

Planning

Introduction

Planning is the first step and key ingredient of any successful transportation system. In order for bicycling to become a viable mode of transportation at local, regional, and statewide levels, comprehensive bicycle plans need to be developed and adopted at the local or MPO level to gain regional and statewide significance. This chapter presents the bicycle planning process. Localities can use this chapter as a guide for creating a local bicycle plan or for updating an existing plan. It focuses on:

- What is a bicycle plan?
- Need for a plan
- Understanding bicycle facilities
- Developing a bicycle plan

Some of the topics covered in this chapter are discussed in greater detail in following chapters of this resource guide.

What is a Bicycle Plan?

A bicycle plan needs to be recognized as a tool to incorporate bicycling into the transportation system. The plan describes how a locality or region intends to accommodate, encourage, and promote bicycling within its jurisdiction. It draws on a blend of existing and future bicycle facilities and programs to ensure a successful bicycle network. Bicycle plans in Virginia and elsewhere have historically varied widely in terms of content and format. While differences are to be expected, certain elements should be consistent among all plans. Ideally, a bicycle plan should be prepared to include the following information:

- goals and objectives
- existing bicycle facilities and roadway network
- planned bicycle and roadway improvements
- significant attractions and destination points
- routes and/or locations of proposed bicycle facilities, including ancillary facilities such as bike storage and racks
- indication of preferred facility type, such as wide outside lane, bike lane, and shared use path

- prioritization of projects (short-term versus long-term)
- strategies for implementation including identifying potential funding sources, developing conceptual maintenance plans, and assigning operational tasks to agencies
- documentation of public involvement activities
- definitions and acronyms
- appendices and bibliography

Clearly written text should describe each one of the above noted elements. Where appropriate, maps with legends should accompany the text to depict existing and proposed features. An easy to read map illustrating the plan can be a powerful planning tool and can be very helpful to agencies supporting particular projects. Photographs within the text and maps provide a relatively easy way of highlighting key community resources discussed in the plan. To become an official planning document, the bicycle plan must be adopted locally or by a Metropolitan Planning Organization (MPO). It is up to the discretion of each individual locality to determine in what form the plan will be adopted. Acceptable options include incorporating it into a comprehensive plan or a transportation plan or presenting it as a stand-alone document.

Need for a Plan

Based on the results of a mail back survey completed in 2000, only 21 percent of localities within Virginia have an adopted bicycle plan. Faced with growing interest and demands for bicycling facilities, the vast majority of those localities without a plan indicated an interest in developing one.

With bicycles representing just one part of the overall transportation system, the key question is: How to provide for the safe accommodation of bicycles? This is where the planning process begins. Creating a bicycle plan is important for many reasons including:

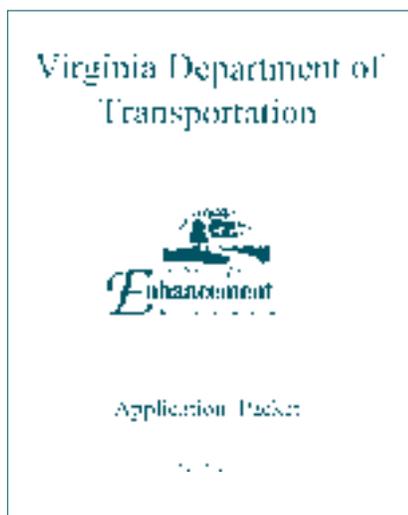
- establishing a **long-term strategy** for bicycle accommodation
- increasing the ability to **leverage funding** for bicycle facilities
- generating **community support** and enthusiasm
- contributing to **more healthy communities**

Long-term Strategy

Creating an interconnected and coherent bicycle network requires a long-term commitment and a comprehensive vision that are beyond the often times ad-hoc, piecemeal approach. Just as localities plan for their network of roadways, parks,

utilities, etc., they should also plan for their bicycle network. An adopted comprehensive plan is typically the “blueprint” for localities as they plan for future infrastructure, transportation improvements, open space, recreation, demographic changes, and land use changes. A bicycle plan can and should be considered an important element of a locality’s comprehensive plan.

The defining elements of most plans are their goals and objectives. In an ideal world, each locality would have enough funding to implement every project desired by the community. Given the reality of limited resources, goals and objectives serve as the litmus by which localities are able to identify and prioritize projects and programs. With the direction provided by a bicycle plan, a locality can organize its efforts and expenditures over the course of many years in order to reach the desired goals and objectives for bicycle accommodation.



Leverage Funding

A locality or MPO must have an adopted bicycle plan before the Virginia Department of Transportation (VDOT) will consider constructing bicycle facilities as part of their highway construction projects within that jurisdiction. This policy is a reflection of VDOT’s desire to commit resources in a manner consistent with local policies and plans regarding bicycling. In addition, being identified as part of an adopted bicycle plan is a criteria used to select recipients of TEA-21 Transportation Enhancement and Recreational Trail Fund Programs funding for bicycle facility design projects. Localities without a bicycle plan in place greatly diminish their ability to obtain certain types of funding for bicycle projects.

There are many sources of federal, state, and local funding for the implementation of bicycle projects. A bicycle plan allows the locality to more readily match specific projects with applicable funding sources. In addition, having a plan in place serves as an illustration to the funding agencies that a locality has given due thought and is committed to the establishment of a bicycle network. Chapter 4: Funding will provide information on funding sources.

Community Support

A formal planning process provides an opportunity to involve the public in the future of the locality’s bicycle network. Public involvement is essential for plan success. First, only through input from the public can the local needs of the community be truly identified, and the proper measures be taken to meet the needs. Bicyclists who commute or run errands on their bikes typically desire a direct connection between destinations. It requires a local perspective to know what these important destinations are and to recognize the most feasible routes for connecting these destinations. Recreational bicycling is no different in that it takes the local knowledge to identify where the historic and environmentally attractive locations are and how people would like to access them via a bicycle network.

Another important benefit of public participation is to generate support and buy-in for the implementable bicycle program. The creation of a successful bicycle network requires a long-term commitment on the part of local governments. Without the support of the local citizens, efforts to create a successful bicycle network are likely to languish. The most successful plans are based upon a process of consensus building between all of the relevant stakeholders. The citizens of a community are the largest group of stakeholders. If they are involved, the citizens can provide a steady and long-term source of support and advocacy for the development of a comprehensive bicycle network. If they are not involved, a bicycle plan may eventually become shelved and lose favor with local officials and decision makers.



More Healthy Communities

An increasingly growing concern of community leaders and planners alike is how healthy our communities will be in the future. Education, infrastructure, health, and public safety needs are critical challenges at the local level. Transportation and mobility are also key elements of the livability index. Open space and recreational opportunities are other important elements. Bicycle and pedestrian facilities are consistently recognized as effective strategies to create more healthy communities, improve safety, and better the quality of life in localities that have embraced them.

Understanding Bicycle Facilities

Before beginning the actual development of a bicycle plan, it is important to understand the principles of bicycle planning. This section provides a brief introduction to key bicycle facility concepts that affect the planning of a bicycle network:

- environment
- user groups
- facility types
- ancillary facilities

The purpose of this section is to provide an overview of essential information prior to sitting down to develop a plan.

Environment

The development of a local bicycle network is largely dependent upon the nature of the locality. The environment for bicycle facilities can range from urban to rural settings.

Urban Setting

In an urban area, where development is relatively dense, there may be many destinations within short distances of one another. The density of development creates a great potential for bicycling as a means of commuting, running errands, etc. Accordingly, the focus of an urban bicycle plan may be to create a network of safe and convenient routes for bicyclists to use in traveling to and from work, accessing transit stations, and traveling to other popular destinations.

Suburban Setting

In suburban environments where development is less dense, connections to many commercial or other destinations may be more challenging due to the distances encountered. Providing safe and convenient connections between destinations that promote efficient bicycle travel and encourage bicycling within a community are key goals in suburban settings. Perhaps a focus could be in providing safe bicycle connections between residential neighborhoods and nearby schools, activity centers, or parks. These settings also strike a balance between utilitarian (transportation) and recreational bicycling. It is often in these settings, through recreational opportunities, that we teach our children the “rules of the road” and bicycle safety.



Environment vs. Bicycle Use

Rural Setting

In rural areas, distances between residences and destinations may be large enough to discourage bicycling as a means of transportation for all but the most avid bicyclists.

