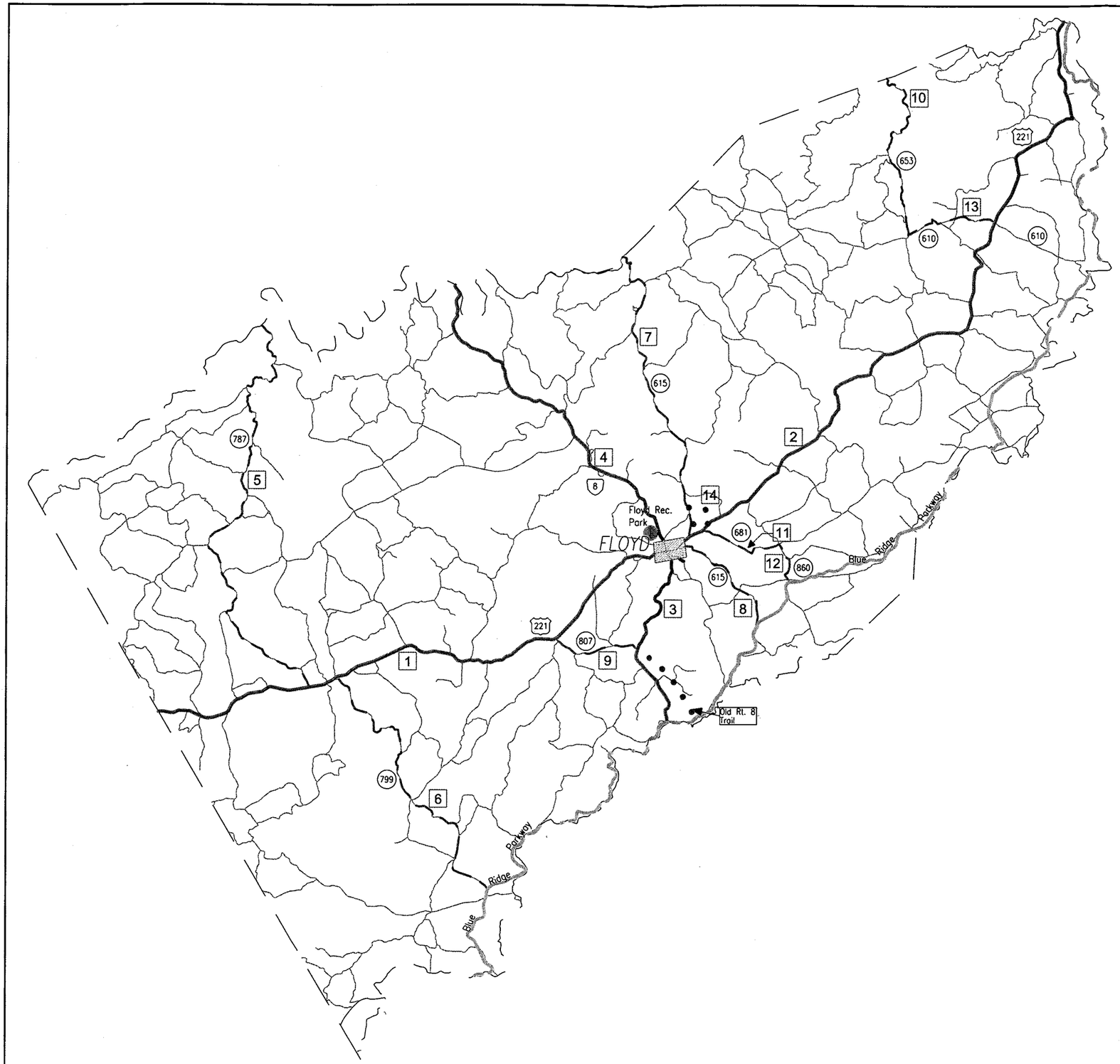
Key	Route Number	Description	Length	Daily Motor Traffic
5	Rte. 787	from Willis at Route 221, north to the Montgomery County line	12 miles (63,360 LF)	710
6	Rte. 799	from Route 221, south to the Blue Ridge Parkway	8 miles (42,240 LF)	750
7	Rte. 615	from the Montgomery County line, south to Route 221	9.5 miles (50,160 LF)	1580
8	Rte. 615	from the Town of Floyd corporate limits, south to the Blue Ridge Parkway	3 miles (15,840 LF)	1090
9	Rte. 807	from Route 8, west to Route 221	1.5 miles (7,920 LF)	530

10	Rte. 653	from Route 610, north to the Montgomery County line	2.5 miles (13,200 LF)	490
11	Rte. 681	from Route 221, east to Route 860	1.5 miles (7,920 LF)	1153
12	Rte. 860	from Route 681, south to the Blue Ridge Parkway	1 mile (5,280 LF)	620
13	Rte. 610	from Route 653, east to Route 221	2.3 miles (12,144 LF)	690

Long Term Off Road Trail Projects

A trail is proposed to follow the Old Highway 8 alignment that exists south of the Town of Floyd. It would begin at present Highway 8 and extend to the Blue Ridge Parkway. This trail would serve as an alternative to the bicycle lanes along the Highway 8 corridor. 3.5 miles.

14 - A birding, hiking, wetlands nature trail is proposed to create a loop trail around the site of the Floyd Regional Commerce Park just off of Rt 615, 1.5 miles from the Town of Floyd limits. The trail would upgrade an existing logging road and incorporate several raised walkways into the wetlands areas as well as observation platforms for birders and other nature enthusiasts. The trail would also connect with the historic farm home located on the property which was recently placed on the National Register of Historic Places.



Floyd County

New River Valley Bikeway/Walkway Plan

- Proposed Bicycle Lanes
- Proposed Shared Road Designation
- Proposed Multi-purpose Trail
- Sidewalk/Bikeway
- Blue Ridge Parkway
- [1] Key Numbers
- Floyd Recreational Park

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SCALE:

1 0 1 2 3 4 5 MILES

Prepared by the New River Valley Planning District Commission, 2000.
Base Map, 1990 Pre-Census TIGER Map, Bureau of Census.

List and Description of Proposed Bikeway/Walkway Routes
Town of Floyd

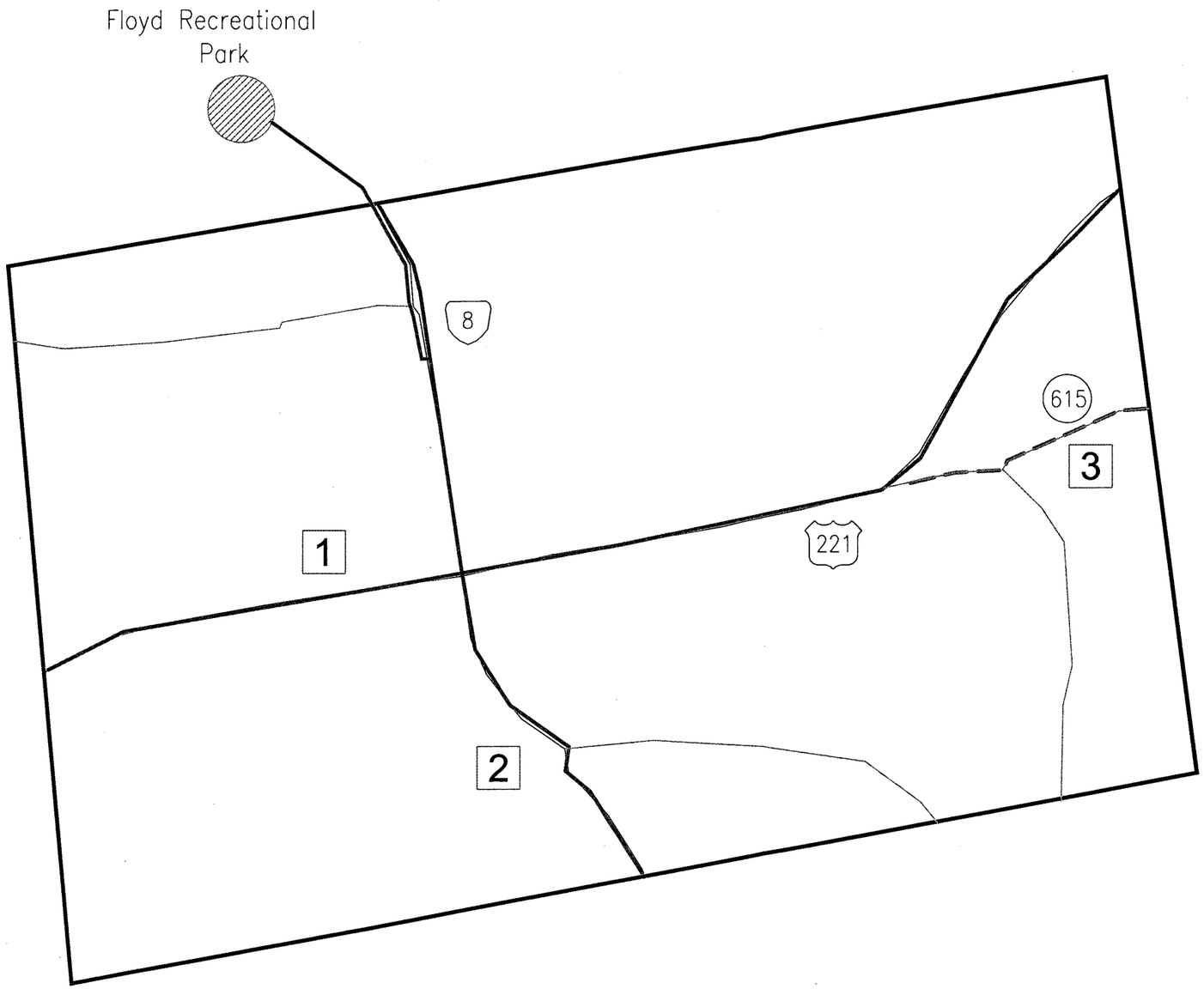
Proposed Bicycle Lane Development

Key	Route Number	Description	Length	Daily Motor Traffic
1	Rte. 221	within the Town of Floyd corporate limits	1 mile (5,280 LF)	6,920
2	Rte. 8	within the Town of Floyd corporate limits	.5 miles (2,640 LF)	5,550

Proposed Shared Road Designation

Key	Route Number	Description	Length	Daily Motor Traffic
3	Rte. 615	from Route 221, south to the Town of Floyd corporate limits	.25 miles (1,320 LF)	1,965

Shading denotes routes identified through public involvement processes in 1994 and 2000.



SCALE IN FEET

500 0 500 1000 1500

Town of FLOYD

New River Valley Bikeway/Walkway Plan

Sidewalk/Bikeway

Proposed Bicycle Lanes

Proposed Shared Road Designation

1 Key Numbers

Floyd Recreational Park

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Prepared by the New River Valley Planning District Commission, 2000.
Base Map, 1990 Pre-Census TIGER Map, Bureau of Census.

List and Description of Proposed Bikeway/Walkway Routes
Giles County

Proposed Bicycle Lane Development

Key	Route Number	Description	Length	Daily Motor Traffic
1	Rte. 100	from the Pulaski County line to the Town of Pearisburg corporate limits	11 miles (58,080 LF)	4,559
2	Rte. 623	from the Town of Pembroke corporate limits, south across the New River to Rte. 621	3.5 miles (18, 480 LF)	750
3	Rte. 621	from Route 623, south to Route 730	.7 miles (3,696 LF)	35
4	Rte. 637	from Rte, 460 - business, to future development site near the confluence of the New River and Big Walker Creek	1 mile (5,280 LF)	236
5	Rte. 460 (Wenonah Ave)	from the Town of Pearisburg corporate limits, east to Rte. 637 and the Giles County High School	.75 miles (3,960 LF)	11,000
6	Rte. 100	from the Town of Pearisburg corporate limits, west to the Town of Narrows corporate limits	3.5 miles (18,480 LF)	990
7	Old Rte. 460	from the Town of Rich Creek corporate limits, west to the Town of Glen Lyn corporate limits	1.2 miles (6,366 LF)	N/A
8	Rte. 61	from the Bland County line, east to the Town of Narrows corporate limits	12.1 miles (63,888 LF)	715
9	Rte. 42	from Route 460, east through Newport, to the Craig County line	4.10 miles (21,648 LF)	3,743

Proposed Shared Road Designation

Key	Route Number	Description	Length	
10	Rte. 724	from Monroe St. at the Town of Narrows corporate limits, south along Wolf Creek to Route 61	8.6 miles (45,408 LF)	296
11	Rte. 730	from Route 100, east through Eggleston, across the New River to Route 625	8.5 miles (44,880 LF)	315
12	Rte. 625	from Route 730, south to the Montgomery County line	2.25 miles (11,880 LF)	135
13	Rte. 605	from Route 625, east to Route 460 and Route 42 at Newport	4.25 miles (22,440 LF)	640
14	Rte. 601	from Route 42, north to Route 685	2.4 miles (12,672 lf)	690
15	Rte. 685	from Route 601, north to Route 602	.9 miles (4,752 LF)	91
16	Rte. 602	from Route 685, west to Route 700 across the New River to Route 625	2.15 miles (11,352 LF)	84
17	Rte. 700	from Route 604, north to Route 613 and the Mountain Lake Resort	5.75 miles (30,360 LF)	1,173
18	Rte. 604	from Route 601, west to Route 700	1.35 miles (7,128 LF)	317
19	Rte. 635	from Route 613, south to Route 460	17 miles (89,760 LF)	135

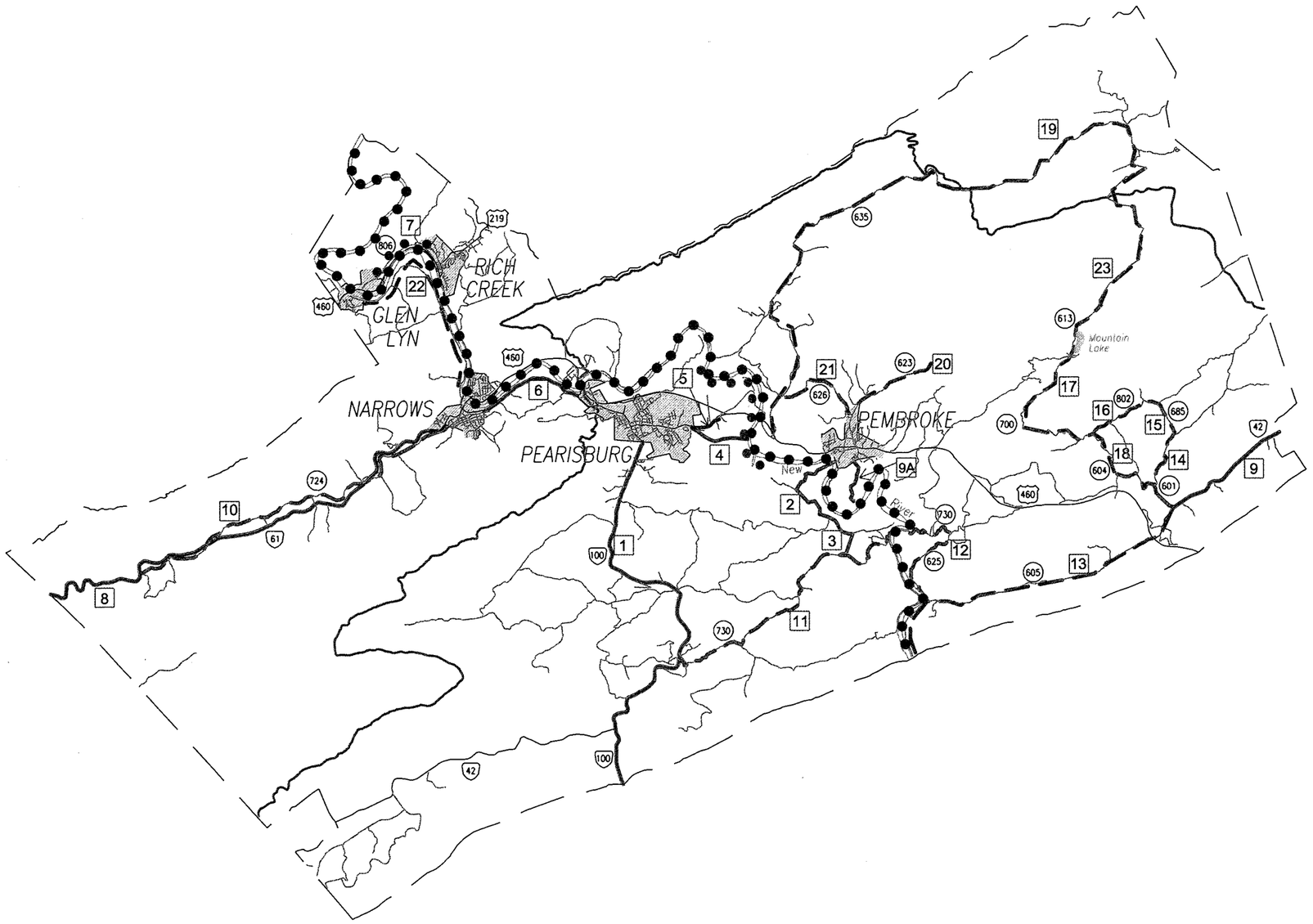
20	Rte. 623	from the Town of Pembroke corporate limits, north to the Cascades Recreation Site	2.25 miles (11,880 LF)	1,100
21	Rte. 626	from the Town of Pembroke corporate limits, west to Route 635	2.4 miles (12,672 LF)	86
22	Rte. 649	from the Town of Narrows corporate limits at Route 61, north to the corporate limits of the Town of Glen Lyn	3.5 miles (18,480 LF)	940
23	Rte. 613	from Route 700 at the Mountain Lake Resort, north to Route 635 (unpaved route)	8.25 miles (43,560 LF)	NA

Long Term Off Road Trail Projects

A multi-purpose trail is proposed to run along the New River within a proposed regional park. The trail could utilize existing corridors, one right-of-way that belongs to Route 636 and another that exists for Route 1506 near Ripplemead. The trail should continue to an existing intersection with Route 634(Curve Road) which should be designated as a shared road facility. This will not only create a loop for the Town of Pearisburg, but will also provide a link in the development of the Mary Draper-Ingles Trail. 2.75 miles.

Route 806 between the Towns of Glen Lyn and Rich Creek is a section of old Route 460 that has been closed. This section of abandoned highway, as well as an access to a scenic lookout called Manual's Hollow, are potential enhancement projects that would become centerpieces for the bikeway/walkway effort in Giles County. 2 miles.

Shading denotes routes identified through public involvement processes in 1994 and 2000.



Giles County

New River Valley Bikeway/Walkway Plan

- Appalachian Foot Trail (Existing)
- Proposed Bicycle Lanes
- Proposed Shared Road Designation
- Proposed Multi-purpose Trail
- Proposed Water Trail/Blueway
- [1] Key Numbers

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Prepared by the New River Valley Planning District Commission, 2000.
Base Map, 1990 Pre-Census TIGER Map, Bureau of Census.

List and Description of Proposed Bikeway/Walkway Routes
The Town of Rich Creek and the Town of Glen Lyn

Proposed Bicycle Lane Development

Key	Route Number	Description	Length	Daily Motor Traffic
1	Rte. 806	from Route 460, east to the Town of Glen Lyn corporate limits	.5 miles (2,640 LF)	315
2	Rte. 806	from the Town of Rich Creek corporate limits, east to Route 219	.7 miles (3,696 LF)	1,469
3	Rte. 219	from Route 460, north to Route 806	.25 miles (1,320 LF)	4,500

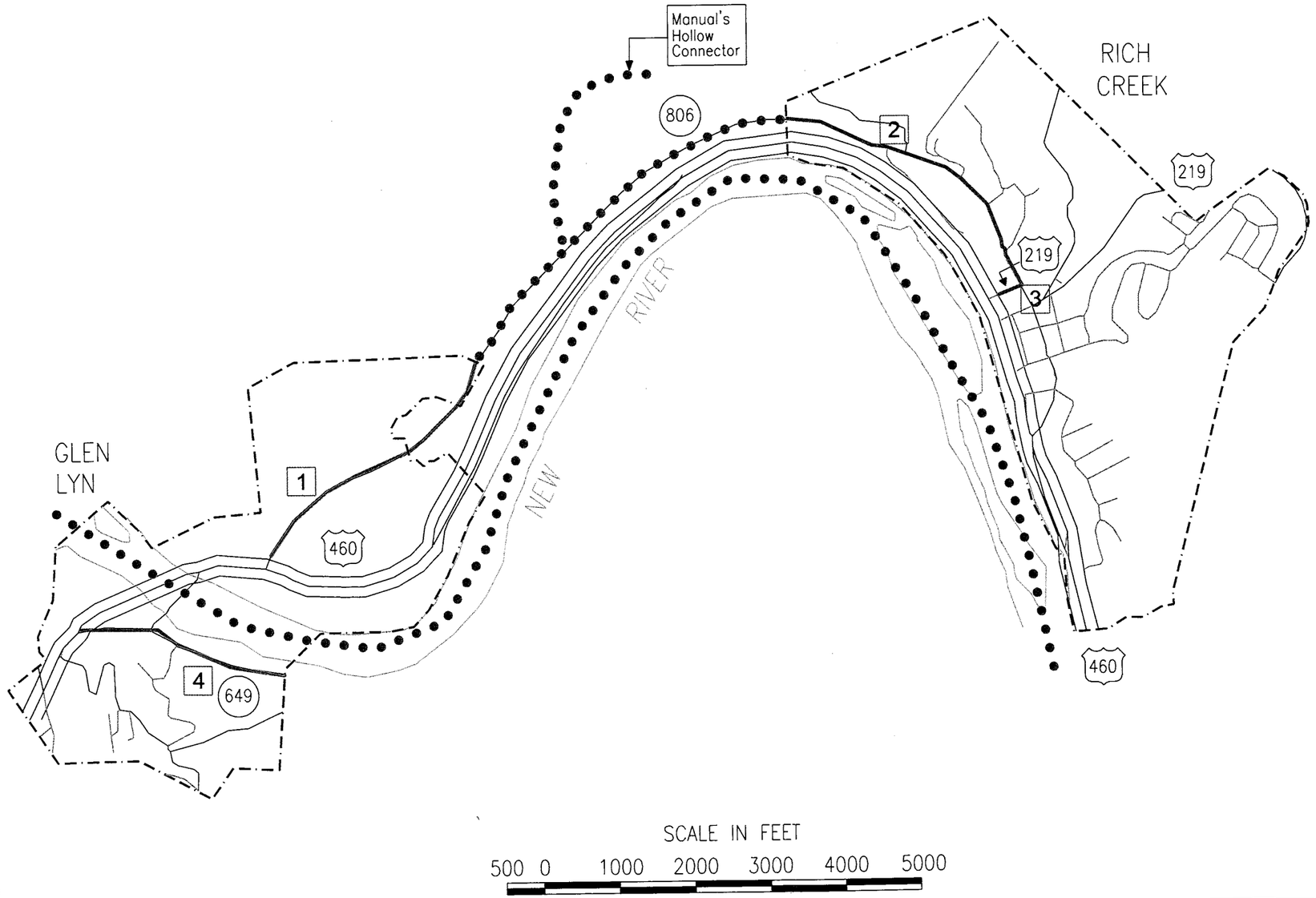
Proposed Shared Road Designation

Key	Route Number	Description	Length	Daily Motor Traffic
4	Rte. 649	from Route 460, east to the Town of Glen Lyn corporate limits	.5 miles (2,640 LF)	595

Long Term Off Road Trail Projects

Roue 806 between the Towns of Glen Lyn and Rich Creek is a section of old Route 460 that has been closed. This section of abandoned highway, as well as an access to a scenic lookout called Manual's Hollow, are potential enhancement projects that would become centerpieces for the bikeway/walkway effort in Giles County. 2 miles. AS OF JUNE 2000, TRANSPORTATION ENHANCEMENT FUNDS HAVE BEEN AWARDED TO THIS PROJECT IN RESPONSE TO AN APPLICATION SUBMITTED BY GILES COUNTY. *This project is also indicated in the Giles County list.*

Shading denotes routes identified through public involvement processes in 1994 and 2000.



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Towns of GLEN LYN and RICH CREEK

New River Valley Bikeway/Walkway Plan

Proposed Bicycle Lanes

Proposed Multi-purpose Trail

Proposed Water Trail/Blueway

1 Key Numbers

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Prepared by the New River Valley Planning District Commission, 2000.
Base Map, 1990 Pre-Census TIGER Map, Bureau of Census.

List and Description of Proposed Bikeway/Walkway Routes
The Town of Narrows

Proposed Bicycle Lane Development

Key	Route Number	Description	Length	Daily Motor Traffic
1	Rte. 100	from the Town of Narrows corporate limits, west to Route 61	1.5 miles (7,920 LF)	5,000
2	Rte. 61	from Virginia Avenue, west over the New River to the Town of Narrows corporate limits	1.4 miles (7,392 LF)	5,560

Proposed Shared Road Designation

Key	Route Number	Description	Length	Daily Motor Traffic
3	Rte. 724	from Route 61, west to the Town of Narrows corporate limits	.4 miles (2,112 LF)	296
4	Rte. 649	from Route 61, north to the Town of Narrows corporate limits	.2 miles (1,056 LF)	940

Long Term Off Road Trail Projects

Narrows Wolf Creek Trail is to be constructed along an abandon rail road bed that spurs off from the Norfolk and Western line on the west side of Wolf Creek. This trail should be integrated with a downtown walking path and should connect the town park with downtown and extend into residential areas as well. 1.5 miles.

Shading denotes routes identified through public involvement processes in 1994 and 2000.

Town of NARROWS

New River Valley Bikeway/Walkway Plan

——— Proposed Bicycle Lanes

– – – Proposed Shared Road Designation

• • Proposed Multi-purpose Trail

• • Proposed Water Trail/Blueway

1 Key Numbers

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Prepared by the New River Valley Planning District Commission, 2000.
Base Map, 1990 Pre-Census TIGER Map, Bureau of Census.

List and Description of Proposed Bikeway/Walkway Routes
The Town of Pearisburg

Proposed Bicycle Lane Development

Key	Route Number	Description	Length	Daily Motor Traffic
1	Rte. 100	from the Town of Pearisburg western most corporate limit, south to the southern corporate limit	1 mile (5,280 LF)	6,990
2	Henson Avenue	from Route 100, east to Fort Branch Road	1 mile (5,280 LF)	2,375
3	Woodrum Street	from Henson Avenue, north to Wenonah Avenue (Route 460 Business)	.5 miles (2,640 LF)	NA
4	Sunset Drive	from Wenonah Avenue (Route 460 Business), north to Curve Road (Route 634)	.5 miles (2,640 LF)	NA
5	Wenonah Avenue	from the King Johnson Recreation Center, east to the Town of Pearisburg corporate limits	.2 miles (1,056 LF)	5,650

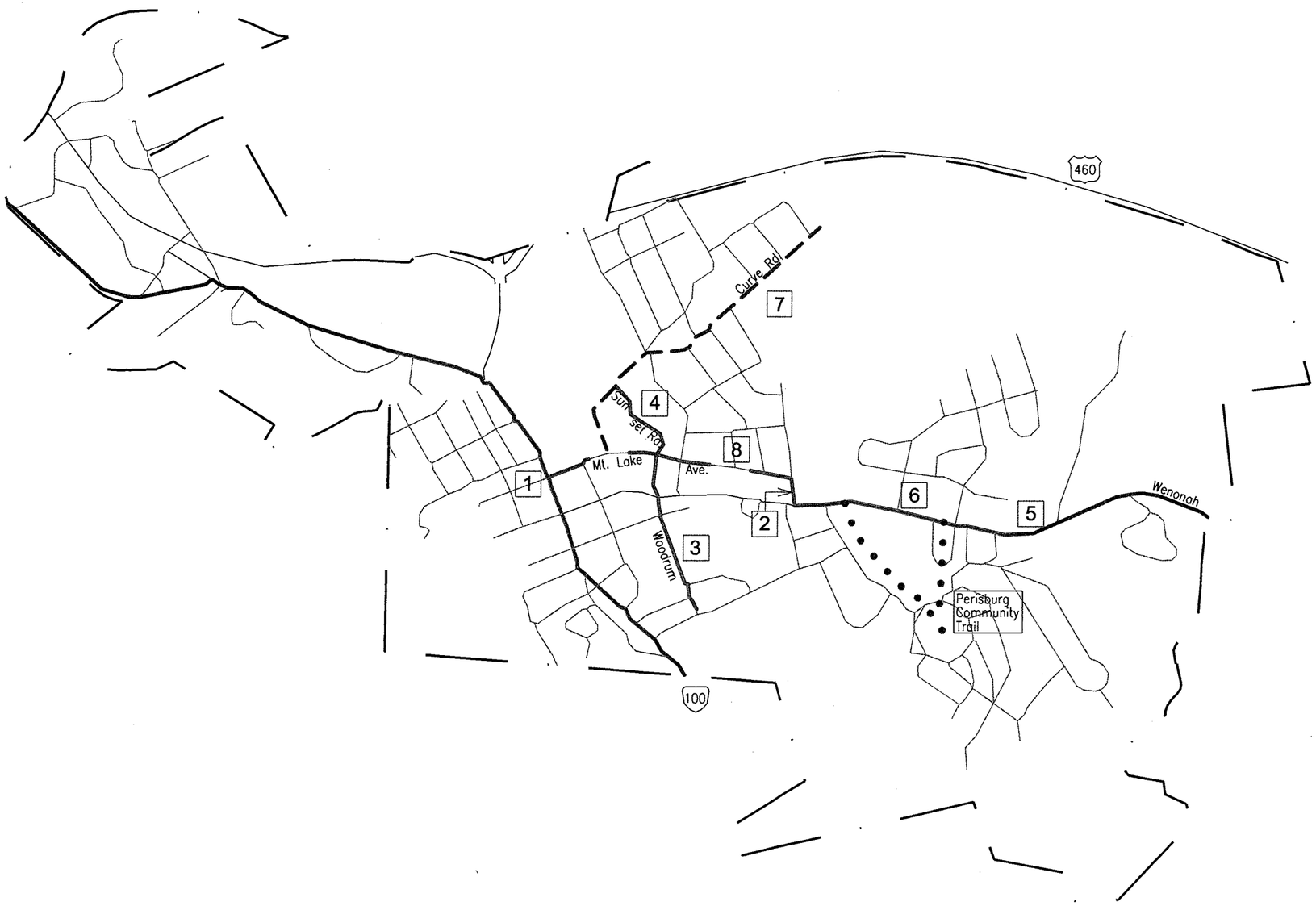
Proposed Shared Road Designation

Key	Route Number	Description	Length	Daily Motor Traffic
6	Rte. 634 (Curve Rd.)	From Mt. Lake Avenue (460 Bus.), north to beyond the Town of Pearisburg corporate limits	3 miles (15,840 LF)	3,625
7	Mt. Lake Ave.	from Route 100, east to Hale Street	1 mile (5,280 LF)	NA

Long Term Off Road Trail Projects

Pearisburg Community Trail to begin at the Community Park at the Henson Avenue, Fort Branch Road intersection, and to extend through the Park and into Soccer Hollow. The trail should come from behind the King Johnson Recreation Center to Route 460 (Wenonah Avenue). 1 mile.

Shading denotes routes identified through public involvement processes in 1994 and 2000.



Town of PEARISBURG

New River Valley
Bikeway/Walkway Plan

Proposed Bicycle Lanes

Proposed Shared Road Designation

Proposed Multi-purpose Trail

1 Key Numbers

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Prepared by the New River Valley Planning District Commission, 2000.
Base Map, 1990 Pre-Census TIGER Map, Bureau of Census.

List and Description of Proposed Bikeway/Walkway Routes
The Town of Pembroke

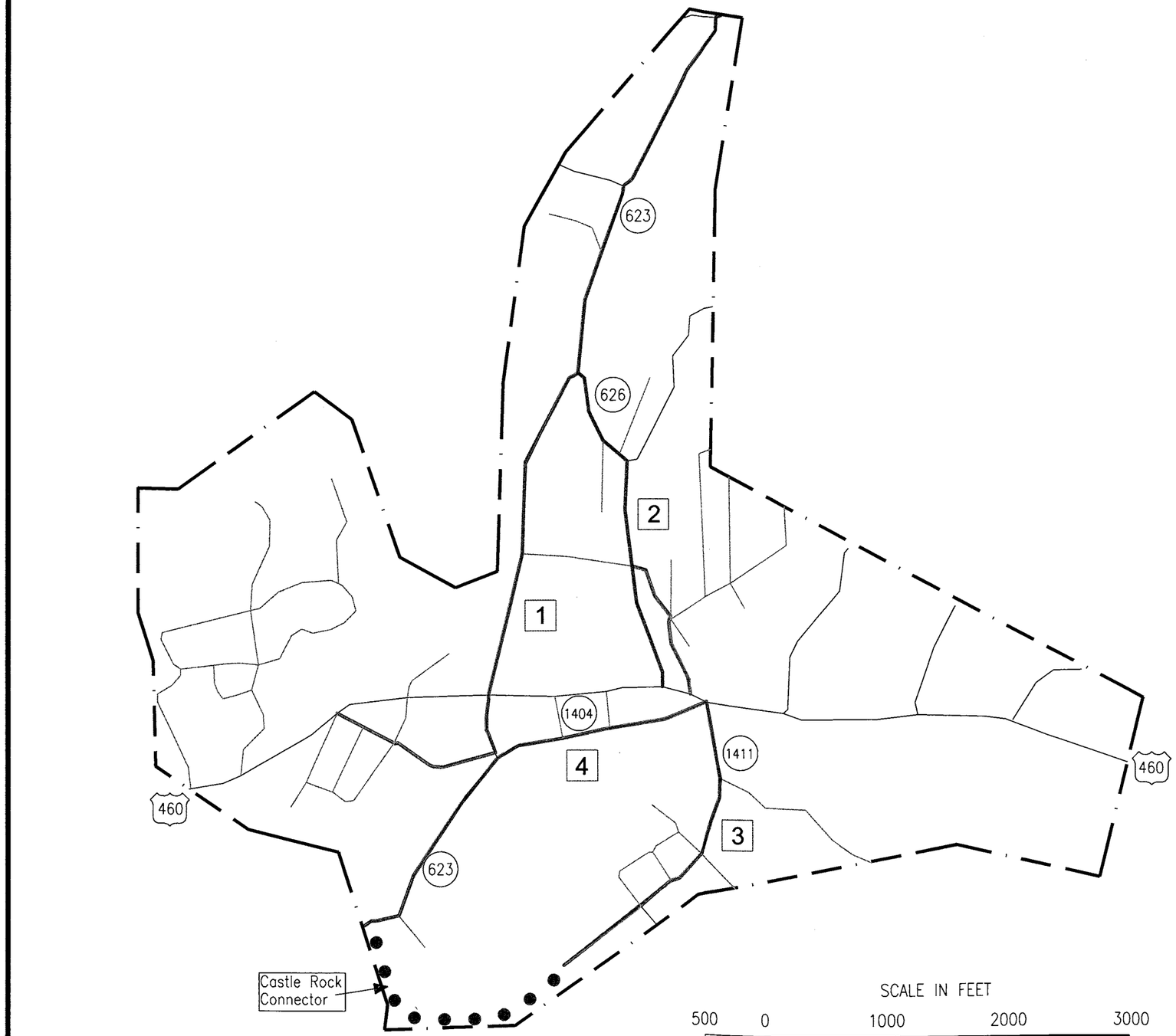
Proposed Bicycle Lane Development

Key	Route Number	Description	Length	Daily Motor Traffic
1	Rte. T-623	for entire length within the Town of Pembroke corporate limits	1.75 miles (9,240 LF)	2,475
2	Rte. T-626	for entire length within the Town of Pembroke corporate limits	.5 miles (2,640 LF)	1,375
3	Rte. T-1411	for entire length within the Town of Pembroke corporate limits	.75 miles (3,960 LF)	NA
4	Rte. T-1404	for entire length within the Town of Pembroke corporate limits	.6 miles (3,168 LF)	NA

Long Term Off Road Trail Projects

Pembroke Connector to begin in the Castle Rock recreation area at the southern end of town and at the end of Route T-1411. The trail should access existing trails and a riverside pocket park on the banks of the New River and should cross over to Castle Rock connecting with bicycle lanes along Route 623. 2 miles.

Shading denotes routes identified through public involvement processes in 1994 and 2000.



Town of PEMBROKE

New River Valley
Bikeway/Walkway Plan

Proposed Bicycle Lanes

Proposed Multi-purpose Trail

1 Key Numbers

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Prepared by the New River Valley Planning District Commission, 2000.
Base Map, 1990 Pre-Census TIGER Map, Bureau of Census.

List and Description of Proposed Bikeway/Walkway Routes
Montgomery County

Proposed Bicycle Lane Development

Key	Route Number	Description	Length	Daily Motor Traffic
1	Rte. 8 (Riner Road)	From the Town of Christiansburg corporate limits, south to the Floyd County line	9.5 miles (50,160 LF)	6,732
2	Rte. 723 (Ellet Road)	from Route 603 (North Fork Road), south to the Town of Christiansburg corporate limit	4.75 miles (25,080 LF)	2,571
3	Rte. 705 (Hollow Road)	from Route 685 (Prices Fork Road), south to Route 114 (Peppers Ferry Road)	2 miles (10,560 LF)	136
4	Rte. 603 (North Fork Road)	from Route 723 (Lusters Gate Road), east to Route 11/460	12 miles (63,360 LF)	2,755
5	Rte. 603 (North Fork Road)	from the Town of Blacksburg corporate limits, east to Route 723 (Lusters Gate Road)	1.9 miles (10,032 LF)	3,259
6	Rte. 643 (Yellow Sulphur Rd.)	from the Town of Blacksburg corporate limits, south to the Town of Christiansburg corporate limits	4.4 miles (23,232 LF)	1,212
7	Rte. 624 (Mt. Tabor Rd.)	from the Town of Blacksburg corporate limits, east to Route 628 (Dry Run Rd.)	5 miles (132,000 LF)	1,500
8	Rte. 11 (Radford Rd.)	from the Town of Christiansburg corporate limits, south to the City of Radford corporate limits	5.6 miles (29,568 LF)	20,680
9	Rte. 114 (Peppers Ferry Rd.)	from the Pulaski County line, east to the Town of Christiansburg corporate limits	7.6 miles (40,128 LF)	17,149
10	Rte. 693 (Childress Rd.)	from the Pulaski County line, east to Route 8 (Riner Rd.)	4.7 miles (24,816 LF)	2,089

11	Rte. 688 (Rock Road)	from the City of Radford corporate limits, east to Route 11(Radford Rd.)	.9 miles (4,752 LF)	5,068
12	Rte. 177 (Tyler Ave.)	from the City of Radford corporate limits, south to Rte.600 (Tyler Rd.) and the TransAmerica Bicycle Route	2.3 miles (12,144 LF)	10,299
13	Rte. 11 (Radford Rd.)	from the Town of Christiansburg corporate limits, north to the Roanoke County line	11.2 miles (59,136 LF)	20,530
14	Rte. 785 (Harding Ave.)	from the Town of Blacksburg corporate limits, east to Rte. 723 (Lusters gate Rd.)	1,4 miles (7,392 LF)	2,514
15	Rte. 655 (Glade Ave.)	from the Town of Blacksburg corporate limits, west to Rte. 652 (McCoy Rd.)	5.8 miles (30,624 LF)	1,768

Proposed Shared Road Designation

Key	Route Number	Description	Length	Daily Motor Traffic
16	Rte. 600 (Tyler Rd.)	from Rte.11(Radford Rd.), south to Rte.666	3 miles (15,840 LF)	1,900
17	Rte. 663 (Walton Rd.)	from Rte.11(Radford Rd.) north to Rte. 114 (Peppers Ferry Rd.)	4.5 miles (23,760 LF)	1,385
18	Rte. 613 (Mountain Pride Rd.)	from Rte. 693 (Graysontown Rd.), north to the Pulaski County line (connector)	1 mile (5,280 LF)	423
19	Rte. 605 (Little River Rd.)	from the Radford City corporate limits, south to the Pulaski County line (connector)	1 mile (5,280 LF)	2,710
20	Rte. 787 (Indian Valley Rd.)	from Rte. 664 (Lovely Mount Drive), south to the Floyd County line	9.75 miles (51,480 LF)	800
21	Rte. 652 (McCoy Rd.)	from Rte. 685 (Prices Fork Rd.), west to Rte. 625 (Big Falls Rd.)	6.5 miles (34,320 LF)	3,030

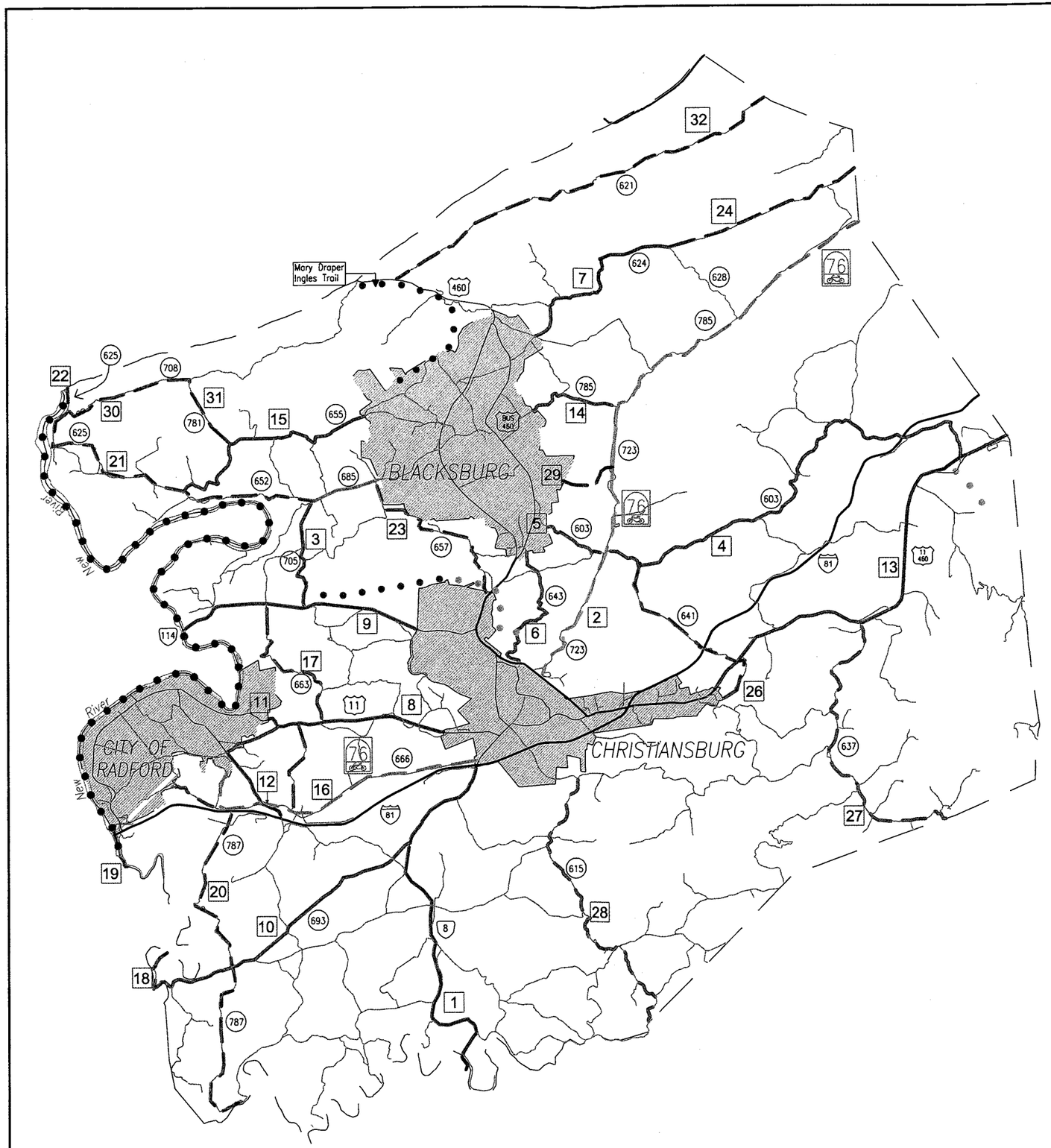
22	Rte. 625 (Big Falls Rd.)	from Rte. 652 (McCoy Rd.), north to the Giles County line	1.7 miles (8,976 LF)	539
23	Rte. 657 (Walnut Spring Rd.)	from Rte. 685 (Prices Fork Rd.), south to Rte. 460	4 miles (21,120 LF)	1,800
24	Rte. 624 (Mt. Tabor Rd.)	from Rte. 628 (Dry Run Rd.), east to the Roanoke County line	5 miles (26,400 LF)	541
25	Rte. 641 (Den Hill Rd.)	from Rte. 603 (North Fork Rd.), south to Rte. 11/460	4.25 miles (22,440 LF)	750
26	Rte. 641 (Den Hill Rd.)	from Rte. 11/460, south to the Town of Christiansburg corporate limits	1.4 miles (7,392 LF)	405
27	Rte. 637 (Bottoms Creek Ln.)	from Rte. 11/460, south to the Floyd County line	8 miles (42,240 LF)	2,300
28	Rte. 615 (Pilot Rd.)	from the Town of Christiansburg corporate limits, south to the Floyd County line	8.6 miles (45,408 LF)	4,202
29	Rte. 681 (Nellie's Cave Rd.)	from the Town of Blacksburg corporate limits, east to Rte. 723 (Lusters Gate Rd.) (via Rte.1260 - Woodland Hills Dr.)	2 miles (10,560 LF)	567
30	Rte. 708 (Norris Run Rd.)	from Rte. 625 (Big Falls Rd.), east to Rte. 781(Lick Run Rd.)	3.4 miles (17,925 LF)	50
31	Rte. 781 (Lick Run Rd.)	from Rte. 708, south to Rte. 655 (Mt. Zion Rd.)	2 miles (10,560 LF)	342
32	Rte. 621 (Craig Creek Rd.)	from Rte. 460, east to the Craig County line	11.5 miles (60,720 LF)	124

Long Term Off Road Trail Projects

A proposed utility easement along Slate Branch will run parallel to Virginia State Highway 114, (Pepper's Ferry Rd.) and is an opportunity to develop an off road trail that extends from the Huckleberry Trail. This multi purpose trail will help to link Pulaski County with Montgomery County. 5 miles.