The lesser density of development is often accompanied by greater open space, parks, etc. that are ideal for recreational bicycling. The primary focus of a bicycle plan in a rural setting may be on providing recreational bicycling opportunities that take advantage of the natural or historical assets of a locality with connections provided largely by means of low-volume country roads or highways. In particular, long-distance recreational bicyclists with a focus on touring may be the target user group for this type of setting.

In addition to affecting the focus of the overall bicycle plan, urban, suburban, and rural environments generally suggest different design treatments to ensure that bicyclists are safe and comfortable when using a particular bicycle facility.

User Groups

While the type of environment shapes the focus of the bicycle plan, the targeted users of the bicycle facility influence the design. The Federal Highway Administration has defined three types of bicycle users (A, B, and C) to assist in determining the impact of different facility types and roadway conditions on bicyclists. Most recently, the American Association of State Highway and Transportation Officials (AASHTO) has provided the following definitions:



Group A

Advanced or experienced riders generally using their bicycles as they would a motor vehicle. They are riding for convenience and speed and want direct access to destinations with a minimum of detour or delay. They are comfortable riding with motor vehicle traffic; however, they need sufficient operating space on the traveled way or shoulder to eliminate the need for either themselves or a passing motor vehicle to shift position.



Group B

Basic or less confident adult riders using their bicycles for transportation, but prefer to avoid roads with fast and busy motor vehicle traffic unless there is ample roadway width to allow easy overtaking by faster motor vehicles. Thus, basic riders are comfortable riding on neighborhood streets and shared used paths and prefer designated on-road facilities such as bike lanes or wide shoulders.



Group C

Children, riding on their own or with their parents, may not travel as fast as their adult counterparts but still require access to key destinations in the community, such as schools, libraries, parks, and recreational facilities. Residential streets with low motor vehicle speeds, linked with shared used paths and busier streets with well-defined pavement markings between bicycles and motor vehicles, can accommodate children without encouraging them to ride in the travel lane of major arterials.

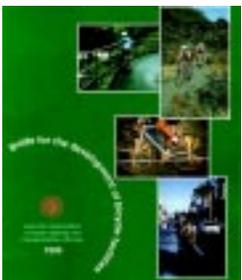
For the purposes of bicycle network planning and design, Group B and Group C bicyclists are often grouped together. This allows for a two-tiered approach to meeting bicyclists' needs.

Group A riders are best served by making every street as “bicycle-friendly” as possible. This may be accomplished by utilizing highway design standards that include wide outside lanes and paved shoulders to accommodate shared use by bicycles and motor vehicles throughout the roadway network. “Share the Road” signage can also be an effective measure to inform motorists of the presence of bicyclists within the corridor. This signage should only be used when appropriate roadway conditions are met. Chapter 2: Design will further address the use of “Share the Road” signage.

Group B/C riders are best served by a network of neighborhood streets and designated bicycle facilities that provide more protected access through key travel corridors and make significant connections to help encourage bicycling as a viable mode of transportation.

Facility Types

The choice of facility type derives from an examination of the environment and the targeted user group as well as the corridor conditions and the facility cost. In the *Guide for the Development of Bicycle Facilities*, AASHTO provides an excellent



AASHTO Guide, 1999

overview of the most common facility types. The two major bicycle facility categories are on-street and off-street. These facility types are illustrated below. A more thorough discussion of bicycle facility design is included in Chapter 2: Design.

Shared Use Path

Definition:

A bikeway physically separated from motorized vehicular traffic by an open space or barrier.

Typical Users:

Group B and C bicyclists, pedestrians, skaters, wheelchair users, joggers, and other non-motorized users.

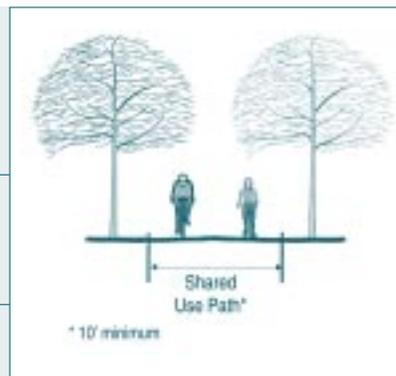
Suitable Environment:

Urban, suburban, and rural.

Minimum Width:

10 feet.

These facilities have been very successful in reintroducing communities to bicycling as a form of transportation and recreation. Many times shared use paths are the catalysts for developing a bicycle network connecting a variety of attractions in the community.



Bike Lane

Definition:

A portion of roadway which has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists.

Typical Users:

Group A, B and, under certain conditions, B/C bicyclists.

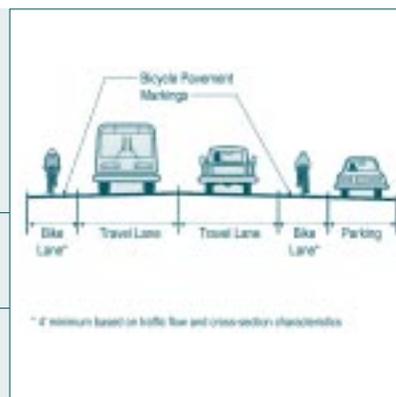
Suitable Environment:

Urban and suburban environments where there is significant bicycle demand.

Minimum Width:

4 feet. Certain edge conditions, such as on-street parking, curbing, guardrail, and longitudinal joints dictate additional bike lane width.

Because of their pavement markings, bike lanes can also be an effective means of encouraging bicyclists to use particular corridors in lieu of others.



Wide Outside Lane

Definition:

A wide outside travel lane shared by bicyclists and motorists. Wide outside lanes have no stripes to delineate a separate lane for bicycles.

Typical Users:

Group A and B bicyclists.

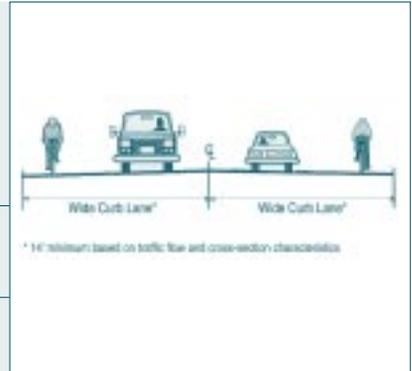
Suitable Environment:

Urban and suburban environments.

Minimum Width:

14 feet of usable lane width is the recommended width for shared use in a wide curb lane. Similar to bicycle lanes, certain edge conditions dictate additional wide curb lane width.

Wide curb lanes require bicyclists and motorists to be more aware and attentive of each other, promoting safe interaction between the two modes.



Shoulder Improvements

Definition:

Roadways with adequate shoulder widths can reduce the amount of interaction between bicyclists and motorists by providing bicyclists with a separate area to operate within the roadway cross-section. Where it is intended that bicyclists operate on the roadway shoulders, paved shoulders need to be uniform, smooth, and well-maintained.

Typical Users:

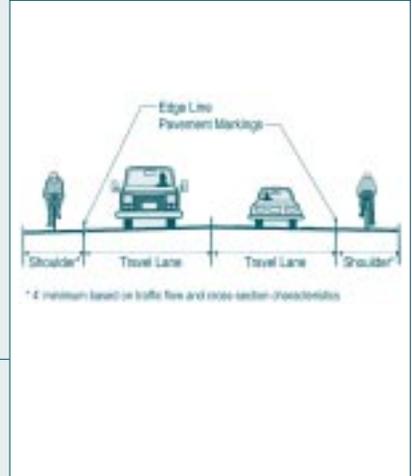
Group A bicyclists, and, depending on adjacent traffic characteristics and the uniformity of the treatment, Group B bicyclists.

Suitable Environment:

Suburban and rural environments.

Minimum Width:

Under ideal conditions, shoulder widths should be a minimum of 4 feet when intended to fully accommodate bicycle travel. Where 4-foot widths cannot be achieved, any additional shoulder width is better than none at all.





Ancillary Facilities

Ancillary facilities are the supporting facilities that help contribute to the success of a bicycle network. These facilities can include secure bicycle parking, bicycle lockers, and even shower and locker facilities in the workplace. Facility and infrastructure needs do not stop with arrival at the work site or other destination. Many bicyclists are discouraged from becoming bicycle commuters

because once at work they have no place to park their bicycle securely or to shower and change. Shower and locker room facilities should be encouraged and are becoming more common place in office and commercial space.

Secure bicycle parking deserves special attention. The availability of parking is a prerequisite for automobile use; the same holds true for bicycling. Bicyclists also face possible theft of or vandalism to their bicycles. Even when parked securely, bicycles are frequently exposed to damage from rain and other environmental conditions. Parking facilities can vary from the simple U-Rack to a separate parking area designated for the exclusive use of bicycles. Secure bicycle parking is necessary before bicycle use will increase.

These facilities not only encourage employees to commute by bicycle and be more physically active, they can also be considered an important element of a comprehensive Transportation Demand Management (TDM) Plan by potentially reducing peak period traffic congestion. Through this reduction in traffic congestion, air quality benefits can also be obtained.



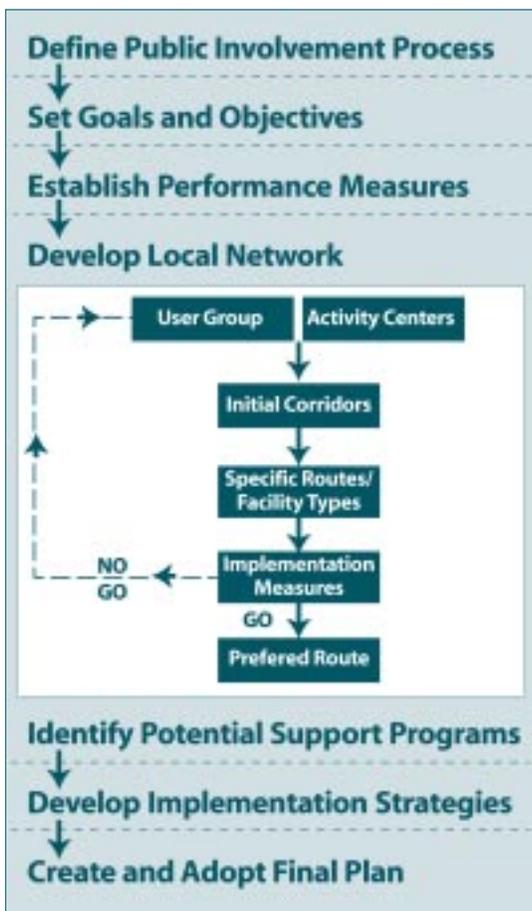
The U-Rack

Understanding Bicycle Facilities	
<p>Environment</p> <ul style="list-style-type: none"> ✓ Urban ✓ Suburban ✓ Rural 	<p>User Groups</p> <ul style="list-style-type: none"> ✓ Group A – Advanced Bicyclists ✓ Group B – Basic Bicyclists ✓ Group C – Children Bicyclists
<p>Facility Types</p> <ul style="list-style-type: none"> ✓ Shared Use Path ✓ Bike Lane ✓ Wide Outside Lane ✓ Shoulder Improvements 	<p>Ancillary Facilities</p> <ul style="list-style-type: none"> ✓ Bicycle Racks ✓ Bicycle Lockers ✓ Shower Facilities ✓ Water Fountains ✓ Rest Areas ✓ Benches

Developing a Bicycle Plan

The bicycle planning process can be divided into seven steps. The remainder of this chapter provides a description of each of these steps.

At the beginning of the planning process, the appropriate staff members within the locality should be assigned to the plan development and their role clearly identified: are they lead role, support role, or main point of contact. Depending on the locality, the responsibility for plan development may reside with the planning director, transportation staff, engineering staff, public works director, parks and recreation director, or a combination thereof. Regardless, members from each department should participate at some level to ensure that the plan addresses the multitude of issues that arise.



Seven Step Planning Process

Define Public Involvement Process

A vital component of the bicycle planning process is public involvement. Public involvement occurs throughout the planning process. To be truly effective, the process should include representatives from all of the relevant stakeholder groups. The nucleus of the public outreach process should consist of a strong Bicycle Advisory Committee supplemented by ongoing coordination with the general public, other stakeholders, and elected officials. The following briefly describes this process.

Bicycle Advisory Committee (BAC)

Early in the planning process, a Bicycle Advisory Committee should be established by the locality. This committee serves as the nucleus of the planning process, providing guidance and input to local planning, engineering, and/or recreation staff assigned the responsibility of developing the plan. It is suggested that the BAC be generally comprised of representatives from the local planning commission, citizens at large, transit operators where applicable, and the bicycling community.

The representative from the planning commission or planning department serves two important roles by bringing both an understanding of local government and planning experience to the committee. The citizen representatives should be

selected in such a way that a broad range of community interests are represented. This is an ideal opportunity to actively engage minority and low-income sectors of the community in accordance with Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations. Similarly, it is important to consider that the bicycling community is a diverse group and it would be useful to invite a mix of bicyclists with different backgrounds as to age and bicycling



Typical BAC Representation

interests. Throughout the planning process, the committee must remain cognizant of the fact that its actions and recommendations are meant to reflect the needs of the entire community.

Prior to the appointment of an advisory committee, a charge and outline of expectations should be prepared. This outline may include a description of the purpose of the committee; a description and requirements of membership, appointment, terms of members, and methods to fill vacancies; a description of the powers and duties of the committee; and recommended meeting schedule. While the above provides a good example, planners need to adapt the committee to their own local area and needs.

Coordination with Elected Officials

Some communities may also find it valuable to have a member of the local governing body (board of supervisors, city and town councils, etc.) serve on the BAC to act as an official liaison to the body. Such a representative can also keep the local governing body informed of what the Bicycle Advisory Committee is doing and bring the reality of necessary political considerations to the committee. If no such member is on the BAC, periodic briefings on the plan’s development should be made to the local governing body prior to the plan being presented for adoption. This will help build local and political support for the plan before the adoption process begins.



Starting the Process

Public Workshops and Meetings

In addition to the direct involvement of a Bicycle Advisory Committee, opportunities should be made for other members of the public to review and comment upon the proposed plan. Special efforts should be made to contact and involve groups with a potential interest such as school boards, bicycle clubs, citizens in economically deprived areas, the local traffic safety commission, the business community, neighborhood civic associations, and directly affected property owners. Public meetings should be widely advertised through local newspapers, cable television, government bulletins, or other media accessible to the general public.

The general public and various public and private agencies can be involved at various points in the process to provide input. At least one public meeting should be held early in the plan preparation process to increase understanding and support for the plan and seek public input. For example, an open public workshop or charrette could be organized relatively early in the process to:

- define what a bicycle plan is
- brainstorm goals and objectives for the plan
- identify important attractions, connections, and corridors that could be part of the bicycle network
- offer input on the overall plan process

Subsequent workshops should be held to solicit input on a draft plan.

Public Involvement Process Checklist

- ✓ Develop outline of expectations and operations of a Bicycle Advisory Committee (BAC)
- ✓ Invite potential BAC members and obtain commitment to participate
- ✓ Conduct an open public workshop or charrette in order to brainstorm goals and objectives and to identify important attractions, connections, and corridors that should be a priority in the bicycle network
- ✓ Local staff and BAC develop draft goals and objectives of the plan for submission to local officials and decision makers
- ✓ Hold additional public workshops or charrettes as needed to address specific topics important to the community
- ✓ Local staff and BAC develop draft plan and present to local officials and decision makers
- ✓ Hold public information meeting to solicit input on draft plan
- ✓ Finalize the plan based on input from elected officials and the public
- ✓ Submit the plan to local board of supervisors or city and town councils for formal adoption

The local staff and BAC would continue the planning process with regularly scheduled workshops; the staff would carry out the work with input from the BAC. Representatives from various departments or agencies could be invited to particular workshops of the BAC in order to provide additional input. The following participants could be considered:

- Planning District Commission to understand the regional significance of a local plan and its role in a regional plan
- Public Works Department to help develop a maintenance program for shared use paths and bike lanes
- community leaders to address environmental justice issues and gain an understanding of the varying bicycle needs of diverse communities
- Virginia Department of Transportation to discuss upcoming construction projects that may complement the community's bike plan
- Department of Health, local hospital representatives, and the police department to help develop a bicycle safety plan targeting children
- Department of Education to help devise programs for the inclusion of bicycle education into the school curriculum

It should be noted that these are simply guidelines for a public outreach process. Some communities may only need limited involvement of the general public, whereas some may require significant involvement.