A trail that begins on the Virginia Tech Campus in Blacksburg would extend north beyond Glade Road (Route 655) and follow Tom's Creek to Tom's Creek Road. This trail will them proceed over Brush Mountain leaving the Town and corporate limits parallel to Route 809. The trail will access the Pandapas Pond trails in the Jefferson National Forest. Ultimately this trail will serve as the beginning segment of the commemorative Mary Draper Ingles Trail that is being developed in four different states(Kentucky, Ohio, West Virginia, and Virginia). The trail will follow Poverty Creek from Pandapas Pond, west to the New River. 13.5 miles.

A short trail should extend across US Highway 460 linking the bicycle lane along Merrimac Road (Rte.657) to the Mid-County Recreation Area east of the commercial development on the highway. A number of different options for accessing the recreation site can include running a trail along the highway and crossing the four lane right of way at an existing traffic signal. Approximately 1 mile.



Montgomery County

New River Valley Bikeway/Walkway Plan

- Appalachian Foot Trail (Existing)
- Proposed Bicycle Lanes
- Existing Shared Road Designation
- Proposed Shared Road Designation
- Existing Bicycle Lanes
- Proposed Multi-purpose Trail
- Existing Multi-purpose Trail
- Proposed Water Trail/Blueway
- 1 — Key Numbers
- 76 — The Bicentennial Bike Route

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Prepared by the New River Valley Planning District Commission, 2000.
Base Map, 1990 Pre-Census TIGER Map, Bureau of Census.

List and Description of Proposed Bikeway/Walkway Routes
Town of Blacksburg

Proposed Bicycle Lane Development

Key	Route Number	Description	Length	Daily Motor Traffic
1	University City Blvd.	From Tom's Creek Rd., south to Prices Fork Rd.	1.25 miles (6,600 LF)	13,430
2	Progress St.	from Winston Avenue, north to the end of Progress St.	.75 miles (3,960 LF)	NA
3	Webb St., Kabrich St., & Winston Ave.	from Prices Fork Rd., north to Progress Rd.	.25 miles (1,320 LF)	NA
4	Harding Ave.	from Progress St., north to Owens St.	.25 miles (1,320 LF)	5,000
5	Wharton St.	from Jackson St., south to Clay St. at the Middle School	.25 miles (1,320 LF)	NA
6	Mount Tabor Rd. (Rte. 624)	from the Town of Blacksburg corporate limits, west to North Main Street (Route 460 Business)	1 mile (5,280 LF)	6,070
7	Glade Rd. (Rte. 655)	from the Town of Blacksburg corporate limits, east to Shadow Lake Rd.	1.5 miles (7,90 LF)	1,940
8	Giles Road	from North Main Street to North Main Street		
9	Tom's Creek Rd.	from the Rte. 460 bypass, north to Meadow Brook Drive	1.2 miles (6,336 LF)	1,720
10	Hubbard Street Southgate Dr., Country Club Drive	Lanes along all portions of the new VDOT road projects		

11	Bishop Rd. Lanes	from 460 Bypass to Mt. Tabor Road and North Main Street		
12	Access Road to 2727 & 2801 South Main	South Main St. to Prosperity Road.		

Proposed Shared Road Designation

Key	Route Number	Description	Length	Daily Motor Traffic
13	Draper Road	from Airport Road, north to College Avenue	1 mile (5,280 LF)	NA
14	Nellie's Cave Road	from Grissom Lane, east to Town of Blacksburg corporate limits	.5 miles (2,640 LF)	NA

Multi-purpose Trails

Key	Route Number	Description	Length	Daily Motor Traffic
15	Central Blacksburg Bikeway	Virginia Tech Campus to Harding Ele. and Rec. Center/High School		
16	North-South Connector - So. Branch	Parallel to Plantation Rd. from Prices Fork Rd. south to Huckleberry Trail		
17	Patrick Henry Drive Trail	H.S. to N. Main, link between Patrick Henry Trail and the Town Park and H.S		
18	Corporate Research Center Connector	S and W portion of Airport Loop, Southgate Dr. to Ramble Rd.		
19	VT Campus Trail System	Trails throughout Campus as shown on University Master Plan		

Medium Term Off Road Multi-purpose Trails

Direct Link Trail: Connects the Town's bike-walkway system to the Bicentennial Bikeway in the Ellet Valley within the Direct Link corridor. Eventual connections to Roanoke should be sought via the north and south forks of the Roanoke River

Hethwood Trail Extension, Section B: From Plantation Rd. along Stroubles Creek to Hethwood Trail near existing bridge

Tom's Creek Greenway Trail: Extending the length of the proposed Tom's Creek Greenway following the flood plain with connections to developing areas.

Givens Trail, Section A: From the Shenandoah Trail system to Givens Lane, Wyatt Farms, and Bishop Road.

Givens Trail Section B: From the Shenandoah Loop following the abandoned Givens Lane right-of-way

Stadium Trail: Behind Lane Stadium from Washington St. to Southgate Dr.

Middle School Connector: End of Huckleberry Trail at Draper Rd. Library via Middle School and Wharton St. to Harding Ele. School, Blacksburg High School, and the Recreation Center

Hubbard-Street Trail: Connects the South Main Trail with the Huckleberry Trail, thereby providing the northeastern segment of the Airport Loop

Margaret Beeks Trail: Margaret Beeks School behind the Gables Shopping Center to Hubbard Street and Cedar Run Creek

Cedar Run Greenway: From Ellet Rd. at Main St. via Cedar Run to Industrial Park Dr.

Long Term Off Road Multi-purpose Trails

Off road trail along Tech Center Drive from South Gate Drive (Rte. 314) and the Virginia Tech Campus, south around the Virginia Tech Airport to Ramble Rd. The trail should continue on to South Main Street (business Rte. 460) and connect with the South Main Trail. 1.25 miles.

An off road trail is proposed to link Tech Center Drive with the existing Huckleberry Trail along South Gate Drive. 0.5 miles.

An all purpose trail is proposed to extend from Patrick Henry Drive at its intersection with North Main Street (Business Rte. 460), west to University City Blvd. 1 mile.

An all purpose trail is proposed to extend from the end of Progress Street and proposed bicycle lanes, north across Givens Lane to Northside Park. The trail should turn east to new residential development occurring on both sides of North Main Street (Business Rte. 460). The trail should extend across North Main Street and terminate at Bishop Rd. 1.75 miles.

An off road trail is proposed to run from Prices Fork Road, south to the Huckleberry Trail parallel to the Rte. 460 bypass. This is referred to as the Southern Branch of the North-South Connector. 1.75 miles.

An off road trail is proposed to run from Prices Fork Road, north to the Brush Mountain parallel to the Rte. 460 by pass. This is referred to as the Northern Branch of the North-South Connector. 6.5 miles.

An off road facility is proposed to extend from Hubbard St., south parallel to South Main St. connecting to South Park Drive, as well as, Ramble Rd and proposed trails. 0.8 miles.

An off road facility is proposed as a greenway along Stroubles Creek from the existing trails within the Foxridge/Hethwood complex on the west side of town. The Stroubles Creek Greenway will run west from the existing trails to the Town of Blacksburg corporate limits. 1.25 miles.

A trail is proposed to run along Prices Fork Road (Rte. 412) from the Town of Blacksburg corporate limits, east to the Hethwood Blvd. Intersection where existing bicycle lanes will pick up the route. The trail will connect with bike lanes in the County. 1 mile.

An off road facility is proposed to loop completely around the Town of Blacksburg in a fashion to be determined in the future by design.

An off road facility is proposed as a greenway along Tom's Creek within the northern limits of the Town of Blacksburg. The greenway should extend from the Town of Blacksburg corporate limits near the intersection of Glade Rd. and Meadowbrook Drive, east to Brush Mountain Road. 3.75 miles.

Shadow Lake Road Trail: Parallel to Shadow Lake Rd. from Glade Rd. to Meadowbrook Dr.

Old Farm Rd. Trail: Meadowbrook Dr. to Jefferson National Forest

Municipal Golf Course Trail: Middle School to the Golf Course

North Main Trail: Wyatt Farms to US 460 Bypass

Corporate Research Center Loop

Ellet Rd. Greenway Trail: Follow Cedar Run and Ellet Ed out of Town

Commerce to Ellet Connector: End of Commerce St. by Blacksburg Transit to Ellet Rd.

Harding to Main Connector: Harding Ave. to North Main St.

Blacksburg Bicycle Loop: Loop around entire Town

Stroubles Creek Greenway Trail: Follows the flood plain of Stroubles Creek to the west from the existing Hethwood trail to the corporate limits

Old Stagecoach Road Trail: Follows unbuilt Roanoke St. right of way and makes a connection to Apperson Dr.

In addition to the routes listed above, a series of bikeway and walkway facilities are being developed on the Virginia Tech Campus. The University Master Plan is being revised and an existing system which links to the Blacksburg network will be expanded.

Long Term On Road Bicycle Lanes

Happy Hollow Road Lanes: Mount Tabor Rd. to Harding Ave.

Harding Ave. Lanes: From Corporate limits to Happy Hollow Rd.

Industrial Park Road Lanes: Main Street to Town Limits

Glade Road Lanes: Boxwood Dr. to Meadowbrook Dr.

Mount Tabor Rd. Lanes: Main St. to Town Limits

Ramble Road Lanes: Tech Center Dr. to Yellow Sulphur Rd.

High Top Road Lanes: End of South Main St. at Yellow Sulphur Rd. to Merrimac Rd.

Whipple Dr. Lanes: Main St. to Givens Lane

Giles Rd. Lane: Main St. to Main St.

Merrimac Road Lanes: Prices Fork Rd. to High Top Rd.

Main St. Lanes: Entire length where possible and where there is no parking

Broce Drive Lanes: University City Blvd. To Main St.

Ellet Road Lanes: Main St. to Town line

Country Club Drive Lanes: Main St. to Palmer Dr. and extend to the Town pool via Graves Ave.

Roanoke Street Lanes: Harding Ave. to Main St.

Patrick Henry Drive Lanes: High School to Harding Ave.

Clay Street Lanes: Main Street to Clay Street terminus

Duck Pond Drive Lanes

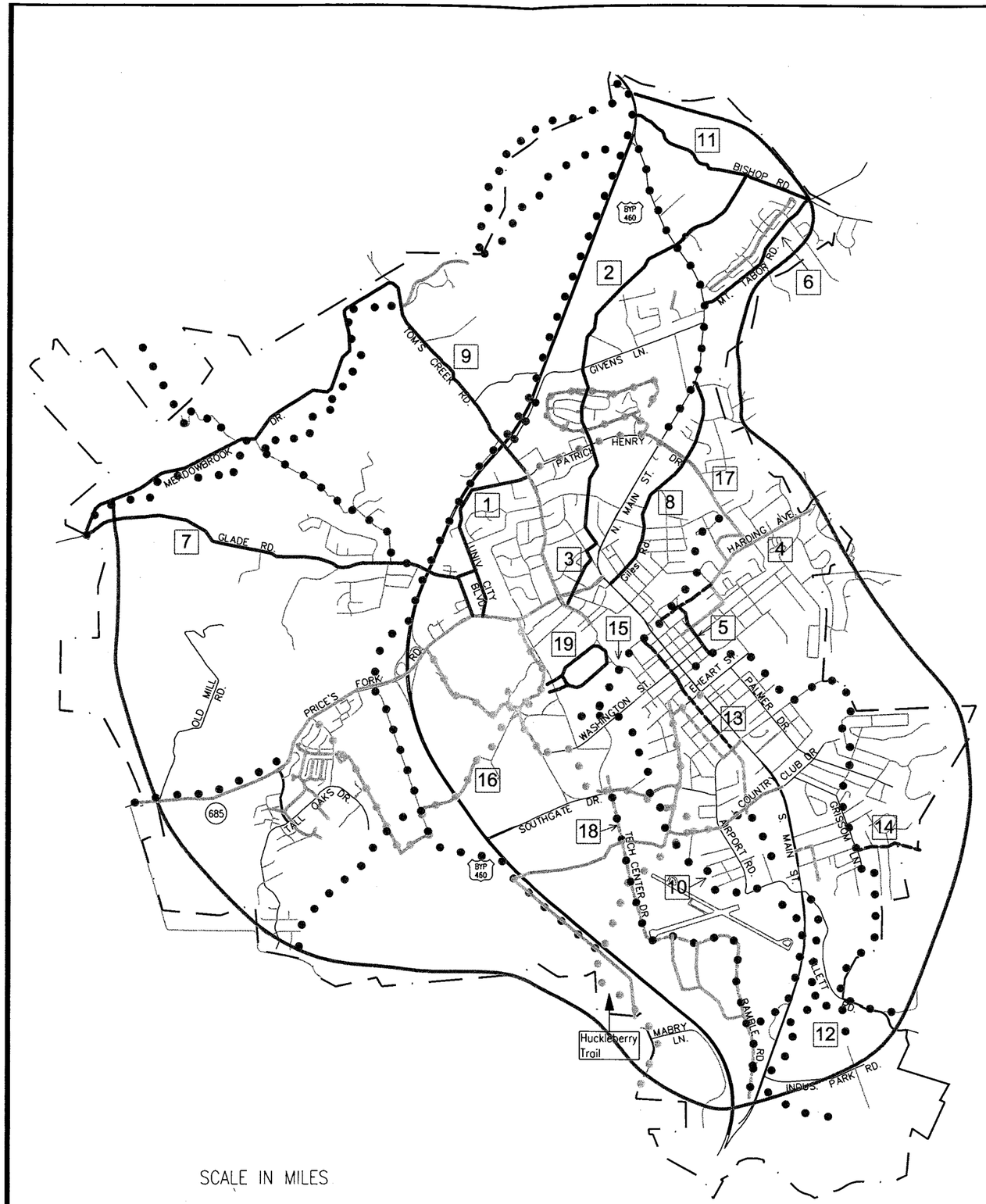
Drill Field Lanes

Washington Street Lanes: Duck Pond Drive to Kent St.

West Campus Drive Lanes: Entire length

Town of BLACKSBURG

New River Valley Bikeway/Walkway Plan



- Proposed Bicycle Lanes
- Proposed Shared Road Designation
- Existing Bicycle Lane
- Proposed Multi-purpose Trail
- Existing Multi-purpose Trail
- Existing Shared Road Designation
- Blacksburg Outer Loop Trail
- [1] Key Numbers

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Prepared by the New River Valley Planning District Commission, 2000.
Base Map, 1990 Pre-Census TIGER Map, Bureau of Census.

List and Description of Proposed Bikeway/Walkway Routes
Town of Christiansburg

Existing Bike Lanes and Shared Roads

Key	Route Number	Description	Length	Daily Motor Traffic
	North Franklin Street	from Independence Boulevard to Depot Street		
	Roanoke Street	from Reading Road east to Falling Branch Road	5,2 miles (27,456 LF)	37,150
	Yellow Sulphur Rd. (Rte. 643)	from Cambria St., north to the Town of Christiansburg corporate limit	.25 miles (1,320 LF)	1,212
	Mill Lane	entire length		
	Reading Road	from Roanoke Street to Kiwanis Park		
	Park Street	entire length		
	Pepper Street	from East Main Street south to Franklin Street	.75 miles (3,960 LF)	NA
	Cambria Street	from Tyler Street to Windmill Ridge Rd.		
	Maple Drive	entire length		
	Aspen Street	entire length		
	Wades Lane	from Betty Drive to Wades Lane Park		
	Sara Street	from North Franklin Street to Betty Dr.		
	Betty Drive	from Depot Street north to Sara Street		
	East Main St.	from Roanoke Street east to Depot St.		
	First Street	from Pepper Street, west to Phlegar St.		
	Diamond Ave.	entire length		
	Phlegar Street	from West Main Street to First Street		
	Arbor Drive	from Peppers Ferry Rd. to Ponderosa Dr.		
	Pear Street	entire length		
	Franklin Street	entire length		

Proposed Bicycle Lane Development

Key	Route Number	Description	Length	Daily Motor Traffic
1	College St.	from Rte. 8 (West Main St.), north across Radford Rd. to Depot St.	2 miles (10,560 LF)	NA
2	Depot St.	from College St.(west of Radford Rd.), east across North Franklin St. to Park St.	3 miles (15,840 LF)	8,921
3	Main Street (North and South)	from Depot St., west to the Town of Christiansburg corporate limits(beneath the I-81 overpass)	2.1 miles (11,088)	22,500
4	Radford Rd. (Rte.11)	from Main St., south to the Town of Christiansburg corporate limits	1.4 miles (7,392 LF)	19,180
5	Pepper's Ferry Rd. (Rte. 114)	from Rte. 460, west to the Town of Christiansburg corporate limits	1.5 miles (7,920 LF)	17,959
6	Cambria St.	from Depot St., north across Franklin St. to its terminus	2.25 miles (11,880 LF)	15,730
7	Independence Blvd.	From North Franklin St., west to Christiansburg High School	.5 miles (2,640 LF)	NA
8	Falling Branch Rd.	from Roanoke St., south to McDaniel Rd.	1.2 miles (6,336 LF)	NA
9	Ellet Rd. (Rte. 723)	from Cambria St., north to the Town of Christiansburg corporate limit	.4 miles (2,112 LF)	9,500

Proposed Shared Road Designation

Key	Route Number	Description	Length	Daily Motor Traffic
10	Rte. 641	from Rte. 11/460, east to the Town of Christiansburg corporate limits	.5 miles (2,640 LF)	NA

Long Term Off Road Trail Projects

The Huckleberry Trail should be extended to North Franklin Street in Christiansburg continuing from Pepper's Ferry Road (Rte. 114), south to the Christiansburg High School. The trail might be completed by negotiating access with commercial development on the west side of Business 460 within the Town of Christiansburg corporate limits. 1.5 miles.

A trail is proposed from Aspen Street to Falling Branch Elementary School

Walkway System

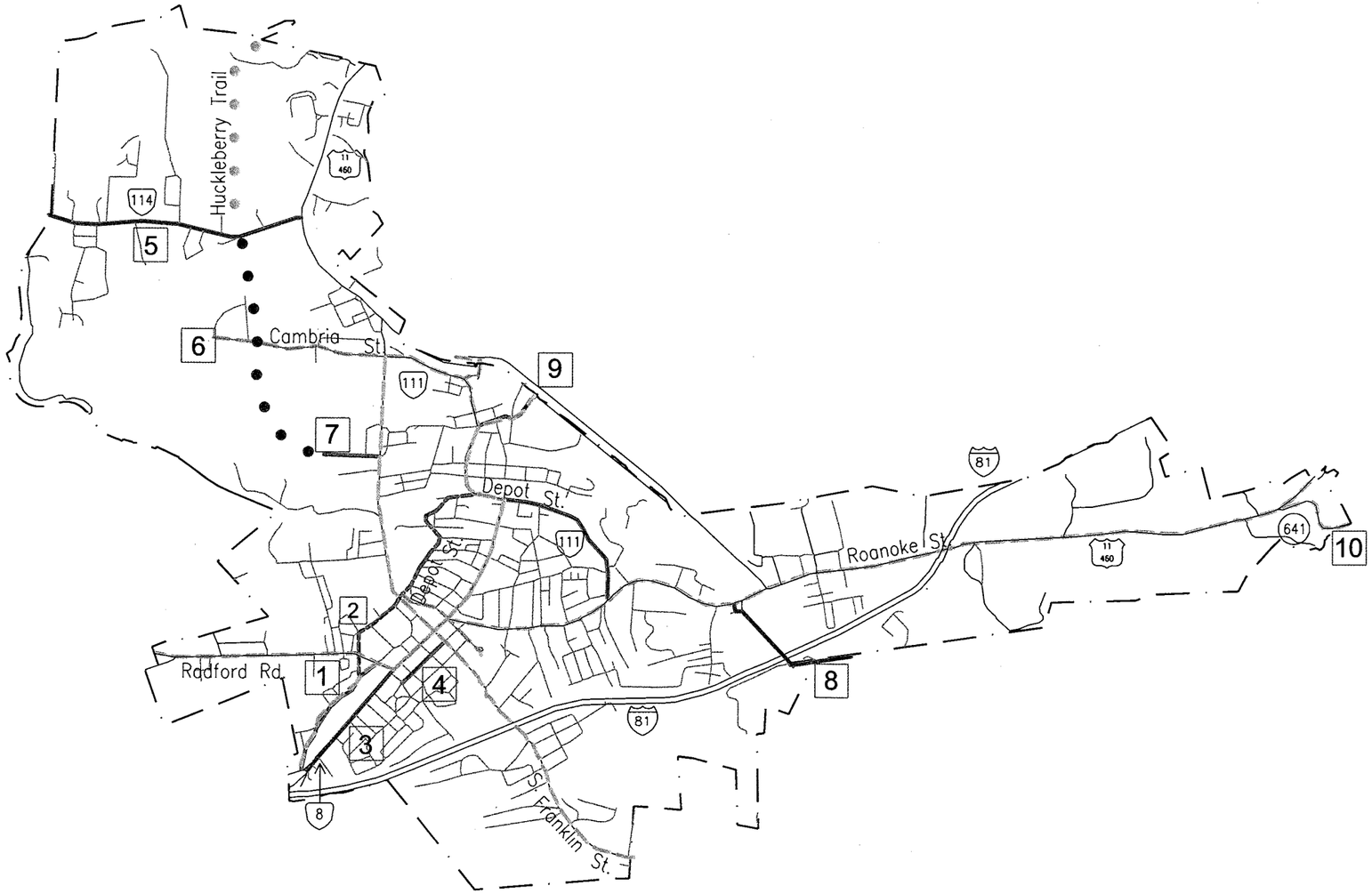
- Depot Street Park
- Kiwanis Park
- Huckleberry Trail (proposed)

Existing Sidewalk System

- Cambria Street from Depot Street north to Tyler Street
- North Franklin Street from Main Street north to Independence Boulevard
- Depot Street from North Franklin northeast to North Drive
- Sheltman Street
- College Street from Depot Street to Radford Street
- Radford Street from West Main Street to Bower Street
- West Main Street from Franklin Street to Cherry Lane
- South Franklin Street from Main Street to Pepper Street
- Pepper Street from Main Street to First Street
- Roanoke Street from Main Street to Haymaker Street
- Phlegar Street from Main Street to Second Street
- Hickok Street from College Street to Second Street
- Dunkley Street
- East Main Street from Franklin Street east to High Street
- King Street from Church Street to Murray Street
- Depot Street from West Main Street to North Franklin Street

Proposed Sidewalks

- Chinquapin Trail from Roanooke Street south to Imperial Street
- Imperial Street
- Reading Road from Imperial Street to Kiwanis Park
- Pepper Street from First Street to South Franklin Street
- Depot Street from North Drive northeast to Cambria Street
- Peppers Ferry Road



Town of CHRISTIANSBURG

New River Valley Bikeway/Walkway Plan

- Proposed Bicycle Lanes
- Proposed Shared Road Designation
- Existing Shared Road and Proposed Bicycle Lane
- Existing Shared Road Designation
- Proposed Multi-purpose Trail
- Existing Multi-purpose Trail
- 1 Key Numbers

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Prepared by the New River Valley Planning District Commission, 2000.
Base Map, 1990 Pre-Census TIGER Map, Bureau of Census.

List and Description of Proposed Bikeway/Walkway Routes
Pulaski County

Proposed Bicycle Lane Development

Key	Route Number	Description	Length	Daily Motor Traffic
1	Rte. 645	from Rte. 11(Radford Rd.), west to Rte. 636(Alum Spring Rd.)	1.25 miles (6,600 LF)	1,386
2	Rte. 636 (Alum Spring Road)	from Rte. 100(Cleburne Blvd.), south to the Town of Pulaski corporate limits	11 miles (58,080 LF)	1,900
3	Rte. 626 (Lee Highway)	from Route 11(Radford Rd.) (at SWVA Memorial Bridge), south to Rte. 611(Wilderness Rd.)	3.75 miles (19,800 LF)	990
4	Rte. 672 (Lowman's Ferry Rd.)	from Rte. F-047(Kirby Rd.), south across the New River to Rte. 693(Lead Mine Rd.)	3.6 miles (19,008 LF)	3,460
5	Rte. 715 (Brandon Rd.)	from Rte. 11(Radford Rd.) (at SWVA Memorial Bridge), north to Rte. 702(Spring Ave.)	.5 miles (2,640 LF)	1,160
6	Rte. 702 (Spring Ave.)	from Rte. 114(Peppers Ferry Rd.), south to Rte.715	1 mile (5,280 LF)	1,511
7	Rte. 114 (Peppers Ferry Road)	from Rte. 11(Radford Rd.), east to the Montgomery County line	2 miles (10,560 LF)	22,932
8	Rte. 738 (Robinson Tract Rd.)	from the Town of Pulaski corporate limits, north to Rte. 639(Black Hollow Rd.)	1.6 miles (8,448 LF)	3,500
9	Rte. 639 (Black Hollow Rd.)	from Rte. 738(Robinson Tract Rd.), north to Rte. 636(Alum Spring Rd.)	1 mile (5,280 LF)	1,352
10	Rte. 11 (Radford Rd.)	from the Town of Pulaski corporate limits, south to Rte. F-046 (Service Rd.)	3.3 miles (17,424 LF)	2,700

11	Rte. 11 (Radford Rd.)	from the Town of Pulaski corporate limits, north to the Town of Dublin corporate limits	4 miles (21,120 LF)	21,938
12	Rte. 100 (Cleburne Blvd.)	from the Town of Dublin corporate limits, north to the Giles County line	6.8 miles (35,904 LF)	6,538
13	Rte. 682 (Newburn Rd.)	from the Town of Dublin corporate limits, south to Rte. 611(Wilderness Rd.)	1.25 miles (6,600 LF)	2,833
14	Rte. 747 (Old Route 11)	from the Town of Dublin corporate limits, north to Rte. 611(Wilderness Rd.)	4.25 miles (22,440 LF)	2,988
14A	Rte. 11	from 747 north to Rte. 114	8.9 miles	20,160
15	Rte. 693 (Lead Mine Rd.)	from the Montgomery County line, west to Rte. 672(Lowman's Ferry Rd.)	7.25 miles (38,280 LF)	889
16	Rte. 660 (State Park Rd.)	from Rte. 611 (Wilderness Trail), south to its terminus in Claytor Lake State Park	3.7 miles (19,536 LF)	3,460
17	Rte. 611 (Bob White Avenue)	from the Town of Pulaski corporate limits, east to route F-047(Kirby Rd.)	1.7 miles (8,976 LF)	8,600
18	Rte. 643 (Beaufort Hollow Rd.)	from Rte 11(Radford Rd.), south to Rte. 611 (Bob White Ave.)	2.6 miles (13,728 LF)	1,750
19	Rte. 746 (Old Giles Road)	from Rte. 100(Cleburne Blvd.), south to the Town of Dublin corporate limits	.8 miles (4,224 LF)	6,200
19A	Rte. 629 (Viscoe Road)	from Rte. 114, south to Valley Center Drive		

Proposed Shared Road Designation

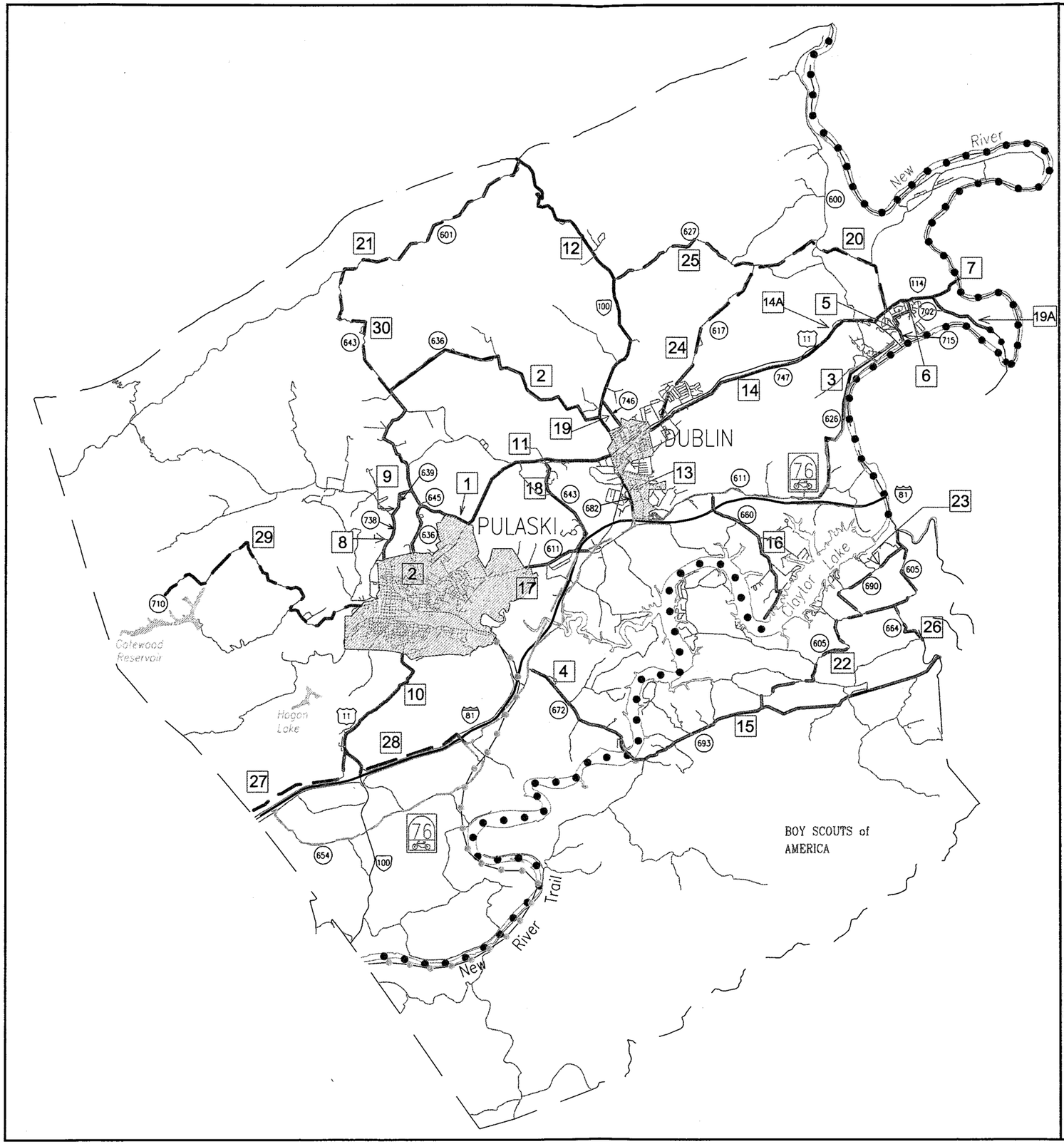
Key	Route Number	Description	Length	Daily Motor Traffic
20	Rte. 600 (Belspring Rd.)	from Rte. 627(Highland Rd.), south to Rte. 114 (Pepper's Ferry Rd.)	2.8 miles (14,784 LF)	5,235
21	Rte. 601 (Little Creek Rd.)	from Rte. 100(Cleburne Blvd.), west to Rte. 643(Beaufort Hollow Rd.)	5.6 miles (29,568 LF)	831
22	Rte. 605 (Little River Dam Rd.)	from Rte. 693(Lead Mine Rd.), north to the Montgomery County Line	7.5 miles (39,600 LF)	1,454
23	Rte. 690	from Rte. 605(Little River Dam Rd.), south to Rte. 605	2.6 miles (13,728 LF)	1,007
24	Rte. 617 (Neck Creek Rd.)	from Rte. 747(Old Rte.11), north to Rte. 627(Highland Rd.)	4.5 miles (23,760 LF)	2,198
25	Rte. 627 (Highland Rd.)	from Rte. 100(Cleburne Blvd.), east to Rte. 600(Belspring Rd.)	5 miles (26,400 LF)	971
26	Rte. 664	from Rte. 613(Cherry Branch Rd.) at the Montgomery County Line, north to Rte. 605(Little River Dam Rd.)	1.25 miles (6,600 LF)	496
27	Rte. F-044 Draper Valley Rd.)	from Rte. 11(Radford Rd.), west to the Wythe County line	5 miles (26,400 LF)	NA
28	Rte. F-046	from Rte. 11(Radford Rd.), east to Rte. 658(Old Baltimore Rd.) and over I-81 overpass to the TransAmerica Bike Rte.	2 miles (10,560 LF)	NA
29	Rte. 710 (Mount Olivet Rd.)	from the Town of Pulaski corporate limits, west to gate Wood Park in the Jefferson National Forest	8 miles (42,240 LF)	1,195
30	Rte. 643 (Beaufort Hollow Rd.)	from Rte. 636(Alum Spring Rd.), north to Rte. 601(unpaved route)	4.5 miles (23,760 LF)	1,750

Long Term Off Road Trail Projects

Pulaski County and the administration of the Boy Scouts of America camp located along the southeastern border of the county, are in the early stages of assessing trails and trail connectors that would link the bikeways and walkways in the county with the some of the trails in the over 16,000 acre Boy Scouts of America facility.

Pulaski County

New River Valley Bikeway/Walkway Plan



- Proposed Bicycle Lanes
- Existing Shared Road Designation
- Proposed Shared Road Designation
- Existing Shared Road and Proposed Bicycle Lane
- Proposed Multi-purpose Trail
- Existing Multi-purpose Trail
- Proposed Water Trail/Blueway
- 1 Key Numbers
- 76 The Bicentennial Bike Route

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Prepared by the New River Valley Planning District Commission, 2000.
Base Map, 1990 Pre-Census TIGER Map, Bureau of Census.

List and Description of Proposed Bikeway/Walkway Routes
Town of Dublin

Proposed Bicycle Lane Development

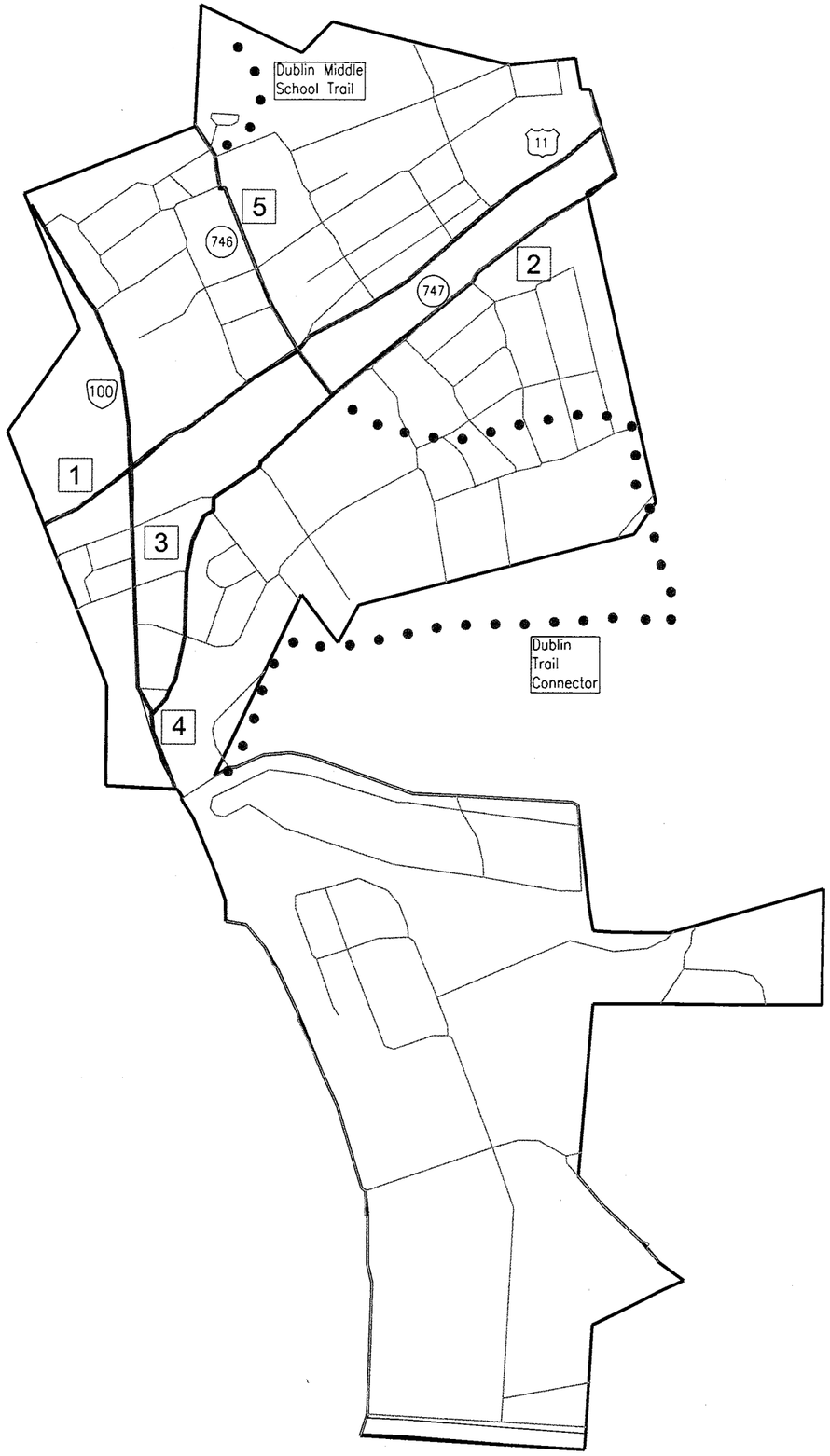
Key	Route Number	Description	Length	Daily Motor Traffic
1	Rte. 11 (Broad St.)	for its entire length within the Town of Dublin corporate limits	1 mile (5,280 LF)	21,450
2	Rte. 747 (Old HW 11)	from the Town of Dublin corporate limits, south to Route 100	.8 miles (4,224 LF)	2,988
3	Rte. 100 (Randolf Ave.)	From the Town of Dublin corporate limits, south to Route 682 (Newbern Road)	.45 miles (2,376 LF)	17,000
4	Rte. 682 (Newbern Rd.)	From Route 100, south to the Town of Dublin corporate limits	.1 miles (528 LF)	2,833
5	Rte. T-746 (Old Giles Rd.)	From the Town of Dublin corporate limits, south to Route 747 (Old Highway 11)	.5 miles (2,640 LF)	3,768

Long Term Off Road Trail Projects

Dublin Connector is to begin as an off road trail at some point south of Dublin and the Radford Army Ammunition Plant(RFAAP) entrances, along the Route 682 bicycle lane (Newbern Rd.). It will extend north along the edge of the residential area between the Dublin corporate limits and the RFAAP property, and then will access Dublin Park. This trail should continue west to the elementary school and curve north to downtown Dublin integrating with the historic district and the bicycle lanes along Routes 747 (Old Highway 11) and 746 (Old Giles Road). 4 miles.

An off road trail should begin at the Dublin Middle School and extend north toward the New River Valley Airport between the two residential neighborhoods of Painter Woods and Highland Park. 1.5 miles.

Shading denotes routes identified through public involvement processes in 1994 and 2000.



Town of DUBLIN

New River Valley Bikeway/Walkway Plan

Proposed Bicycle Lanes

Proposed Multi-purpose Trail

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Prepared by the New River Valley Planning District Commission, 2000.
Base Map, 1990 Pre-Census TIGER Map, Bureau of Census.