Set Goals and Objectives

In terms of technical work, the first step in the planning process is to set the goals and objectives of the bicycle plan. Goals and objectives complement one another and serve as the “blueprint” for the plan to follow. The goals and objectives can be drafted by local staff in conjunction with the Bicycle Advisory Committee or can be the product of a workshop or charrette open to the general public.

Goals and objectives need to be clearly defined, yet remain somewhat flexible to meet unforeseen challenges and needs in the future. Defining goals and objectives can sometimes be confusing. A goal is a vision or an ideal future condition to which a community aspires. An objective is an intermediate step towards attaining a goal and is more tangible and specific. Objectives represent concrete measurable actions in support of the overall goal.

Example Goal:

Foster a healthy community by supporting and encouraging bicycling as a viable mode of transportation through infrastructure improvements, intermodal connectivity, and education and enforcement programs.

Examples of Objectives:

- ✓ Develop a comprehensive bicycle network by providing linear connections to key attractions
- ✓ Construct 5 miles of shared-use path to encourage bicycling in the community
- ✓ Encourage partnerships of public and private agencies through a defined public outreach process
- ✓ Construct 10 miles of bicycle lanes in areas of significant bicycle demand
- ✓ Reduce bicycle/motor vehicle crashes
- ✓ Ensure all children in the community have access to a bicycle helmet
- ✓ Heighten awareness of bicycling activities and benefits through publicity, including attractive brochures and maps to inform citizens and to encourage their support in implementing the bicycle facilities plan
- ✓ Encourage private developers to include bicycle facilities in new construction projects

Establish Performance Measures

Performance measures need to be established during the initial stages of plan development. Performance measures help define important qualitative and quantitative variables to be considered in determining the desirability and effectiveness of a bicycle facility. These variables need to be discussed and generally agreed to by local staff, public officials, and interested citizens to ensure synergy throughout the planning process. Some of the key variables are described on the following pages.

Accessibility

Readily accessible connections need to be considered a key component of any bicycle network. Accessibility is measured by the distance a bike facility is located from a specified attraction, the ease by which this distance can be traveled by bicycle, and the extent to which all likely origins and destinations are served. For example, some progressive communities in other states have adopted a criterion of having a bicycle facility within one mile of every residence.

BEST PRACTICES 3



Directness

Bicyclists and motorists both desire a direct and quick route to destination points. Studies have shown that most bicyclists will not even use the best bicycle facility if it greatly increases the travel distance or trip time over that provided by less desirable alternatives. Generally speaking, Group A bicyclists prefer directness while Group B/C bicyclists prefer comfort and perceived safety as the key characteristics of the bicycle facility.

Continuity

A proposed bicycle network should be viewed as a transportation system and provide continuous, direct connections to numerous attractions throughout the community. If gaps exist in the network, measures should be taken to provide safe and efficient short-term alternatives and long-term permanent solutions.

Consistency

Providing consistent bicycle facility types should be a goal when planning and designing bicycle networks. To the extent possible, bicycle facilities should provide bicyclists with a relatively consistent facility type (i.e. shared use path, bicycle lane, shoulder improvement) within key corridors. Switching between facility types can create conflict points, be confusing, and leave bicyclists with a sense of abandonment within the overall network.



Route Attractiveness

Bicycle networks or portions of the network should encompass such factors as separation from motor traffic, proximity of visual aesthetics, connections to employment centers, major passive and active recreation areas, and the real or perceived threat to personal safety along the facility. These factors tend to encourage novice and recreational bicyclists to view the bicycle as a mode of transportation and enhance the overall bicycle network.

Low Conflict

Bicycle networks should consist of routes that minimize conflicts between bicyclists and motorists and between bicyclists and pedestrians. In addition, areas of high crash incidents should be avoided or addressed directly through intersection improvements and/or other safety improvement measures.

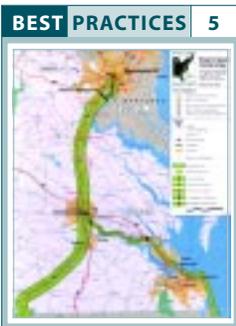
Ease of Implementation/ Costs

Right-of-way, environmental, historical, and funding constraints, as well as the political climate, must all be considered during the planning process to ensure that implementation of the plan is actually feasible. For example, land acquisition costs and historical and environmental impacts need to be carefully considered to determine the feasibility of a project.



Multimodal Coordination

The integration of bicycling with other modes of transportation, particularly public transit, benefits the entire transportation network. It has been well demonstrated in many United States, European, and Asian communities that with the proper facilities and policies, bicycles can have a significant complementary effect on transit systems, resulting in increased ridership. Bicycles provide the on-demand, door stop service that most bus and rail systems are unable to provide. Buses and trains will usually travel faster and farther than most bicyclists. The combination has a synergistic effect amplifying the market area and effectiveness of each. Park and ride facilities also complement bicycle facilities by providing bicyclists and motorists with mode transfer opportunities. Finally, multimodal connections help reduce traffic congestion by providing alternatives to the single occupant vehicle (SOV).



Multi-jurisdictional Coordination

Providing and anticipating connections across jurisdictional boundaries are necessary in developing a comprehensive plan. Communities need to look outside their borders to ensure there is a level of regional connectivity associated with the local plan. The regional Planning District Commission or Metropolitan Planning Organization can provide insight and assistance during this process.

Safety and Security of Bicyclists

The design of bicycle facilities needs to be treated as any other transportation project, with personal and traffic safety as key design elements. Safety is an important part of any plan and includes education, enforcement, encouragement, and design of facilities. The concepts of safety, such as safe intersection treatments, must guide the development of all bicycle facilities. In addition, the bicyclist needs to be educated about safe bicycling practices. Finally, personal security issues need to be addressed, especially when dealing with shared use paths. Appropriate landscaping, lighting, safety call boxes, and frequent patrols are common measures to improve bicycling safety and security.

Performance Measures Checklist	
<ul style="list-style-type: none"> ✓ Accessibility ✓ Directness ✓ Continuity ✓ Route Attractiveness ✓ Low Conflict 	<ul style="list-style-type: none"> ✓ Ease of Implementation/Costs ✓ Multimodal Coordination ✓ Multi-jurisdictional Coordination ✓ Safety and Security of Bicyclists

Develop Local Network

The development of the local and regional network represents the heart of the planning process. It is divided into several intermediate steps as follows, each of which will be described in greater detail below:

- inventorying existing systems
- identifying land opportunities and constraints
- identifying and selecting potential corridors
- selecting specific routes and facility types
- evaluating the overall bicycle network

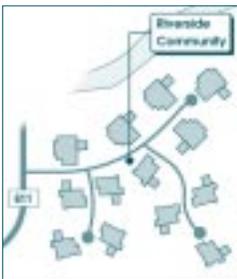
The inventory of existing conditions and identification of potential corridors and constraints can occur at the same time. The information from these steps is then combined in order to select and evaluate potential routes for the bicycle network. The final step is an evaluation of the overall bicycle network based upon general performance measures established earlier in the planning process.

Maps of the locality are central to developing a bicycle plan and can illustrate a comprehensive network of bicycle facilities connecting key attractions throughout the community. Various types of base mapping can be used ranging from a local street atlas to USGS quadrangle maps to a fully integrated geographical information system (GIS) database. The primary features needed on the base mapping include significant attractions (schools, neighborhoods, parks, employment centers, etc.), the existing road system, physical barriers (rivers, active rail lines, etc.), and potential land corridors (abandoned rail lines, canal systems, utility lines, etc.).

Anytown, VA (see next page) was developed to help visualize the planning process for a bicycle network. Keeping Anytown in mind while reviewing the following sections will help illustrate the planning process.