List and Description of Proposed Bikeway/Walkway Routes
Town of Pulaski

Proposed Bicycle Lane Development

Key	Route Number	Description	Length	Daily Motor Traffic
1	Rte. 636 (Alum Spring Road.)	From Route 11 to the Town of Pulaski corporate limits	.5 miles (2,640 LF)	3,243
2	Rte. 11 (Washington Avenue)	from the northen most corporate limit of the Town of Pulaski through downtown to the southern most limit	3.4 miles (17,952 LF)	18,900
3	Rte. 738 and Rte. 99 (Randolf Ave.)	From Commerce Avenue, north to the Town of Pulaski corporate limits	1,4 miles (7,392 LF)	4,530
4	Commerce Avenue	from the newly renovated Railroad Station, west to Randolf Avenue	.25 miles (1,320 LF)	3,182
5	Bob White Avenue (Rte. 611)	from the Town of Pulaski corporate limits, south to Route 99	.25 miles (1,320 LF)	19,520

Proposed Shared Road Designation

Key	Route Number	Description	Length	Daily Motor Traffic
6	Altoona Road	from Randolf Avenue, west to the Town of Pulaski corporate limits and Route 710 (Mt. Olivet Road)	.45 miles (2,376 LF)	2,330

Multi Purpose Trails

Motor Key	Route Number	Description	Length	Daily Traffic
7	none	from Xaloy Way west along Main St. to Walnut, then South to Peak Creek and then west to First St. Parking lot	1.8 miles	none
8	none	from railroad station east, paralleling railroad tracks to Coal Springs Park, then east along Peak Creek to existing New River Trail	2.5 miles	none

Shading denotes routes identified through public involvement processes in 1994 and 2000.

Town of PULASKI

New River Valley
Bikeway/Walkway Plan

- Proposed Bicycle Lanes
- Proposed Shared Road Designation
- Proposed Multi-purpose Trail
- Existing Multi-purpose Trail
- Proposed Multi-purpose Trail addition
- [1] Key Numbers

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Prepared by the New River Valley Planning District Commission, 2000.
Base Map, 1990 Pre-Census TIGER Map, Bureau of Census.

List and Description of Proposed Bikeway/Walkway Routes
City of Radford

Proposed Bicycle Lane Development

Key	Route Number	Description	Length	Daily Motor Traffic
1	Rock Road (Rte. 611)	from the City of Radford corporate limits, west to Route 232 (First Street)	3 miles (15,840 LF)	2,184
2	Norwood St. (Rte. 11)	from the City of Radford corporate limits, west to Tyler Avenue (Rte. 177)	3 miles (15,840 LF)	22,000
3	Fairfax Avenue	from Burlington Street through Radford University to Second Street, then south to Lawrence Street		
4	Wadsworth Street	from First Street, south to Rock Road (new routing for the 76 Bike Trail)	1.5 miles (7,920 LF)	8,180
5	Tyler Avenue (Rte. 177)	from Norwood Street, south to the City of Radford corporate limits	2 miles (10,560 LF)	12,000
6	Eighth Street	from Forest Avenue to Wildwood Trail		
7	Forest Avenue	from Rock Road to the Riverside Trail		
8	Sunset Park Trail	from McHarg Elementary School to Sunset Park		
9	Adams Street	from Fairfax Avenue across Norwood to University Drive and connecting with the Riverside Trail		

Proposed Shared Road Designation

Key	Route Number	Description	Length	Daily Motor Traffic
10	Rte. 664	from Rock Road, south to Route 787	2 miles (10,560 LF)	NA
11	First Street (Rte. 232)	from Route 605 at the City of Radford corporate limits, north to Norwood Street	4 miles (21,120 LF)	22,000

Multi-purpose Trails

12	Wildwood to McHarg Elementary School Trail	from McHarg Elementary School, along Wadsworth Street, then east alongside Sundell Drive across Second Avenue to Wildwood Park.	.75 miles (3,960 LF)	2,151
13	Wildwood Trail	from Wildwood Park to the Riverside Trail		
14	Second Avenue	from Sundell Drive, east to Lawrence Street	.5 miles (2,640 LF)	

Long Term Off Road Trail Projects

A public Riverside Trail in Radford has recently been proposed along the New River within the City limits. Trails presently exist along the river in Bisset Park and those trails are proposed to be extended to the site of Ingles Ferry and the outdoor drama "The Long Way Home" at the southern end of the City. The new trail will also extend north past Radford University and a recently designed municipal recreation center. The total length of trail along the river will be approximately 6 miles.

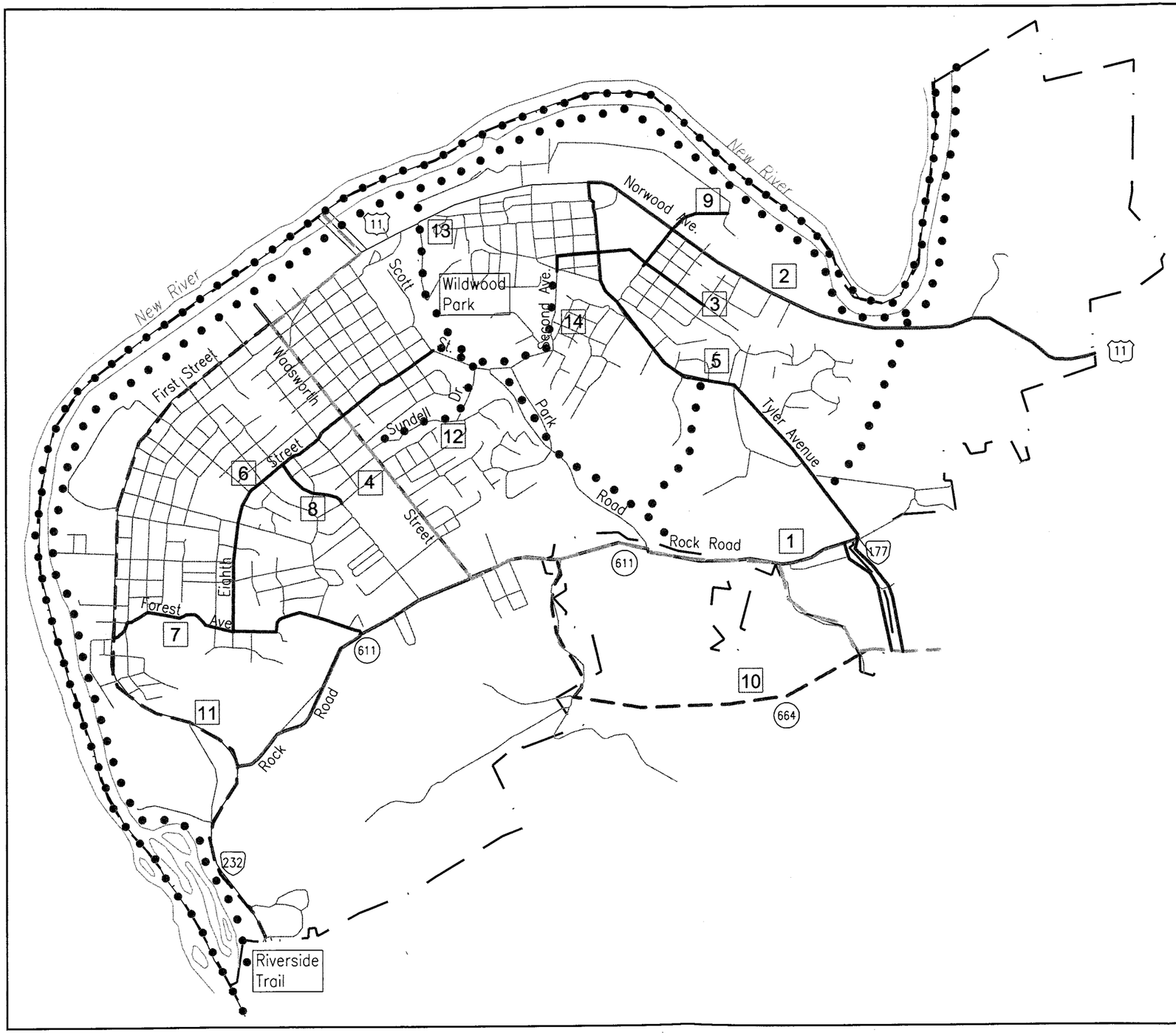
Trails will be developed within Wildwood Park in Radford and a number of short alleyways will also be added to the network of public access in the City. Total 1 mile.

The TransAmerica Bicycle Route is being re-routed in the City of Radford. The new alignment will follow Route 787 to Rock Road as in the previous route. The route will continue west along Rock Road and will proceed north on Wadsworth Street. The original route uses Route 177 (Tyler Avenue) to Norwood Street. The realignment will continue from Wadsworth Street east on First Street to the Southwest Virginia Memorial Bridge over the New River. At that point, the bicycle route meets up with the original alignment.

A trails is proposed to connect from the Wildwood Park Trail alongside Park Road to Rock Road.

A trail is proposed to connect from the Park Road Trail over to Tyler Avenue across from Haven Lane

A trail is proposed to connect from Tyler Avenue, south of Auburn Avenue over to the Riverside Trail by the bend the New River at the Radford corporate limits.



City of RADFORD

New River Valley Bikeway/Walkway Plan

- Proposed Bicycle Lanes
- Proposed Shared Road Designation
- Existing Shared Road and Proposed Bicycle Lane
- Existing Shared Road Designation
- Proposed Multi-purpose Trail
- Proposed Water Trail/Blueway
- [1] Key Numbers

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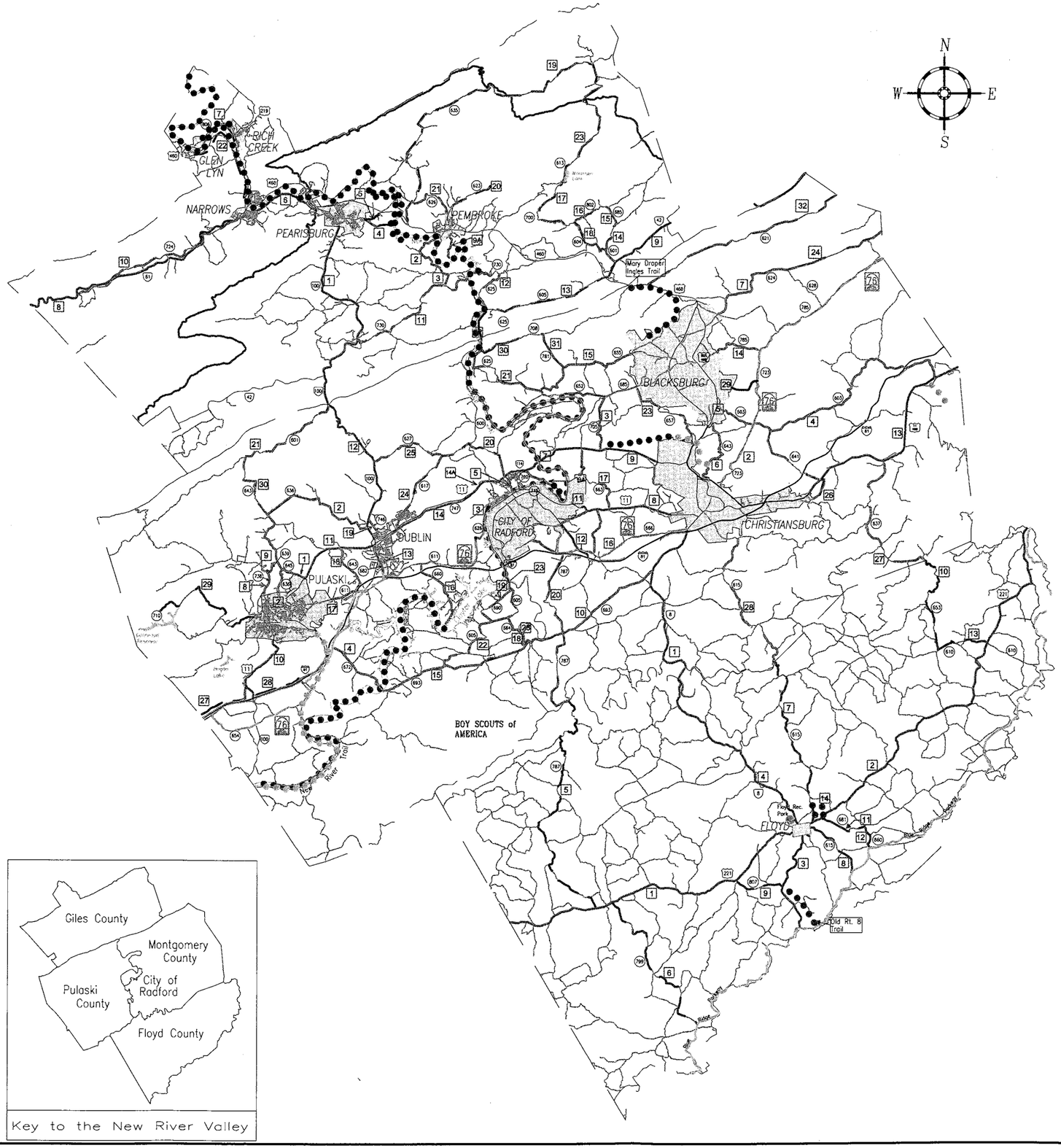
Prepared by the New River Valley Planning District Commission, 2000.
Base Map, 1990 Pre-Census TIGER Map, Bureau of Census.

Bikeways and Walkways of The New River Valley

New River Valley Bikeway/Walkway Plan



- Appalachian Trail
- Blue Ridge Parkway
- Proposed Bicycle Lanes
- Existing Shared Road Designation
- Proposed Shared Road Designation
- Existing Bicycle Lanes
- Sidewalk/Bikeway
- Existing Shared Road and Proposed Bicycle Lane
- Proposed Multi-purpose Trail
- Existing Multi-purpose Trail
- Proposed Water Trail/Blueway
- Floyd Recreational Park
- The Bicentennial Bike Route

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Prepared by the New River Valley Planning District Commission, 2000.
Base Map, 1990 Pre-Census TIGER Map, Bureau of Census.

Bikeway-Walkway-Blueway Resource Addresses

American Heritage River - New River
Patrick Woodie, Executive Director
New River Community Partners
P.O. Box 1897
Sparta, NC 28675
www.epa.gov/rivers

AASHTO
444 North Capitol Strrt NW
Washington, DC 20001
www.AASHTO.org

Bicycle Federation of America (Pro-Bike)
1818 R Street NW
Washington, DC 20009
www.bikefed.org

Bicycle Forum
P.O. Box 8308
Missoula, MT 59807
www.bicycleforum.com

Bicycle Institute of America
1818 R Street NW
Washington, DC 20009

Blacksburg Ranger District
110 Southpark Drive
Blacksburg, VA 24060

Forest Service
U.S. Department of Agriculture
Sidney R. Yates Federal Building
201 14th St. SW at Independence Ave, SW
Washington, DC 20250
www.fs.fed.us

Hampton Roads Planning District Commission
723 Woodlake Drive
Chesapeake, VA 23320
www.hrpdc.org

League of American Bicyclists
6707 Whitestone Road
Baltimore, MD 21207
www.bikeleague.org

New River Valley Bicycle Club
P.O. Box 488
Blacksburg, VA 24063-0488
www.nrvbike.com

New River Valley Planning District Commission
6580 Valley Center Drive, Box 21
Radford, VA 24141
http://civic.bev.net/pdc/index.html

Rails to Trails Conservancy
1400 16th Street
Washington, DC 20036
www.railtrails.org

The Town of Blacksburg
300 South Main Street
Blacksburg, VA 24060
www.blacksburg.va.us

U.S. Department of Transportation
Federal Highway Administration
Research and Development
Turner-Fairbank Highway Research
6300 Georgetown Pike
McLean, VA 22101-2296
www.fhwa.dot.gov

Virginia Department of Transportation
1401 East Broad Street
Richmond, VA 23219
www.vdot.state.va.us

References

For those advocating the Bikeway-Walkway-Blueway Plan or a specific project that would be part of the plan, a number of suggested readings and references are offered as resource information.

The National Bicycling and Walking Study, The U.S. Department of Transportation, Federal Highway Administration. Publication No. FHWA-PD-94-023, 1999.

Bicycling and Pedestrian Planning Under ISTEA, U.S. Department of Transportation, Federal Highway Administration. Publication No. FHWA-HI-94-028, 1995.

Greenways: A Guide to Planning and Design and Development, Loring Lab Schwarz, The Conservation Fund, 1993.

A Cost Model for Bikeways, Hampton Roads Planning District Commission, 1994.

Selecting Roadway Design Treatments to Accommodate Bicycles, U.S. Department of Transprtation, federal Highway Administration. Publication No. FHWA-RD-92-073, 1994.

Improving Local Conditions for Bicycling, John Williams, editor Bicycle Forum, The Journal of Bicycle Programs, 1989.

A Guide for the Development of New Bicycle Facilities, American Association of State Highway and Transportation Officials (AASHTO), 1991.

The Bicycle Advocates Handbook, Leagues of American Bicyclists, 1989.

Bicycle Coordinators and Programs: Why, How, What, and Who, Bicycle Federation, 1991.

How to...Succeed at Bicycle Advocacy, League of American Bicyclists, 1991.

Pro-Bike News, Monthly newsletter for bicycle professionals and advocates, Bicycle Federation.

Bicycle Forum, quarterly technical journal.

The Bicycle Reference Book, Bicycle Institute of America, 1992.

Converting Rails to Trails (A Citizens Manual), Rails to Trails Conservancy, 1993.

Town of Blacksburg Comprehensive Plan, The Town of Blacksburg, 1996.

Virginia Department of Transportation Bicycle and Pedestrian Program - Trails, www.vdot.state.va.us/info/vabiking/trails.html

American Heritage River - New River Work Plan, New River Community Partners, 1999.

Appendix 1
Blacksburg Bikeway/Walkway Plan

Bike-Walkways

Description

Purpose

Bike-walkways are a valued amenity in the Town of Blacksburg. The development and use of the bike-walkway system is an outgrowth of community interest in conservation of natural resources, exercise and outdoor recreation, and viable alternatives to vehicular transportation. The bike-walkway network increases overall quality of life in Town and serves as an economic development tool by increasing the appeal of the community and enhancing the overall transportation network. Bike-walkways are often combined with greenways to become scenic as well as functional assets to the Town.

Planning History

The community is highly committed to the development of a bike-walkway system. Bike-walkway planning efforts began in 1974 with *The Blacksburg Bicycle Trail Study* and the 1975 document entitled *The Blacksburg Bikeway System*. These two studies guided bikeway planning for the fifteen years prior to the completion of the *1989 Bikeway and Walkway Masterplan*. The Bikeway and Sidewalk Advisory Committee was created in the spring of 1988 to review the existing bikeway and sidewalk systems, identify current and future needs, and recommend changes to the Town Council. The Committee has continued to be active since the completion of the 1989 Master Plan, focusing on both the planning and construction of new bike-walkway facilities and the development of a public safety and education program. This chapter takes ideas from previous Bikeway and Walkway Master Plans, combines them with new ideas, and creates a guide for the future development of bike-walkways in Blacksburg.

Bike-Walkway Facilities

The bike-walkway network in Town consists of off road trails and on road lanes. Approximately 14 miles of roads include bike lanes, although users must share travel lanes with vehicles to reach most destinations. The off road trail system is approximately 17.8 miles in length and provides recreational and commuting opportunities. Several large neighborhoods also contain trail systems. The Town has partnered with the County, Virginia Tech, and the Town of Christiansburg to receive a grant to complete a 6 mile trail, the Huckleberry, on an abandoned rail right of way which will link the Towns. In addition, the Campus bikeway network is a community amenity used by many for recreation and commuting.

Off-Road vs. On-Road

Often in communities there is a conflict between the proponents of on-road bike lanes and the proponents of off-road bike trails. In Blacksburg, it is recognized that many citizens enjoy riding bicycles, walking, or jogging on multi-purpose trails that are separate from automobile traffic. In addition, it is recognized that many citizens enjoy riding bicycles within designated bike lanes on existing roads which are separate from vehicular traffic lanes. Therefore, the current focus is to develop a system for each purpose which occasionally provides for access between the two, without requiring switching from one system to the other.

Assets/Opportunities

- An extensive bike-walkway network has begun with the Campus Bikeway System, the University pedestrian network, and the Huckleberry Trail.
- Many residents support the provision of bike walkways and use the system for recreation, and transportation.
- Strong advocacy for planning and development of bike-walkways is provided by the Greenway/ Bikeway/ Sidewalk/ Corridor Committee.

Figure T-16, Bike-Walkway

Liabilities/Challenges

- There is a predominance of automobile use over other modes of transportation, which may be due to comfort, convenience, lack of public education, or safety concerns.
- Conflicts between bike, auto, and pedestrian safety occur where the transportation system does not incorporate multimodal uses.
- Lighting of bike-walkways is poor, limiting utility for commuting and other after dark uses.

What is Changing

Use of Bike-Walkways

The bike-walkway network is a community amenity that is used by more and more residents each year. The network is frequently extended through new neighborhoods and linked to new public facilities. The attraction of special events to the Town, such as the Tour DuPont Bicycle Race, increases interest in bike facilities and events. There are several bike rider clubs in the area that are also active promoters of the system, and provide information on safety and maintenance needs on a daily basis.

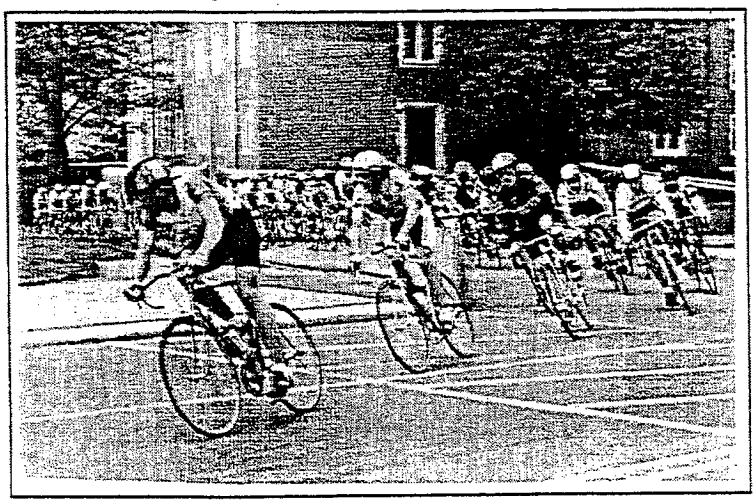


Figure T-17, Tour DuPont Bike Race

OBJECTIVES

A. Encourage citizen involvement in the development of the bike-walkway system.

B. Plan the bike-walkway system as a component of a regional system, with connections throughout the New River and Roanoke valleys and beyond, and as a world class center for bicyclists and pedestrians.

C. Plan a comprehensive bike-walkway system that links places where people live to places where people work, shop, and recreate. Identify and create a system which provides access to and from trip generators such as Virginia Tech, schools, parks, community facilities, commercial centers, points of interest, and other activity centers.

D. Construct a bike-walkway system that is sensitive to both the commuter and the recreational rider, as well as pedestrians. Develop an off-road network of trails and an on-road system of lanes which are independent, continuous, and avoid the necessity to switch from one system to the other. Develop a bike-walkway system that minimizes potential conflicts between bicycles and motor vehicles, pedestrians, and other bicycles.

E. Pursue construction of bike-walkways through public and private funding, the development process, and any other available opportunities. Consider the inclusion of bike-walkways in planning for all transportation and capital projects. Develop bike-walkways which are cost- efficient.

F. Maintain a bike-walkway system that is safe and convenient for all users. Provide all bike-walkways with riding surfaces free of obstructions and maintain all bike-walkways free of trash, gravel, snow, and other hazards.

G. Educate the general public on the importance of the bike-walkway system and its safe use. Educate cyclists, pedestrians, and motorists about safety concerns related to the use of bicycles, and encourage wide use of bike-walkways. Promote bicycling as an alternative mode of transportation.

ACTION STRATEGIES

within 5 years

Policies

- Invite periodic review of policies and ordinances governing bike-walkways by the Corridor Committee. (Obj. A)
- When residential and commercial developments are planned, seek opportunities to enlarge the bike-walkway system. Large developments should always include multipurpose trails for internal circulation and connections to the Town wide bike-walkway system. (Obj. E)
- Use creative funding sources such as "Round up for Bikeways" to expand the system. (Obj. E)
- Consider inclusion of bicycle lanes in all repaving plans for Town roads. (Obj. E)
- Include bicycle lanes and/or off-road bike-walkways when new roads are planned and constructed. (Obj. E)

- Plan bicycle and pedestrian access to all existing and proposed Town facilities. (Obj. A)
- Enforce traffic violations by cyclists and automobiles endangering cyclists. (Obj. G)
- Encourage businesses and employers to provide bicycle racks for the use of employees and customers. (Obj. F, G)

Programs

- Solicit input from cyclists and pedestrians for suggestions on future bike-walkways. (Obj. A)
- Solicit recommendations from the Corridor Committee on bike-walkway inclusion in proposed public and private development projects. (Obj. A)
- Maintain comprehensive maps of the existing and proposed bike-walkway system, updated annually. (Obj. B, C)
- Initiate opportunities to link the bike-walkway system with systems of other jurisdictions. (Obj. B)
- Review opportunities for state and federal funding of bike projects. (E)
- Solicit support and funding from local businesses and the private sector for bike-walkway projects. (Obj. E)
- Provide signage, bike-walkway markings, and other physical improvements along bike-walkways to ensure safe and easy use by bicyclists, pedestrians, and motorists. (Obj. D, E, F)
- Clear vegetation from areas surrounding trail intersections with motor vehicle travelways to increase visibility and reduce potential conflicts. (Obj. F)
- Provide regular maintenance and sweeping of existing bike trails and lanes. (Obj. F)
- Provide snow removal from key, highly traveled trails used for commuting. (Obj. D, F)
- Check all bike-walkways periodically for damage and potential safety hazards. (Obj. F)
- Provide a means for ongoing citizen input on bike-walkway safety, maintenance, and identification of potential hazards. (Obj. A, F, G)
- Design and implement a bicyclist/motorist education program. (Obj. G)
- Update the Blacksburg Bikeway and Walkway Action Program annually. (Obj. A, G)
- Create a schedule for implementation of the top priorities of the Bikeway and Walkway Action Program. (Obj. G)

Figure T-18, 1995 Bikeway & Walkway Action Program Recommendations

1995 Bikeway & Walkway Action Program Recommendations

Action Items

High Priorities	Medium Priorities
-Local Bicycle Map and Safety Brochure	-Lean for Green Markings and Education
-Safety and Public Awareness Coordinator	-Bicycle Safety Table at Local Events
-Public Service Announcements to Promote Safety	-Police on Bikes
-Bicycle Safety Education in Schools	-Update Code to Increase Bicycle Safety
-Increased Enforcement of Traffic Laws for Cyclists & Drivers Endangering Cyclists	-Improved Signage on Trails
-Bicycle Friendly Community Signage at Entrances	-Annual Cycling Event
-Acquisition of Safe Biking Educational Brochures	**Low Priorities**
	-Adopt a Spot Promotion for Cycling and Walking
	-Leave Your Car At Home Day
	-Local Bicycling Map

Other Projects

Improved Delineation of Bike Lanes*Safety Education at VA Tech *Mall Fund Raising Ride
Bike Use Promotional Campaign* Bike Safety Seminar and Violation Fines
Explore Trail Widening Alternatives *Articles on Bicycle Safety
Improve Safety of Shared Use of Trails*Bicycle Friendly Bumper Sticker *Bicycle Roadeo

Figure T-18, 1995 Bikeway & Walkway Action Program Recommendations

- Coordinate safety and education efforts with Virginia Tech to reach the large population of cyclists and motorists. (Obj. G)
- Designate a safety and public awareness coordinator from existing police personnel. (Obj. G)
- Promote safety and education in elementary, middle, and high schools. (Obj. G)
- Develop programs which encourage the use of proper safety equipment. (Obj. G)
- Provide bicycle use and safety information to the public through the media, including, but not limited to, newspaper articles, pamphlets, articles in About Town, and WTOB programming. (Obj. A G)
- Promote special events such as the Tour DuPont, community rides, and runs or walkathons. (Obj. B)

Projects

- Evaluate all proposed off road trails, through study by the Corridor Committee, and develop a map determining which side of the road the trail will follow. (Obj. C, D, E)
- Develop partnerships with Virginia Tech to upgrade and expand the bike-walkway system on campus. (Obj. E)
- Print a bike-walkway map/safety brochure that identifies existing bike-walkway routes and provides information on the safe use of bike-walkways. (Obj. G)
- Provide bicycle racks in the downtown and other major use areas to increase convenience for cyclists. (Obj. C, D)
- Construct the top five Short Term Off-Road Trail priorities. (Obj. D)
- Construct the top three Short Term On-Road Trail priorities. (Obj. D)

within 25 years

Policies

- Construct bike-walkways that are accessible to the physically challenged and meet ADA standards if topography permits and if economically feasible. (Obj. B, C)
- Encourage employers to provide incentives to employees who regularly bike or walk to work. (Obj. G)

Programs

- Develop an off-road network of trails that is continuous and interconnected. (Obj. D)
- Develop an on-road system of lanes that is continuous and interconnected. (Obj. C, D)
- Develop a bike-walkway system that meets or exceeds Virginia Department of Transportation (VDOT) and the American Association of State Highway and Transportation Officials (AASHTO) standards. (Obj. B, D, F)
- Develop existing rights-of-way where possible as extensions of the bike-walkway system. (Obj. E)

Projects

- Provide grade separated crossings to minimize conflicts with motor vehicles where appropriate, based upon traffic, use, and safety. (Obj. D, E)
- Complete construction of all Short Term Off Road Trail priorities. (Obj. C, D)
- Complete construction of all Short Term On Road Bicycle Lane priorities. (Obj. C,D)

Off-Road Trails - Short Term Priorities

#	Name	Location	Cost	Source	Target Construction Year
1	**The Huckleberry Trail**	From the end of the current trail to New River Valley Mall	$939,302	local, state, federal (ISTEA)	1996-1998
2	**Patrick Henry Drive Connector Trail**	North Main Street to Tom's Creek Rd	$73,000	local, state	1,996
3	**Hethwood Trail Extension, Section A**	Parallel to Stroubles Creek, connecting Plantation Rd and Duck Pond Dr	$135,000	local	1998/99
4	**Golf Course Loop**	Prices Fork Road Segment	$27,300	local	1997/98
5	**North Main Street Connector**	Patrick Henry Drive to Wyatt Farms	$180,000	local	2001/02
6	**Central Blacksburg Bikeway**	Campus to Harding Elementary and Rec Center/ High School	$120,120	local	To Be Determined
7	**Virginia Tech Campus Trail System**	Trails throughout campus as shown on University Master Plan	not available	local	To Be Determined
8	**North-South Connector - Southern Branch**	Parallel to Plantation Rd from Prices Fork Rd south to Huckleberry Trail	$60,000	local	To Be Determined
9	**Patrick Henry Drive Trail**	H. S. to North Main, link between Patrick Henry Trail and the Town Park and High School	$30,000	local	To Be Determined
10	**Corporate Research Center Connector**	S and W portion of Airport Loop, Southgate Dr to Ramble Rd	$170,000	local	To Be Determined

Figure T-19, Off-Road Trails - Short Term Priorities

On-Road Lanes - Short Term Priorities

#	Name	Location	Cost	Source	Target Construction Year
1	**Prices Fork Road Bicycle Lanes**	On-road lanes from Heather Drive to Town limits	$48,048	local	1999/2000
2	**University City Boulevard Bicycle Lanes**	Prices Fork Road to Tom's Creek Road	$122,620	local	2001/02
3	**Progress Street Bicycle Lanes**	Prices Fork Road to Givens Lane and North Main Street via Webb Street, Kabrich Street and Winston Avenue	$288,288	local	To Be Determined
4	**Hubbard/Southgate/Country Club**	Lanes along all portions of the new VDOT road projects	$174,720	local, state	2000/01
5	**Bishop Road Lanes**	460 Bypass to Mt. Tabor Road and North Main Street	$366,912	local	To Be Determined
6	Access Road to 2727 and 2801 South Main	South Main Street to Prosperity Drive	construct with new road	state	with 3A interchange

Figure T-20, On-Road Lanes - Short Term Priorities

beyond 25 years

Programs

- Provide snow removal from all bike-walkways used for commuting. (Obj. D, F)

Projects

- Provide appropriate lighting along all bike-walkways. (Obj. F)
- Complete construction of all Medium and Long Term Off-Road Trail priorities. (Obj. B, C, D, E)
- Complete construction of all Long Term On-Road Bicycle Lane priorities. (Obj. B, C, D, E)

Off-Road Trails - Medium Term Priorities

The following projects are intended to provide a nucleus for the system, not to describe the entire system

- **Direct Link Trail.** (Connects the Town's bike-walkway system to the Bicentennial Bikeway in the Ellett Valley within the Direct Link corridor. Eventual connections to Roanoke should be sought via the north and south forks of the Roanoke River.)
- **Hethwood Trail Extension, Section B.** (From Plantation Road along Stroubles Creek to Hethwood Trail near existing bridge)
- **Tom's Creek Greenway Trail.** (Extending the length of the proposed Tom's Creek Greenway following the floodplain with connections to developing areas)
- **Mary Draper Ingles Trail.** (From the Virginia Tech Duck pond to the Jefferson National Forest via Glade Road, Shadow Lake Road, following the Tom's Creek Greenway Trail, and to the National Forest just east of Laurel Ridge)
- **Givens Trail, Section A.** (From the Shenandoah Trail system to Givens Lane, Wyatt Farms, and Bishop Road)
- **Givens Trail, Section B.** (From the Shenandoah Loop following the abandoned Givens Lane right-of-way)
- **Stadium Trail.** (Behind Lane Stadium from Washington Street to Southgate Drive)
- **Middle School Connector.** (End of Huckleberry Trail at Draper Road Library via Middle School and Wharton Street to Harding Elementary School, Blacksburg High School, and the Recreation Center)
- **Hubbard Street Trail.** (Connects the South Main Trail with the Huckleberry Trail, thereby providing the northeastern segment of the Airport Loop)
- **Margaret Beeks Trail.** (Margaret Beeks School behind Gables Shopping Center to Hubbard Street and Cedar Run Creek)
- **Cedar Run Greenway.** (From Ellett Road at Main Street via Cedar Run to Industrial Park Dr.)

Figure T-21, Off-Road Trails - Medium Term Priorities

Off-Road Trails - Long Term Priorities

(not listed in order of priority)

- **North-South Connector - Northern Branch.** (Prices Fork Road at Plantation Road north to Brush Mountain Road)
- **South Main Trail.** (Eastern portion of the Airport Loop from Hubbard Street to Southpark Drive with a connection to Ramble Road. The section from South Hill Drive to Industrial Park Road will be designed as a widened concrete sidewalk along South Main Street.)
- **Shadow Lake Road Trail.** (Parallel to Shadow Lake Rd. from Glade Road to Meadowbrook Dr.)
- **Old Farm Road Trail.** (Meadowbrook Drive to Jefferson National Forest)
- **Nellies Cave Road Trail.** (Grissom Lane to Luster's Gate Road)
- **Municipal Golf Course Trail.** (Middle School to the Golf Course)
- **North Main Trail.** (Wyatt Farms to US 460 Bypass)
- **Corporate Research Center Loop.**
- **Ellett Road Greenway Trail.** (Follow Cedar Run and Ellett Road out of Town)
- **Commerce to Ellett Connector.** (End of Commerce Street by Blacksburg Transit to Ellett Rd.)
- **Harding to Main Connector.** (Harding Avenue to North Main Street)
- **Blacksburg Bicycle Loop.** (Loop around entire Town)
- **Stroubles Creek Greenway Trail.** (Follows the floodplain of Stroubles Creek to the west from the existing Hethwood trail to the corporate limits)
- **Old Stagecoach Road Trail.** (Follows unbuilt Roanoke Street right of way and makes a connection to Apperson Drive)

Figure T-22, Off-Road Trails - Long Term Priorities

On-Road Bicycle Lanes - Long Term Priorities

(not listed in order of priority)

The following projects are intended to provide a nucleus for the system, not to describe the entire system.

- **Happy Hollow Road Lanes.** (Mount Tabor Road to Harding Avenue)
- **Tom's Creek Road Lanes.** (US 460 to Meadowbrook Drive)
- **Meadowbrook Drive Lanes.** (Glade Road to Tom's Creek Road)
- **Harding Avenue Lanes.** (From Corporate limits to Happy Hollow Road)
- **Industrial Park Road Lanes.** (Main Street to Town Limits)
- **Glade Road Lanes.** (Boxwood Drive to Meadowbrook Drive)
- **Mount Tabor Road Lanes.** (Main Street to Town Limits)
- **Ramble Road Lanes.** (Tech Center Drive to Yellow Sulphur Road)
- **High Top Road Lanes.** (End of South Main Street at Yellow Sulphur Road to Merrimac Road)
- **Whipple Drive Lanes.** (Main Street to Givens Lane)
- **Giles Road Lanes.** (Main Street to Main Street)
- **Merrimac Road Lanes.** (Prices Fork Road to High Top Road)
- **Main Street Lanes.** (Entire length where possible and where there is no parking)
- **Broce Drive Lanes.** (University City Blvd. to Main Street)
- **Ellett Road Lanes.** (Main Street to Town Line)
- **Country Club Drive Lanes.** (Main Street to Palmer Drive and extend to the Town Pool via Graves Avenue)
- **Roanoke Street Lanes.** (Harding Avenue to Main Street)
- **Patrick Henry Drive Lanes.** (High School to Harding Avenue)
- **Clay Street Lanes.** (Main Street to Clay Street Terminus)
- **Duck Pond Drive Lanes.**
- **Drill Field Lanes.**
- **Washington Street Lanes.** (Duck Pond Drive to Kent Street)
- **West Campus Drive Lanes.** (Entire length)

Figure T-23, On-Road Bicycle Lanes - Long Term Priorities

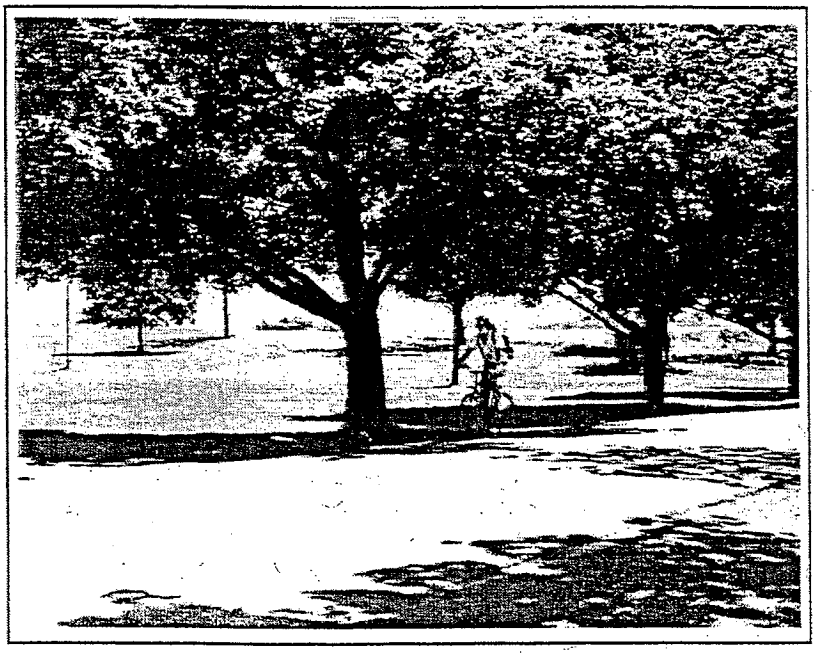


Figure T-24, Bicycle Lanes

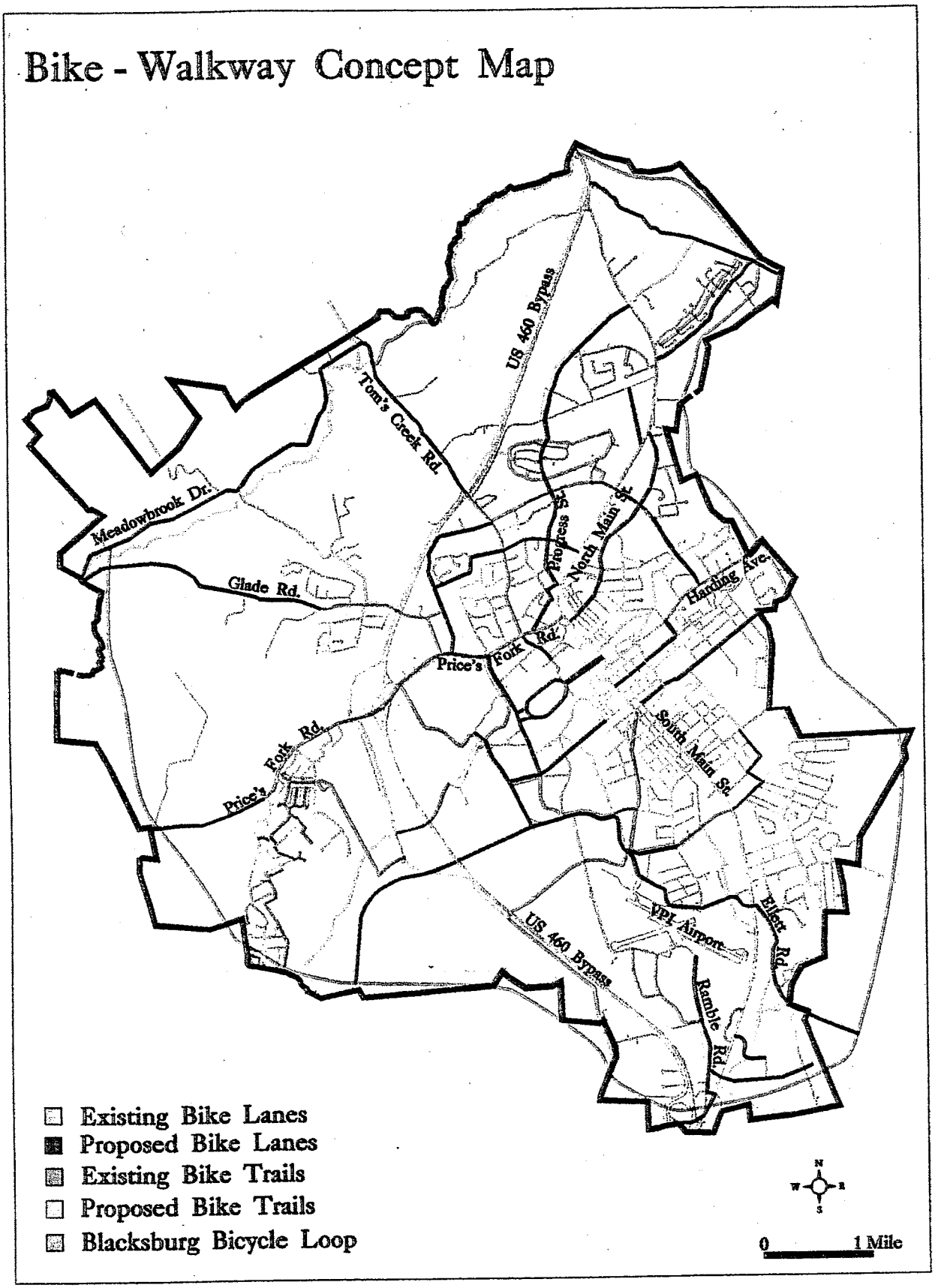
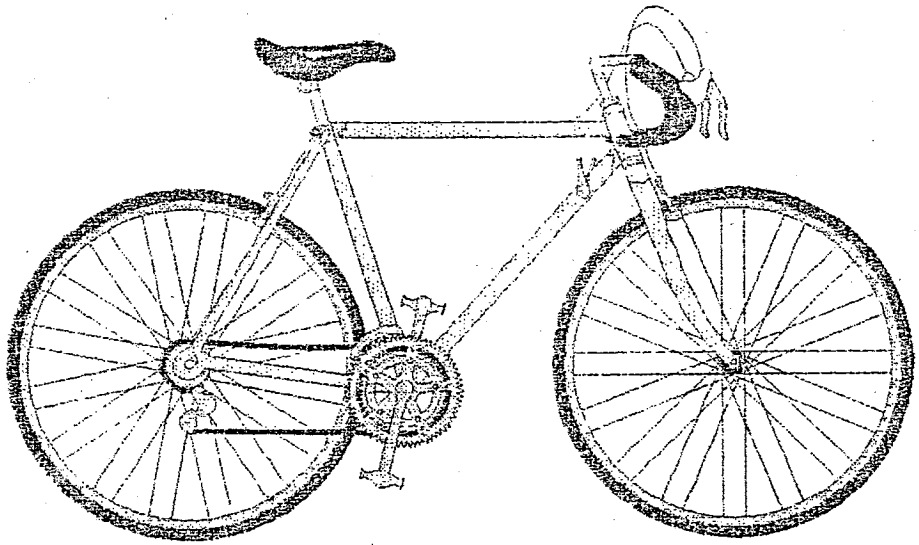


Figure T-25, Bike-Walkway Concept Map

Appendix 2
Christiansburg Bikeway/Walkway Plan

Town of Christiansburg



BIKEWAY / WALKWAY PLAN

APRIL 1995

REVISED JUNE 1996

I N D E X

Italics denotes June 1996 changes to the April 1995 Plan.