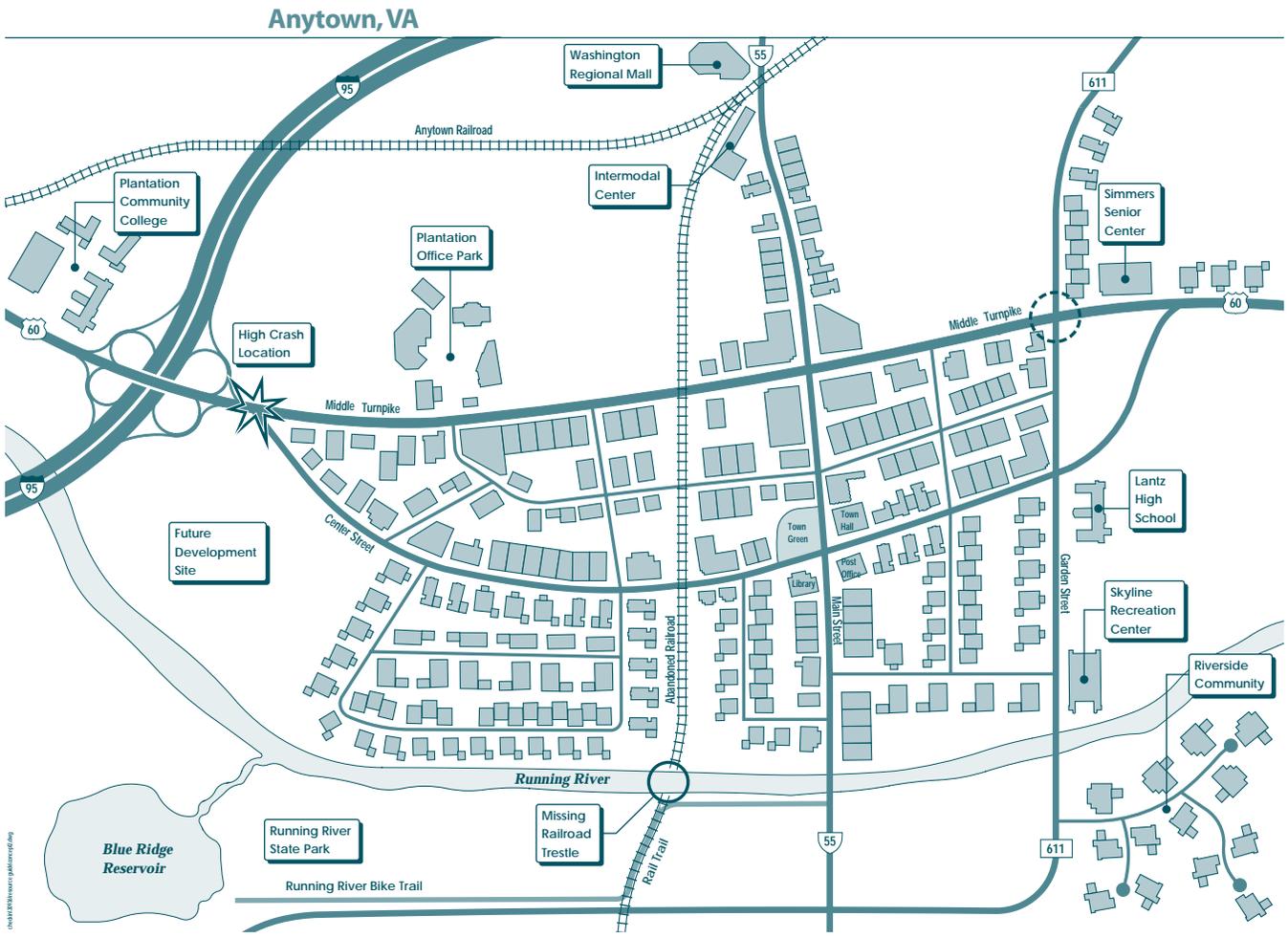
Inventorying Existing Conditions

A crucial step in the planning process is to examine the existing transportation system and major origin and destination points within the locality. The examination should include a review of the significant activity centers, existing bicycle facilities, existing roadway system, and planned roadway improvements.



Significant Activity Centers

Activity centers are locations where a significant number of bicycle trips start or may potentially start (origins) and locations that may draw a significant number of bicyclists (destinations). Local staff, the Bicycle Advisory Committee, local bicycling advocates, as well as the general public, can help identify these points of origin and destination. Examples of key attractions include:

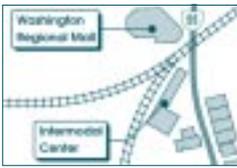


Anytown, VA Inventory

Activity Centers	Transportation Network	Potential Constraints	Land Opportunities
■ Plantation Community College	— Running River Bike Trail	■ I-95 Corridor	■ Abandoned Railroad
■ Plantation Office Park	▬ Arterial Roads	■ Anytown Railroad	■ Running River
■ Washington Regional Mall	▬ Collector Roads	■ Running River	■ Anytown Railroad
■ Intermodal Center	▬ Local Roads	■ I-95/Route 60 Ramp System	■ I-95 Right-of-Way
■ Simmers Senior Center	— Residential Roads	■ High Crash Location	■ Running River State Park
■ Lantz High School	▬ Transit Corridors	■ Missing trestle	■ Skyline Recreation Center
■ Skyline Recreation Center	- - Planned Transportation Improvements		■ Future Development Site
■ Central Business District			■ Plantation Community College
■ Future Development Site			■ Plantation Office Park
■ Riverside Community			



- residential areas – neighborhoods, especially those with large populations of children and college students who will make up the majority of utilitarian bicycle trips
- schools, community colleges, and universities – bicycles are a common mode of transportation for many elementary, middle, and high school students, as well as college and university students



- commercial centers – shopping centers, malls and plazas, downtown areas, and other commercial locations are common trip destinations
- employment areas – even if there are not currently a large number of bicycle commuters, large employment areas and industrial parks for both white collar and blue collar working areas should be included as destinations to encourage bicycle commuting
- public facilities – parks, libraries, museums, municipal buildings, and other public service facilities
- modal transfer stations – bus stops, commuter parking lots, and rail stations that may serve as trip destinations for the commuting bicyclist
- regional attractions – places outside of the jurisdiction, but within five miles
- unique features – historic, natural, and scenic points in the community for consideration as present or future bicycle trip generators.

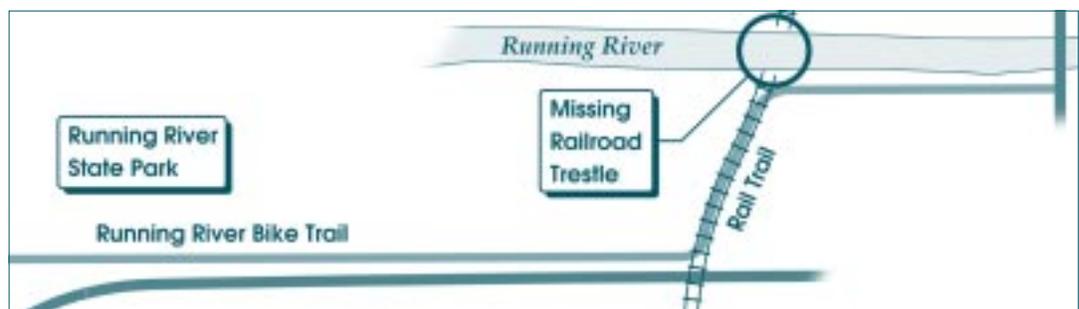
When identifying these attractions, it is important to keep in mind special subsets of the population that may depend upon the bicycle as a means of transportation. For example, in suburban environments teenagers and children may be especially dependent upon bicycles to bridge the distance between their homes and popular destinations such as school, parks, or friends' homes. Seniors may rely on bicycling, walking, and connections to transit as primary means of personal transportation to get to shopping areas, community centers, and other key destinations. Special care and consideration should be taken to include these population subsets in identifying key attractions and ensuring they are well served by a potential bicycle network.

BEST PRACTICES 6



Existing Bicycle Facilities

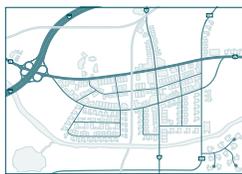
The location, condition, and level of use of existing bicycle facilities should be recorded. It is important to reiterate that the term bicycle facilities is meant to include



bikeways such as lanes, routes, shared use paths, shared roadways, as well as parking facilities such as bicycle parking racks, areas, lockers, and secured fenced areas such as may be found at some schools.

Existing bikeway facilities may already be properly designed or designated to provide some of the connections desired by the community. For instance, both Interstate Bicycle Routes 1 and 76 cross Virginia. Other existing facilities may simply require minor improvements, an extension, or spur. Similarly, the existence of heavily used bicycle parking facilities may help to identify favorable routes and attractions. In any case, the locality's existing bicycle facilities should not be overlooked as a foundation upon which a comprehensive bicycle network can be built.