INTRODUCTION

The Town of Christiansburg Bikeway/Walkway Plan is intended to provide guidance for the continued development of recreation facilities within the Town. ***Furthermore, the development of Bikeways/Walkways will provide alternative Transportation opportunities for commuting and shopping.*** This plan also provides for access to recreation activities outside of the Town through connections to existing and proposed Bikeways/Walkways in Montgomery County.

This plan has drawn information and ideas from the New River Valley Bikeway/Walkway Plan and the 1995-2005 Town of Christiansburg Parks and Recreation Master Plan.

TOWN OF CHRISTIANSBURG

BIKEWAY/WALKWAY PLAN

Purpose: This document provides the revised plan for Bikeways/Walkways within the Town of Christiansburg.

Objectives

1. To provide for a variety of uses.

2. To promote health and welfare of those using the bikeway and walkway system. To improve the quality of life for the residents of the Town.

3. To link community and district parks within the Town *and the Montgomery County's Park and Swimming Pool.*

4. To provide access to regional bikeways and walkways.

5. *To provide access to shopping and employment.*

Each trail will not meet all the objectives, however each trail will be evaluated to strive to incorporate as many of the objectives as possible. Some examples are: Only a few trails will link parks; the Huckleberry Trail will be accessable to almost everyone while most of the TransAmerica Bicentennial bike trail is not suitable as a walkway or for wheelchairs.

People with disabilities
Physically challenged individuals should be of primary consideration in any public recreation project. It is essential to not only provide them with access but to accommodate such uses as wheelchair design standards, minimum slopes and proper outdoor furnishings. This condition has been mandated by the federal government in the 1990 Americans With Disabilities Act.

Other potential users
Additional uses such as roller skating, skate boarding and people using roller blades, may occur on the trails. It will be necessary to either plan for and structure these uses or discourage the activity in some effective manner. While signs can restrict activities to a certain degree a more tactical solution might accomplish this goal. For example; using a compacted granular surface would accommodate walking and cycling but would cause difficulty for those with smaller wheels. Unfortunately this might hinder walking with a baby stroller or add difficulty to someone in a wheelchair. It may be possible to include roller skating, skate boarding and rollerblading in some safe, creative way while at the same time maintaining the enjoyment and safety of others.

Unauthorized users
To discourage motor vehicle access along an off-road trail, a barrier is recommended accompanied by a sign that indicates what uses are not permitted. Barriers should be located at formal access points along the trail as well as unofficial connections to the trail. The barrier should provide a limited access width and clearance that prevents cars and trucks from riding onto the trail but allows those with disabilities to pass. The barrier should also be removable to allow emergency vehicles to gain access when necessary.

OBJECTIVE 2 - Promote health and welfare of those using the system.

Having a system of readily accessible trails encourages people to get out and exercise, which in turn promotes a healthier body.

OBJECTIVE 3 - Linking the community and district parks within the Town *and provide access to Montgomery County's park and swimming pool*.

The 1995 - 2005 Parks and Recreation Master Plan, Town of Christiansburg, recommends that bikeways should link all major recreation sites such as College Street, Depot Street and Wade's Lane.

OBJECTIVE 4 - Provide access to regional bikeways and walkways.

Since 1976 Christiansburg has been associated with TransAmerica Bicentennial bike trail. This bike route is now part of an elaborate cross country network that reaches all regions of the United States and passes through Town.

The New River Valley Bikeway/Walkway Plan recommends a bikeway along State Route 643 (Yellow Sulpher Road) from the Town of Blacksburg to the Town of Christiansburg and also calls for a bikeway along US Route 11 linking Radford and Roanoke County.

Also the Huckleberry Trail is being extended from Blacksburg to Peppers Ferry Road in Christiansburg.

All four of these bikeways are incorporated in this plan.

OBJECTIVE 5 - To provide access to shopping and employment.

Providing an additional safe mode of transportation to these destinations should help reduce traffic congestion and pollution.

EXPLANATION OF BIKEWAY/WALKWAY SYSTEM

The New River Valley Bikeway/Walkway Plan incorporates the use of different types of facilities. Each has certain advantages or specific purposes. The Bikeway/Walkway System for Christiansburg will have these facility types:

Shared Roads
Wide Curb Lanes
Bicycle Lanes
Paved Shoulders
Pedestrian Trails (foot trail)
Multi-purpose Trails

<u>Shared Road</u>
The TransAmerica Bicycle Trail, which passes through Christiansburg, is an example a shared road designation. Shared roads are routes that make use of existing vehicular roadways. No major improvements to the road are suggested other than the placement of signs to increase awareness of automobile drivers that the road is traveled by bicyclists. Signs also provide directional assistance to the user.

<u>Wide Curb Lanes</u>
Wide curb lanes, also called wide outside lanes, are traffic lanes that are designed substantially wider than the 12 foot standard. "Most practitioners agree that 14 feet, usually measured from the lane stripe to the edge of the gutter pan...is the minimum width necessary to allow a bicyclist and motorist to share the same lane

without coming into conflict..." (Federal Highway Administration, 1994).

Bicycle Lane

This facility is defined as a separate lane, designed and constructed into the roadway. Added pavement, special pavement markings, and signage create an adjacent bicycle domain with a preferred width of 5 feet along the existing pavement edge in each direction. The American Association of State Highway and Transportation Officials (AASHTO) suggests 5 foot lanes and recommends a minimum width of 4 feet. (AASHTO, 1991).

An important issue to consider when proposing bicycle lanes is the presence of on-street parking. Given this situation, a bicycle lane should be positioned between the traffic lane and the parallel parking spaces. The bicycle lane should be a minimum of 5 feet wide. Both sides of the bike lane should be marked with a stripe. Signage should alert cyclists and motor vehicle operators of the situation. Bike lanes should not be routed where angled parking occurs.

Paved Shoulders

Shoulders exist as a portion of highway right-of-way adjacent to the outside traffic lane. They accommodate stopped vehicles for emergency use and also perform pavement structural functions. A Virginia Department of Transportation Memorandum states that

"...AASHTO and many States explicitly recognize that adding or improving shoulders is often the best way to accommodate bicycles-especially in rural areas." (VDOT, 1992)

As VDOT establishes a policy of paving shoulders along the primary highways in the State of Virginia, the Christiansburg Bikeway/Walkway Plan encourages this practice.

Independent Trails

This is a separate path used exclusively for non-motorized transportation and may run within the right-of-way of an existing road or have its own independent right-of-way. The Huckleberry Trail is a good example of this. Construction costs and land acquisition costs for this kind of trail are high.

Pedestrian Trails (hiking trails, foot trails)

Joggers, runners, and those taking walks would have complete access to independent trails as described above. These independent trails are created as Multi-purpose recreational, linear parks and common pedestrian uses appear to be compatible with most if not all leisurely recreational cycling. It would be unreasonable however, to expect pedestrians to walk along shared roads or even in bicycle lanes. This is not to say that joggers or runners would not use these routes at their own discretion. This plan will incorporate the existing sidewalks and trails into the walking system.

Foot trails and hiking trails are paths that would be used exclusively by pedestrians and are not designed with proper clearances or surfaces for a bicycle. The terrain might also be prohibitive to "normal" bicycle use but attractive for mountain biking. Trail restrictions must be more explicitly posted to assure that improper uses do not occur. This plan does not address mountain biking trails or hiking trails.

DESIGN RECOMMENDATIONS

The minimum width of any path or lane should be 4 feet. The anticipation of heavy traffic and a wide variety of expected use may require additional widths greater than four feet. Frequent two-directional bicycle traffic will warrant a minimum width of 8 feet. High levels of motor vehicle traffic at speeds greater than 35 m.p.h. will also necessitate wider bike lanes along the roadside.

Grades steeper than five percent should be avoided for any recreational path other than a hiking trail. Grades exceeding five percent should have no more than a 500 foot length and should provide a wider trail cross-section. Grades in excess of three percent may be inappropriate for crushed stone surfaces. A cross-slope (super elevation) should be designed and constructed at a two-percent grade.

Pavement markings might occur along routes being used by bicycles and in all likelihood, a bicycle lane. Often striping and large message stencil markings get painted directly on pavement surfaces, indicating to cyclists, as well as automobile drivers, that a designated bike lane exists. Many times the painted surface becomes slick and hazardous when wet. To ensure safety, more skid resistant materials are available and should be specified. Edge lines and center lines can help direct two-way traffic, particularly at points with limited sight distance.

Signage is an important aspect of the Bikeway/Walkway System, particularly for shared-road bicycle routes. This provides motorists with advanced notice that they might encounter a cyclist on the road. Bike route signs also provide directional information to the user, indicating how the route continues from busy intersections. Signs can function as warnings or regulatory devices. Other signs might be interpretive. Special signage might include the name of a particular trail with possibly some historical significance, such as the Huckleberry Trail. Signage is important in keeping non-intended motor vehicle users from entering the off-road path system. A physical barrier is often used in restricting unauthorized uses.

It is important to supplement a bikeway plan with strategically located bicycle parking facilities. Two kinds of bicycle parking

Town of Christiansburg

DESCRIPTION OF BIKEWAY ROUTES

REVISED 1 FEBRUARY 1995, MARCH 1995

Listed in priority order within each type of Bikeway

Proposed Bicycle Lane Development

Peppers Ferry Road from east corporate limits to west corporate limits.

— Radford Street, entire length *(Temporary Paved shoulders, completed June 1996)*

— Roanoke Street from Falling Branch Road east to corporate limits. *(Temporary Paved shoulders)*

College Street and Mud Pike Road, entire length.

Depot Street from N. Franklin to Roanoke Street.

Ellett Road from Cambria Street north to the Corporate Limits.

East and West Main Street (between motor vehicle traffic and parallel parking) from Roanoke Street west to Radford Street.

Wide Curb Lanes

* N. Franklin Street from Independence Boulevard to Depot Street.

Cambria Street from Depot Street to Tyler Street.

* Roanoke Street from Reading Road east to Falling Branch Road.

Depot Street from W. Main Street east to N. Franklin Street.

Shared Road Designation

* Mill Lane, entire length.

* Reading Road, *Roanoke St. to Kiwanis Park*

* Park Street, entire length.

Connect the Huckleberry Trail to N. Franklin Street by routing along Ridinger Street, future streets in undeveloped areas and then along Independence Boulevard.

* Pepper Street from E. Main Street south to Franklin Street.

* Denotes completed sections as of June 1996

* Cambria Street from Tyler Street to Windmill Ridge Road

* Maple Drive, entire length.

* Aspen Street, entire length.

* Wades Lane from Betty Drive to Wades Lane Park.

* Sara Street from N. Franklin to Betty Drive.

* Betty Drive from Depot Street north to Sara Street.

* East Main Street from Roanoke Street, east to Depot Street.

* Yellow Sulpher Road from Cambria Street northeast to the corporate limits.

* First Street from Pepper Street, west to Phlegar Street.

* Diamond Avenue, entire length.

* Phlegar Street from West Main to First Street.

** Arbor Drive from Peppers Ferry Rd. to Ponderosa Drive.*

Ponderosa Drive to Easement connecting to Pear St.

** Pear Street, entire length.*

* Franklin Street from Depot Street, south to the Town of Christiansburg corporate limits.

* The TransAmerican Bicentennial bike trail is also an existing shared road bikeway passing through Town. This includes the following sections:

Mud Pike
College from Mud Pike to Radford Street
Radford Street from College to W. Main Street
Main Street from Radford Street to Depot Street
Depot Street from E. Main to Cambria Street
Cambria Street from Depot Street to Ellett Road
Ellett Road from Cambria Street east to Corporate limits

Off-Road Trail Projects

Huckleberry Trail paralleling the Railroad Right of Way.

From Aspen Street to Falling Branch Elementary School.

Possible Bikeways

Bicycle Routes which may be possible depending on future development.

Tower Road to Falling Branch School

Walnut Drive, then thru new development to Morning Star Lane to Cambria Street.

Connection from Diamond Avenue then thru new development to Tranquility Via to Independence Boulevard.

Somerset Street to Majestic Drive then thru new development to Chrisman Mill Road.

Roanoke Street from East Main Street to Reading Road if the roadway is widened.

Connection from the Huckleberry Trail to Montgomery County's park and swimming pool, thru new developments.

Walkway System

Walkways:

Depot Street Park
Kiwanis Park
Huckleberry Trail *(Proposed)*

Existing Sidewalk System

Cambria Street from Depot Street north to Tyler Street.

N. Franklin Street from Main Street north to Independence Boulevard.

Depot Street from N. Franklin northeast to North Drive

Sheltman Street

College Street from Depot Street west to Radford Street.

Radford Street from W. Main Street to Bower Street.

West Main Street from Franklin Street to Cherry Lane.

S. Franklin Street from Main Street to Pepper Street.

Pepper Street from Main Street to First Street.

Roanoke Street from Main Street to Haymaker Street.

Phlegar Street from Main Street to Second Street.

Hickok Street from College Street to Second Street.

Dunkley Street

East Main from Franklin east to High Street.

King Street from Church Street to Murray Street.

Proposed Sidewalks

Depot Street from W. Main Street east to N. Franklin Street. *(scheduled completion Dec. 1996)*

Chinquapin Trail from Roanoke Street south to Imperial Street.

Imperial Street

Reading Road from Imperial Street to Kiwanis Park.

Pepper Street from First Street to S. Franklin Street.

Depot Street from North Drive northeast to Cambria Street.

Peppers Ferry Road

IMPLEMENTATION RECOMMENDATIONS

Implementation of this plan requires the combined effort of the Town Council, the Town staff, the Parks and Recreation Department, VDOT, Friends of the Huckleberry, PATH (People Advocating the Huckleberry), The County of Montgomery, The Town of Blacksburg, developers and landowners.

After the Town Council adopts a plan then the first priority should be to provide VDOT with a copy. This will allow the incorporation of the plan into future urban thoroughfare projects.

We should also continue to participate with the Huckleberry Trail Engineering Committee and coordinate with the other entities involved in the project. The design and upgrades of the Wade's Lane Park, the Depot Street Park, the College Street Park and the Kiwanis Park should all provide for connections to the Bikeway/Walkway System.

The TransAmerican Bicentennial Bike Trail should be re-routed once Depot Street is re-constructed between N. Franklin Street and Cambria Street. The new route will be:

Mud Pike
College Street from Mud Pike to Depot Street
Depot Street from College Street to Cambria Street
Cambria Street from Depot Street to Ellett Road
Ellett Road from Cambria Street east to Corporate limits

This routing will eliminate the very steep section of E. Main Street and provide a safer travel way.

Signage should be planned and installed along shared road trails. At this time the public should be informed of the routes, stressing safety since both motor vehicles and bicycles will be using the same travelway.

Several of the proposed bike lane designated routes can be shared routes until funds are available to provide these lanes.

As streets are resurfaced, where right of ways allow, the travelway should be widened 4' to 5' to provide a bikeway on the designated routes.

Developers shall be encouraged to provide areas for bikeways and walkways to allow connections between existing and proposed routes.

This plan should be reviewed and updated every 3 to 5 years.

MONTGOMERY COUNTY

BIKEWAY/WALKWAY PLAN

Adopted on August 27, 1990

Prepared by the Montgomery County Planning Department

TABLE OF CONTENTS

AT AN ADJOURNED MEETING OF THE BOARD OF SUPERVISORS OF MONTGOMERY COUNTY, VIRGINIA HELD ON THE 27TH DAY OF AUGUST, 1990 AT 7:00 P.M. IN THE BOARD CHAMBERS, COUNTY COURTHOUSE, CHRISTIANSBURG, VIRGINIA:

On a motion by James M. Moore, seconded by George A. Gray and carried,

WHEREAS, The Board of Supervisors and County Planning Commission have conducted an appropriate review and public hearing on a revision to the Montgomery County Comprehensive Plan.

NOW, THEREFORE, BE IT RESOLVED, By the Board of Supervisors of Montgomery County, Virginia, that pursuant to the provisions of Article 4 of Chapter 11 of Title 15.1 of the Code of Virginia, 1950, as amended, the 1990 Comprehensive Plan for Montgomery County, Virginia, is hereby approved and adopted as presented and amended, there by appealing all previous comprehensive plans.

The vote on the foregoing resolution was as follows:

AYE	NAY
Ira D. Long	Todd N. Solberg
James M. Moore	
George A. Gray	
Henry F. Jablonski	
Joe C. Stewart	
Ann L. Hess	

ATTEST: _____
COUNTY ADMINISTRATOR

I. Purpose

This plan was written to serve as a guide to the Montgomery County Board of Supervisors in the development of county biking/walking routes. Due to unsafe conditions, many routes discussed in this plan are currently not designated as routes. It is anticipated that this plan will encourage the funding of lanes and trails where they are needed.

II. History

In previous years, bike planning for Montgomery County has been on a limited basis. While Montgomery County was included in a 1975 regional bike plan prepared by the New River Valley Planning District Commission, the county itself did not initiate bike planning until 1989.

In 1976, for the nation's bicentennial, the TransAmerican Bike Trail was developed. Montgomery County was fortunate to have part of this prominent route running from the northeast to the southwest of the county. This was the first designated bike route in the unincorporated part of Montgomery County.

In 1989 the Montgomery County Board of Supervisors approved the funding of 3.9 miles of bike lanes along Lusters Gate Road (St Rte 723) to be completed when the road is widened and improved by the Virginia Department of Transportation. Following the approval of this project, the Board requested that a county-wide bike plan be prepared as part of the revision of the Comprehensive Plan.

III. Justification

There are numerous reasons to justify the writing of a county bikeway/walkway plan. With a growing emphasis on fitness and health, more and more people have begun exercising regularly (According to a survey, the Bicycle Federation has estimated that in 1984 more then 75 million Americans rode bicycles and 1.6 million commuted to work by bicycle). Montgomery County, with its natural beauty and rural character provides an almost ideal location for bicyclists. Due to the county's growing population and increased commercial growth however, many citizens are finding that some roads have become too dangerous from increased traffic. While recreational bicycling can easily be accommodated in the rural portions of the county, residents who are interested in safely traveling between Blacksburg, Christiansburg or Radford by bike or foot discover that this is no longer possible. A good bicycle/pedestrian plan works to encourage the development of lanes and trails where they are needed to provide safe routes for non-motorized travel.

While providing safe routes is one of the most important goals of a bikeway/walkway plan, there are also several other reasons. The encouragement of commuting to work by bicycle reduces traffic along overcrowded roads, reduces air and noise pollution and helps save natural resources. A plan can foster cooperation with other localities by extending existing town routes into the county and can encourage economic development by promoting regional bike "rides". And lastly, a major purpose of a bike plan is to save county money. By encouraging lanes and trails only where they are needed and by taking into account alternative funding sources, a bike plan guides decision makers in the efficient funding and development of biking/walking routes.

IV. Process

In April 1989, the Montgomery County Board of Supervisors passed a resolution requesting that a bike plan be written as part of the revision of the Comprehensive Plan. A committee of county citizens and representatives from related groups was formed and began meeting in September 1989.

Any interested citizen was welcome to participate in this group. Some active members included representatives from: the Town of Christiansburg, the Blacksburg Bikeway/Walkway Committee, the Virginia Tech Civil Engineering Society, and the Montgomery County Parks and Recreation Commission. The committee met approximately twice a month for several months developing the county bike map. The plan was written with a ten year time span but it was recommended that it be reviewed every five years.

The plan was also written with a regional perspective. Recommendations from the Blacksburg plan were included and several routes designated in Montgomery County could easily be extended into neighboring counties. Input was also received from the Mountain Valleys Bike Path Committee which is studying a bike link between Roanoke's Explore Project and Montgomery County.

To publicize the plan and to receive citizen input, the Bikeway/Walkway Draft Map was presented and discussed at four county comprehensive plan citizen meetings held in February of 1990. During these meetings comments were received on the plan and were brought back to the full committee for review.

V. Goals

This plan seeks:

1. To encourage a lesser dependency on cars as a form of transportation and to increase bicycle use as a mode of transportation.

2. To help preserve the natural and scenic environment of the county.

3. To take full advantage of all available grant money.

4. To provide safe connecting routes between Blacksburg, Christiansburg and other localities.

5. To help educate the public on safe bicycling practices and on courtesy among drivers, cyclists and pedestrians.

6. To help promote coordination and cooperation among local governments.

7. To expand the county's recreational facilities by providing on and off road hiking and biking trails.

8. To provide safe biking/walking lanes where they are appropriate such as to schools, population centers, or parks.

VI. Funding Sources

In developing and prioritizing proposed bike routes, the Bikeway/Walkway Committee carefully considered the costs involved. It was felt that if the plan's recommendations were expensive, they would not be funded. Therefore, many of the proposed routes are designated as "shared roads". For these routes, the committee felt that the current road was safe for cyclists and that it should only be marked with signs to designate the road as a bike route (the state would possibly fund these signs).

Other proposed routes were designated as either "lanes" or "trails". All roads recommended for lanes were coordinated with the Virginia Department of Transportation's Six-Year Road Plan with the intention that bike lanes would be constructed when regular road improvements occurred. This is the most cost effective way to fund bike lanes and can be done incrementally as roads are improved. It is estimated that lanes developed independent of VDOT road improvements cost approximately twice as much as projects completed when road improvements occur.

The funding of trails (off road routes) were only recommended where lanes were not feasible. These routes were only proposed near existing or future parks so that state grants would apply. The following grants apply to bikeways/walkways:

Type of Grant	Source	Program Description	Qualifying Route
VA Outdoors Grant	Dept of Conservation & Recreation	50% grants for parks involving water and/or projects with a county-wide focus	Huckleberry Trail (promote as a linear park)
Recreational Access Roads	Dept of Conservation & Recreation	Funds to construct maintain, & improve access roads & bike trails in historical or recreational areas	Huckleberry Trail, 114 Trail to proposed New River Park, connector Trail from Huckleberry to Mid-County Park
VA's Orphaned Land Program	Dept of Mines, Minerals, & Energy	For reclamation of land which is hazardous or an attractive nuisance due to surface mining	Huckleberry Trail in the Merrimac area

VII. Development of Routes

The following factors for bikeway/walkway routes were considered:

Population Centers

According to the Center for Public Service Montgomery County is the fastest growing locality in Southwest Virginia. Between 1980 and 1988, Montgomery County grew by 3,715 people while Roanoke County's population increased by only 2,555 people. A population increase also results in an increase of new housing units, subdivisions, mobile home parks and services needed to accommodate the population. Traffic also increases and roads become dangerous for non-motorized travel.

To serve this increasing population, county growth areas were identified as locations that should be served by biking/walking routes. These locations have experienced an increase in housing through subdivisions, mobile home parks or by a large number of single family homes. Areas considered to be "growth centers" included: Bethel, Ellett Valley, Elliston/Lafayette, Ironto, Laurel Ridge, Mt. Tabor Road, Plum Creek, Preston Forest, Prices Fork, Riner, and Shawsville.

Commuter Links

Montgomery County currently has two major commuter links between Blacksburg, Christiansburg, and Radford. US Route 460 between Blacksburg and Christiansburg is the most direct route for travel between these two towns. This strip of road also provides access to the New River Valley Mall, the Market Place Shopping Center, Mid-County Park, and various other businesses. Route 114 between Christiansburg and the Montgomery County line has also experienced development and growth. This road serves subdivisions, mobile home parks, one elementary school and a growing number of businesses. This road also serves as a direct link between Christiansburg and Radford.

Both of these roads suffer from a lack of good shoulders, high-speeding cars, and congestion. These dangerous conditions make these popular roads inaccessible to walkers and bikers.

Parks

Recreational facilities should be easily accessible by foot or bicycle. Existing parks addressed in this study included: Mid-County Park located off US Route 460, Plum Creek Park located off of Radford Rd (Rt 11), the '76 Bikeway, McCoy Falls, Pandapas Pond, and the nearby Blue Ridge Parkway. Proposed Parks considered in this study included: New River Park located at Peppers Ferry on Route 114 and Little River Park in the southwestern portion of the county.

Other

Recommendations from the Blacksburg Bikeway/Walkway Plan were considered and where appropriate included into the county plan. Popular, scenic biking routes throughout the county were also evaluated and considered for inclusion in the plan.

VIII. Definitions

Trail: A separate path which is for the exclusive use of non-motorized vehicles. It usually contains a separate right-of-way from those facilities used by other modes of transportation. The path should have a minimum width of five feet and should be paved. (Example: Huckleberry Trail in Blacksburg)

Lane: A portion of the roadway that has been designated for the exclusive use of bicycle travel with a minimum width of four feet. (Example: bike lanes in Blacksburg)

Shared Road: This is a bike path that shares the right-of-way with motor vehicles, or where a bicycle path is not designated except by signs. (Example: current '76 bike path)

#1 Project: Refers to the abandoned Huckleberry railroad bed. Due to the ideal location of this route (paralleling Rt 460 between Blacksburg and Christiansburg) and since most of the route is owned by the county, this is recommended to be cleared and paved as a trail. This project is also the #1 recommendation of the Blacksburg Bike Plan.

High Priority: A project that is recommended to be completed within the next one to five years.

Medium Priority: A project that is recommended to be completed within the next five to nine years.

Future Route: A project that is recommended to be completed beyond ten years.

IX. Summary of Routes

St. Rt/Name	Designation	Priority	Justification
Huckleberry Line	Trail	#1 Project	Co. owned right-of-way, good commuter route, also #1 B'Burg project
M'County Park Park Connections	Lane/Trail	High	Link M'County Park to B'Burg, C'Burg and Huckleberry Trail
Lusters Gate Road (Rte 723 to Rte 603)	Lane	High	'76 Bike Route, VDOT 6-Year Plan: August 1990, & serve growing area of county
Prices Fork Road (Rte 685)	Lane	High	VDOT 6-Year Plan: June 1991, & link from B'Burg to Coal Hollow Road
Coal Hollow Road (Rte 705)	Lane	High	VDOT 6-Year Plan: December 1994 & link from Prices Fork Rd to Pepers Ferry Road
North Fork Road (Rte 603)	?	Medium	VDOT 6-Year Plan: ? scenic popular biking route, waiting on road recommendation
Yellow Sulphur Road (Rte 643)	Lane	Medium	VDOT 6-Year Plan: November 1996 & link between B'Burg & C'Burg

St Rt/Name	Designation	Priority	Justification
Ellett Road (Rte 723 from Rte 603 to	Lane	Medium	VDOT 6-Year Plan: January 1997 & link between B'Burg & C'Burg
Mt. Tabor Road (Rte 624 to Rte 628)	Lane	Medium	VDOT 6-Year Plan: January 1999, Scenic & Popular Bike Route
Peppers Ferry Road (Rte 114)	Trail	Medium	Link from Coal Hollow Road to proposed New River Park, traffic conditions require off-road trail

Shared Roads

Due to low traffic counts and the rural nature of these roads, the following have been recommended as shared roads (map is included with plan):

- Alleghany Spring Road (St Rte 637)
- Big Falls Road (St Rte 625)
- Bradshaw Road (St Rte 629)
- Catawba Road (St Rte 809)
- Childress Road (St Rte 693)
- Dry Run Road (St Rte 787)
- Fairview Church Road (St Rte 669)
- Fire Tower Road (St Rte 600)
- Glade Road (St Rte 655)
- Graysontown Road (St Rte 693)
- High Rock Hill Road (St Rte 612)
- Indian Valley Road (St Rte 787)
- Lick Run Road (St Rte 781)
- Lovely Mount Drive (St Rte 664)
- McCoy Road (St Rte 652)
- Merrimac Road (St Rte 657)
- Mt. Tabor Road (St Rte 624) to Dry Run Road (State Route 628)
- Mt. Zion Road (St Rte 655)
- Mud Pike (St Rte 666)
- Norris Run Road (St Rte 708)
- North Fork Road (St Rte 603)
- Old Pike Road (St Rte 615)
- Pilot Road (St Rte 615)
- Piney Woods Road (St Rte 600)
- Riner Road (St Rte 8)
- Roanoke Road (US Rte 11/460)
- Tyler Road (St Rte 177)
- Union Valley Road (St Rte 669)
- Walton Road (St Rte 663)
- Wintergreen Drive (St Rte 787)

Future Routes

The following routes are listed in the plan as future routes. They are to be completed beyond a 10 year time frame. (Map is included with plan)

St Rte/Name	Designation	Priority	Justification
Pandapas Pond Road (US 460)	Trail	Future	Recommendation in B'Burg Plan, serve Pandapas Pond
Craig Creek Road (Rte 621)	Lane	Future	Serve Northern portion of county including the Jefferson National Forest
Thomas Lane (Rte 737)	Lane	Future	VDOT 6-Year Plan: 1999, serve growing subdivisions & link to Prices Fork Road
Pilot Road (Rte 615)	Lane	Future	Pave with lanes as road is widened to link C'Burg to designated shared roadway
Nellies Cave Road (Rte 681)	Lane	Future	Pave with lanes when road is paved. Provides a direct link from Ellett Valley to Blacksburg.

X. Detailed Description of Routes

The following list of routes are addressed in detail in this plan. It is recommended that these routes be funded as Virginia Department of Transportation (VDOT) road improvements occur. Proposed lanes should be constructed to VDOT standards. While specific costs have not been addressed in this plan it is estimated that one mile of paved lanes would cost $30,000 if completed when road improvements occur. This figure would increase to approximately $50,000 per mile if completed independent of VDOT improvements.

1. Huckleberry Trail
2. Ellett Valley Route #1
3. Prices Fork Route
4. Prices Fork/Peppers Ferry Connector
5. Huckleberry Trail/Mid-County Connector
6. North Fork Route
7. Yellow Sulphur Route
8. Ellett Valley Route #2
9. Mt. Tabor Route
10. Peppers Ferry Trail

Route Name: Huckleberry Trail

Priority: #1 Project

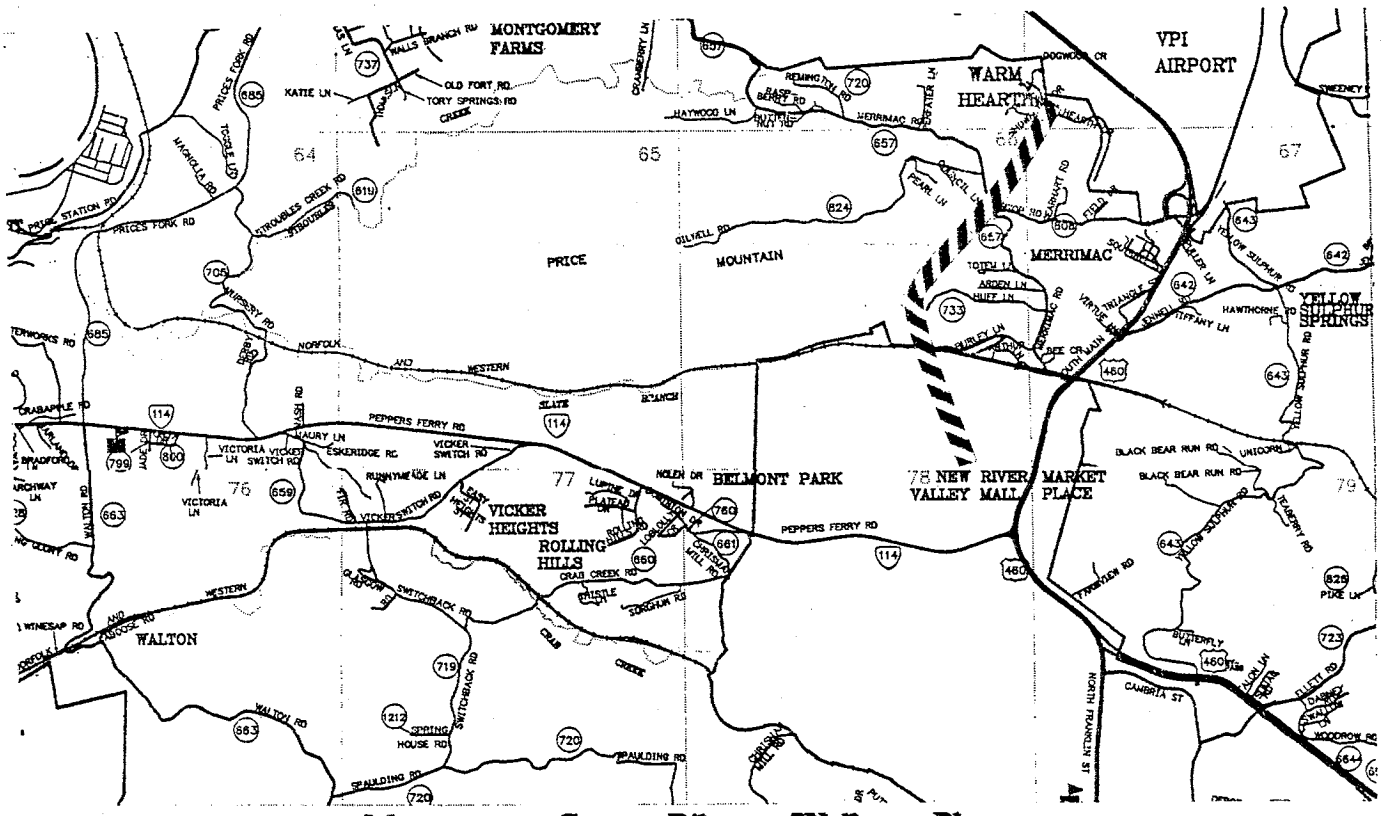
Designation: Trail

Description: Beginning near the entrance to Warm Hearth Retirement Village, and extending to the corporate limits of Christiansburg, this project would convert the county-owned, abandoned Norfolk and Western railroad line to an off-road trail.

Funding Source: If promoted as a linear park, this trail would qualify for Virginia Outdoors Grant funding. Since the land is currently owned by the county, land acquisition is unnecessary, making this project economically feasible. Various civic organizations have also volunteered their services to help clear the right-of-way.

Traffic Counts: 32,925 along South Main Street (US Rte 460, 1988 figures).

Justification: The Huckleberry Trail is a historic, abandoned railroad right-of-way that originally extended between Blacksburg and Christiansburg. This trail would follow the old railroad line and would create a linear park parallel to US 460. The route would serve as a commuter link between Blacksburg and Christiansburg and would provide access to Mid-County Park (see page 18 for connecting route description). While the county's portion of this route would end at the town limits of Christiansburg, it is recommended that Christiansburg investigate continuing this trail to the New River Valley Mall. The Blacksburg Bikeway Plan also ranks this project as #1 and recommends that it be extended from Blacksburg to the county.



Route Name: Montgomery County Park Connections

Priority: High

Designation: Paved Lanes, Trails

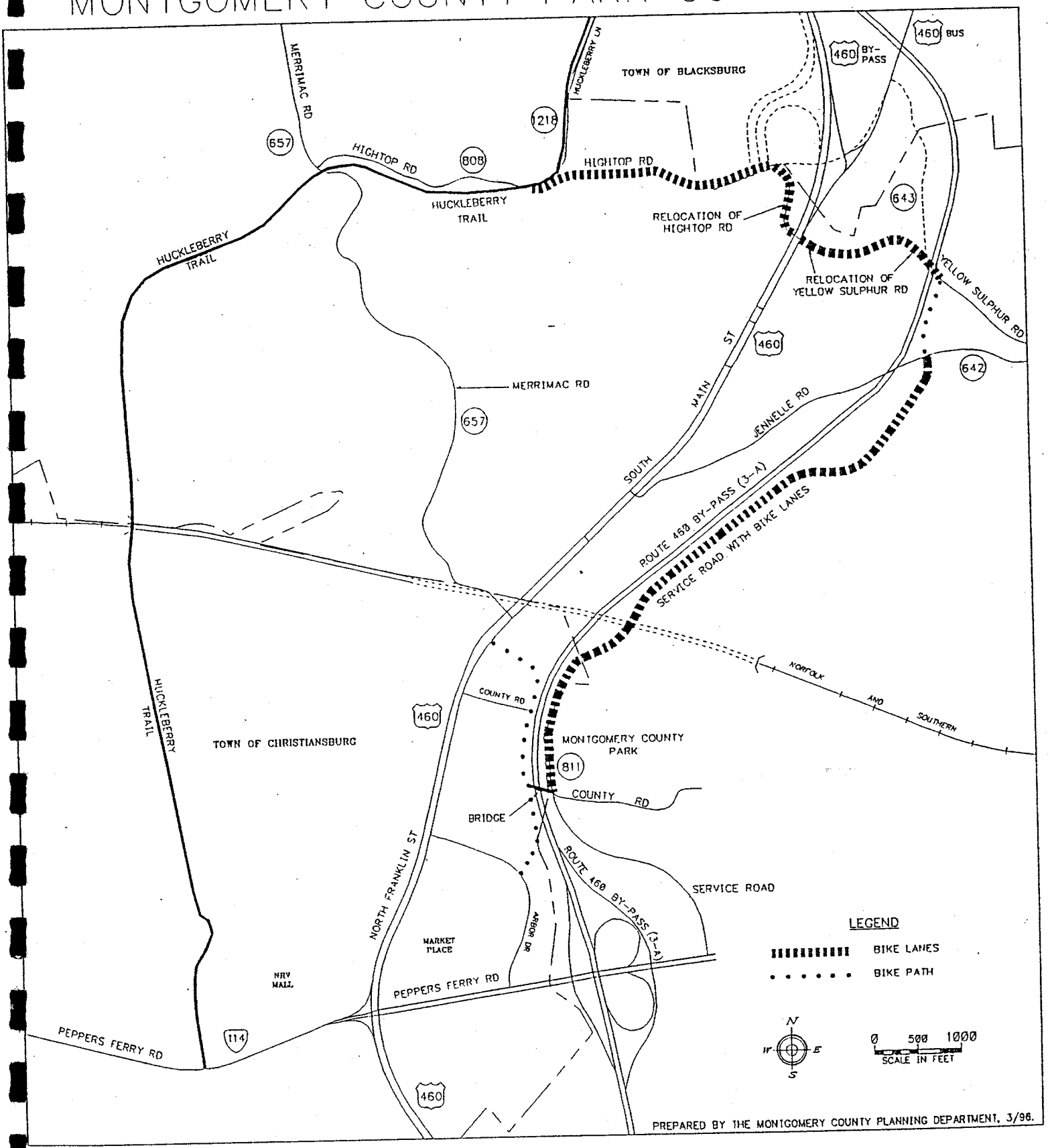
Description: This system of bike lanes and trails will provide bicycle/pedestrian access to the Montgomery County Park from Blacksburg, Christiansburg, and the Huckleberry Trail. This system consists of several segments (listed below) that will be incorporated into the design and construction of the future Route 460 Bypass (Route 3A). Refer to the map on the opposite side of this page.

- Bike lanes along the 3A Service Road from the entrance to the Montgomery County Park north to Jennelle Road;
- Bike lanes along the revised alignments of Yellow Sulphur and Hightop Roads;
- A bike trail on VDOT right-of-way to connect the bike lanes on the service road (above) and those on the realigned portion of Yellow Sulphur Road;
- A bikeway/walkway bridge across Route 3A;
- A bikeway/walkway connection between the bridge over Route 3A and Route 460 via Pear Street (bike lanes), an existing public right-of-way (trail), and a strip of land owned by Montgomery County (trail);
- A bike trail between the bridge over Route 3A and Arbor Drive;
- Bike lanes along Hightop Road from the realigned portion to the intersection with the Huckleberry Trail.

Funding Sources: All but the last segment will be incorporated into the construction cost for Route 3A. The bike lanes along Hightop Road from the realigned portion to the Huckleberry Trail will be funded through VDOT's Recreational Access program.

Justification: Without these facilities, access to the park by bicycle or foot travel will be very difficult and potentially dangerous. This system will also provide a bicycle route from Blacksburg to the Marketplace shopping area.