As a final note, identifying destinations that are “bicycle friendly” is important. An example is an employment center that currently encourages bicycle commuting by providing showers, locker rooms, bicycle parking, or any other incentive programs.

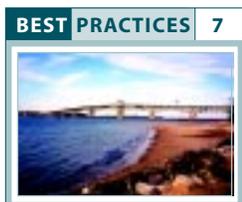


Anytown Roadways

Existing Roadway System

The existing roadway system in most localities will provide general connections to the majority of the attractions highlighted. In order to assess the effectiveness and appropriate treatment of a potential bicycle route within a roadway corridor, certain traffic flow and roadway geometric characteristics need to be identified. For example, a high-speed, congested highway with limited right-of-way and numerous curb-cuts would not be appropriate for Group B/C bicyclists, and might be discounted as a potential bicycle route.

Traffic flow and roadway geometric characteristics can typically be obtained from local planning and engineering staff or from VDOT. The Transportation Planning Division of VDOT maintains a comprehensive database of roadway characteristics available to localities.



BEST PRACTICES 7

Planned Roadway Improvements

A variety of planning tools can be consulted to identify planned roadway improvements in a given locality, including:

- *Virginia Transportation Development Plan*
- regional transportation plans developed by the Metropolitan Planning Organization or the Planning District Commission
- local comprehensive plan
- capital improvement plan

Planned roadway improvements can be an important element of an overall bicycle network. These improvements may be ready for immediate implementation with funding mechanisms in place. In some cases, minor enhancements to planned highway or street improvements can significantly improve bicycle accommodation within a roadway corridor.

Minor Roadway Improvements

- ✓ Minor shoulder widening
- ✓ Speed limit reductions
- ✓ Bicycle sensitive loop detectors at signalized intersections
- ✓ "Share the Road" signage as appropriate

Significant Roadway Improvements

- ✓ A shared use path within the right-of-way
- ✓ Bike lanes
- ✓ Four-foot paved shoulders
- ✓ Bicycle accommodation on bridges and through underpasses
- ✓ Connections to adjacent bicycle facilities and attractions

In some cases, major highway and street improvements could make a potential bicycle route less desirable by introducing additional travel and turning lanes, center medians, increased travel speeds, and an increase in heavy vehicle traffic.

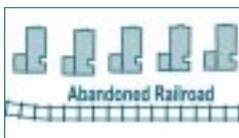
VDOT recognizes the importance of an adopted bicycle plan and strives to include bicycle facilities identified in the plan as part of new roadway construction or reconstruction. In fact, as part of its roadway design process, VDOT has incorporated processes to address the need for bicycle facilities. Chapter 2: Design provides examples of some of these programs and procedures in support of bicycling.

Identifying Land Opportunities and Constraints

Public and private land opportunities and constraints need to be identified and should also be considered in the early stages of developing a potential bicycle network. Potential constraints when developing a bicycle network can include land barriers, environmental impacts, historical impacts, funding shortfalls, lack of public support, and political will. The following section identifies some potential land opportunities and barriers.

Linear Rights-of-Way

Potential linear corridors with intact right-of-ways and/or consistent ownership provide an excellent opportunity for shared use paths that could be viewed as a spine or trunk line of a bicycle network. The following are some examples of corridors that could be used for this purpose:



- abandoned railroad corridors – abandoned railroad corridors often connect town centers with local attractions and reflect historical attributes of the community. In addition, railroad corridors are generally direct, consist of gentle grades, and bridge and tunnel structures remain in place requiring minimal improvements. “Rail-to-Trail” is typically used to describe these corridors when converted to a shared use path.
- active railroad corridors – land adjacent to active rail corridors can be considered for shared use paths if there is sufficient separation between the two uses. Speed and

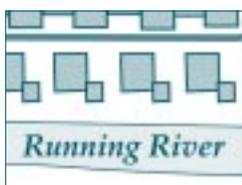
frequency of the trains within the corridor need to be carefully considered during the design of these facilities. “Rail-with-trail” is typically used to describe an active rail corridor with a shared use path within the right-of-way. Extensive coordination with the railroad companies is necessary to determine the feasibility and necessary safety measures to develop a rail-with-trail.



- highway rights-of-way – highway and roadway rights-of-way are commonly used for shared use paths because the roadway corridors already provide connections to many attractions. Shared use paths adjacent to congested highways and roadways can also be considered as part of an incident management plan for emergency vehicle access to the roadway network.

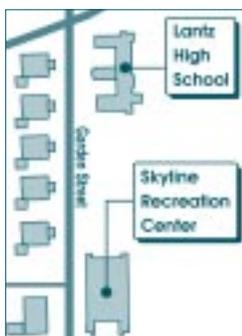
- utility corridors – utility corridors (water, electric, sewer, etc.) can provide a relatively unobstructed corridor for the development of shared use paths. In addition, utility companies sometimes welcome the development because it not only provides a community benefit, it also improves access to the utilities for routine maintenance and emergency service.

- canal tow paths – similar to railroads, canal tow paths many times connect town centers with local attractions and reflect historical attributes of the community. Canal tow paths also provide gradual grades that can be easily converted to shared use paths.



- riverways – river corridors can provide an attractive location for bicycle facilities due to the relatively low impact of bicycles on the river system and the attraction of nature and scenic vistas for the bicyclists. Development patterns along significant rivers often vary in uses and provide for unique connections, such as town centers to recreational areas, residential areas, industrial areas, etc.

- oceanfronts – oceanfronts can provide an attractive location for bicycle facilities and provide increased access to beaches and other recreational activities along the shore. Shared use paths can be especially successful along oceanfronts when connecting hotels, restaurants, and other attractions.



Public and Private Lands

In many cases, the corridors mentioned above may not be available or exist within a locality. Localities have existing land uses that present opportunities for incorporation into a local bicycle network. The table on the following page identifies some different land uses that may be considered potential opportunities to help round out a bicycle network by providing key connections or full bicycle facilities.

Public lands are often available for improvements that benefit the entire community, such as sidewalk and bicycle facilities. Private developers would also be interested in incorporating bicycle facilities into development plans if appropriate land use policy and zoning incentives were in place. A discussion on land use and zoning strategies supporting bicycling activity is presented later in this chapter.



Public Lands

- ✓ Public parks and recreation areas
- ✓ Accessible wildlife refuges
- ✓ High, middle, and elementary schools
- ✓ Universities and colleges
- ✓ Municipal buildings – libraries, town halls, post offices, etc.

Private Lands

- ✓ Office parks
- ✓ Commercial centers
- ✓ Regional malls
- ✓ Corporate campuses
- ✓ Residential developments
- ✓ Hospitals, continuum care centers
- ✓ Senior centers



Barriers

Physical barriers, both man-made and natural, that hamper bicycle passage need to be identified and should also be considered in the early stages of developing a bicycle network. Many of these barriers are within the same corridors that offer potential opportunities for the development of bicycle facilities presented in the previous section. Examples of major barriers include:



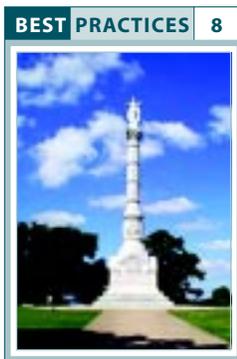
- the cross-section for an existing bridge over a major river may not have been designed to accommodate both bicycles and motor vehicles
- an active rail line may restrict opportunities to connect bicycle facilities on either side of the corridor
- overpasses, underpasses, and ramp systems of roadways intersecting major highways may reduce the cross-section of the roadway, creating a squeeze point for the bicyclists. In addition, high speed weaves between motor vehicles and bicyclists can be problematic at ramp systems
- motor vehicle high crash locations can compound safety issues for bicyclists

In addition to physical barriers, there may also be state or local regulatory barriers. For example, for intrinsic conflicts between high-speed traffic and bicycling and other safety issues, Virginia state law allows the Commonwealth Transportation Board to prohibit bicycles, and other motorized and non-motorized activity, on selected controlled access highways, including interstates. If a potential travel corridor runs along an interstate, an alternate route would need to be identified. A list of facilities in Virginia on which bicycle use is prohibited is available from the State Bicycle/Pedestrian Coordinator.