MONTGOMERY COUNTY PARK CONNECTIONS



Route Name: Ellett Valley #1

Priority: High

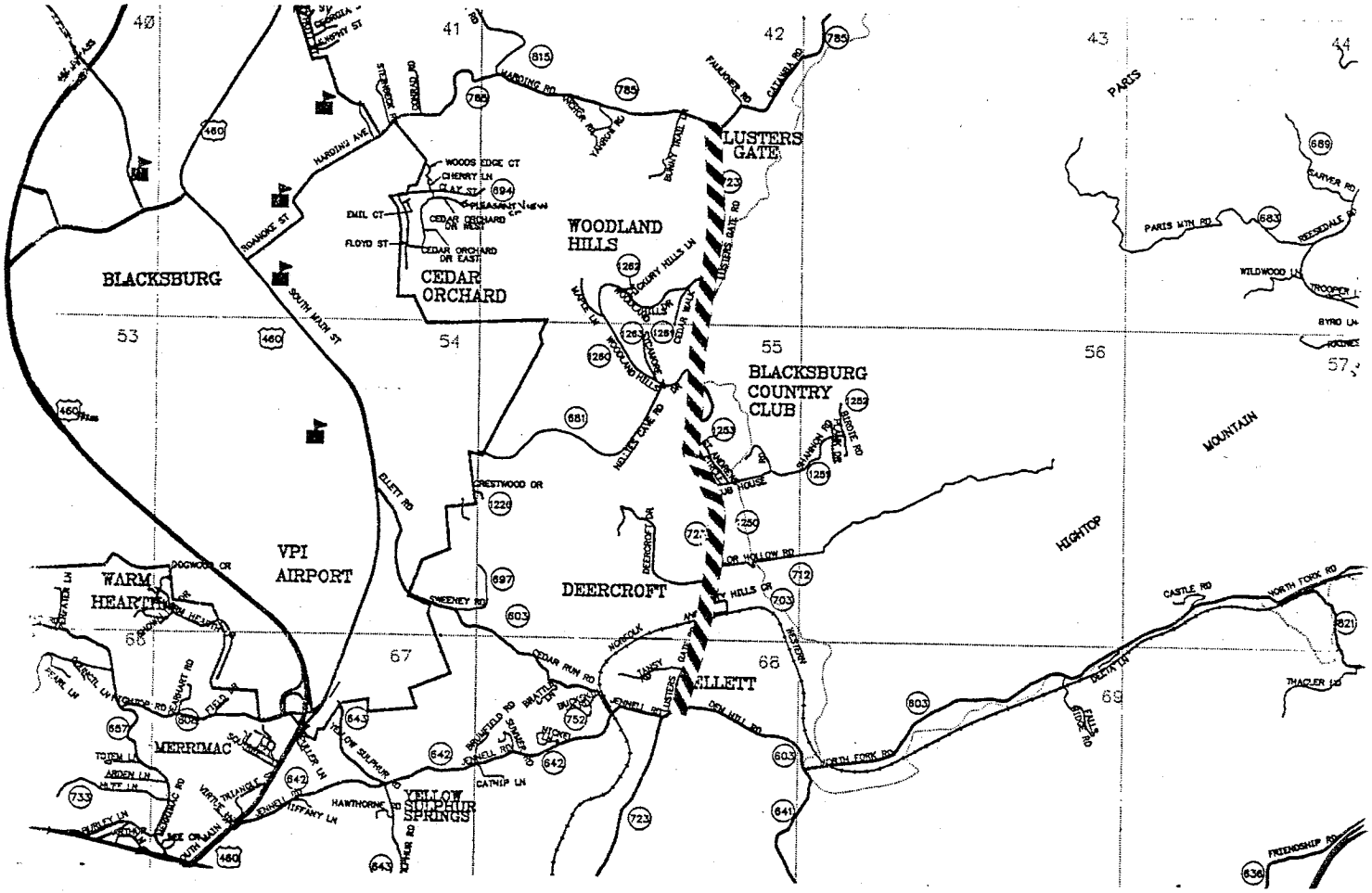
Designation: Paved Lanes

Description: Lusters Gate Road (St Rte 723) beginning at intersection with Catawba Road (St Rte 785) and ending at intersection with North Fork Road (St Rte 603).

Funding Source: Road is scheduled to be widened by Virginia Department of Transportation in August 1990. State will fund 100% of cost if done when road is widened.

Traffic Counts: Range from 477 average daily traffic to 1,375 average daily traffic (1987 figures).

Justification: This will serve a growing number of residential subdivisions (including Woodland Hills, Deercroft, and Blacksburg County Club Estates) in the county. This route is also part of the '76 Bicentennial TransAmerica Trail and serves as a link between Blacksburg and Christiansburg.



Route Name: Prices Fork Route

Priority: High

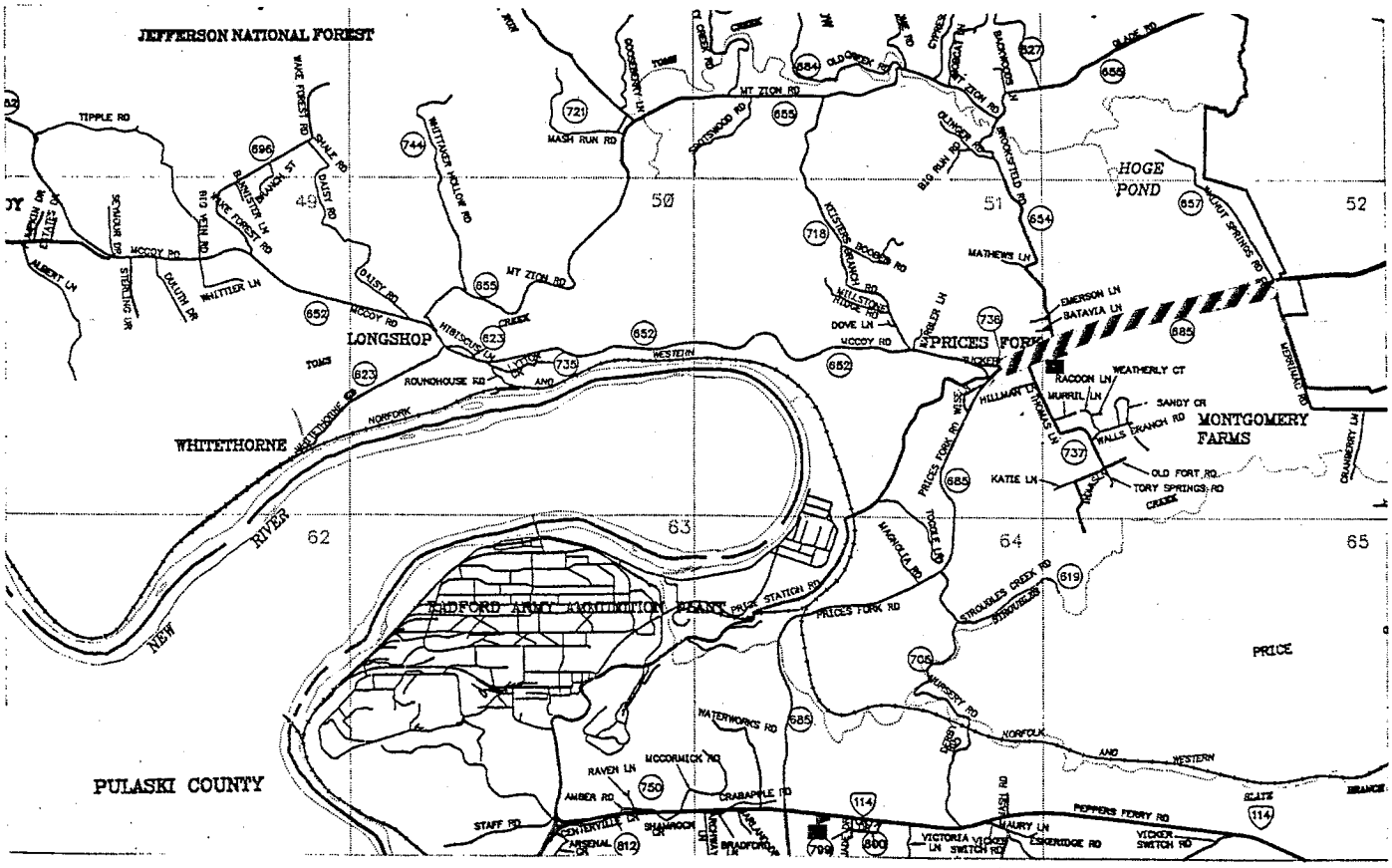
Designation: Paved Lanes

Description: Prices Fork Road (St Rte 685) beginning at the town limits of Blacksburg and extending 1.68 miles to Tucker Road (St Rte 736).

Funding Source: Road is scheduled to be widened by the Virginia Department of Transportation in June 1991. The state will fund 50% of the cost if work is done when the road is widened.

Traffic Counts: Range from 7,047 average daily traffic to 4,663 average daily traffic (1987 figures).

Justification: This route will serve a growing number of subdivisions (Montgomery Farms, Phillips Acres, and the proposed Sterling Manor) in the county. This route also serves Prices Fork Elementary School, provides the most direct link between Blacksburg and Radford and is a popular biking route between Blacksburg and the New River. This road currently receives a large volume of high speed traffic which makes walking or biking very dangerous and almost impossible. The town of Blacksburg currently has bike lanes extending to the town limits. These proposed lanes would be a logical extension into the county.



Route Name: Prices Fork/Peppers Ferry Connector

Priority: High

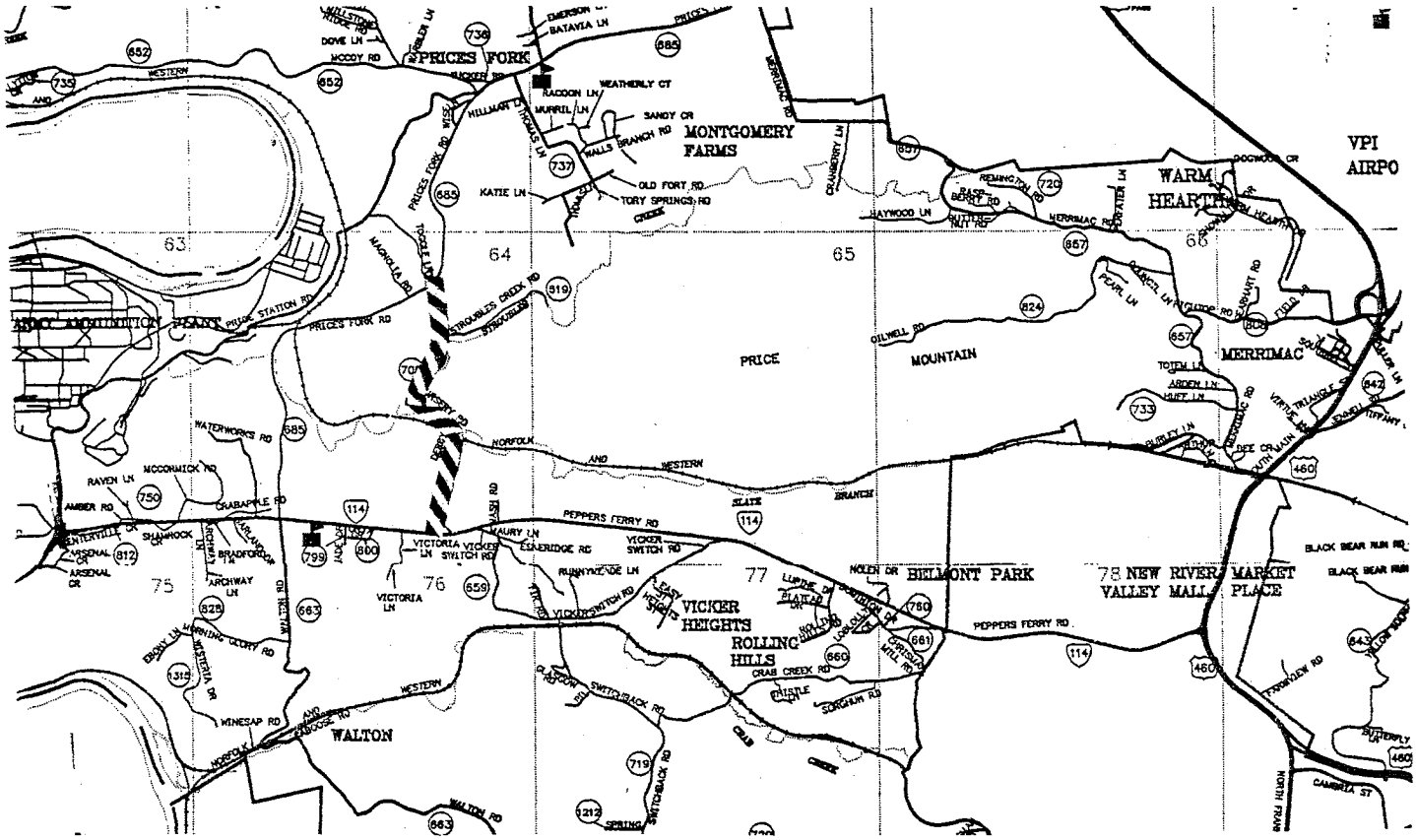
Designation: Paved Lanes

Description: Coal Hollow Road (St Rte 705) beginning at Peppers Ferry Road (St Rte 114) and extending 1.95 miles to Prices Fork Road (St Rte 659).

Funding Source: Road is scheduled to be widened by the Virginia Department of Transportation in December 1994. The state will fund 50% of the cost if work is done when the road is improved.

Traffic Counts: Range from 97 average daily traffic to 93 average daily traffic (1987 figures).

Justification: This route will connect the "Prices Fork Route" (discussed on page 16) to Peppers Ferry Road. Prices Fork Road near the intersection with Peppers Ferry Road is currently hilly, narrow, curvy and too dangerous for bicyclists. There are also no plans to widen or improve this section of the road. The placement of lanes along Coal Hollow Road would allow for cyclists to have a safe route to travel between Blacksburg and Peppers Ferry Road. This would help promote non-motorized travel for commuting purposes. Improvements to this road will greatly increase traffic (and development) along this road - making lanes even more necessary.



Route Name: North Fork Route

Priority: Medium

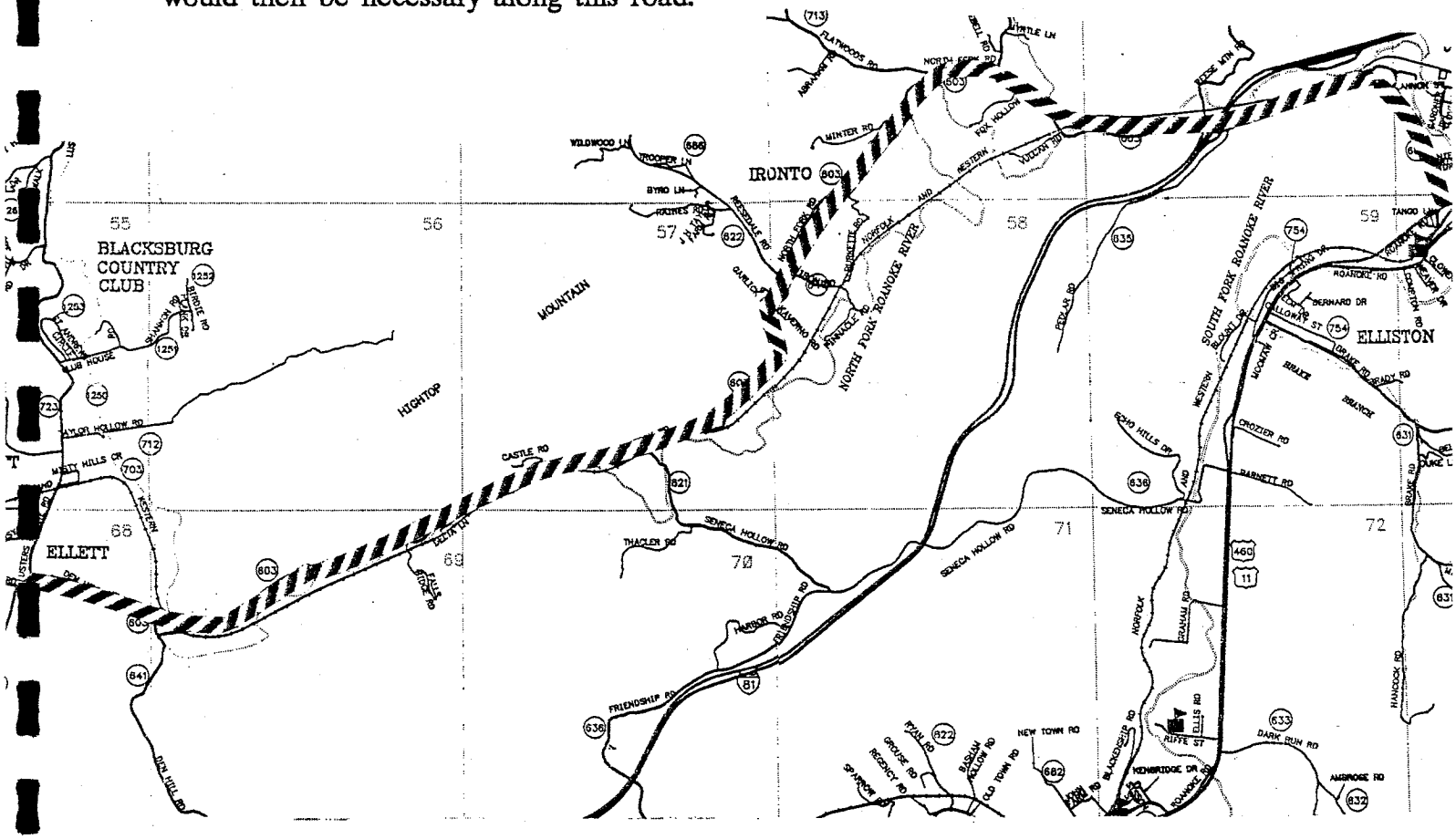
Designation: ?

Description: North Fork/Den Hill Road (St Rte 603) beginning at intersection with Lusters Gate Road (St Rte 723) and extending to Roanoke Road (US Rte 11/460).

Funding Source: The state would fund 50% of this route when the road is improved and widened.

Traffic Counts: Range from 674 average daily traffic to 1,002 average daily traffic (1987 figures).

Justification: This is a very popular biking route that would connect to Ellett Valley Route #1 and Ellett Valley Route #2. This route would provide a safe, easy connector from Blacksburg and Christiansburg close to the Roanoke County line. To date, the status of this road is questionable due to the proposed Blacksburg to Roanoke link. If this road were to remain undisturbed, the route could continue as a shared roadway. If however, the road were widened and improved lanes or trails would then be necessary along this road.



Route Name: Yellow Sulphur Route

Priority: Medium

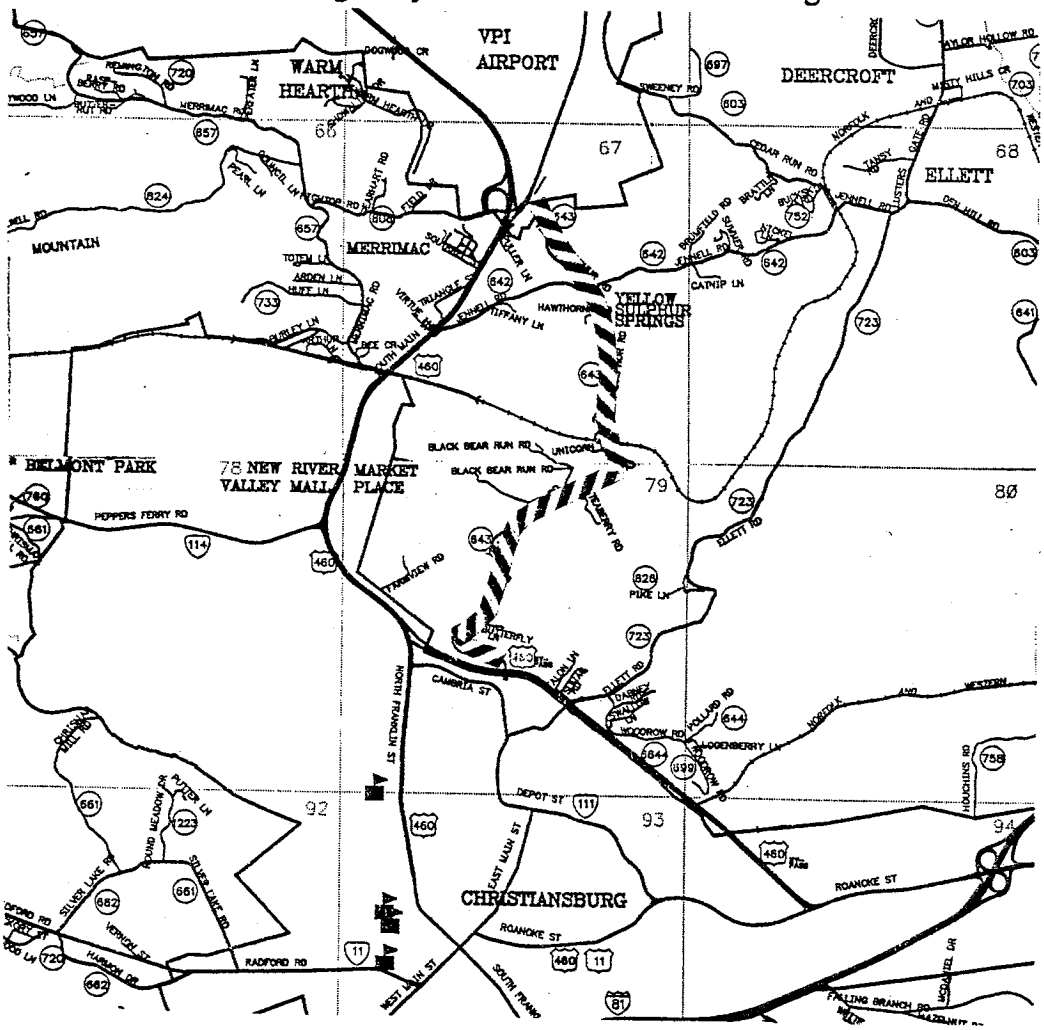
Designation: Paved Lanes

Description: Yellow Sulphur Road (St Rte 643) beginning one mile north of the corporate limits of the town of Christiansburg to the intersection with Jenelle Road (St Rte 642).

Funding Source: Road is scheduled to be widened and improved by the Virginia Department of Transportation in November 1996. State will fund 50% of the cost if done when road improvements occur.

Traffic Counts: 145 average daily traffic (1987 figures).

Justification: This road serves a growing area of Montgomery County. It is also a direct link between the towns of Blacksburg and Christiansburg. Yellow Sulphur Road winding, curvy road which is not safe for bikers or walkers without lanes. Improvements to this road will greatly increase traffic - making lanes even more necessary.



Route Name: Ellett Valley Route #2

Priority: Medium

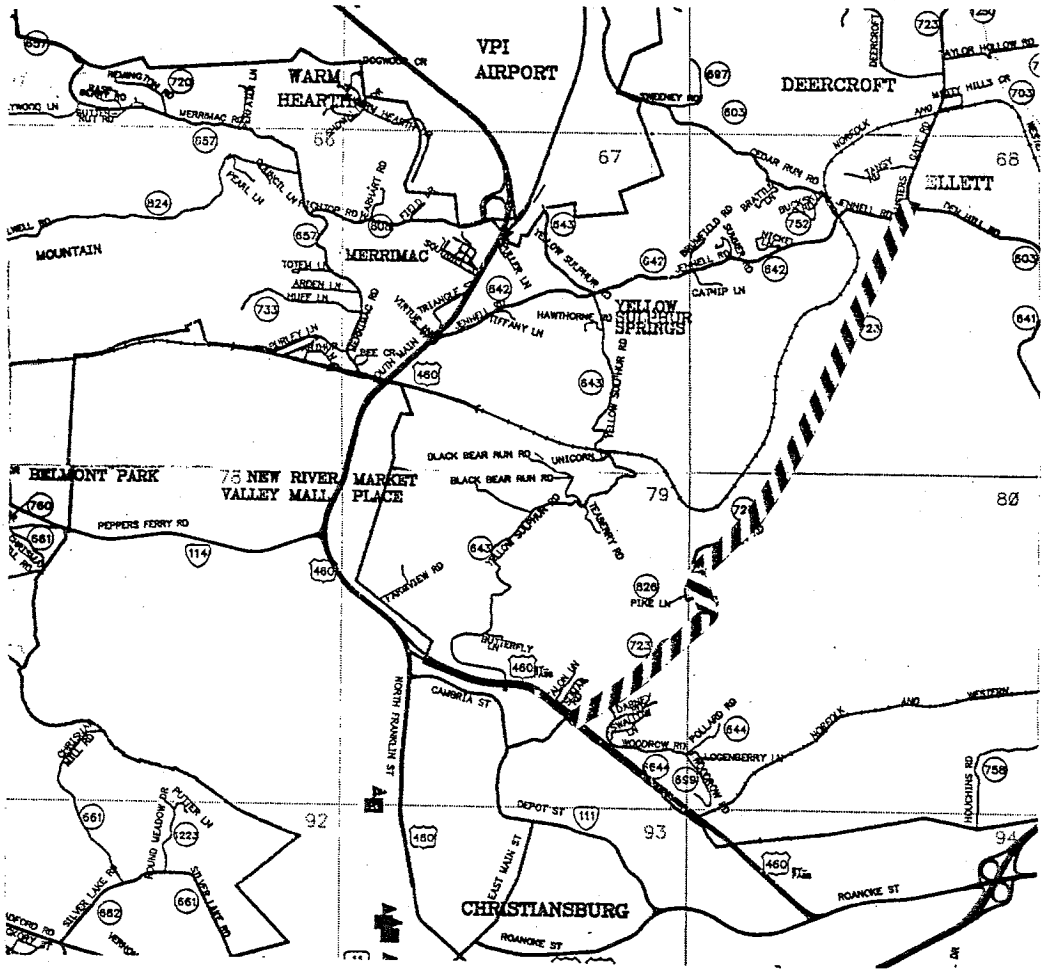
Designation: Paved Lanes

Description: Ellett Road (St Rte 723) beginning at intersection with North Fork Road (St Rte 603) and ending at the corporate limits of the town of Christiansburg.

Funding Source: Road is scheduled to be widened by the Virginia Department of Transportation in January 1997. State will fund 100% of the cost if done when road is widened.

Traffic Counts: Range from 1,229 average daily traffic to 641 average daily traffic (1987 figures).

Justification: This route is part of the '76 Bicentennial TransAmerica Trail and connects "Ellett Valley Route #1" (discussed on page 15 of this report) to the corporate limits of Christiansburg. This route is both a scenic, popular bike ride and also a good commuter link between Blacksburg and Christiansburg.



Route Name: Mt. Tabor Route

Priority: Medium

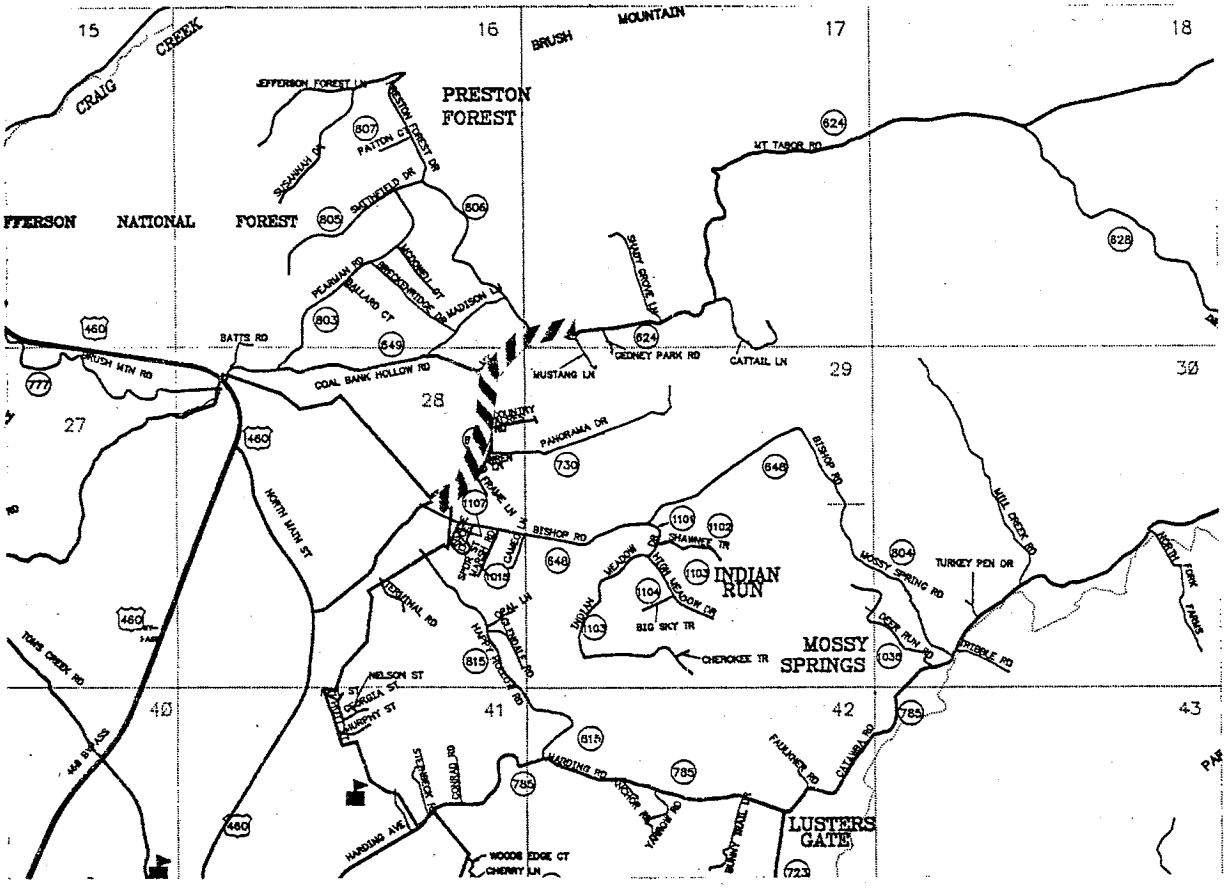
Designation: Paved Lanes

Description: Mt. Tabor Road (St Rte 624) beginning from the corporate limits of Blacksburg and extending one mile east of Preston Forest Drive (St Rte 806).

Funding Source: This road is scheduled to be widened and improved by the Virginia Department of Transportation in January 1999. The state would fund 50% of these lanes if the work is completed when the road is improved.

Traffic Counts: Range from 513 average daily traffic to 1,056 average daily traffic (1987 figures).

Justification: This bike route would serve several subdivisions (Indian Run, Preston Forest, Mt. Tabor Village, Blacksburg's Woodbine) and a large school/day care facility. Currently the narrow, windy road is dangerous for bikers or walkers because of the heavy traffic generated from the subdivisions. These paved lanes would extend beyond Preston Forest serving the heavily populated area of the road but the route would continue beyond this as a shared roadway. This bike route is a popular route that extends into Roanoke County.



Route Name: Peppers Ferry Trail

Priority: Medium

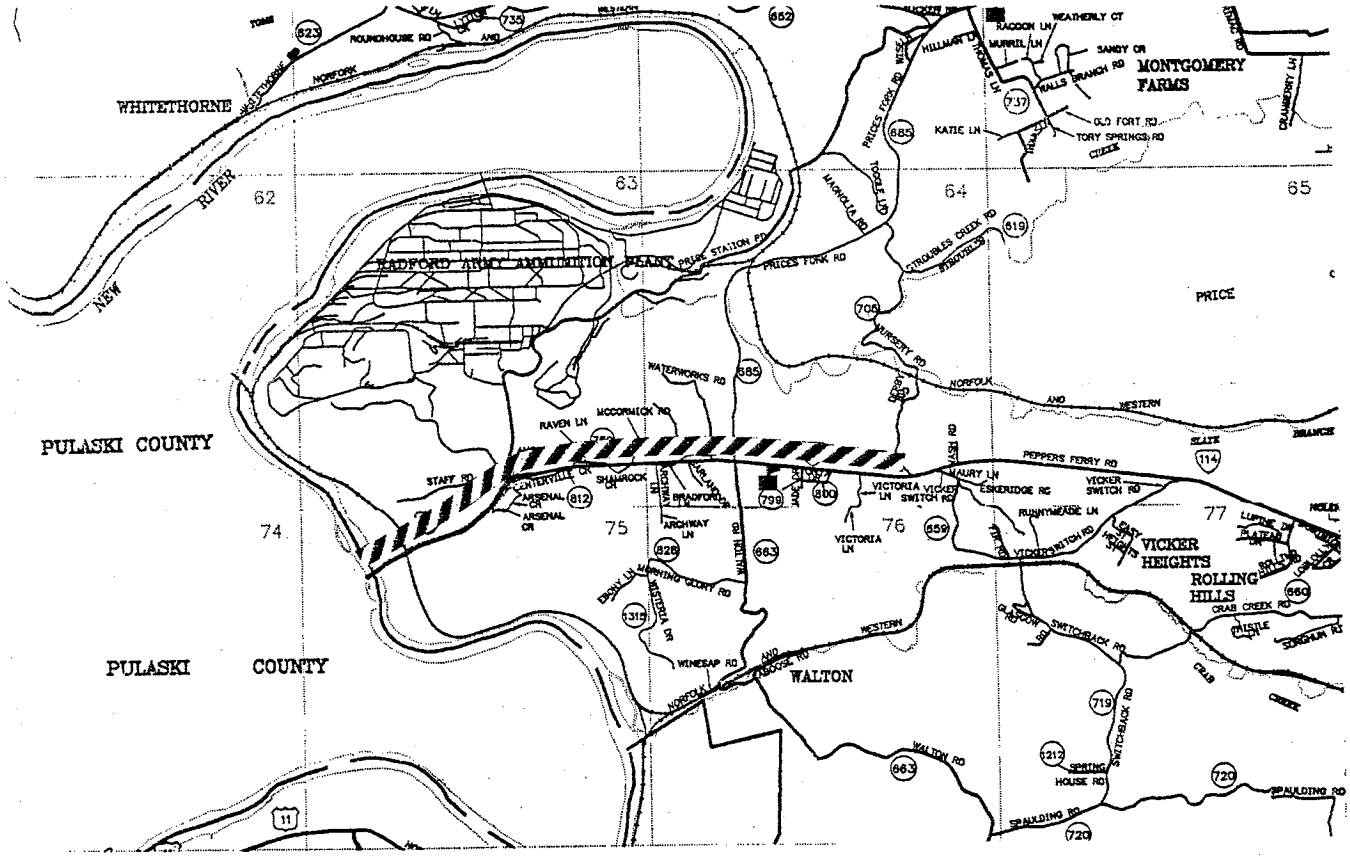
Designation: Trail

Description: Located parallel to Peppers Ferry Road (Rte 114) beginning at intersection with Coal Hollow Road (St Rte 705) and extending to proposed New River Park at Montgomery County line.

Funding Source: This route would connect an established biking/walking route (Prices Fork Route and Prices Fork/Peppers Ferry Connector) to New River park, qualifying it for state Recreational Access Funds.

Traffic Counts: 10,645 average daily traffic (1988 figures).

Justification: This trail would connect a proposed bike route (Prices Fork Route and Prices Fork/Peppers Ferry Connector) to New River Park and would also serve as a commuter link from Blacksburg to Radford. Currently Peppers Ferry Road is too dangerous for non-motorized travel. Future plans indicate that this road may be widened to four lanes making biking or walking impossible along Peppers Ferry Road without an off-road trail.



XI. Recommendations

To pursue and implement successful bikeways in Montgomery County, the following actions should occur:

1. The recommended routes discussed in section X of this plan should be funded and implemented as VDOT road improvements occur. If the funding for road improvements changes, the timing of the bikeways/walkways should also change to correspond.

2. The recommended trails discussed in section X of this plan should be funded in a timely manner. It is suggested that grant money be pursued as soon as possible.

3. The proposed county shared roads should be marked with signs. These could possibly be funded by the state.

4. A regional committee should be appointed to coordinate and implement bikeways. Members on this group could include representatives from Montgomery County, Blacksburg, Christiansburg, Radford, and interested civic organizations (Virginia Tech's Civil Engineering Society). This group would coordinate the development of new routes and trails; promote bicycling in the area; pursue funding options; update the bike plan; and undertake any other function to promote and develop bikeways/walkways in Montgomery County and the New River Valley.

5. A county or regional bicycle map should be developed. This map would illustrate and discuss various routes for biking in the county. Items that could be included on this map would be the different types routes, points of interest along each route, the route's degree of difficulty, eating and lodging establishments, and other related information. This pamphlet could be distributed to chambers of commerce or bicycle clubs around the state and could promote this area for regional bicycling.

6. Bike safety programs - both for children and adults, bikers and drivers - should be supported and encouraged. This could be accomplished through the schools (including local universities), through recreational programs, or through drivers education.

7. A maintenance program needs to be developed to address the upkeep of bikeways/walkways. Often bike lanes become depositories for snow, leaves, litter or other debris. To ensure safe bike paths, these routes need to be regularly cleaned and maintained.

8. To ensure that this plan remains current, this document should be reviewed and updated at least once every five years.

9. Investigate revising the subdivision ordinance to require the dedication and development of biking/walking trails in large subdivisions.

XII. Bibliography

Bicycle Compatible Roadways - Planning and Design Guidelines. New Jersey Department of Transportation. 1982.

Bicycle Facilities: Control and Use of Right-of-Way and Adjacent Lands. Virginia Department of Transportation. 1981.

Bicycle Facilities: General Guide Lines for Bicycle Lanes and Paths. Virginia Department of Transportation. 1983.

Bicycling on Virginia Roads Laws and Safety Tips. Virginia Department of Transportation and Division of Parks & Recreation. 1988.

Bikeway Plan. New River Valley Planning District Commission. 1975.

Bicycle Transportation. Nina Dougherty. Office of Planning and Evaluation. US Environmental Protection Agency. Washington, D.C. December 1974.

Effective Cycling A Handbook for Safe, Fast Bike Travel. John Forrester. Custom Cycle Fitments. 1980.

Evaluation of the Eugene Bikeways Master Plan. City of Eugene, Oregon. 1979.

Pedestrian and Bicycle Planning with Safety Considerations. Transportation Research Board. National Research Council. Washington, D.C. 1987.

Proposed Blacksburg Bicycle and Walkway Master Plan 1989. Blacksburg, Virginia. 1989.

Recreational Access: Law, Policy and Procedure. Secondary Roads Division, Virginia Department of Transportation. 1986.

Regional Bicycle Plan, Richmond Area Metropolitan Transportation Planning Organization. 1982.

Regional Bicycle Facilities Plan. Southeastern Virginia Planning District Commission, 1980.Status Report-Capital Area Greenway, Raleigh Parks, Recreation, and Greenway Advisory Board. 1987.

Status Report-Capital Area Greenway. Raleigh Parks, Recreation, and Greenway Advisory Board. 1987.

What is a Walkway? An Introduction to the Walkways at Your Doorstep Program. The Walkways Center. Washington, D.C.

Appendix 4
Newspaper Articles

Rest home is under criminal investigation, police say

Administrators at Franklin Manor Adult Rest Home say they have taken steps to address problems.

By HEIDI JUERSIVICH
THE ROANOKE TIMES

The Franklin Manor Adult Rest Home, still appealing a decision by the Virginia Department of Social Services to revoke its license, is the subject of a criminal investigation by the Virginia State Police.

Lt. Jim Ruhland, special agent in charge of the state police office in Salem, confirmed that police have been investigating the home off U.S. 220 in Franklin County for the past month in cooperation with the Department of Social Services. He declined to disclose any details of the investigation.

During a telephone interview Tuesday, Jack Noble, the regional director of L.A.P. Care Services, which manages the home, said he knew nothing about the investigation.

In December, the Department of Social Services put Franklin Manor administrators on notice that their license would be revoked because of severe health care violations.

Among the problems listed in the state's 17-page report were improper distribution of medications, outdated medical records and reports of an unsupervised resident taking sexual advantage of women in the home.

PLEASE SEE REST HOME/B4

City Councilma
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City Manager E
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last month.

Network stretches 160 miles from Pulaski to Abingdon

Elaborate trail system traverses Southwest Virginia

The route incorporates the New River Trail, the Virginia Highlands Horse Trail and the Virginia Creeper Trail.

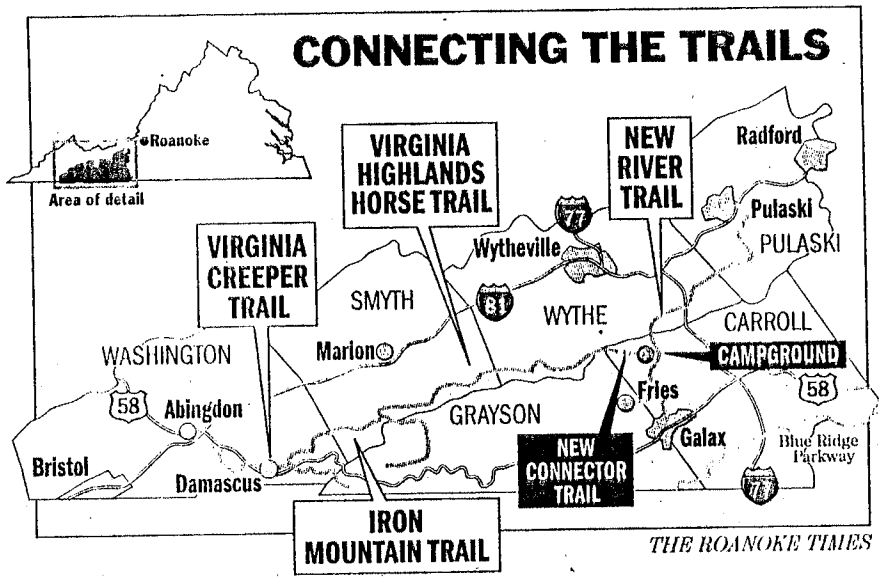
By MARK TAYLOR
THE ROANOKE TIMES

State and federal officials have announced a cooperative agreement that will create a 160-mile-long multiuse trail network stretching from Pulaski to Abingdon.

Officials with the Virginia Department of Conservation and Recreation and the U.S. Forest Service announced the plan Monday at the Governor's Conference on Greenways and Trails in Roanoke. They said the trail will attract visitors — and their money — to Southwest Virginia.

"There's almost no place in the East where you have 160 miles of [connected] multiuse trail," said Bill Damon, supervisor of the George Washington and Jefferson National Forests.

The trail network, which does not yet have a formal name, incorporates three already-popular existing trails: the New River Trail, the Virginia Highlands Horse Trail and the Virginia Creeper Trail. All are open to hikers, cyclists and equestrians, though bicycles are not allowed on about 20 percent of the Virginia Highlands Horse Trail.



The plan also calls for the state to take over operation of a National Forest campground near the junction of the New River Trail and the Virginia Highlands Horse Trail. The campground, just south of Fries, will give the popular New River Trail State Park needed campsites.

Recent construction of a two-mile connector trail between the New River Trail and the eastern end of the Virginia Highlands Horse Trail completed the route.

Because the trails are already in place, creation of the trail corridor carried little cost. Forest Service officials estimated the cost of the newly built connector trail at about $6,000.

The announcement of the trail route came just a week after the 57-mile-long New River Trail was reopened in its entirety — pending the outcome of a trial next month.

Some property owners had blocked the trail in places, claiming the land reverted to private ownership when Norfolk Southern Corp. abandoned the rail line and donated the land to the state in 1986. The state had settled with most landowners, but three families held out. A trial scheduled for April 27 in Wythe County was postponed until June 21 because the families had not obtained legal representation. The judge ordered all barriers taken down until after the dispute is settled.

J.P. Woodley, the state's secretary of natural resources, said Monday he doesn't believe the New River

PLEASE SEE TRAIL/B3

HOOKED ON FI

DEMONTA'E GREE
Tuesday in the ya
home in Roanoke

Service, Rocky Mount

ASSOCIATED PRESS

A HELICOPTER prepares to drop more water on a forest fire in Shenandoah National Park Tuesday. The blaze spread to 3,000 acres, up from 1,000 acres this weekend. Rangers reported flames as high as 6 feet in areas with numerous dead trees.

Dead inmate identified; cause found

An inmate who died last week at the Botetourt Correctional Unit was suffering from cancer, an autopsy has determined.

The Department of Corrections identified the man Tuesday as Garland R. Green, 47, of Martinsville.

In a letter to The Roanoke Times, two inmates at the facility — Jason Jacobsen and Reginald Watson — contended that Green had been asking since January to be moved to a hospital or prison medical facility because of his illness.

"No matter what we did to get here we're still men, and no man should be denied proper medical attention," they wrote.

Department spokesman Larry Traylor said Green was under a doctor's care at the time of his death Friday, but said he could not elaborate on an inmate's medical history.

An internal investigation determined that Green died of natural causes, and that no foul play was involved, Traylor said. Dr. William Massello, assistant deputy chief medical examiner for Western Virginia, said an autopsy determined Green died of pancreatic cancer.

At the time of his death, Green was serving a seven-year sentence on cocaine charges in Martinsville and Henry County.

— LAURENCE HAMMACK

Brush fires start beside tracks

Brush fires sparked up Tuesday evening along 10 blocks of Shenandoah Avenue in Northwest Roanoke, creeping close to a warehouse but not causing any damage, authorities said.

Battalion Chief Ralph Tartaglia said a train had passed by shortly before a number of brush fires started just above the tracks between 16th and 25th streets about 7 p.m.

Although smoke drifted across Shenandoah Avenue and the street was blocked off for about an hour, no major damage was done. Some ivy climbing up a warehouse in the 2200 block caught fire, but officials were able to get it under control in a matter of minutes.

— ZEKE BARLOW

Man indicted in attacks

MANASSAS — A Prince William County grand jury has indicted a man on a capital murder charge in the Jan. 29 attacks on two teen-age sisters that left one fatally stabbed.

Paul Warner Powell, 21, also was indicted Monday on charges of attempted capital murder, rape and abduction.

Police have said Powell stabbed Stacie Reed, 16, after arguing with the girl, who is white, about dating a black youth. Powell later attacked Kristie Reed, 14, when she found her sister dead, police said.

— ASSOCIATED PRESS

FROM B1

Trail

Trail will be blocked again.

"We have little doubt that we'll prevail in gaining a permanent injunction" to keep the trail open, Woodley said.

Even with the blockage, the New River Trail drew more than 400,000 visitors last year. Of the trail's users, about 55 percent were mountain bikers, 25 percent were hikers and 20 percent horseback riders.

Starting at Virginia 94 south of Fries, the Virginia Highlands Horse Trail runs through the Mount Rogers Recreation Area. Though bikers can't use all of the horse trail, they conceivably could complete the Abingdon-to-Pulaski route with only minor detours, said Tim Eling, a forester who works at the recreation area. The horse trail runs for 80 miles through the area, which attracted about 250,000 visitors last year.

"There are a few places you would have to leave the trail if you're on a bike," Eling said. "You can get around it, but you may have to ride on a road for a while."

The Virginia Highlands Horse Trail and the Virginia Creeper Trail are connected by the Iron Mountain Trail, which connects with the horse trail about 10 miles north of its western end at Elk Gardens and joins the Creeper Trail just east of Damascus.

The Creeper Trail, a 34-mile-long, gradually sloping route built on a former Norfolk and Western rail line, has become one of Virginia's most popular bike trails. Although hikers and equestrians are allowed to use the trail, more than 90 percent of its users are cyclists. Bike rental businesses are booming in Damascus and Abingdon.

For information on the trail corridor, call the Mount Rogers National Recreation Area at (540) 783-5196 or the New River Trail State Park at (540) 699-6778.

Mark Taylor can be reached at 981-3395 or markta@roanoke.com

emphasizes Asian, Middle Eastern, Islam[illegible]l Eu[illegible]n st[illegible] [illegible]7,84[illegible]es.

"The college itself is becoming a global village with its international studies program, interacting with multinational and global businesses and establishing joint ventures with two major universities in Brazil," said Samir Saliba, the program's director.

College President Thomas Morris said it is a major step in advancing the college's work in global management education, cross-cultural studies and language training.

— PAUL DELLINGER

"We do value Roanoke County's membership," he said, "but I understand from a budget perspective."

Three local organizations hit hard by the cuts won't get any county money for capita improvements. The county, how ever, will pay some operationa costs to all three.

The Science Museum, whic received $10,000 from the count for capital costs last yea requested $50,000 but won't g any money. Similarly, the Tran portation Museum won't get th $10,000 in capital funds it wante

The Mill Mountain Zoo wor see any of the $37,000 requested for facilit improvements.

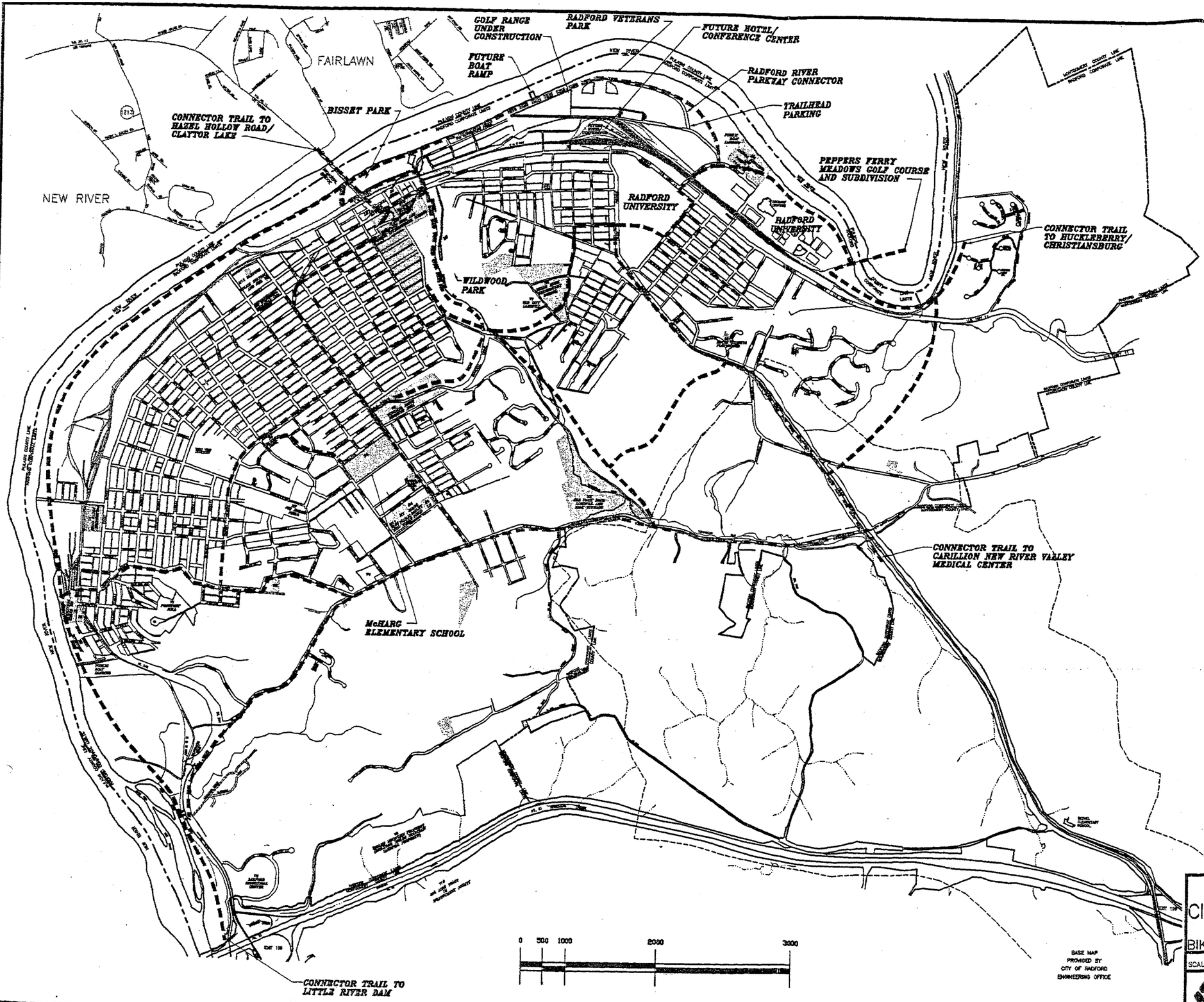
Johnson said the board ma be able to use the United Way avoid its annual discussion of ho to fund various health, social a human service agencies that a for money each year. Supervis Harry Nickens suggested th county staff find out how many the agencies are United W members. The county then cou talk to United Way about strea lining the process.

"If all those organizatio pulled together under the Unit Way, I think you'd have more s vice on the street," he said.

C.S. Murphy can be reached at 981-3114 or cindym@roanoke.com

Appendix 5
Radford Bikeway/Walkway Master Plan

CITY OF RADFORD
BIKEWAY/WALKWAY MASTER PLAN



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LEGEND:

- LANES
- TRAIL
- PHASE 1

CITY LAND USE:

- MUNICIPAL FACILITIES
- SCHOOL FACILITIES
- PARKS & RECREATION
- VACANT PUBLIC LAND
- PUBLIC LAND LEASED

724BASE.DWG

CITY OF RADFORD

BIKEWAY/WALKWAY PLAN

SCALE: 1"=1000' | DATE: 1/25/99 | REV:

GAY AND KEESEE, INCORPORATED
127 NORTH FRANKLIN STREET
CHRISTIANSBURG, VIRGINIA 24073
(540) 381-6011

JOB NO. 724

SHT 1 OF 1

FAIRLAWN

FUTURE BOAT RAMP

BISSET PARK

PULASKI COUNTY LINE
RADFORD CORPORATE LIMITS

PULASKI COUNTY LINE
RADFORD CORPORATE LIMITS

PUBLIC BOAT LANDING

FUTURE HOTEL/ CONFERENCE

RADFORD UNIVERSITY

RADFORD UNIVERSITY

DEDMON CENTER

NEW RIVER

PULASKI
RADFORD

WILDWOOD PARK

McHARG ELEM. SCHOOL

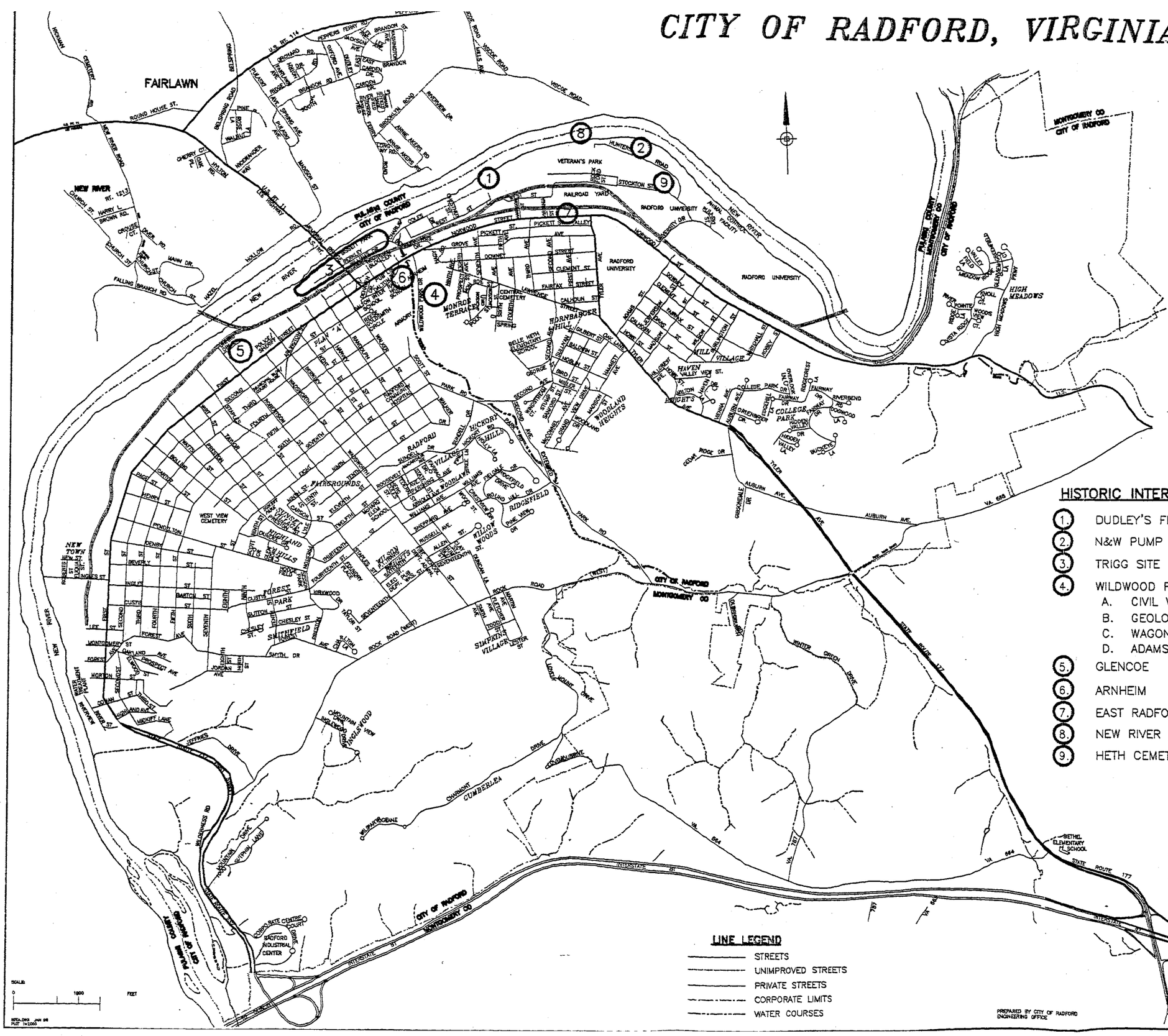
LEGEND:

SEGMENT 1

SEGMENT 2

GAY AND KEESEE, INCORPORATED 127 NORTH FRANKLIN STREET CHRISTIANSBURG, VIRGINIA 24073 (540) 381-6011				724SEG.DWG
CITY OF RADFORD PHASE 1, SEGMENT 1 & 2 BIKEWAY/WALKWAY PLAN				
SCALE: 1"=1000'	DATE: 1/25/99	REVISION:	JOB NO. 724	SHEET OF

CITY OF RADFORD, VIRGINIA



HISTORIC INTERESTS

1. DUDLEY'S FERRY
2. N&W PUMP HOUSE
3. TRIGG SITE
4. WILDWOOD PARK
   - A. CIVIL WAR GUN PLACEMENT
   - B. GEOLOGIC FORMATION
   - C. WAGON ROAD
   - D. ADAMS CAVE
5. GLENCOE
6. ARNHEIM
7. EAST RADFORD HISTORIC DISTRICT
8. NEW RIVER / WOODS RIVER
9. HETH CEMETERY

LINE LEGEND

- STREETS
- UNIMPROVED STREETS
- PRIVATE STREETS
- CORPORATE LIMITS
- WATER COURSES

CITY OF RADFORD VIRGINIA

PREPARED BY CITY OF RADFORD ENGINEERING OFFICE

Appendix 6
Grants and Funded Projects Summary

New River Valley Bikeway-Walkway-Blueway

List of some of the Projects funded since the1994 Plan

Off Road Trails

Locality	Project	Funding Source(s)	Amount
Giles County	Route 806	TEA-21	$250,000
Radford	Bissett Park to Ingles St.	TEA-21	250,000
Pulaski	New River Trail extension		
Radford	Dedmon to Wildwood & Wildwood to McHarg ES	VDOT/Radford	631,450
Radford	Walking trails and access in Wildwood Park	VDF/Radford	10,000
Blacksburg/Mont Co.	Huckleberry Trail	ISTEA/local/state	939,302
Blacksburg	Hethwood Trail extension	local	135,000
Blacksburg	Golf Course Loop	local	27,300
Blacksburg	Patrick Henry Dr. connector	local/state	73,000
Blacksburg	North Main St. connector	local	180,000
Blacksburg	Central Blacksburg bikeway	local	120,120
Blacksburg	North-South connector (south)	local	60,000
Blacksburg	Patrick Henry Dr. Trail	local	30,000
Blacksburg	CRC connector	local	170,000

On Road Trails

Christiansburg	Streetscaping and pedestrian safety enhancements	TEA-21	$75,000
Blacksburg	Prices Fork bicycle lanes	local	48,048
Blacksburg	University City Blvd lanes	local	122,620
Blacksburg	Progress St. bicycle lanes	local	288,288
Blacksburg	Hubbard Street, Southgate Dr., Country Club Drive	local/state	174,720
Blacksburg	Bishop Road bicycle lanes	local	366,912

Highlighted text refers to projects that were recommended in whole or in part in the 1994 New River Valley Bikeway/Walkway Plan.

Appendix 7
Public Meeting Documentation

PUBLIC MEETING NOTICE
New River Valley Bikeway/Walkway Plan Update

During the period June 15 - 21, 2000, the New River Valley Planning District Commission will hold public meetings to obtain citizen input in updating the New River Valley Bikeway/Walkway Plan, originally developed in 1994. The dates, times, and locations of the meetings are listed below. There will not be a formal presentation. Planning District Commission staff will be available to discuss the plan, answer questions, and accept input/suggestions.

Date and Time:	June 15, 2000, 4:00 p.m. to 7:00 p.m.
Location:	Courtroom, Floyd County Courthouse, Floyd, Virginia
Date and Time:	June 19, 2000, 4:00 p.m. to 7:00 p.m.
Location:	Council Chamber, Pearisburg Municipal Building, Pearisburg, Virginia
Date and Time:	June 20, 2000, 4:00 p.m. to 7:00 p.m.
Location:	Classroom 2, Christiansburg Recreation Center, Christiansburg, Virginia
Date and Time:	June 21, 2000, 4:00 p.m. to 7:00 p.m.
Location:	Training Room, New River Valley Competitiveness Center, Fairlawn, Virginia

The New River Valley Bikeway/Walkway Plan is a resource for use by New River Valley localities. For more information, contact the New River Valley Planning District Commission office at (540) 639-9313.

PUBLIC MEETING NOTICE
New River Valley Bikeway/Walkway Plan Update

On June 21, 2000, from 4:00 p.m. to 7:00 p.m., the New River Valley Planning District Commission will hold a public meeting to obtain input in updating the New River Valley Bikeway/Walkway Plan, originally developed in 1994. The meeting will be held in the Training Room at the New River Valley Competitiveness Center in Fairlawn. To get to the New River Valley Competitiveness Center, turn off Rt. 114 (at the flashing yellow traffic lights) onto Viscoe Road. Follow Viscoe Road approximately 1.3 miles. The Competitiveness Center is on the left.

Citizens of the following localities are invited to attend: Pulaski County, City of Radford, and the Towns of Dublin and Pulaski. There will not be a formal presentation. Planning District Commission staff will be available to discuss the plan, answer questions, and accept input/suggestions. The New River Valley Bikeway/Walkway Plan is a resource for use by New River Valley localities. For more information, contact the New River Valley Planning District Commission office at (540) 639-9313.

PUBLIC MEETING NOTICE

New River Valley Bikeway/Walkway Plan Update

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Location: Courtroom, Floyd County Courthouse, Floyd, Virginia

Date and Time: June 19, 2000, 4:00 p.m. to 7:00 p.m.
Location: Council Chamber, Pearisburg Municipal Building, Pearisburg, Virginia

Date and Time: June 20, 2000, 4:00 p.m. to 7:00 p.m.
Location: Classroom 2, Christiansburg Recreation Center, Christiansburg, Virginia

Date and Time: June 21, 2000, 4:00 p.m. to 7:00 p.m.
Location: Training Room, New River Valley Competitiveness Center, Fairlawn, Virginia

The New River Valley Bikeway/Walkway Plan is a resource for use by New River Valley localities. For more information, contact the New River Valley Planning District Commission office at (540) 639-9313.

Attention: Patrick Burton
THE ROANOKE TIMES ADVERTISING PROOF
Publish Date/s: Sun 6/11 & 6/14
Call or Fax APPROVAL or CORRECTIONS
BY: FC 6/9/00
Correction Hotline: (540) 381-1644
Fax (540) 381-1658
DPI #

To: Angela - Creative Services
From: Gail - Floyd Press
Thankyou - Looks Good.

PUBLIC MEETING NOTICE

New River Valley Bikeway/Walkway Plan Update

On June 15, 2000, from 4:00 p.m. to 7:00 p.m., the New River Valley Planning District Commission will hold a community meeting to obtain public input in updating the New River Valley Bikeway/Walkway Plan, originally developed in 1994. The meeting will be held in the Courtroom at the Floyd County Courthouse in Floyd.

Citizens of Floyd County and the Town of Floyd are welcome to attend. There will not be a formal presentation. Planning District Commission staff will be available to discuss the plan, answer questions, and accept input/suggestions. The New River Valley Bikeway/Walkway Plan is a resource for use by New River Valley localities in adopting/amending bikeway/walkway plans. For more information, contact the New River Valley Planning District Commission office at (540) 639-9313.

Angela

New River Valley Bikeway/Walkway Plan
Public Meeting

Comments

Please write your suggestions below concerning routes which provide connections between communities or links to points/facilities of interest. Your comments on other components of the plan or on other bikeway/walkway issues are welcome. If you need more space, please use the back of this form.

Comments:_____

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Please place this sheet in the comment box before you leave or mail by June 22 to:

New River Valley Planning District Commission
6580 Valley Center Drive, Box 21
Radford, VA 24141

Jan Reynolds

From: bilfive [bilfive@swva.net]
Sent: Wednesday, June 21, 2000 5:01 PM
To: Patrick Burton
Subject: Fw: New River bickway walkway at Rich Creek-Glyn Lynn

----- Original Message -----
From: bilfive
To: Patrick Burton
Sent: Wednesday, June 21, 2000 3:59 PM
Subject: New River bickway walkway at Rich Creek-Glyn Lynn

Thank you for showing us the information Re: the proposed trail at Glen Lynn-Rich Creek. We are very much interested in knowing all about the development process. As we told you we own almost 3000' of adjacent land on the north side of the trail. Some suggestions Re: the trail are as follows.

1. a bike trail by 460 may be dangerous.
2. there are rocks and small boulders falling from the cliffs every few months
3. the south side of the old road has had very much erosion and a few small landslides.
4. I hope the trail is closed at night time. I would not feel comfortable entering my property people there at night.
5. I hope I can continue to access my property along my south property line. I might like to cut trees in the future and I have a structure there now. 6. please do as much as possible re: fire... there is evidence of two forest fires in the past according to a national forester that met me on top of the mountain above the trail. I plan to build my home there and I would hate for it to catch fire. The U.S. Forester told me that the old road is a fire break from 460 and helps fires from going to the top of the mountain.. I hope there can be some design considerations to reduce fires caused by cigarettes. I have had many small controlled fires clearing brush on top of the mountain. The wind seems to usually blow toward the mountain from the river in a northerly direction. There are so many leaves that in the fall that a small spark can cause a lot of problem, and would possibly burn my home.
7. there is a large hole at Emanuel hollow that could be a danger to children.
8. Anything I can do to help ... please let me know.

thank you
Mark and Fleta Sperling

New River Valley Bikeway/Walkway Plan
Public Meeting

Comments

Please write your suggestions below concerning routes which provide connections between communities or links to points/facilities of interest. Your comments on other components of the plan or on other bikeway/walkway issues are welcome. If you need more space, please use the back of this form.

Comments: The Town of Blacksburg is primarily concerned with two issues: regional connectivity of trail systems and effective implementation strategies for the updated plan. A large portion of the connectivity issue is contingent on Montgomery County's trail system and making their recommended connections to Christiansburg, Blacksburg, Radford, Pulaski, Giles, Floyd and the National Forest among others. The Town encourages regional planning of trails and is committed to implementing a regional system that builds on the Huckleberry Trail's success. Montgomery County has proposed a Heritage Trail system which would include Blacksburg trails and which the Town supports. The following objectives are recommended by the Town for the updated plan and are also being proposed as part of the Town's 2001 Comprehensive Plan:

- Preserve and reclaim natural floodplains to enhance water quality , protect wildlife habitats and open space, provide recreational, educational, and alternative transportation opportunities.
- Create an infrastructure of multi-purpose trails that utilizes various corridors such as floodplains, railroads, and roadbeds, that connects to parks, schools, and other public amenities and provides a system of contiguous, regional trail mileage for extensive recreational and alternative transportation use.
- Include partnerships between civic, corporate, and governmental entities to ensure that linkages beyond the Town's greenway system are achieved to maximize access to schools, neighborhoods, businesses, and the natural environment.

The following greenway goal is also being proposed as part of the Blacksburg plan:

Develop a greenway system that provides vegetated natural buffers that improve water quality, reduce the impacts of flooding, and provide wildlife habitat and corridors, as well as opportunities for comprehensive, multi-use trails for alternative transportation, recreation, fitness, and educational, cultural and economic development.

Please place this sheet in the comment box before you leave or mail by June 27, 2000, to:

New River Valley Planning District Commission
6580 Valley Center Drive, Box 21
Radford, VA 24141

New River Valley Bikeway/Walkway Plan
Public Meeting

Comments

Please write your suggestions below concerning routes which provide connections between communities or links to points/facilities of interest. Your comments on other components of the plan or on other bikeway/walkway issues are welcome. If you need more space, please use the back of this form.

Comments: Bruce Mahin, president, PATHWAYS for RADFORD

* Connect Radford Pathways Network with New River Trail in Pulaski
* Utilize Trestle across New River @ Desmon Center to connect with Pulaski County and Rt. 114
* Connect Rt. 11/114 intersection along Rt. 114 to link with Huckleberry TRAIL

* MAIN Priority should be to create a comprehensive transportation (bike/pedestrian) network linking RADFORD, Dublin, Pulaski, Christiansburg and Blacksburg.

bmahin@runet.edu 639-6412 (W)
931-6174 (H)

Please place this sheet in the comment box before you leave or mail by June 27, 2000, to:

New River Valley Planning District Commission
6580 Valley Center Drive, Box 21
Radford, VA 24141

New River Valley Bikeway/Walkway Plan
Public Meeting

Comments

Please write your suggestions below concerning routes which provide connections between communities or links to points/facilities of interest. Your comments on other components of the plan or on other bikeway/walkway issues are welcome. If you need more space, please use the back of this form.

Comments: Time to make use of the unused trestle across New River near Dedmon Center. Trails are planned for both sides of the river, and the connection makes sense for recreation and commuting. Would like to see connections with C'burg via Rt. 114, Dublin and Pulaski via route 11, and other communities. Cohesive network of trails makes sense and your work is appreciated.

One more thing — Rt. 3A bypass should not be closed to bicyclists — it is the safest alternative for commuters between B'burg & C'burg.

Please place this sheet in the comment box before you leave or mail by June 27, 2000, to:

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Comments

Please write your suggestions below concerning routes which provide connections between communities or links to points/facilities of interest. Your comments on other components of the plan or on other bikeway/walkway issues are welcome. If you need more space, please use the back of this form.

Comments: Implement volunteerism in all phases of process, especially land clearing and trail building.

To increase "usability," increase public trans. (BT) to various sites of trails.
- 2 endpoints should be sufficient.

The Huckleberry is a beautiful thing
Thank you, thank you!

Please place this sheet in the comment box before you leave or mail by June 27, 2000, to:

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New River Valley Bikeway/Walkway Plan
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Comments

Please write your suggestions below concerning routes which provide connections between communities or links to points/facilities of interest. Your comments on other components of the plan or on other bikeway/walkway issues are welcome. If you need more space, please use the back of this form.

Comments: The 76 bike route need ~~need~~ to be re-routed through Depot St. as suggested in the Bikeway/Walkway Plan to avoid steep hill ~~at~~ at the Beginning of N. Main Street.

Trails that followed the streams that run through Christiansburg would be most beneficial in preserving natural habitat & giving citizens a pleasant walk away from traffic.

Walking trail established between communities off roads ~~would~~ ~~benefit~~ before development limits land available.

Side walks in a plan that would be carried out around town neighborhood by neighborhood paid for by taxes rather than piecemeal. Possibly starting from schools into other parts of town.

Please place this sheet in the comment box before you leave or mail by June 27, 2000, to:

New River Valley Planning District Commission
6580 Valley Center Drive, Box 21
Radford, VA 24141

Jan Reynolds

From: Christiansburg Printing [impress@swva.net]
Sent: Friday, May 19, 2000 8:39 AM
To: Patrick Burton
Subject: Re: VDOT Letter

Patrick:

OK, here you go. First, his letter to me, then mine to him.

If you'd be willing to dive into this fray, I'd be greatly appreciated. If you could contact Southard and say, I'm a professional planner who deals with bicycle issues in this area, and Abraham is right, this corridor is totally suicidal and I'd be willing to mediate a conversation which would lead to a workable solution....

Michael

==========

(Southard to me)

Mr. Michael S. Abraham
304 Royal Lane
Blacksburg, VA 24060

Dear Mr. Abraham:

Commonwealth Transportation Board member Ms. Lorinda G. Lionberger has forwarded to me your latest letter concerning bicycle use of Alternate 3A in Montgomery County. I have reviewed the information on the project and offer the following comments.

Bicyclists from across the state are concerned with restrictions on their utilization of limited access facilities. They feel that limited access facilities provide experienced bicyclists with safe, well designed facilities to use in their travel. A summary of their position includes the following:

Limited access facilities provide direct access to and between businesses, employment centers, public facilities, and other transportation facilities.
Limited access facilities are utilized by commuters and long distance riders, not children, as the facilities connect destinations wanted or needed by experienced bicyclists.
Limited access facilities are built to higher design standards than the routes these travelways replace or supplement.
The limited access facilities cross barriers, both natural and man-made, that are difficult for bicyclists to traverse.
Most limited access facilities are built with gentle grades and good sight distance.
Limited access facilities provide wide, smooth shoulders that are easy for bicyclists to use.
Limited access facilities receive a higher level of maintenance than other facilities, providing a better ride for bicyclists.
Limited access facilities reduce the number of possible conflict points that lead to motor vehicle/bicycle and bicycle/pedestrian crashes. The conflict points and related safety factors include intersections, narrow urban traffic lanes, parked cars, varied speeds caused by starting and stopping, and too much activity and visual clutter vying for the attention of motor vehicles operators.

The type of activity and surrounding landscape on limited access highways reduce the risk for criminal behavior towards bicyclists.

Bicycles are not automaticaily excluded from limited access facilities. Bicyclists are allowed on many of Virginia's limited access facilities. We are working on ways to educate the Department and the Commonwealth Transportation Board (CTB) about the benefits limited access facilities provide to experienced bicyclists.

Section 46.2?208 of the Code of Virginia allows the Commonwealth Transportation Board to prohibit certain uses of controlled access highways in order to promote safety. The section reads:

§ 46.2?808. Commonwealth Transportation Board may prohibit certain uses of controlled access highways; penalty.

A. The Commonwealth Transportation Board may, when necessary to promote safety, prohibit the use of controlled access highways or any part thereof by any or all of the following:
1. Pedestrians,
2. Persons riding bicycles or mopeds,
3. Horse-drawn vehicles,
4. Self-propelled machinery or equipment, and
5. Animals led, ridden or driven on the hoof.
B. The termini of any section of controlled access highways, use of which is restricted under the provisions of this section, shall be clearly indicated by a conspicuous marker.
C. This section shall not apply to any vehicle or equipment owned or controlled by the Virginia Department of Transportation, while actually engaged in the construction, reconstruction, or maintenance of highways or to any vehicle or equipment for which a permit has been obtained for operation on such highway.
Any person violating a restriction or prohibition imposed pursuant to this section shall be guilty of a traffic infraction.

(1964, c. 23g, § 46.1?171.1; 1966, c. 365; 1981, c. 585; 1933, c. 262; 1989, c. 727; 1991, c. 55.)

The CTB placed the restriction on Alternate 3A after it was determined that this facility could not safely accommodate motor vehicle and bicycle traffic. This action was taken when the CTB approved the design of the project in July 1996.

While the typical section of Alternate 3A will provide a wide shoulder that could accommodate bicycles, the project's three interchanges, two of which are very complex, are within a two-mile stretch. This distance between interchanges, the complexity of the interchanges, the anticipated traffic volumes and traffic mix, and expected travel speeds do not combine to make a safe environment for motor vehicles and bicycles to share the roadway. Staff from the Department of Transportation's State Bicycle Program has discussed this project with other state transportation departments and bicycle transportation specialists, and they have supported the Department's determination on this project.

The CTB resolution on Alternate 3A included modifications for bike lanes, paths, and paved shoulders on roadway facilities to improve bicycle access along the general corridor. We have heard from local bicyclists that these improvements are not satisfactory to them. For example, bicyclists say the shoulder improvements on Route 460 Business will not be safe because of the many entrances along the road. VDOT can encourage the consolidation of entrances, but access management and land use ordinances that influence the placement of entrances are controlled by the county.

We feel that VDOT has made an honest effort to provide bicycle accommodations in the corridor between Blacksburg and Christiansburg in a

manner that will provide options and benefits to both motorized and non-motorized traffic.

Sincerely,

Jeffrey C. Southard

cc: Ms. Lorinda G. Lionberger

==========

(mine to him)

May 8, 2000

304 Royal Lane
Blacksburg, VA 24060

Mr. Jeffrey C. Southard
VDOT
1401 East Broad Street
Richmond, VA 23219-2000

Dear Mr. Southard:

Thank you for your thoughtful letter of April 21, 2000 regarding bicycle access on Alternative 3A. It is clear from your summary of bicyclists' position that you understand the issues at hand and have given them much consideration. However, as an experienced cyclist who drives this corridor daily, I would like to draw your attention to these additional points which would, I hope, leave the matter still open for discussion and possible reconsideration.

1) To my knowledge today, NOBODY regularly uses this corridor linking the two largest communities in our County on a bicycle. Please re-read this sentence over again until you have a chance to understand the implications. I'm told that between 50,000 and 60,000 cars use the corridor daily, yet it has not one regular bicycle user. If one-tenth of one-percent (well below national averages) used it, we'd see 50 to 60 cyclists. Why does nobody use it? Because with high traffic volumes, multiple entry points, and most importantly, absolutely no paved shoulders, it is entirely too dangerous. I would think the survival rate would be somewhat akin to the D-Day soldiers landing on Normandy beach. It is suicidal.

2) Once Alternative 3A is completed, the route VDOT has planned for cyclists is much hillier, much less direct, and will still involve a 0.8-mile stretch of the same road (between Cambria Street and Pepper's Ferry Road in Christiansburg), which bicyclists now avoid for fear of their lives. By that time, two additional superstores will be open along the corridor, contributing their additional traffic. This stretch has no shoulders today, and according to David Clarke, assistant resident engineer in the Christiansburg office, none are planned. NOBODY bicycles this corridor now; NOBODY will ride it after 3A opens.

3) Each of the three interchanges, described in your letter as "very complex," must be navigated by bicyclists regardless of the route they choose to ride; whether on Alternative 3A or on the "business" routes of VDOT's prescribed alternative. The difference is that on 3A, the shoulder is 10-feet and the speed limit is 55mph, whereas on VDOT's prescribed route, the shoulder is considerably narrower where it exists at all, and the speed limit is 45mph. VDOT's alternative involves considerably more conflict points and on-ramp and off-ramp crossings than does 3A. I understand and appreciate your concern for safety, particularly with regard to these interchanges. Here is what Rob Swennes, President of the Virginia Bicycling Federation, says about this issue: "If the "problem" from VDOT's

standpoint is the three interchanges,. …there are plenty of examples of limited access roadways around the state and the nation that have bike crossings on entrance or exit ramps. In Arlington where I live, the George Washington Memorial Parkway, for example, has several points where cyclists and pedestrians cross ramps to and from the parkway. These ramp crossings can, indeed, be potentially dangerous if they are not properly designed. For example, all such crossings should be at 90 degrees to the roadway so that cyclists can have the best opportunity to see oncoming traffic, and vice-versa. Normally such crossings are also signed and marked on the pavement so as to give both motorists and cyclists maximum forewarning that their paths will cross ahead. There are clear national standards on how such crossings can be designed so that cyclists do not simply veer across the exit ramp and get hit from behind by an exiting or entering motorist. Essentially if bikes are to be allowed on the shoulders of 3A, the ramp crossings should be signed and striped to create a safe crossing situation. I have every reason to believe this can be done." Retrofitting 3A's design at this stage of construction would be relatively easy and inexpensive.

4) You have stated, "Staff from the Department of Transportation's State Bicycle Program has discussed this project with other state transportation departments and bicycle transportation specialists, and they have supported the Department's determination on this project." Although I have no reason to doubt that this is true, neither do I have knowledge of who these specialists were, what questions they were asked, or what their responses were. I rest assured that if 100 experienced cyclists or specialists were asked to make their way from Christiansburg to Blacksburg, 90 or better would choose 3A over VDOT's prescribed route. We have collected signatures of over 100 riders who would like the opportunity to use 3A.

5) You have stated, "…bicyclists say the shoulder improvements on Route 460 Business will not be safe because of the many entrances along the road." The reality is that in spite of years of personal requests from myself and other area bicyclists to resident engineer Dan Brugh, Route 460 has no shoulder improvements whatsoever. None! From what I've been able to learn at our residency office, none are planned. I have no clearer or plainer way of saying this, Mr. Southard: This road is, and without a complete redesign will always be, unsafe for any bicyclist of any skill level at any time in any season, period.

In enclosures, I have highlighted the VDOT proposed route with notes regarding the difficulties and dangers bicyclists will encounter. Anyone with a modicum of background or reasoning capability can see that this option is as bad, if not worse, than today's option, which is so bad nobody uses it.

Your statement, "We feel that VDOT has made an honest effort to provide bicycle accommodations in the corridor between Blacksburg and Christiansburg in a manner that will provide options and benefits to both motorized and non-motorized traffic," rings hollow. Where I earned my degree in engineering, if someone designed a product that nobody in his or her target market bought, or a system that nobody in their target user group used for fear of their lives, it was not called "an honest effort," it was called a "failure." I apologize if I've come across sarcastic or disrespectful, but the VDOT alternative simply and unequivocally cannot and will not work: NOBODY will use it. By forbidding access by bicycle to 3A, VDOT has forced our area's riders back into their cars forever.

Perhaps the best solution is not yet on the table. If the CTB would be willing to open the door for reconsideration of their decision of 1996, perhaps a workable compromise might be found. Perhaps VDOT could require a waiver and special permit for each rider wishing to use 3A (which has been used successfully in New Jersey), or VDOT could require that bicyclists must exit and then re-enter 3A at each interchange, or VDOT could grant a trial period during which accident statistics might be accumulated for later evaluation.

I have been actively lobbying our local VDOT office for better accommodations for bicyclists between Blacksburg and Christiansburg for 8 years since I re-located here. Many other local cyclists have also wanted these accommodations, however many have discontinued their efforts as they were convinced that a CTB decision cannot and will not be re-examined or

revoked due to citizen input. Please help me show them that VDOT is responsive to the needs of its constituents. I will follow-up this letter soon with a telephone call to you at which time I will inquire as to the potential means or methods for re-opening meaningful discussion to reach that end.
Sincerely,

Michael S. Abraham

Cc: Lorinda Lionberger
Senator Madison Marye
Rob Swennes, Virginia Bicycle Federation

==========

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Appendix 8
FHWA Bikeway/Walkway Design Guidance Document

HUMAN ENVIRONMENT

Bicycle and Pedestrian Program

Design Guidance

Accommodating Bicycle and Pedestrian Travel: A Recommended Approach

A US DOT Policy Statement on Integrating Bicycling and Walking into Transportation Infrastructure

Purpose

Accommodating Bicycle and Pedestrian Travel: A Recommended Approach is a policy statement adopted by the United States Department of Transportation. USDOT hopes that public agencies, professional associations, advocacy groups, and others adopt this approach as a way of committing themselves to integrating bicycling and walking into the transportation mainstream.

The Design Guidance incorporates three key principles:

a) a policy statement that **bicycling and walking facilities will be incorporated into all transportation projects** unless exceptional circumstances exist;

b) an approach to achieving this policy that has already worked in State and local agencies; and

c) a series of action items that a public agency, professional association, or advocacy group can take to achieve the overriding goal of improving conditions for bicycling and walking.

The Policy Statement was drafted by the U.S. Department of Transportation in response to Section 1202 (b) of the Transportation Equity Act for the 21st Century (TEA-21) with the input and assistance of public agencies, professional associations and advocacy groups.

Introduction

Bicycling and walking issues have grown in significance throughout the 1990s. As the new millennium dawns public agencies and public interest groups alike are striving to define the most appropriate way in which to accommodate the two modes within the overall transportation system so that those who walk or ride bicycles can safely, conveniently, and comfortably access every destination within a community.

Public support and advocacy for improved conditions for bicycling and walking has created a widespread acceptance that more should be done to enhance the safety, comfort, and convenience of the nonmotorized traveler. Public opinion surveys throughout the 1990s have demonstrated strong support for increased planning, funding and implementation of shared use paths, sidewalks and on-street facilities.

At the same time, public agencies have become considerably better equipped to respond to this demand. Research and practical experience in designing facilities for bicyclists and pedestrians has generated numerous national, State and local design manuals and resources. An increasing number of professional planners and engineers are familiar with this material and are applying this knowledge in towns and cities across the country.

The 1990 Americans with Disabilities Act, building on an earlier law requiring curb ramps in new, altered, and

existing sidewalks, added impetus to improving conditions for sidewalk users. People with disabilities rely on the pedestrian and transit infrastructure, and the links between them, for access and mobility.

Congress and many State legislatures have made it considerably easier in recent years to fund nonmotorized projects and programs (for example, the Intermodal Surface Transportation Efficiency Act and the Transportation Equity Act for the 21st Century), and a number of laws and regulations now mandate certain planning activities and design standards to guarantee the inclusion of bicyclists and pedestrians.

Despite these many advances, injury and fatality numbers for bicyclists and pedestrians remain stubbornly high, levels of bicycling and walking remain frustratingly low, and most communities continue to grow in ways that make travel by means other than the private automobile quite challenging. Failure to provide an accessible pedestrian network for people with disabilities often requires the provision of costly paratransit service. Ongoing investment in the Nation's transportation infrastructure is still more likely to overlook rather than integrate bicyclists and pedestrians.

In response to demands from user groups that every transportation project include a bicycle and pedestrian element, Congress asked the Federal Highway Administration (FHWA) to study various approaches to accommodating the two modes. The Transportation Equity Act for the 21st Century (TEA-21) instructs the Secretary to work with professional groups such as AASHTO, ITE, and other interested parties to recommend policies and standards that might achieve the overall goal of fully integrating bicyclists and pedestrians into the transportation system.

TEA-21 also says that, "Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation projects, except where bicycle and pedestrian use are not permitted." (Section 1202)

In August 1998, FHWA convened a Task Force comprising representatives from FHWA, AASHTO, ITE, bicycle and pedestrian user groups, State and local agencies, the U.S. Access Board and representatives of disability organizations to seek advice on how to proceed with developing this guidance. The Task Force reviewed existing and proposed information on the planning and technical design of facilities for bicyclists and pedestrians and concluded that these made creation of another design manual unnecessary. For example, AASHTO published a bicycle design manual in 1999 and is working on a pedestrian facility manual.

The area where information and guidance was most lacking was in determining when to include designated or special facilities for bicyclists and pedestrians in transportation projects. There can also be uncertainty about the type of facility to provide, and the design elements that are required to ensure accessibility.

For example, when a new suburban arterial road is planned and designed, what facilities for bicyclists and pedestrians should be provided? The task force felt that once the decision to provide a particular facility was made, the specific information on designing that facility is generally available. However, the decision on whether to provide sidewalks on neither, one or both sides of the road, or a shoulder, striped bike lane, wide outside lane or separate trail for bicyclists is usually made with little guidance or help.