The presence of a barrier does not necessarily preclude bicycle travel through a potential corridor. As particular routes are examined within the travel corridor, it may prove feasible to eliminate the barrier through actions such as the widening of a bridge, other structural improvement, or a change in a local regulation.

Identifying Initial Corridors for Consideration

Identifying the corridors of existing and potential bicycle use based on current and anticipated attractions is the next step in the process. These corridors are then evaluated and screened as part of the following steps in the development of the plan.



BEST PRACTICES 8

Connecting the Attractions

Once points of trip origination and destination are marked on the map, lines can be drawn to connect them. These lines represent potential travel corridors or “desire lines” for bicyclists. Although drawn as lines, these corridors should be envisioned as broad desire bands that are not necessarily limited to a particular existing roadway. This exercise will help define a preliminary framework for a system of desired bicycle routes.

In order to avoid a confusing and unrealistic “spider web” of lines, careful consideration must be given to various connections. For example, connecting a residential area with a park is reasonable; whereas connecting a park with an industrial park may not be a reasonable connection considering the overall goals and objectives of the plan. It is also reasonable to screen out some of the potential connections based on previously established performance measures to minimize an overcomplicated network of potential bicycle facilities.

Selecting Specific Routes and Facility Types

The corridor identification process identified preferred lines for bicycle travel between various locations. The next step is the identification of specific routes within these corridors that can be designed or adapted to accommodate the anticipated user group. As a starting point, Group B/C users should be considered the “design vehicle.”³ In addition, the facility type (on-road accommodations or shared use paths) needs to be considered when evaluating an overall network.

The two general types of bicycle facilities can be classified as shared use paths (off-road) and on-road accommodations. While roads and shared use paths are both important to bicycle travel, roads are the key element because the road network is established, more extensive, and already provides access to most attractions. The following description highlights key parameters that need to be considered when reviewing and evaluating shared use paths and on-road accommodations as part of a bicycle network.



BEST PRACTICES 9

■ Shared Use Paths (Off-road Facilities)

Shared use paths are facilities on continuous right-of-way that serve all bicycle user groups, as well as a variety of other users including walkers and roller skaters. These facilities are typically a minimum of ten feet wide, with appropriate shoulder treatments, to allow for safe passing and multiple user types. They can be used for short connections, such as a neighborhood to a school, or as a key corridor spine through an entire community, such as an abandoned railroad line providing a series of connections to key attractions and other bicycle facilities.

3 As discussed earlier, Group A bicyclists in many cases are best served by adopting highway design standards to make every street as “bicycle-friendly” as possible. This approach is discussed more thoroughly in the Chapter 2: Design.

Availability of public right-of-way is often a key factor when considering shared use paths. Unless adequate right-of-way is available, shared use paths can require more funding and land coordination than on-road accommodations. In addition, these facilities can be controversial because of perceived safety and security impacts to adjacent property owners. Shared use paths can be considered as a catalyst for introducing communities to bicycling as a viable mode of transportation and a form of recreation. Shared use paths also boast many non-measurable benefits such as a sense of community pride, a place for physical fitness, and tourism and economic benefits. Many communities throughout Virginia are currently experiencing such benefits from these facilities.



As with any other transportation corridor, shared use path facilities need to be appropriately planned and designed to ensure user safety. Design guidelines have been developed by AASHTO⁴ to help planners and engineers apply appropriate design criteria for the variety of users and uses of these facilities. Specific information on the design of these facilities is presented in Chapter 2: Design.

■ On-road Facilities

The existing roadway system offers a variety of opportunities for bicycle travel and provides many of the connections to key attractions needed to support a successful bicycle network. Roadway characteristics that affect bicycle travel need to be carefully considered when identifying on-road bicycle routes. Traffic flow and roadway geometrics are the two characteristics that affect bicycle travel the most. These characteristics can be further broken down into the following variables: traffic volumes, travel speeds, outside-lane width, and percentage of heavy vehicles. These variables need to be considered collectively when identifying and evaluating a roadway as a potential bicycle route. The following describe these variables:

- traffic volumes – the amount of motor vehicle traffic a bicyclist is exposed to during a trip can considerably impact the trip experience. Higher motor vehicle traffic substantially increases potential conflicts between bicyclists and motor vehicles. As traffic volumes approach a roadway’s capacity, these conflicts increase.
- travel speeds – wind turbulence caused by high motor vehicle speeds can cause bicyclists traveling within the roadway to become unstable and lose control. This wind turbulence is referred to as “truck blast” and significantly increases with heavy motor vehicles (i.e. trucks, buses, and RVs) traveling at higher speeds. In addition to high travel speeds, wide variations in posted speed limits within a roadway corridor can mislead a bicyclist’s expectations of the corridor.
- outside-lane width – the overall cross-section of a roadway corridor is one of the most important variables in evaluating a roadway as a potential bicycle route. The total width of the outside travel lane and the adjacent usable shoulder dictates the available operating space for the bicyclist and motorist. This width is referred to as the outside-lane width and should not include gravel or unpaved shoulders or gutter pans.

⁴ *Guide for the Development of Bicycle Facilities*, AASHTO, 1999.

- heavy vehicles – trucks and other heavy vehicle traffic, such as buses, within the outside travel lane affect bicyclists’ safety and comfort as a result of “truck blast,” aggressive inside wheel tracking, and blind spots in the operator’s field of vision. In addition, buses and trucks generally require additional width within a lane. Roadways with high truck volumes should be avoided as preferred routes.

The adjacent table presents the typical parameters affecting potential bicycle accommodation. The width of the roadway and traffic flow characteristics tend to be the most critical, with “other” factors contributing to the comfort of the bicyclists.

Parameters Affecting Potential Bicycle Accommodation		
Physical	Traffic Flow	Other Factors
<ul style="list-style-type: none"> ✓ Total roadway width ✓ Outside lane width 	<ul style="list-style-type: none"> ✓ Traffic volumes ✓ Traffic speeds ✓ Heavy vehicles 	<ul style="list-style-type: none"> ✓ Curb cuts ✓ Intersection spacing ✓ On-street parking ✓ Sight distance restrictions ✓ Grade ✓ Environmental features ✓ Barrier curbing ✓ Rumble strips ✓ Pavement condition

Many localities complete this element of the route assessment from a qualitative, more intuitive perspective, working with local bicycle clubs and relying on the general “feel” of a roadway. In contrast to the intuitive approach, analysis tools have been developed to help assess the “suitability” or “level-of-service” of roadways to accommodate bicycle travel based on the parameters presented above. These analysis tools can be based on an existing regional or local transportation model or be developed as an independent model. In many cases, an existing geographic information database can form the baseline for creating such a model. These tools can be helpful in selecting preferred on-road bicycle routes and can assist in identifying structural and non-structural improvements that may improve bicycle accommodation for specific roadways. Some of these structural and non-structural improvements may include:

Improvements to Better Accommodate Bicyclists	
<ul style="list-style-type: none"> ✓ Shoulder improvements ✓ Access management (curb-cut consolidation) ✓ Relocation of on-street parking 	<ul style="list-style-type: none"> ✓ Minor roadway widenings ✓ Speed limit reduction and uniformity ✓ Heavy vehicle restrictions ✓ Sight distance improvements

In addition, VDOT has identified guidelines within the *Road Design Manual* that indicate appropriate design treatments based on operating speeds, average annual daily traffic volumes, heavy vehicles, and sight distance. This information is presented in Chapter 2: Design and can be used to identify general thresholds for the variables affecting bicycle travel described in this section.

Demand Forecasting

It is important to note that the resulting map may not be a representation of where bicyclists are, but instead is a reflection of where bicyclists wish to go. Understanding both existing and projected demands is helpful in the evaluation and prioritization of bicycle facilities being considered. The actual travel patterns of bicyclists (especially the non-commuter) are heavily influenced by their perception of safety and personal security. Uncomfortable or threatening bicycling conditions, as well as personal safety issues, may cause bicyclists to choose or alternate their route from their preferred one, to choose a different travel mode, or not to make the trip at all. Thus, the task of the bicycle planner is to ask:



- “Where are the bicyclists now?”
- “Where would they be if they could go where they preferred?”
- “What are the impediments preventing them from going where they prefer?”