SEC. 1202. BICYCLE TRANSPORTATION AND PEDESTRIAN WALKWAYS.

(b) Design Guidance.—

(1) In general.-In implementing section 217(g) of title 23, United States Code, the Secretary, in cooperation with the American Association of State Highway and Transportation Officials, the Institute of Transportation Engineers, and other interested organizations, shall develop guidance on the various approaches to accommodating bicycles and pedestrian travel.

(2) Issues to be addressed. -The guidance shall address issues such as the level and nature of the demand, volume, and speed of motor vehicle traffic, safety, terrain, cost, and sight distance.

(3) Recommendations. -The guidance shall include recommendations on amending and updating the policies of the American Association of State Highway and Transportation Officials relating to highway and street design standards to accommodate bicyclists and pedestrians.

(4) Time period for development. -The guidance shall be developed within 18 months after the date of enactment of this Act.

After a second meeting with the Task Force in January 1999, FHWA agreed to develop a **Policy Statement on Accommodating Bicyclists and Pedestrians in Transportation Projects** to guide State and local agencies in answering these questions. Task Force members recommended against trying to create specific warrants for different facilities (warrants leave little room for engineering judgement and have often been used to avoid providing facilities for bicycling and walking). Instead, the purpose of the Policy Statement is to provide a recommended approach to the accommodation of bicyclists and pedestrians that can be adopted by State and local agencies (as well as professional societies and associations, advocacy groups, and Federal agencies) as a commitment to developing a transportation infrastructure that is safe, convenient, accessible, and attractive to motorized AND nonmotorized users alike. The Policy Statement has four elements:

a) an acknowledgment of the issues associated with balancing the competing interests of motorized and nonmotorized users;

b) a recommended policy approach to accommodating bicyclists and pedestrians (including people with disabilities) that can be adopted by an agency or organizations as a statement of policy to be implemented or a target to be reached in the future;

c) a list of recommended actions that can be taken to implement the solutions and approaches described above; and

d) further information and resources on the planning, design, operation, and maintenance of facilities for bicyclists and pedestrians.

The Challenge: Balancing Competing Interests

For most of the second half of the 20th Century, the transportation, traffic engineering and highway professions in the United States were synonymous. They shared a singular purpose: building a transportation system that promoted the safety, convenience and comfort of motor vehicles. The post-war boom in car and home ownership, the growth of suburban America, the challenge of completing the Interstate System, and the continued availability of cheap gasoline all fueled the development of a transportation infrastructure focused almost exclusively on the private motor car and commercial truck.

Initially, there were few constraints on the traffic engineer and highway designer. Starting at the centerline, highways were developed according to the number of motor vehicle travel lanes that were needed well into the future, as well as providing space for breakdowns. Beyond that, facilities for bicyclists and pedestrians, environmental mitigation, accessibility, community preservation, and aesthetics were at best an afterthought, often simply overlooked, and, at worst, rejected as unnecessary, costly, and regressive. Many States passed laws preventing the use of State gas tax funds on anything other than motor vehicle lanes and facilities. The resulting highway environment discourages bicycling and walking and has made the two modes more dangerous. Further, the ability of pedestrians with disabilities to travel independently and safely has been compromised, especially for those with vision impairments.

Over time, the task of designing and building highways has become more complex and challenging. Traffic engineers now have to integrate accessibility, utilities, landscaping, community preservation, wetland mitigation, historic preservation, and a host of other concerns into their plans and designs - and yet they often have less space and resources within which to operate and traffic volumes continue to grow.

The additional "burden" of having to find space for pedestrians and bicyclists was rejected as impossible in many communities because of space and funding constraints and a perceived lack of demand. There was also anxiety about encouraging an activity that many felt to be dangerous and fraught with liability issues. Designers continued to design from the centerline out and often simply ran out of space before bike lanes, paved shoulders, sidewalks and other "amenities" could be included.

By contrast, bicycle and pedestrian user groups argue the roadway designer should design highways from the right-of-way limits in, rather than the centerline out. They advocate beginning the design of a highway with the sidewalk and/or trail, including a buffer before the paved shoulder or bike lane, and then allocating the remaining space for motor vehicles. Through this approach, walking and bicycling are positively encouraged, made safer, and included as a critical element in every transportation project rather than as an afterthought in a handful of unconnected and arbitrary locations within a community.

Retrofitting the built environment often provides even more challenges than building new roads and communities: space is at a premium and there is a perception that providing better conditions for bicyclists and pedestrians will necessarily take away space or convenience from motor vehicles.

During the 1990s, Congress spearheaded a movement towards a transportation system that favors people and goods over motor vehicles with passage of the Intermodal Surface Transportation Efficiency Act (1991) and the Transportation Equity Act for the 21st Century (1998). The call for more walkable, liveable, and accessible communities, has seen bicycling and walking emerge as an "indicator species" for the health and well-being of a community. People want to live and work in places where they can safely and conveniently walk and/or bicycle and not always have to deal with worsening traffic congestion, road rage and the fight for a parking space. Vice President Gore launched a Livability Initiative in 1999 with the ironic statement that "a gallon of gas can be used up just driving to get a gallon of milk."

The challenge for transportation planners, highway engineers and bicycle and pedestrian user groups, therefore, is to balance their competing interest in a limited amount of right-of-way, and to develop a transportation infrastructure that provides access for all, a real choice of modes, and safety in equal measure for each mode of travel.

This task is made more challenging by the widely divergent character of our nation's highways and byways. Traffic

speeds and volumes, topography, land use, the mix of road users, and many other factors mean that a four-lane highway in rural North Carolina cannot be designed in the same way as a four-lane highway in New York City, a dirt road in Utah or an Interstate highway in Southern California. In addition, many different agencies are responsible for the development, management, and operation of the transportation system.

In a recent memorandum transmitting Program Guidance on bicycle and pedestrian issues to FHWA Division Offices, the Federal Highway Administrator wrote that "We expect every transportation agency to make accommodation for bicycling and walking a routine part of their planning, design, construction, operations and maintenance activities." The Program Guidance itself makes a number of clear statements of intent:

- Congress clearly intends for bicyclists and pedestrians to have safe, convenient access to the transportation system and sees every transportation improvement as an opportunity to enhance the safety and convenience of the two modes.
- "Due consideration" of bicycle and pedestrian needs should include, at a minimum, a presumption that bicyclists and pedestrians will be accommodated in the design of new and improved transportation facilities.
- To varying extents, bicyclists and pedestrians will be present on all highways and transportation facilities where they are permitted and it is clearly the intent of TEA-21 that all new and improved transportation facilities be planned, designed and constructed with this fact in mind.
- The decision not to accommodate [bicyclists and pedestrians] should be the exception rather than the rule. There must be exceptional circumstances for denying bicycle and pedestrian access either by prohibition or by designing highways that are incompatible with safe, convenient walking and bicycling.

The Program Guidance defers a suggested definition of what constitutes "exceptional circumstances" until this Policy Statement is completed. However, it does offer interim guidance that includes controlled access highways and projects where the cost of accommodating bicyclists and pedestrians is high in relation to the overall project costs and likely level of use by nonmotorized travelers.

Providing access for people with disabilities is a civil rights mandate that is not subject to limitation by project costs, levels of use, or "exceptional circumstances". While the Americans with Disabillities Act doesn't require pedestrian facilities in the absence of a pedestrian route, it does require that pedestrian facilities, when newly constructed or altered, be accessible.

Policy Statement

1. Bicycle and pedestrian ways shall be established in new construction and reconstruction projects in all urbanized areas unless one or more of three conditions are met:

- bicyclists and pedestrians are prohibited by law from using the roadway. In this instance, a greater effort may be necessary to accommodate bicyclists and pedestrians elsewhere within the right of way or within the same transportation corridor.
- the cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. Excessively disproportionate is defined as exceeding twenty percent of the cost of the larger transportation project.
- where sparsity of population or other factors indicate an absence of need. For example, the Portland Pedestrian Guide requires "all construction of new public streets" to include sidewalk improvements on both sides, unless the street is a cul-de-sac with four or fewer dwellings or the street has severe topographic or natural resource constraints.

2. In rural areas, paved shoulders should be included in all new construction and reconstruction projects on roadways used by more than 1,000 vehicles per day, as in States such as Wisconsin. Paved shoulders have safety and operational advantages for all road users in addition to providing a place for bicyclists and pedestrians to operate.

Rumble strips are not recommended where shoulders are used by bicyclists unless there is a minimum clear path of four feet in which a bicycle may safely operate.

3. Sidewalks, shared use paths, street crossings (including over- and undercrossings), pedestrian signals, signs, street furniture, transit stops and facilities, and all connecting pathways shall be designed, constructed, operated and maintained so that all pedestrians, including people with disabilities, can travel safely and independently.

4. The design and development of the transportation infrastructure shall improve conditions for bicycling and walking through the following additional steps:

- planning projects for the long-term. Transportation facilities are long-term investments that remain in place

for many years. The design and construction of new facilities that meet the criteria in item 1) above should anticipate likely future demand for bicycling and walking facilities and not preclude the provision of future improvements. For example, a bridge that is likely to remain in place for 50 years, might be built with sufficient width for safe bicycle and pedestrian use in anticipation that facilities will be available at either end of the bridge even if that is not currently the case.

- addressing the need for bicyclists and pedestrians to cross corridors as well as travel along them. Even where bicyclists and pedestrians may not commonly use a particular travel corridor that is being improved or constructed, they will likely need to be able to cross that corridor safely and conveniently. Therefore, the design of intersections and interchanges shall accommodate bicyclists and pedestrians in a manner that is safe, accessible and convenient.
- getting exceptions approved at a senior level. Exceptions for the non-inclusion of bikeways and walkways shall be approved by a senior manager and be documented with supporting data that indicates the basis for the decision.
- designing facilities to the best currently available standards and guidelines. The design of facilities for bicyclists and pedestrians should follow design guidelines and standards that are commonly used, such as the AASHTO *Guide for the Development of Bicycle Facilities*, AASHTO's *A Policy on Geometric Design of Highways and Streets,* and the ITE Recommended Practice "*Design and Safety of Pedestrian Facilities*".

Policy Approach

"Rewrite the Manuals" Approach

Manuals that are commonly used by highway designers covering roadway geometrics, roadside safety, and bridges should incorporate design information that integrates safe and convenient facilities for bicyclists and pedestrians – including people with disabilities - into all new highway construction and reconstruction projects.

In addition to incorporating detailed design information - such as the installation of safe and accessible crossing facilities for pedestrians, or intersections that are safe and convenient for bicyclists - these manuals should also be amended to provide flexibility to the highway designer to develop facilities that are in keeping with transportation needs, accessibility, community values, and aesthetics. For example, the Portland Pedestrian Design Guide (June 1998) applies to every project that is designed and built in the city, but the Guide also notes that:

> "Site conditions and circumstances often make applying a specific solution difficult. The Pedestrian Design Guide should reduce the need for ad hoc decision by providing a published set of guidelines that are applicable to most situations. Throughout the guidelines, however, care has been taken to provide flexibility to the designer so she or he can tailor the standards to unique circumstances. Even when the specific guideline cannot be met, the designer should attempt to find the solution that best meets the pedestrian design principles described [on the previous page]"

In the interim, these manuals may be supplemented by stand-alone bicycle and pedestrian facility manuals that provide detailed design information addressing on-street bicycle facilities, fully accessible sidewalks, crosswalks, and shared use paths, and other improvements.

Examples: Florida DOT has integrated bicycle and pedestrian facility design information into its standard highway design manuals and New Jersey DOT is in the process of doing so. Many States and localities have developed their own bicycle and pedestrian facility design manuals, some of which are listed in the final section of this document.

Applying Engineering Judgement to Roadway Design

In rewriting manuals and developing standards for the accommodation of bicyclists and pedestrians, there is a temptation to adopt "typical sections" that are applied to roadways without regard to travel speeds, lane widths, vehicle mix, adjacent land uses, traffic volumes and other critical factors. This approach can lead to inadequate provision on major roads (e.g. a four foot bike lane or four foot sidewalk on a six lane high-speed urban arterial) and the over-design of local and neighborhood streets (e.g. striping bike lanes on low volume residential roads) , and leaves little room for engineering judgement.

After adopting the policy that bicyclists and pedestrians (including people with disabilities) will be fully integrated into the transportation system, State and local governments should encourage engineering judgement in the application of the range of available treatments.

For example:

- Collector and arterial streets shall typically have a minimum of a four foot wide striped bicycle lane, however wider lanes are often necessary in locations with parking, curb and gutter, heavier and/or faster traffic.

- Collector and arterial streets shall typically have a minimum of a five foot sidewalk on both sides of the street, however wider sidewalks and landscaped buffers are necessary in locations with higher pedestrian or traffic volumes, and/or higher vehicle speeds. At intersections, sidewalks may need to be wider to accommodate accessible curb ramps.

- Rural arterials shall typically have a minimum of a four foot paved shoulder, however wider shoulders (or marked bike lanes) and accessible sidewalks and crosswalks are necessary within rural communities and where traffic volumes and speeds increase.

This approach also allows the highway engineer to achieve the performance goal of providing safe, convenient, and comfortable travel for bicyclists and pedestrians by other means. For example, if it would be inappropriate to add width to an existing roadway to stripe a bike lane or widen a sidewalk, traffic calming measures can be employed to reduce motor vehicle speeds to levels more compatible with bicycling and walking.

Actions

The United States Department of Transportation encourages States, local governments, professional associations, other government agencies and community organizations to adopt this Policy Statement as an indication of their commitment to accommodating bicyclists and pedestrians as an integral element of the transportation system. By so doing, the organization or agency should explicitly adopt one, all, or a combination of the various approaches described above AND should be committed to taking some or all of the actions listed below as appropriate for their situation.

a) Define the exceptional circumstances in which facilities for bicyclists and pedestrians will NOT be required in all transportation projects.

b) Adopt new manuals, or amend existing manuals, covering the geometric design of streets, the development of roadside safety facilities, and design of bridges and their approaches so that they comprehensively address the development of bicycle and pedestrian facilities as an integral element of the design of all new and reconstructed roadways.

c) Adopt stand-alone bicycle and pedestrian facility design manuals as an interim step towards the adoption of new typical sections or manuals covering the design of streets and highways.

d) Initiate an intensive re-tooling and re-education of transportation planners and engineers to make them conversant with the new information required to accommodate bicyclists and pedestrians. Training should be made available for, if not required of, agency traffic engineers and consultants who perform work in this field.

Conclusion

There is no question that conditions for bicycling and walking need to be improved in every community in the United States; it is no longer acceptable that 6,000 bicyclists and pedestrians are killed in traffic every year, that people with disabilities cannot travel without encountering barriers, and that two desirable and efficient modes of travel have been made difficult and uncomfortable.

Every transportation agency has the responsibility and the opportunity to make a difference to the bicycle-friendliness and walkability of our communities. The design information to accommodate bicyclists and pedestrians is available, as is the funding. The United States Department of Transportation is committed to doing all it can to improve conditions for bicycling and walking and to make them safer ways to travel.

Further Information and Resources

General Design Resources

A Policy on Geometric Design of Highways and Streets, 1994 (The Green Book). American Association of State Highway and Transportation Officials (AASHTO), P.O. Box 96716, Washington, DC, 20090-6716, Phone: (888) 227-4860.

Highway Capacity Manual, Special Report 209, 1994. Transportation Research Board, Box 289, Washington, DC 20055, Phone: (202) 334-3214. Next Edition: FHWA Research Program project has identified changes to HCM related to bicycle and pedestrian design.

Manual on Uniform Traffic Control Devices, 1988. Federal Highway Administration (FHWA), Superintendent of Documents. P.O. Box 371954, Pittsburgh, PA 15250-7954. Next Edition: 2000, will incorporate changes to Part IX that will soon be subject of Notice of Proposed Rulemaking.

Flexibility in Highway Design, 1997. FHWA. HEP 30, 400 Seventh Street SW, Washington, DC 20590.

Pedestrian Facility Design Resources

Design and Safety of Pedestrian Facilities, A Recommended Practice, 1998. Institute of Transportation Engineers, 525 School Street, S.W, Suite 410, Washington, DC 20024-2729, Phone: (202) 554-8050.

Pedestrian Compatible Roadways-Planning and Design Guidelines, 1995. Bicycle / Pedestrian Transportation Master Plan, Bicycle and Pedestrian Advocate, New Jersey Department of Transportation, 1035 Parkway Avenue, Trenton, NJ 08625, Phone: (609) 530-4578.

Improving Pedestrian Access to Transit: An Advocacy Handbook, 1998. Federal Transit Administration / WalkBoston. NTIS, 5285 Port Royal Road, Springfield, VA 22161.

Planning and Implementing Pedestrian Facilities in Suburban and Developing Rural Areas, Report No. 294A, Transportation Research Board, Box 289, Washington, DC 20055, Phone: (202) 334-3214.

Pedestrian Facilities Guidebook, 1997. Washington State Department of Transportation, Bicycle and Pedestrian Program, P.O. Box 47393, Olympia, WA 98504.

Portland Pedestrian Design Guide, 1998. Portland Pedestrian Program, 1120 SW Fifth Ave, Room 802; Portland, OR 97210. (503) 823-7004.

* *Implementing Pedestrian Improvements at the Local Level,* 1999. FHWA, HSR 20, 6300 Georgetown Pike, McLean, VA .

* AASHTO *Guide to the Development of Pedestrian Facilities,* 2000. AASHTO. (currently under discussion)

Bicycle Facility Design Resources

Guide for the Development of Bicycle Facilities, 1999., American Association of State Highway and Transportation Officials (AASHTO), P.O. Box 96716, Washington, DC, 20090-6716, Phone: (888) 227-4860.

Implementing Bicycle Improvements at the Local Level, (1998), FHWA, HSR 20, 6300 Georgetown Pike, McLean, VA .

Bicycle Facility Design Standards, 1998. City of Philadelphia Streets Department, 1401 JFK Boulevard, Philadelphia, PA 19103.

Selecting Roadway Design Treatments to Accommodate Bicyclists, 1993. FHWA, R&T Report Center, 9701 Philadelphia Ct, Unit Q; Lanham, MD 20706. (301) 577-1421 (fax only)

North Carolina Bicycle Facilities Planning and Design Guidelines, 1994. North Carolina DOT, P.O. Box 25201, Raleigh, NC 27611. (919) 733-2804.

Bicycle Facility Planning, 1995. Pinsof & Musser. American Planning Association, Planning Advisory Service Report # 459. American Planning Association, 122 S. Michigan Ave, Suite 1600; Chicago, IL 60603.

Florida Bicycle Facilities Planning and Design Manual, 1994. Florida DOT, Pedestrian and Bicycle Safety Office, 605 Suwannee Street, Tallahassee, FL 32399.

Evaluation of Shared-use Facilities for Bicycles and Motor Vehicles, 1996. Florida DOT, Pedestrian and Bicycle Safety Office, 605 Suwannee Street, Tallahassee, FL 32399.

Bicycle and Pedestrian Design Resources

Oregon Bicycle and Pedestrian Plan, 1995. Oregon Department of Transportation, Bicycle and Pedestrian Program, Room 210, Transportation Building, Salem, OR 97310, Phone: (503) 986-3555

Improving Conditions for Bicyclists and Pedestrians, A Best Practices Report, 1998. FHWA, HEP 10, 400 Seventh Street SW, Washington, DC 20590.

Traffic Calming Design Resources

Traffic Calming: State of the Practice. 1999. Institute of Transportation Engineers, 525 School Street, SW, Suite 410; Washington, DC 20024.

Florida Department of Transportation's Roundabout Guide. Florida Department of Transportation, 605 Suwannee St., MS-82, Tallahassee, FL 23299-0450.

National Bicycling and Walking Study. Case Study # 19, Traffic Calming and Auto-Restricted Zones and other Traffic Management Techniques-Their Effects on Bicycling and Pedestrians, Federal Highway Administration (FHWA).

Traffic Calming (1995), American Planning Association, 122 South Michigan Avenue, Chicago, IL 60603

Traditional Neighborhood Development Street Design Guidelines, 1997. Proposed Recommended Practice, Institute of Transportation Engineers, 525 School Street, SW, Suite 410; Washington, DC 20024.

Making Streets that Work, City of Seattle, 600 Fourth Ave., 12th Floor, Seattle, WA 98104-1873, Phone: (206) 684-4000, Fax: (206) 684-5360.

Traffic Control Manual for In-Street Work, 1994. Seattle Engineering Department, City of Seattle, 600 4th Avenue, Seattle, WA 98104-6967, Phone: (206) 684-5108.

ADA-related Design Resources

Accessible Pedestrian Signals, 1998. U.S. Access Board 1331 F Street NW, Suite 1000; Washington, DC 20004. (800) 872-2253.

*Accessible Rights of Way: A Design Manual,*1999. U.S. Access Board, 1331 F Street NW, Suite 1000; Washington, DC 20004. (800) 872-2253.

Designing Sidewalks and Trails for Access, Part One. 1999. FHWA, HEPH-30, 400 Seventh Street SW, Washington, DC 20590.

ADA Accessibility Guidelines for Buildings and Facilities, 1998 (ADAAG). U.S. Access Board, 1331 F Street NW, Suite 1000; Washington, DC 20004. (800) 872-2253.

Uniform Federal Accessibility Standards, 1984 (UFAS), available from the U.S. Access Board, 1331 F Street NW, Suite 1000; Washington, DC 20004. (800) 872-2253

Universal Access to Outdoor Recreation: A Design Guide, 1993. PLAE, Inc, MIG Communications, 1802 Fifth Street, Berkeley, CA 94710. (510) 845-0953.

Recommended Street Design Guidelines for People Who Are Blind or Visually Impaired. American Council of the Blind, 1155 15th Street NW, Suite 720; Washington, DC 20005. (202) 467-5081.

Trail Design Resources

Trails for the 21st Century, 1993. Rails to Trails Conservancy, 1100 17th Street NW, 10th Floor, Washington DC 20036. (202) 331-9696.

Greenways: A Guide to Planning, Design, and Development, 1993. The Conservation Fund. Island Press, 1718 Connecticut Ave NW, Suite 300; Washington, DC 20009.

Trail Intersection Design Guidelines, 1996. Florida Department of Transportation, 605 Suwannee St., MS-82, Tallahassee, FL 23299-0450.

* Indicates publication not yet available

This page last modified on March 27, 2000

Appendix 9
USDA Forest Service Mountain Biking Guidelines

Mountain Biking Guidelines

Welcome to Your National Forests

The George Washington and Jefferson National Forests are managed by the Forest Service, an agency of the United States Department of Agriculture. With 1.8 million acres stretching over 350 miles from near Winchester in the north to the Kentucky border in far southwest Virginia, management is divided among 12 Ranger Districts with the Forest Headquarters in Roanoke.

The Forests offer many opportunities to enjoy various recreation experiences -- hunting, hiking, fishing, camping, picnicking, and of course, mountain biking. Take this opportunity to learn a little bit about how to enjoy this exciting sport on your National Forests.

What to Expect

There are thousands of miles of roads and trails that are available for mountain bike use. Visitors may use any of these routes year round. There are no permits, fees, or registration required for individuals and small groups.

You may ride your bike on any forest road or trail unless it is specifically closed to mountain bike use. The closed routes are very few and are well signed.

Expect to carry and walk your bike for considerable distances on almost all of the trails on the National Forests. No trails are maintained for continuous mountain bike riding. Trails are narrow and sometimes steep and are always pretty rough due to rock.

You may ride behind gates and tanktraps (mounds of earth used to block roads.) These roads may have signs that say "Road Closed." The closure applies to motorized vehicles, not to horses, hikers, and pedal-powered bikes.

Expect to share the forest with other users, including hikers, horsefolk, timber cutters, hunters, and bird watchers. A National Forest is a land

of many uses and hence, many users.
-- Share the Trail --

Stay on National Forest land or public roads. Do not trespass on private land. It is your responsibility to be sure you are on the National Forest.

Find out about hunting seasons. Above all, avoid riding during the firearms deer seasons, usually from the third Saturday in November through the first Sunday in December. You can ride fairly safely during other seasons if you practice some common sense. Wear blaze orange, whistle, talk and make human noises. If you see a hunter, give him a sharp whistle to alert him a human approaches.

You can camp any place except where posted as camping prohibited. There are very few prohibited places and these are well signed. There are restrictions on open campfires during certain times of the year. Check with a local Ranger District officefor dates and times.

Always bring your own drinking water from home or a public water supply. Do not drink from streams and springs as you can never be sure of the purity of the water.

Areas Closed to Mountain Biking

Mountain bikes and other similar mechanical devices are prohibited by law in Congressionally designated Wilderness areas. There are 15 Wildernesses in the George Washington and Jefferson National Forests.

Mountain bikes and horses are prohibited on the Appalachian National Scenic Trail.

Forest Supervisor's Orders also prohibit bicycles on Rocky Row Trail (Pedlar), Saddle Gap Trail, (Pedlar), the Bear Oak Environmental Education Center area to the south of Waynesboro, and on lakeside trails within the Sherando Lake Recreation Area. It is recommended that you check with local Ranger District offices about any other restrictions.

Riding Opportunities

First, check out your local bike shop. It is very likely that an avid mountain biker is in the shop and is familiar with the best riding opportunities in the area. Additionally, the shops normally carry

several mountain bike guides that describe trails in the National Forests.

A few of the trails discussed in these guides include: Massanutten Mountain and Elizabeth Furnace area trails and the Edinburg Gap Trail on the Lee Ranger District; the Second Mountain ATV Trail and the Reddish Knob and Flagpole Knob trails on the Dry River Ranger District; the Sherando Lake area and Big Levels area trails , the Henry Lanum Trail, the South Pedlar ATV Trail, and the Blue Ridge Dirt ride on the Pedlar Ranger District; the Virginia Creeper Trail on the Mount Rogers National Recreation Area, and the Great North Mountain Trail to Elliot Knob on the Deerfield Ranger District. Contact the appropriate Ranger District office if you have any questions regarding these or the other available bike trail opportunities.

Much of the trail system on the northern portions of the George Washington and Jefferson National Forests is described in the ***Guide to the Massanutten Mountain*** and ***Circuit Hikes in VA, WV, MD, and PA.*** Both are Potomac Appalachian Trail Club publications.

Remember, there are thousands of miles of roads and trails on the National Forests, and you are welcome on virtually all of them.

Maps

A variety of maps are available from the interpretive association sales outlets operated in each of the Forest Service offices:

- USGS Topographic Maps: 1inch = 2000 feet, 20' or 40' contours, shows most roads and trails, and National Forest ownership.
- District Maps: 1 inch = 1.3 miles, 150' or 200' contours, shows major roads and trails, and National Forest ownership.
- Forest Recreation Map: 1/2 inch = 1 mile, no contours, shows major roads and National Forest ownership.
- Other maps are also available.

 **District Locator Map**

The interpretive association sales outlets also offer various books, and other information that will be useful during your visit. Additional information on riding opportunities may be obtained from any Forest Service office.

Appendix 10
Virginia Bicycling Guide - Laws, Safety, and Trail Rules

Virginia Bicycling Basics

Connecting the Country

Virginia is crossed by sections of three of the country's major bicycle routes: the Trans-America Bicycle Trail from Oregon to Virginia, the Maine to Virginia Bicycle Route and the Virginia to Florida Bicycle Route.

- The 500-mile Virginia section of the Trans-America Bicycle Trail runs from the Kentucky state line near Breaks Interstate Park to Yorktown.
- The 150-mile Virginia section of the Maine to Virginia Bicycle Route runs from Washington, D.C., to Richmond.
- The 130-mile Virginia section of the Virginia to Florida Bicycle Route runs from Richmond to the North Carolina state line at Suffolk.

The Adventure Cycling Association developed each of these routes.

Crossing the Waters

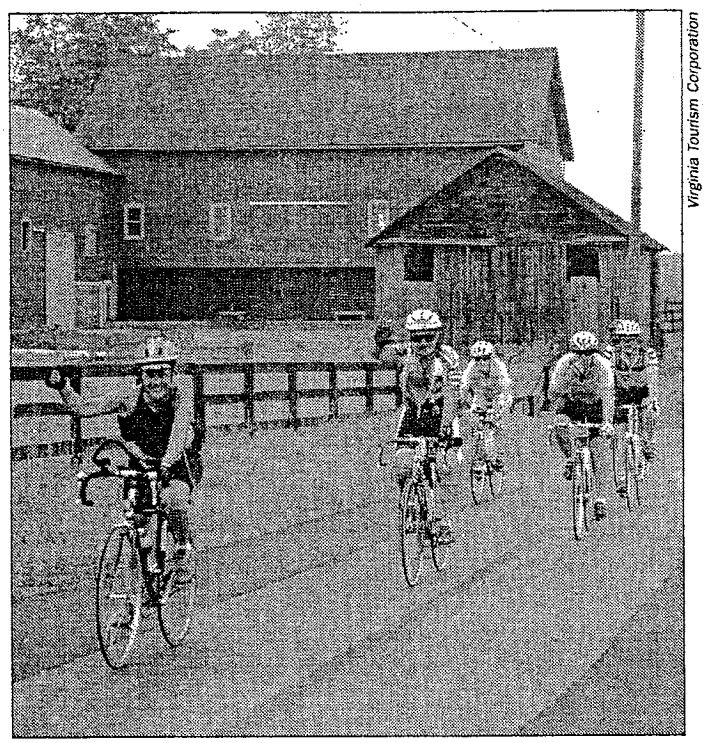
The eastern portion of the state features many bodies of water. Several major river crossings are prohibited to bicyclists due to safety concerns.

- James River Bridge at Newport News (Routes 17/32)
- Chesapeake Bay Bridge-Tunnel (Route 13)
- Hampton Roads Bridge-Tunnel (I-64)
- Nice Bridge (Route 301) leading to Maryland

Alternate crossings are possible. For the James River Bridge, take the ferry between Jamestown and Scotland. For the Chesapeake Bay Bridge-Tunnel, choose from a number of tour boats that seasonally run between Reedville and Onancock.

Andy Morris/Blue Ridge Outdoors Magazine

Drink plenty of water to stay hydrated when riding.



Virginia Tourism Corporation

Bicycling Conditions

When planning your trip, consider that the state's topography runs the gamut from mountains in the west to flat plains on the East Coast. Generally, the state has a pleasant, somewhat humid climate on the coast, with drier conditions in the west. Spring and summer temperatures range from the mid-60s to mid-90s during the day and from the upper 40s to lower 70s at night.

Bicycling is an activity that can be enjoyed virtually year-round in Virginia. Being prepared in the heat of summer will mean having a day's worth of sun screen and bug repellant, while spring and fall rides will need extra layers and possibly rain gear. In cooler seasons, layers that can be easily stored when not in use help to create a proper mix at the proper moment. Remember that rides into the mountains can bring temperatures 10 or more degrees colder than in the valley. Cycling gloves add comfort to your hands, but also provide a layer of protection should you take a fall.

Drink plenty of water. If you can't carry as much as you will need, plan a route that provides replenishing. For extended backcountry rides, it may be best to carry a portable water purification system.

Remember that how you sit on your bike is important for comfort. Position you arms so that your wrists are straight and relaxed. Staying limber in your upper body will also help absorb bumps when riding. Wearing gloves cushions the ride for your hands. Thicker padding or tape on your handlebars may help as well. Periodically try to run a little system check: Are your fingers, elbows and shoulders relaxed? Is your weight centered over your feet? If so, your pedal stroke will actually help "lift" a little weight off of both your hands and seat.

Hunting season

Hunters use the state and national forests during the various hunting seasons in Virginia. To check the dates and locations for these seasons, contact the Department of Game and Inland Fisheries at 804-367-1000.

Virginia Bicycling Events Calendar

A comprehensive listing of major bicycle events across the state is available on the VDOT website at www.vdot.state.us

Virginia Bicycling Laws

- In Virginia, a bicycle is a vehicle when operated on the highway. As such, bicyclists must obey the same traffic laws as motor vehicle opertors, including following traffic signs, signals, lights, and lane markings and directions.

- Bicyclists must ride with the flow of traffic on the right side of the highway, as close as practicable to the right edge of the roadway. Exceptions to this are when bicyclists are overtaking and passing another vehicle, preparing for a left turn, or avoiding unsafe conditions. In addition, bicyclists are not excluded from riding on the highway shoulder.

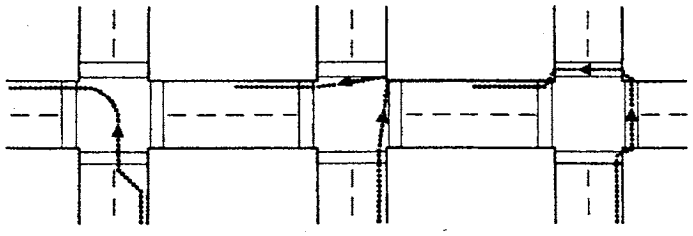
- Bicycles may be ridden along the majority of Virginia highways.

- Bicycles cannot be ridden on Interstate or certain other controlled access highways. These highways are identified on the state highway map.

- Bicyclists must ride single file.

- Bicyclists must signal their intentions to stop or turn. The proper signals are made with the left arm as shown below.

- The signals do not have to be given continuously if both hands are needed to control the bicycle.



- Bicyclists may make left turns as either motorists or pedestrians do. To make a pedestrian left turn, the bicyclist should continue straight across the intersecting road, obey the traffic signals, turn left at the corner, and proceed as usual. Bicyclists may also dismount and walk in the crosswalks of the intersecting roads. Please refer to the examples above.

Riders should ride as close as practicable to the right edge of the roadway.

Passing

- Bicyclists may overtake and pass another vehicle only when safe to do so. Bicyclists may pass another vehicle on the right or left, and they may stay in the same lane, change lanes, or ride off the road if necessary for safe passing. Please note that passing motor vehicles on the right side may be extremely dangerous if the motorist does not see the bicyclist and attempts a right turn.

- Motorists must approach and pass a bicyclist at a safe distance and reasonable speed.

Safety Considerations

- Bicyclists must not carry articles which prevent them from keeping at least one hand on the handlebars.

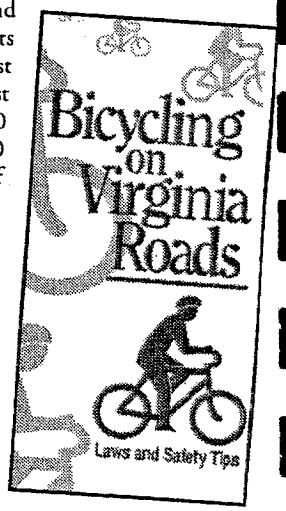
- Bicyclists must not attach themselves or their bicycles to any other vehicle on the roadway.

- Bicyclists are not permitted to wear earphones while riding a bicycle.

Equipment

- Every bicycle ridden between sunset and sunrise must have a white light on its front with the light being visible at least 500 feet to the front. The bicycle must have a red reflector on the rear visible 300 feet to the rear. A red light visible for 500 feet to the rear may be used in place of or in addition to the red reflector.

- Bicycles ridden on highways must have brakes which will skid the wheels on dry, level, clean pavement.

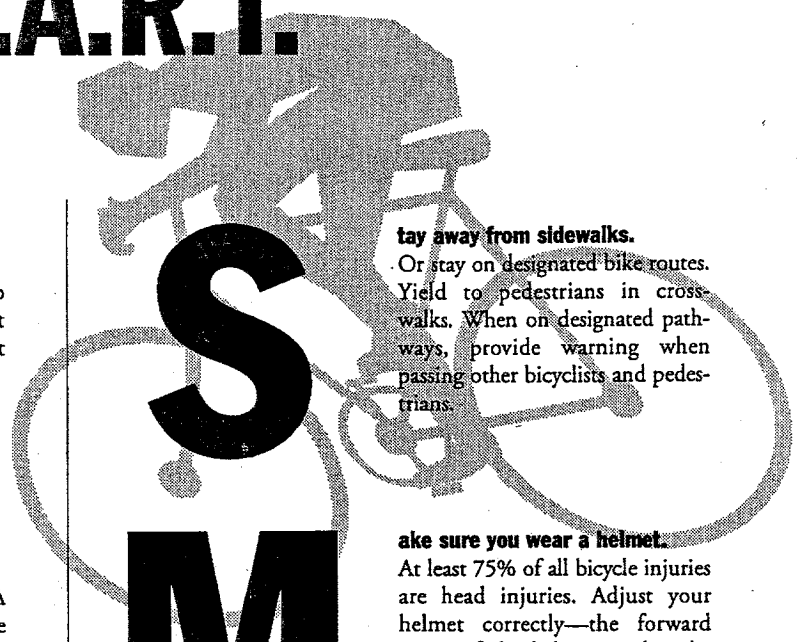


Bicycling on Virginia Roads—Laws and Safety Tips

A brochure summarizing Virginia laws concerning bicycles and their use is available from the VDOT State Bicycle Coordinator.

B.I.K.E. S.M.A.R.T.

Tips for Safe Bicycling

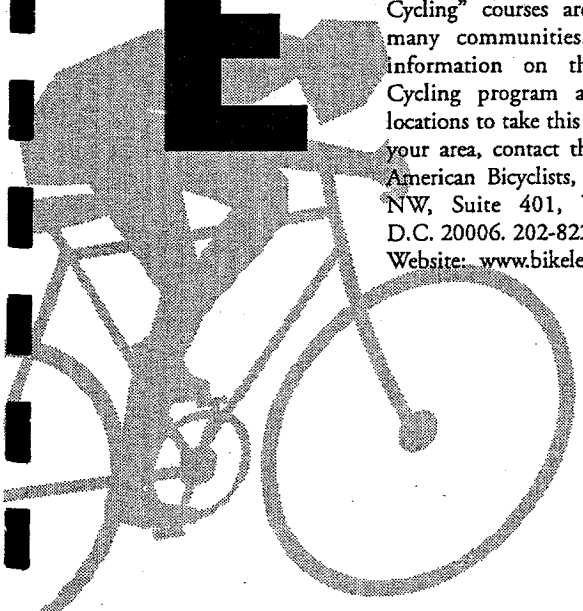


B **e aware of everyone and ever thing around you.**
Ride in a predictable manner. Do not assume that a motorist will see you. If you are unsure about a motorist's intentions, yield.

I **lluminate at night.**
Riding at night is dangerous. A headlight and rear reflectors are required by law. A flashing tail light is a good common sense addition.

K **eep clear of parked cars.**
Doors can open suddenly in front of you. When riding in traffic, look into side view mirrors of parked cars for people preparing to exit their car.

E **ducate yourself.**
Bicycle classes and "Effective Cycling" courses are offered in many communities. For more information on the Effective Cycling program and possible locations to take this workshop in your area, contact the League of American Bicyclists, 1612 K St., NW, Suite 401, Washington, D.C. 20006. 202-822-1333. Website: www.bikeleague.org.



S **tay away from sidewalks.**
Or stay on designated bike routes. Yield to pedestrians in crosswalks. When on designated pathways, provide warning when passing other bicyclists and pedestrians.

M **ake sure you wear a helmet.**
At least 75% of all bicycle injuries are head injuries. Adjust your helmet correctly—the forward straps of the helmet need to be tight enough to keep the brim of your helmet across your forehead. This will usually place the strap's Y clip directly below your ear.

A **void the "right hook."**
Watch for cars and buses making a right turn in front of you. Never pass a bus or car on the right as you approach an intersection, as you might get caught between the vehicle and a curb.

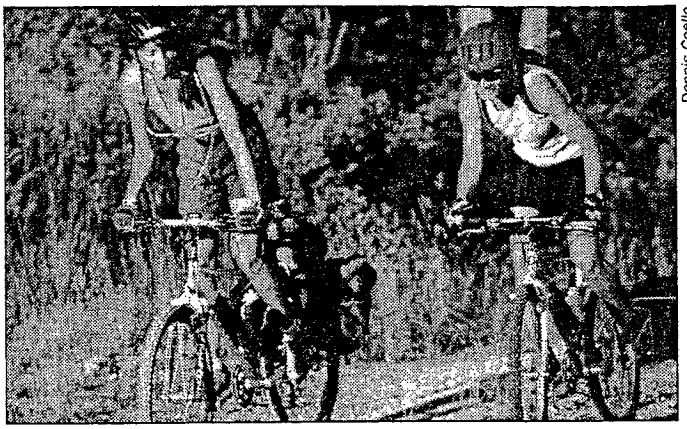
R **ide on the right side of the road.**
Make sure you ride in the same direction as vehicle traffic.

T **raffic laws are the same for motorists and bicyclists.**
Obey the rules of the road.

Rules of the Trail

The International Mountain Bicycling Association (IMBA) has been instrumental in the education and training of local groups in the craft of constructing sustainable bike trails and the proper etiquette in using these trails. Here are IMBA's riding guidelines:

- Ride on open trails only. Respect trail and road closures—ask if you are not sure. Avoid possible trespass on private land; obtain permits and authorization as required. Federal and state wilderness areas are closed to cycling. Leave gates as you found them, or as marked.
- Leave no trace. Be sensitive to the dirt beneath you. Even on open trails, do not ride under conditions where you will leave evidence of your passing, such as on certain soils shortly after rain. Observe the different types of soils and trail construction; practice low impact cycling. This also means staying on the trail and not creating new ones. Be sure to pack out at least as much as you packed in.
- Control your bicycle. Inattention, even for a second, can cause disaster. Excessive speed creates unnecessary risks!
- Always yield the trail. Make known your approach well in advance. A friendly greeting or a bell is considerate and works well; startling others is inconsiderate. Anticipate that other trail users may be around corners or in blind spots.
- Don't spook animals. All animals are startled by an unannounced approach, sudden movement or loud noise. This can be dangerous for you, others and for the animals.



Dennis Coello

- Plan ahead. Know your equipment, your ability and the area in which you are riding—and prepare accordingly. Be self-sufficient at all times. Wear a helmet and carry supplies for changes in weather or other coorditions.

For more information:
IMBA
P.O. Box 7578
Boulder, CO 80306-9899.
303-545-9011
E-mail: imba@aol.com
Website: www.imba.com

I·M·B·A
INTERNATIONAL MOUNTAIN BICYCLING ASSOCIATION

Appendix 11
VDOT Bicycle Facility Guidelines and Cost Estimates

VDOT BICYCLE FACILITY GUIDELINES

Table of Contents

VDOT POLICY ON PARTICIPATION IN THE DEVELOPMENT OF BICYCLE FACILITIES

The Commonwealth Transportation Board resolution of December 20, 1990 established VDOT's policy on participating in the planning and construction of bicycle facilities. Bicycle facilities can include shared wide highway lanes, paved highway shoulders, bicycle lanes, bicycle paths, multipurpose paths, and other physical improvements to better accommodate bicyclists.

Local governments are encouraged to develop bicycle facilities on a local and regional basis in order to satisfy the need within each geographic area. VDOT's participation in bicycle facilities is principally oriented toward facilities that may be constructed with the roadway improvement as part of the highway construction project.

VDOT will participate in comprehensive bicycle facility planning in the urbanized areas (population greater than 50,000) of Virginia as part of the Continuous, Comprehensive, and Cooperative (3C) transportation planning process. When requested, VDOT may provide technical or financial assistance to all other local governments and Planning District Commissions in developing a comprehensive bicycle facility plan. Bicycle facilities may be constructed for access purposes when the conditions in the **Bicycle Access Facilities** section of this Guideline are met.

VDOT Bicycle Facility Participation Guidelines

VDOT will consider financially participating in the construction of a bicycle facility where all the following conditions are satisfied:

- The bicycle facility will not impair the safety of the bicyclist, motorist, or pedestrian, and is designed to meet current AASHTO guidelines and/or VDOT guidelines.

- The bicycle facility will be accessible to users and will form a segment located and designed pursuant to a comprehensive bicycle plan that has been adopted by the local jurisdiction or is part of the AASHTO approved Interstate Bicycle Route System.

- It is reasonably expected that the bicycle facility will have sufficient use in relation to cost to justify the expenditure of public funds in its construction and maintenance, or the bicycle facility is a significant link in a comprehensive bicycle system that is needed for route continuity.

- VDOT will initiate bicycle facility construction only at the request of the affected local government, with the exception of the AASHTO approved Interstate Bicycle Route System.

Urban System - In all cities and towns that maintain their own highways, the cost for additional preliminary engineering, right of way, and construction of bicycle facilities may be borne by the Urban System construction funds allocated to the locality with the same local match required by law for construction of the highway project.

AASHTO Approved Interstate Bicycle Route System - For all bicycle projects located along the AASHTO approved Interstate Bicycle Route System on the Primary and Secondary Systems, the additional costs for preliminary engineering, right of way, and construction of the bicycle facility may be borne totally by the funds allocated by law for those systems. The additional costs for the Interstate Bicycle Route System projects on the Urban System may be borne by the urban funds allocated to the locality with the same local match required by law for construction of the highway project.

Bicycle Access Facilities

VDOT may participate in the development of bicycle access facilities to serve public recreational areas and historic sites based on the current Recreational Access Fund Policy.

Existing Roads

In some instances, for route continuity, bicycle facilities may be routed over existing facilities which are not planned for expansion. In these cases, the facilities are an operational feature and usually result in the identification of a bike lane, restriction of parking, or some other physical modification to accommodate bicycle travel. It is necessary for the Transportation Planning Engineer to coordinate with the District Administrator, the District Traffic Engineer, and appropriate Divisions in the Central Office to assure agreement on the method of treatment for a bikeway over an existing route. All the conditions of **VDOT Bicycle Facility Participation Guidelines** and **VDOT Funding Guidelines** need to be met except the bicycle facility is not required to be constructed concurrently with a highway construction project. VDOT's financial participation and funding will be the same as specified in **VDOT Funding Guidelines**.

Major Developments and Site Plans

When bicycle facilities are considered as part of the total development of a property where the road system will be maintained in the future by VDOT and the local government requires bikeways in new developments, the following conditions must be satisfied:

SELECTING ROADWAY DESIGN TREATMENTS TO ACCOMMODATE BICYCLES

Choosing the appropriate facility type is important. No one type of bicycle facility or highway design suits every bicyclist. Within any given transportation corridor, bicyclists may be provided with more than one option to meet the travel and access needs of all potential users.

The choice of highway design will affect the level of use, the types of user that can be expected to use any given road, and the level of access and mobility that is afforded bicyclists. For example, a four-lane divided highway with 12-foot travel lanes, no shoulder and a 55 mph speed limit will attract only the most confident of riders. The same road with a 5-foot shoulder or bike lane might provide sufficient "comfortable operating space" for many more adult riders, but would still not be comfortable for children or less confident adults. This latter group might only be accommodated through an alternative route using neighborhood streets linked by short sections of shared use path. If such an alternative route is provided and the four-lane road has a continuous paved shoulder, most experienced and many casual adult riders will continue to use the shoulder for the sake of speed and convenience.

Facilities for bicyclists should also be planned to provide continuity and consistency for all users. Children using a path to get to school should not have to cross a major arterial without some intersection controls, and shoulders and bike lanes should not end abruptly and unannounced at a difficult intersection or busy stretch of highway.

The selection of a bicycle facility type is dependent on many factors, including the ability of the users, specific corridor conditions and facility cost. AASHTO designates bicycle facility types as Shared Roadway (No Bikeway Designation), Signed Shared Roadway, Bike Lane or Bicycle Lane and Shared Use Path. The following are explanations of when each of these facilities may be appropriate. Design parameters for these four types are discussed later in this publication.

- Shared Roadway (No Bikeway Designation) - Most bicycle travel in the United States now occurs on streets and highways without bikeway designations. In some instances, a community's existing street system may be fully adequate for efficient bicycle travel and signing and striping for bicycle use may be unnecessary. In other cases, some streets and highways may be unsuitable for bicycle travel at present, and it would be inappropriate to encourage bicycle travel by designating the routes as bikeways. Finally, some routes may not be considered high bicycle demand corridors, and it would be inappropriate to designate them as bikeways regardless of roadway conditions (e.g., minor residential streets).

  Some rural highways are used by touring bicyclists for inner city and recreational travel. In most cases, such routes should only be designated as bikeways where there is a need for enhanced continuity with other bicycle routes. However, the

- Shoulder - A paved portion of the roadway to the right of the edge stripe on which bicyclists may ride. These areas are not marked or signed as 'bike lanes'.

- Separate Bike Path - A facility physically separated from the roadway and intended for bicycle use.

The FHWA publication categorizes bicyclists into three groups. Group A are advanced bicyclists with experience who can operate under most traffic conditions. Group B are basic bicyclists who are casual or new adult and teenage riders with less confidence of their ability to operate in traffic without special provisions for bicycles. Group C, children, are pre-teen riders whose roadway use is initially monitored by parents.

Tables A-5-1 through A-5-6 indicate the appropriate design treatments given various sets of traffic operations and design factors. The design treatments are considered "desirable widths" by the FHWA. There are three basic types of roadway sections for bicycles; urban without parking, urban with parking, and rural. Controlled-access freeways are considered a special case and are not addressed by the tables.

Roadway improvements such as bicycle facilities depend on the roadway's design. Bicycle paths located on independent alignment depend on many factors, including the performance capabilities of the bicyclist and the bicycle. The following tables do not include any specific recommendations for separate bike paths and their design standards are addressed under **VDOT/AASHTO Design Guidelines** for **Shared Use Paths**.

Table A-5-3 Group A bicyclists, rural section
(widths are in feet)

Error! Not a valid link.

For table A-5-3: wc and sl widths represent "usable widths" of outer lanes, measured from lane stripe to edge of the pavement if a smooth, firm, level shoulder is adjacent. If rough or dropped pavement edges or a soft shoulder exists, add 1 ft. minimum for shy distance from the edge of the pavement.

Key: wc = wide curb lane; sh = shoulder; sl = shared lane; bl = bike lane; na = not applicable; truck, buses, and/or recreation vehicles (approximately 30 per hour or more)

Table A-5-4 Group B/C bicyclists, urban section, no parking
(widths are in feet)

Error! Not a valid link.

For table A-5-4: wc widths represent "usable widths" of outer lanes, measured from lane stripe to edge of gutter pan, rather than to the face of curb. If no gutter pan is provided, add 1 ft. minimum for shy distance from the face of curb. bl widths represent the minimum width from the curb face. For VDOT projects, the bike lane stripe will lie 4 feet minimum from the edge of the gutter pan. The bike lane stripe will lie 5 feet minimum from the face of curb.

Source: FHWA's "Selecting Roadway Design Treatments to Accommodate Bicycles" dated 1994.

VDOT/AASHTO DESIGN GUIDELINES

The following design guidelines are to assist in the design of bicycle facilities and have been obtained from AASHTO's 1999 "Guide for the Development of Bicycle Facilities" and in combination with VDOT Policy. Only key information from AASHTO's Guide are contained in this VDOT publication. Individuals involved in the planning and design of bicycle facilities should be familiar with and refer to the latest AASHTO Guide for additional information. AASHTO criteria will be considered as "minimum criteria" by designers. These design guidelines consider four types of bicycle facilities: Shared Roadway (No Bikeway Designation), Signed Shared Roadway, Bike Lane or Bicycle Lane and Shared Use Path.

When bicycle facilities are proposed, the roadway conditions will be examined for potential problems specific to bicyclists. Safe drainage grates and railroad crossings, smooth pavements, and signals responsive to bicycles will be provided where warranted. Drainage grate inlets and utility covers in particular are potential problems to bicyclists and should be located in a manner which will minimize severe and/or frequent maneuvering by the bicyclist. When a new roadway is designed, all such grates and covers should be out of the bicyclists' expected path.

Shared Roadways

The most critical variable affecting the ability of a roadway to accommodate bicycle traffic is width. Adequate width may be achieved by providing paved shoulders or wide outside lanes.

- Paved Shoulders

Paved shoulders should be at least 4 feet wide to accommodate bicycle travel. However, where 4 foot widths cannot be provided, any additional shoulder width is better than none at all. A shoulder width of 5 feet is recommended from the face of guardrail, curb or other roadside barriers. It is desirable to increase the width of shoulders where higher bicycle usage is expected. Additional shoulder width is also desirable if motor vehicle speeds exceed 50 mph, or the percentage of trucks, buses, and recreational vehicles is high, or if static obstructions exist at the right side of the roadway.

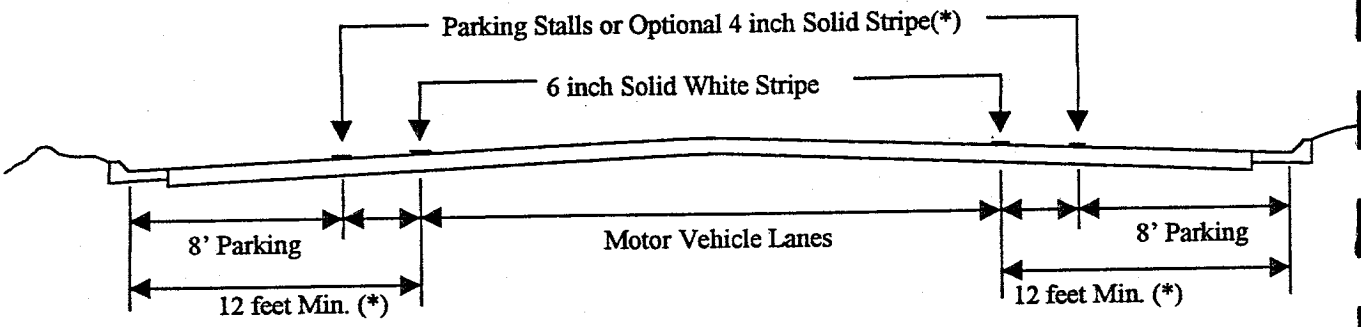
On rural and urban collector and local roads and streets, provide minimum 4 foot wide paved shoulders when:

a) Design Year ADT is > 2000 VPD, with ≥ 5% total truck and bus usage
   or
b) The route is an AASHTO Approved Interstate Bicycle Route or designated as a bicycle route on a Locality's Thoroughfare Plan and the graded shoulder width is 6 feet or greater.

- On-Street Parking

When there is on-street parking on urban roadways, the bicycle riding location is in the area between parked cars and moving motor vehicles. 12 feet of combined bicycle travel and parking width should be the minimum considered for this type of shared use. Striping should be provided to delineate the parking stalls.

PARKING PERMITTED WITH PARKING STRIPE
(Bike lane not designated or marked)



* 13 feet is recommended where there is substantial parking or turn over of parked cars is high (e.g. commercial areas)

Signed Shared Roadways

The distinction between shared roadways and signed shared roadways is that signed are those that have been identified by signing as preferred bike routes.

Bike Lanes

Bike lanes are incorporated into a roadway design when it is desirable to delineate available road space for use by bicyclists and motorists. Delineating bike lanes is not recommended within a required paved shoulder area. Urban settings will typically use a bike lane to accommodate bicyclists. Rural areas will normally make use of a 4' minimum paved shoulder to accommodate bicyclists. Drainage grates, railroad crossings, traffic control devices, etc must be evaluated and modified if necessary for bicycle use.

Bike lanes should be one-way facilities and carry bike traffic in the same direction as adjacent motor vehicle traffic. Two-way bike lanes on one side of the roadway are not recommended when they result in bicycle riding against the flow of motor vehicle traffic. In general, on one-way streets, a bike lane should be placed only on the right side of the street.

- Bike Lane Widths

The recommended width of a bike lane is 5 feet from the face of a curb to the bike lane stripe on roadways without a gutter pan. The recommended width of a bike lane is 4 feet from the edge of pavement to the bike lane stripe on curb and gutter roadways. Greater bike lane widths are desirable where substantial truck traffic is present, or where motor vehicle speeds exceed 50 mph. Where vehicle traffic volume is high or substantial truck, bus or recreational vehicle traffic is present or speeds warrant, 6 feet minimum is appropriate to the bike lane stripe from the face of curb. Section (2) in the figure, depicts a bike lane along the outer portion of an urban curbed street where parking is prohibited.

Bicyclists tend to ride a distance of 32 to 40 inches from a curb face and it is important that the surface in this area be smooth and free of structures. Drain inlets and utility covers that extend into this area may cause bicyclists to swerve, and have the effect of reducing the usable width of the lane. Where these structures exist, the bike lane width may need to be adjusted accordingly.

If parking is permitted, as in section (2) of the figure, the bike lane should be placed between the parking area and the travel lane and have a minimum width of 5 feet. Bike lanes should never be placed between the parking lane and curb line.

- Bike Lanes and Turning Lanes

Bike lanes complicate bicycle and motor vehicle turning movements at intersections.

Shared Use Paths

Shared use paths are facilities on exclusive right-of-way and with minimal cross flow by motor vehicles. Users are non-motorized and may include bicyclists, inline skaters, roller skaters, wheelchair users (both non-motorized and motorized) and pedestrians including walkers, runners, and people with baby strollers and people waking dogs. Shared use paths are most commonly designed for two-way travel, and the following guidance assumes a two-way facility is planned unless otherwise stated. When paths are planned, it is desirable to provide paths on both sides of the roadway to decrease the likelihood of children crossing the road. Pavement design for shared use paths are recommended by the Materials Division.

- Separation Between Shared Use Paths and Roadways

When two-way shared use paths are located adjacent to a roadway, wide separation between a shared use path and the adjacent highway is desirable to demonstrate to both the bicyclist and the motorist that the path functions as an independent facility for bicyclists and others. **When this is not possible and the distance between the edge of the shoulder and the shared use path is less than 5 feet, a suitable physical barrier is recommended.** On curb or curb and gutter roadways, when the distance between the travel way (edge of pavement) and the shared use path is less than 5 feet (7 feet recommended for new construction), a suitable physical barrier is recommended. Consideration should be given to future signs or mailboxes which may require additional clearance. Such barriers serve both to prevent path users from making unwanted movements between the path and the highway shoulder and to reinforce the concept that the path is an independent facility. Where used, the barrier should be a minimum of 42 inches high, to prevent bicyclists from toppling over it. A barrier between a shared use path and adjacent highway should not impair sight distance at intersections, and should be designed to not be a hazard to motorists or bicyclist.

- Width and Clearance

The paved width and the operating width required for a shared use path are primary design considerations. **Under most conditions, a recommended paved width for a two-directional shared use path is 10 feet.** In rare instances, a reduced width of 8 feet can be adequate. This reduced width should be used only where the following conditions prevail: (1) bicycle traffic is expected to be low, even on peak days or during peak hours, (2) pedestrian use of the facility is not expected to be more than occasional, (3) there will be good horizontal and vertical alignment providing safe and frequent passing opportunities, and (4) during normal maintenance activities the path will not be subjected to maintenance vehicle loading conditions that would cause pavement edge damage. Under certain conditions it may be necessary or desirable to increase the width of a shared use path to 12 feet, or even 14 feet, due to substantial use by bicycles, joggers, skaters and pedestrians, use by large maintenance vehicles, and steep grades.

- Horizontal Alignment

Most shared use paths built in the United States must also meet the requirements of the Americans with Disabilities Act, ADA guidelines require that cross slopes not exceed 2% to 3% to avoid the severe difficulties that greater cross slopes can create for people using wheelchairs. **Thus, for most shared use paths, the maximum superelevation rate will be 3%.** When transitioning a 3% superelevation, a minimum 25 foot transition distance should be provided between the end and beginning of consecutive and reversing horizontal curves.

The coefficient of friction depends upon speed; surface type, roughness, and condition; tire type and condition; and whether the surface is wet or dry. Extrapolating from values used in highway design, design friction factors for paved shared use paths can be assumed to vary from 0.31 at 12 mph to 0.21 at 30 mph.

Based upon various design speeds of 12 to 30 mph and a desirable maximum lean angle of 15°, **minimum radii of curvature for a paved path can be selected from the following table:**

Design Speed (V) (mph)	Minimum Radius (R) (feet)
12	36
20	100
25	156
30	225

Desirable Minimum Radii for Paved Shared Use Paths based on 15° Lean Angle

- Grade

Grades on shared use paths should be kept to a minimum, especially on long inclines. **Grades greater than 5 percent are undesirable** because the ascents are difficult for many bicyclists to climb and the descents cause some bicyclists to exceed the speeds at which they are competent or comfortable. On some shared use paths, where terrain dictates, designers may need to exceed the 5% grade recommended for bicycles for some short sections. A general guide for maximum grade lengths where the grade must exceed 5% are as follows:

5 to 6%	For up to 800 feet
7%	For up to 400 feet
8%	For up to 300 feet
9%	For up to 200 feet
10%	For up to 100 feet
11+%	For up to 50 feet

The following table indicates the minimum length of vertical curve necessary to provide minimum stopping sight distance at various speeds on crest vertical curves. The eye height of the bicyclist is assumed to be 4.5 feet and the object height is assumed to be 0 inches to recognize that impediments to bicycle travel exist at pavement level.

A	"S" = Stoppping Sight Distance (feet)														
(%)	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300
2												30	70	110	150
3								20	60	100	140	180	220	260	300
4						15	55	95	135	175	215	256	300	348	400
5					20	60	100	140	180	222	269	320	376	436	500
6				10	50	90	130	171	216	267	323	384	451	523	600
7				31	71	111	152	199	252	311	376	448	526	610	700
8			8	48	88	128	174	228	288	356	430	512	601	697	800
9			20	60	100	144	196	256	324	400	484	576	676	784	900
10			30	70	111	160	218	284	360	444	538	640	751	871	1000
11			38	78	122	176	240	313	396	489	592	704	826	958	1100
12		5	45	85	133	192	261	341	432	533	645	768	901	1045	1200
13		11	51	92	144	208	283	370	468	578	699	832	976	1132	1300
14		16	56	100	156	224	305	398	504	622	753	896	1052	1220	1400
15		20	60	107	167	240	327	427	540	667	807	960	1127	1307	1500
16		24	64	114	178	256	348	455	576	711	860	1024	1202	1394	1600
17		27	68	121	189	272	370	484	612	756	914	1088	1277	1481	1700
18		30	72	128	200	288	392	512	648	800	968	1152	1352	1568	1800
19		33	76	135	211	304	414	540	684	844	1022	1216	1427	1655	1900
20		35	80	142	222	320	436	569	720	889	1076	1280	1502	1742	2000
21		37	84	149	233	336	457	597	756	933	1129	1344	1577	1829	2100
22		39	88	156	244	352	479	626	792	978	1183	1408	1652	1916	2200
23		41	92	164	256	368	501	654	828	1022	1237	1472	1728	2004	2300
24	3	43	96	171	267	384	523	683	864	1067	1291	1536	1803	2091	2400
25	4	44	100	178	278	400	544	711	900	1111	1344	1600	1878	2178	2500

when S > L $L = 2S - \frac{900}{A}$

(feet)

when S < L $L = AS^2/900$

Height of cyclist eye – 4.5 feet
Height of object – 0 feet

Heavy line represents S = L

L = Minimum Length of Vertical Curve

A = Algebraic Grade Difference (%)
S = Stopping Sight Distance (feet)

Minimum Length of Vertical Curve = 3 feet

Minimum Length of Crest Vertical Curve (L) Based on Stopping Sight Distance

R	"S" = Stopping Sight Distance (feet)														
(feet)	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300
25	2.0	7.6	15.9												
50	1.0	3.9	8.7	15.2	23.0	31.9	41.5								
75	0.7	2.7	5.9	10.4	16.1	22.8	30.4	38.8	47.8	57.4	67.2				
95	0.5	2.1	4.7	8.3	12.9	18.3	24.7	31.8	39.5	48.0	56.9	66.3	75.9	85.8	
125	0.4	1.6	3.6	6.3	9.9	14.1	19.1	24.7	31.0	37.9	45.4	53.5	61.7	70.6	79.7
155	0.3	1.3	2.9	5.1	8.0	11.5	15.5	20.2	25.4	31.2	37.4	44.2	51.4	59.1	67.1
175	0.3	1.1	2.6	4.6	7.1	10.2	13.8	18.0	22.6	27.8	33.5	39.6	46.1	53.1	60.5
200	0.3	1.0	2.2	4.0	6.2	8.9	12.1	15.8	19.9	24.5	29.5	34.9	40.8	47.0	53.7
225	0.2	0.9	2.0	3.5	5.5	8.0	10.8	14.1	17.8	21.9	26.4	31.3	36.5	42.2	48.2
250	0.2	0.8	1.8	3.2	5.0	7.2	9.7	12.7	16.0	19.7	23.8	28.3	33.1	38.2	43.7
275	0.2	0.7	1.6	2.9	4.5	6.5	8.9	11.6	14.6	18.0	21.7	25.8	30.2	34.9	39.9
300	0.2	0.7	1.5	2.7	4.2	6.0	8.1	10.6	13.4	16.5	19.9	23.7	27.7	32.1	36.7
350	0.1	0.6	1.3	2.3	3.6	5.1	7.0	9.1	11.5	14.2	17.1	20.4	23.9	27.6	31.7
390	0.1	0.5	1.2	2.1	3.2	4.6	6.3	8.2	10.3	12.8	15.4	18.3	21.5	24.9	28.5
500	0.1	0.4	0.9	1.6	2.5	3.6	4.9	6.4	8.1	10.0	12.1	14.3	16.8	19.5	22.3
565		0.4	0.8	1.4	2.2	3.2	4.3	5.7	7.2	8.8	10.7	12.7	14.9	17.3	19.8
600		0.3	0.8	1.3	2.1	3.0	4.1	5.3	6.7	8.3	10.1	12.0	14.0	16.3	18.7
700		0.3	0.6	1.1	1.8	2.6	3.5	4.6	5.8	7.1	8.6	10.3	12.0	14.0	16.0
800		0.3	0.6	1.0	1.6	2.2	3.1	4.0	5.1	6.2	7.6	9.0	10.5	12.2	14.0
900		0.2	0.5	0.9	1.4	2.0	2.7	3.6	4.5	5.6	6.7	8.0	9.4	10.9	12.5
1000		0.2	0.5	0.8	1.3	1.8	2.4	3.2	4.0	5.0	6.0	7.2	8.4	9.8	11.2

Minimum Lateral Clearance (M) for Horizontal Curves

- Pavement Structure

Hard, all weather pavement surfaces are preferred over those of crushed aggregate, sand, clay, or stabilized earth since these materials provide a much lower level of service and require higher maintenance.

- Structures

On new structures, the minimum clear width should be the same as the approach paved shared use path, plus the minimum 2 foot wide clear areas on both sides of the path. Railings, fences, or barriers on both sides of a path on a structure shall be a minimum of 42 inches (3.5 feet) high. In situations where the structure crosses a high speed or high volume road or objects are subject to being thrown (dangerously) off the structure, it is recommended to totally enclose the path with fencing. Totally enclosing a path may also be desirable in other areas such as a waterway crossing.

- Drainage

The recommended minimum pavement cross slope of 2 percent adequately provides for drainage. Sloping in one direction instead of crowning is preferred and usually simplifies the drainage and surface construction. A smooth surface is essential to prevent water ponding and ice formation. On unpaved shared use paths, particular attention should be paid to drainage to avoid erosion.

- Lighting

Lighting for shared use paths is important and should be considered where night usage is expected, such as paths serving college students or commuters, and at highway intersections. Lighting should also be considered through underpasses or tunnels, and when nighttime security could be an issue.

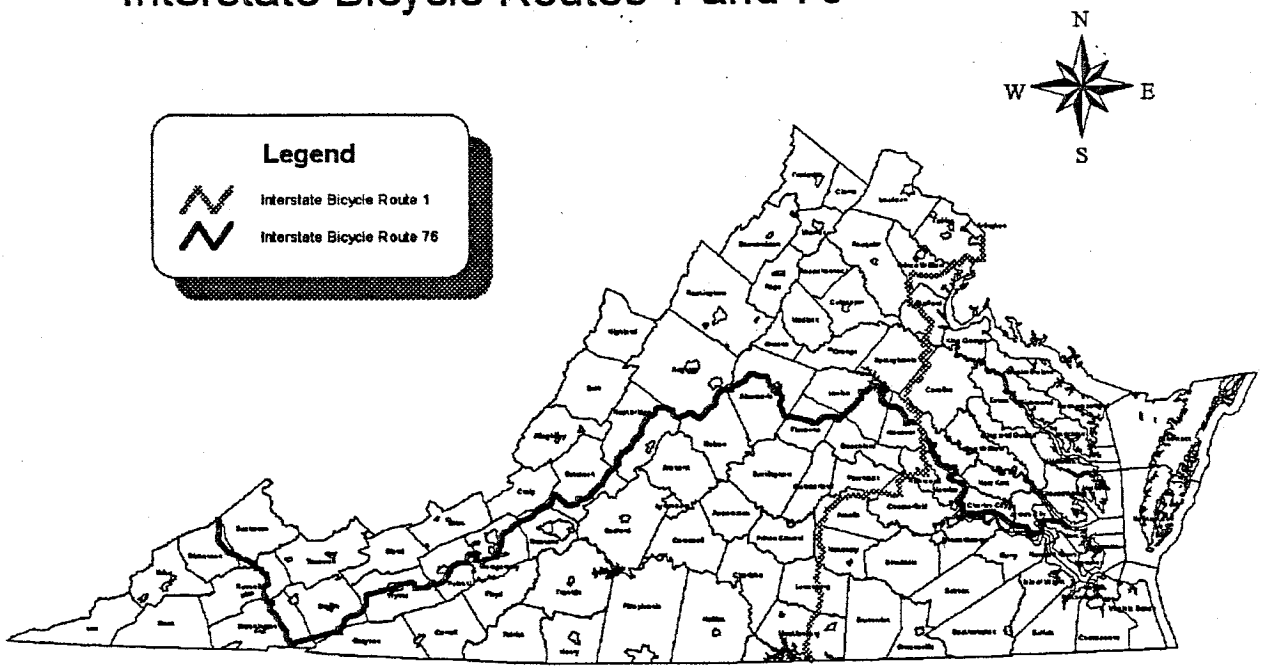
- Restriction of Motor Vehicle Traffic

Shared use paths may need some form of physical barrier at highway intersections to prevent unauthorized motor vehicles from using the facilities. Provisions can be made for a lockable, removable (or reclining) barrier post to permit entrance by authorized vehicles.

- Railroad Crossings

Railroad-highway grade crossings should be at a right angle to the rails. The greater the crossing deviates from this ideal crossing angle, the greater is the potential for a bicyclist's front wheel to be trapped in the flangeway causing loss of steering control. Consideration should be given to the crossing surface materials and to the flangeway depth and width.

Interstate Bicycle Routes 1 and 76



8/17/00
LLR

BICYCLE FACILITY COST ESTIMATES
(2000 DOLLARS)

CONSTRUCTION COST (excludes additional right of way cost)

• Shared Use Path (10 Foot)	$92,000 per mile
• Bike Lanes 4 Feet on Each Side With Curb and Gutter (CG-6)	$270,300 per mile
• Bike Lanes 5 Feet on Each Side With Mountable Curb (CG-3)	$281,100 per mile
• Wide Curb Lane (2 Feet Extra on Each Side)	$48,600 per mile
• Paved Shoulders (4 Feet on Each Side)	$69,200 per mile

SIGNING

• Sign Panel	$27.00 Sq. Ft.
• Sign Post (4x4 wood/Uchannel)	$5.00 L. F.

Sample Sign with Post

• Bike Crossing (W11-1 30"x30")	$218.00 each
• Share the Road	$218.00 each
• Bike Lane (R7-9 12"x18")	$90.00 each
• Bikes Prohibited (R5-6 24"x24")	$158.00 each
• Bike Route (D11-1 24"x24")	$131.00 each
• Interstate Bike (D11-1 18"x24")	$131.00 each
• Bike Lane Ahead R3-16 24"x30")	$185.00 each

SIGNALS

• Loop Detectors (6x15 quad)	$540.00 each
• Detector Amplifier	$200.00 each

PAVEMENT MARKING

• Pavement Line 4"	$ 0.60 L.F.

Pavement Message

• Bike symbol	$120.00 each
• Bike Lane symbol	$120.00 each
• Diamond symbol	$ 85.00 each
• Arrow symbol	$ 85.00 each

STORAGE

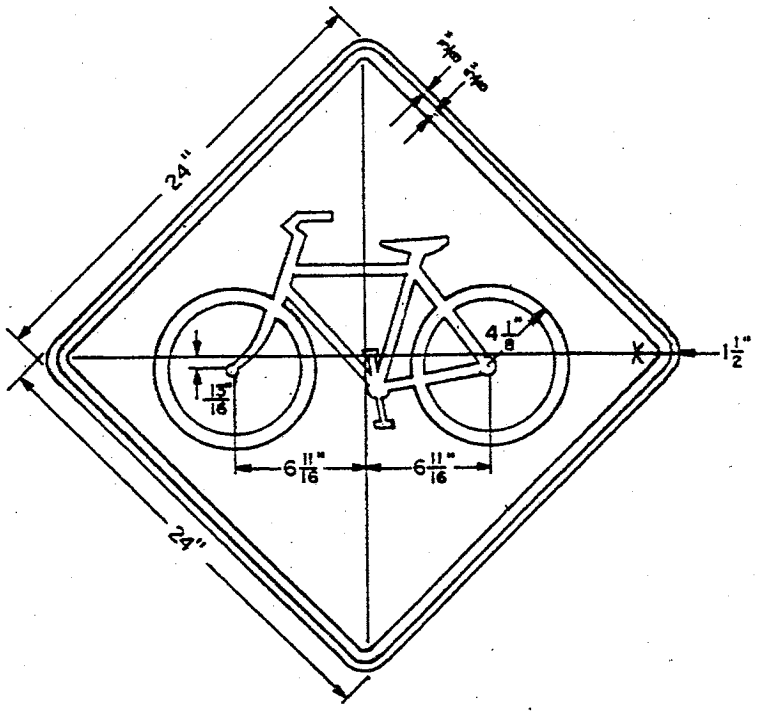
• Bicycle Locker (2 door/2 bicycle)	$670.00 - $930.00 each
• Bicycle Rack (10 - 12 bicycles)	$325.00 - $730.00 each

RAILROAD CROSSING (single track)

• Modify Crossing (asphalt filler)	$160.00 L.F.
• Modify Crossing (rubberized)	$520.00 L.F.

Appendix 12
Signage Specifications

FIGURE 7



SPECIFICATIONS

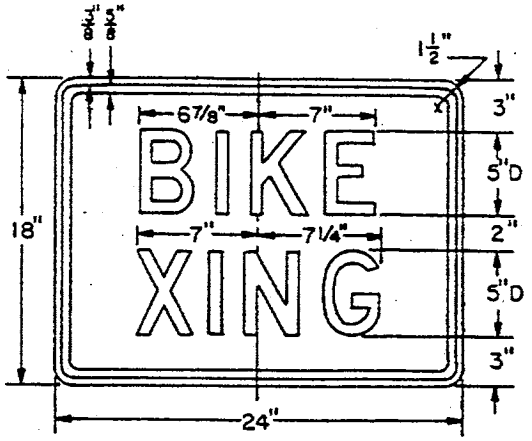
SHAPE:	Diamond
COLOR: Message and Border	Black (Non-reflectorized)
Field	Yellow (Reflectorized)
SIZE: Each Side	24"
MESSAGE: Symbol	Special Decal (See Pg. 111, *Standard Highway Signs* by FHWA)
MARGIN WIDTH:	3/8"
BORDER WIDTH:	5/8"
CORNER RADIUS	1½"
PUNCHING STANDARD:	III

PLACEMENT: The BIKE CROSSING sign shall be erected 150 to 700 feet in advance of the location where an officially designated bike route crosses a roadway.

Pavement Edge to Sign Edge:	Rural	Not less than 8'; nor more than 15'
	Urban	As conditions permit
Curb Face to Sign Edge:	Rural	Not less than 2'; nor more than 15'
	Urban	Not less than 1'; nor more than 10'
Pavement (Curb) Top to Sign Bottom:	Rural	5'
	Urban	7'
Angle: Sign Face with Pavement Edge:		93°

Date: 9-23-74

FIGURE 8



SPECIFICATIONS

SHAPE: . . . . . Horizontal Rectangle
COLOR: Message and Border . . . . . Black (Non-reflectorized)
Field . . . . . Yellow (Reflectorized)

SIZE: Horizontal . . . . . 24"
Vertical . . . . . 18"

MESSAGE: Line 1, Capitals . . . . . 5"D
Line 2, Capitals . . . . . 5"D

MARGIN WIDTH: . . . . . 3/8"
BORDER WIDTH: . . . . . 5/8"
CORNER RADIUS: . . . . . 1½"
PUNCHING STANDARD: X

PLACEMENT: To be erected in assembly with and below each symbolic bicycle crossing sign.

Pavement Edge to Sign Edge: Rural . . . . Not less than 8'; nor more than 15'
Urban . . . . As conditions permit

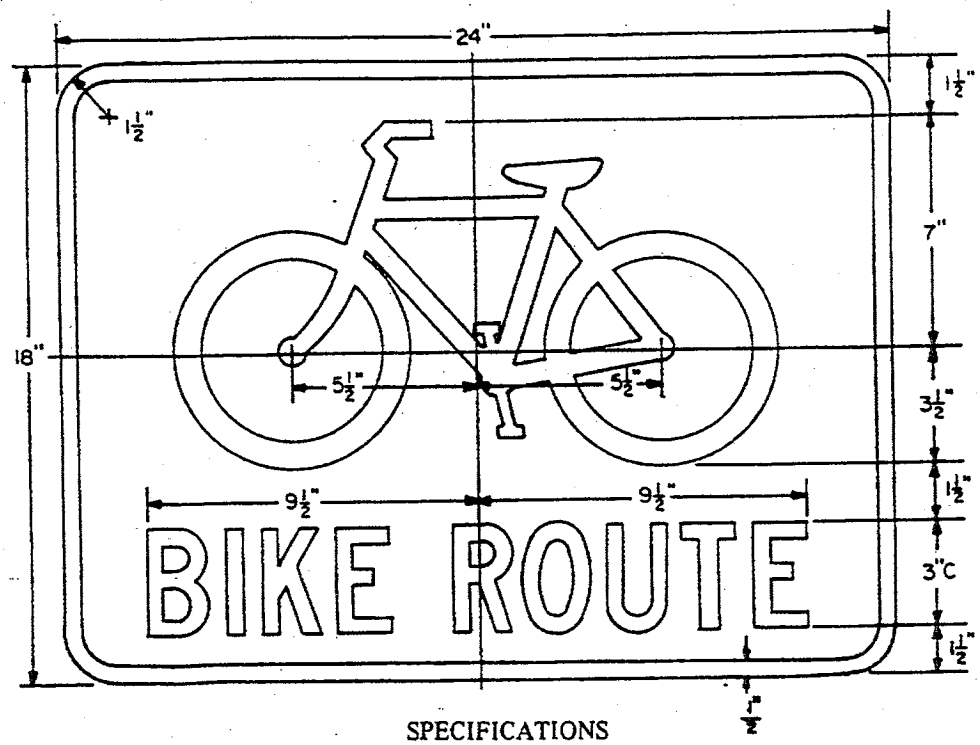
Curb Face to Sign Edge: Rural . . . . Not less than 2'; nor more than 15'
Urban . . . . Not less than 1'; nor more than 10'

Pavement (Curb) Top to Sign Bottom: Rural . . . . 4'
Urban . . . . 4'

Angle: Sign Face with Pavement Edge . . . . . 93°

Date: 9-23-74

FIGURE 11



SPECIFICATIONS

SHAPE: ..... Horizontal Rectangle
COLOR: Message and Border ..... White (Reflectorized)
Field ..... Green (Reflectorized)

SIZE: Horizontal ..... 24"
Vertical ..... 18"

MESSAGE: Line 1, Symbol ..... Special Decal (See Pg. 111, *Standard Highway Signs* by FHWA)
Line 2, Capitals ..... 3"C

BORDER WIDTH: ..... ½"
CORNER RADIUS: ..... 1½"
PUNCHING STANDARD: X

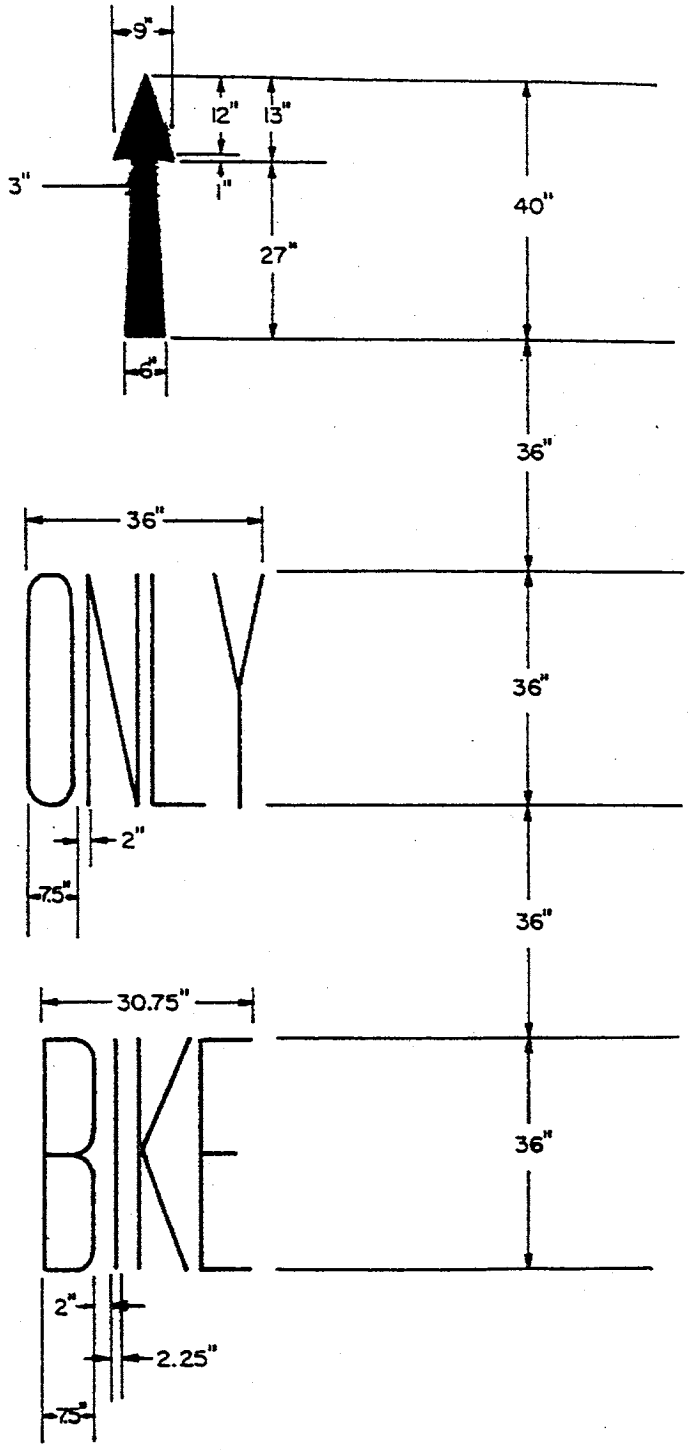
PLACEMENT: The BIKE ROUTE sign is used only to direct bicycle traffic to or along an officially designated bike route.

		Shared Roadways and Bike Lanes	Bike Trails
Pavement Edge to Sign Edge:	Rural	Not less than 8'; nor more than 15'	Not less than 2'; nor more than 10'
	Urban	As conditions permit	As conditions permit
Curb Face to Sign Edge:	Rural	Not less than 2'; nor more than 15'	Not less than 2'; nor more than 6'
	Urban	Not less than 1'; nor more than 10'	Not less than 1'; nor more than 6'
Pavement (Curb) Top to Sign Bottom:	Rural	5'	5'
	Urban	7'	7'
Angle: Sign Face with Pavement Edge		93°	93°

Date: 9-23-74

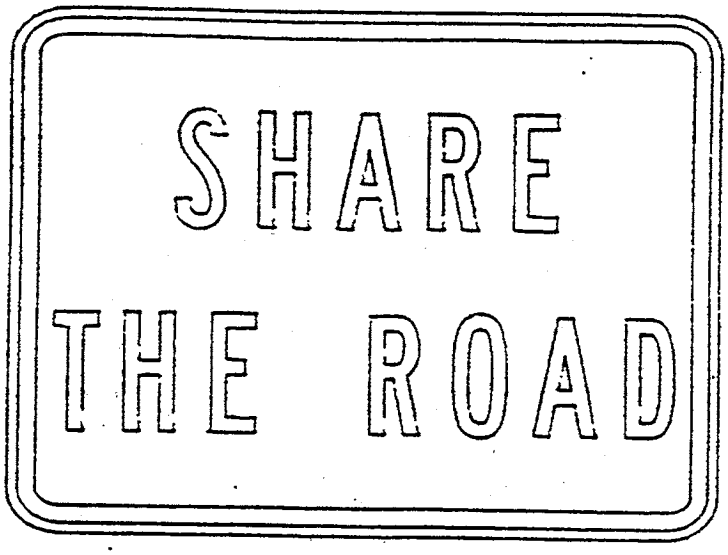
FIGURE 27

DETAILS FOR BIKE ONLY PAVEMENT MESSAGE



ALL PAVEMENT LETTERS SHALL BE AT 3/8" SCALE TO THE DIMENSIONS SHOWN ON PAGE 812 OF THE VIRGINIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. ALL MARKINGS AND MESSAGES SHALL BE WHITE REFLECTORIZED.

Date: 9-23-74



SIGN NOT TO SCALE
TO BE USED AS A REPRESENTATION ONLY

This sign shall be installed with and below the Federal W11-1 sign at selected locations with known bicycle usage. Such locations could include areas around colleges, schools, playgrounds and resort areas. They may also be appropriate along some bike routes where there are no designated bike lanes and/or poor roadway geometrics exist.

SHAPE	Horizontal Rectangle	
COLOR	Message and Border:	Black (non-reflectorized)
	Field:	Yellow (reflectorized)
SIZE	Horizontal:	24"
	Vertical:	18"
MESSAGE	Line 1 Capitals:	4" B
	Line 2 Capitals:	4" B
MARGIN WIDTH		3/8"
BORDER WIDTH		5/8"
CORNER RADII		1 1/2"

New River Valley
Bikeway-Walkway-Blueway Plan ~ 2000