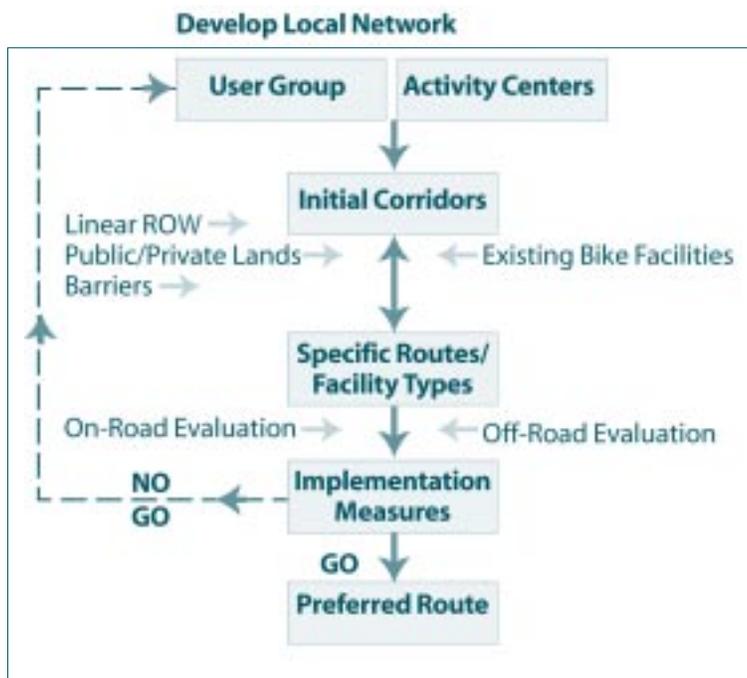
Although the use of existing traffic flows is a useful overall predictor of bicyclist preferred routes, key attractions are still the best indicators of where bicyclists want to be. A few common examples to illustrate this thought process follow:

- schools, especially colleges and universities, and military bases can generate a large share of bicycle trips. This is especially true for campuses where motor vehicle parking is limited
- parks, beaches, libraries, greenways, rivers and lakesides, scenic roads, and other recreational facilities attract a proportionately higher percentage of bicycle trips
- significant barriers such as limited access highways and rivers with a limited number of bridges can “force” use of certain routes over, perhaps, more desired connections

Most localities address this element of the plan from a qualitative perspective. This approach is certainly acceptable. There are also transportation models that have been adapted to forecast potential bicycle use based on demographic information, traffic information, development patterns, and key origins and destinations (attractions). In concert with local knowledge, these tools can be helpful in establishing preferred bicycle routes throughout a locality.

Evaluating the Overall Bicycle Network

Within a corridor there may be several potential routes that could serve the purpose of connecting key attractions. These routes should be evaluated based on the performance measures previously discussed, especially the ability to serve the targeted user group and the ease of implementation of the proposed facility. Ease of implementation of a facility evaluates order of magnitude costs, impacts to sensitive natural or cultural features, local support, available funding, political climate, etc.



Typically, selecting specific routes and facility types is a highly interactive process. The practicality of adopting a particular route to accommodate Group B/C bicyclists may vary widely depending upon the type of facility selected. For example, a less direct route may become the best option if comparatively few, inexpensive, and easily implemented design improvements are required.

This step should be approached as an interactive process in which both route selection and facility type are considered together to achieve a network that is highly advantageous to the user, is affordable, has few negative impacts on neighbors and other nonusers, and can be readily implemented.

The team needs to evaluate the proposed network plan using the established performance criteria. The proposed network should meet the design and performance criteria established at the start of the planning process. If it does not meet most of these criteria or inadequately meets a few critical goals, either the proposal will require further work or the performance measures must be modified. In the latter case, previously discarded routes should be reconsidered. These routes may now be more preferred options in light of the newly modified performance measures. This reality check is important. Many well-considered proposals flounder when it is determined that the finished project no longer meets established goals and objectives for the plan.

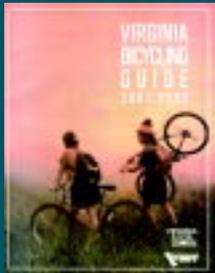
Identify Potential Support Programs

It is important to recognize that planning for physical facilities is only part of the bicycle planning process. In order to achieve a successful bicycle transportation system, additional support programs are necessary. These programs can be grouped into three categories that are often called the three E's of bicycle planning: education, encouragement, and enforcement. A brief description of the three E's is provided below. A more detailed treatment of these aspects of a comprehensive bicycle program is provided in Chapter 3: Three E's.



Education

Comprehensive public information and education programs are needed to raise the community awareness of the need for and ways to improve both bicyclists' riding skills and community culture or attitude toward bicyclists. Part of the planning process should enlist the support of schools, civic associations, bike shops, clubs (i.e. boy scouts, girl scouts, etc.), local police departments, and others to help in the education of the general public on the benefits of bicycling.



Encouragement

Although the bicycle has become common place in many homes and bicycling is one of the nation's most popular recreational activities, few adults regularly bicycle for transportation purposes. While a lack of facilities and land use planning can make certain trips quite difficult by bicycle, most people are capable of using bicycles for at least some of their trips. Getting people to bicycle more often requires not only education, but also, encouragement and special incentives.



Enforcement

Bicycles ridden on public roads in Virginia are classified as vehicles and are required to obey all traffic rules just like motor vehicles. Similarly, motor vehicle operators have certain responsibilities in respect to bicycles on the roadways. Enforcement programs complement educational programs in ensuring the safety of all users of the transportation system.

Land Use and Zoning Policies

Current land use and zoning policies need to be reviewed for consistency with established goals and objectives of the bicycle plan. The relationship between land use and zoning is important because land use patterns influence transportation choices. Updates of land use and zoning policies and practices can create many opportunities for considering bicycle travel as a viable transportation choice. These policies and practices typically guide all development through statewide regulations and local land use controls and can be effective mechanisms to improve bicycling conditions. The following typical regulatory activities should reflect strong support in order for a bicycle plan to realize its full potential.

Master Plans

The effectiveness of land use planning as an approach to promote bicycle use rests partly on how much a locality is willing to focus on increased bicycle use as a stated community goal. The most direct way for a locality to address such a goal is to clearly state it in the context of a master plan or comprehensive plan. This can be done within a master plan, through a specific objective, a stand-alone section of the plan, and/or be woven throughout the entire plan.

A reasonably current master plan generally provides a locality with ample opportunity to state policies aimed at bicycle use, and, more importantly, to convert these policies into law through local government. In addition, it is important to ensure local bicycle plans/guidelines are clearly stated in master plans in such a manner that their impacts on development decisions are clearly understood. The goal should be to inform project proponents, at the earliest practical point, of the importance of bicycle facilities, ancillary bicycle facilities, and supporting programs in local land use decisions. Practical incentives fostering creative compliance or participation by the private sector should also be encouraged.

Long Range Transportation Plans

Long Range Transportation Plans (LRTP) are required to address walking and bicycling. According to *Title 23 – United States Code*, both metropolitan and statewide planning efforts must address pedestrian walkways and bicycle transportation facilities as an integral part of an intermodal transportation system for the state and United States. LRTP's also offer an additional opportunity to incorporate a locality's willingness and interest in bicycle travel at the regional level. The Metropolitan Planning Organizations address existing and anticipated transportation needs within the region, including bicycle travel, as part of the LRTP. This planning activity allows for the identification, coordination, and prioritization of localized and multi-jurisdictional bicycle facilities. Through this process localities are encouraged to reach outside their jurisdictional boundaries to ensure local bicycle plans reflect regional cohesiveness. Similarly, regional bicycle plans need to reflect the desires and intent of the local plans.

Zoning Bylaws and Ordinances

At the local level, zoning bylaws and ordinances can help stimulate bicycle facilities through a variety of mechanisms. The following present some examples:

- zoning requirements – in a simple requirement situation, a zoning bylaw could define how many bicycle parking spaces would be required per 1,000 square feet of space (or other relevant measure, such as seats, beds, or classrooms). These requirements would have to be met before the regulatory body grants an occupancy permit. For example, both Gloucester and York Counties have developed requirements for bicycle parking facilities within their parking ordinances.
- development guidelines – within the zoning process, design guidelines provide a mechanism for a locality to discuss adjustments to a proposed development plan with the developer. These discussions and negotiations generally occur when the developer submits site plans for approval and/or requests a special permit. During this process the locality can suggest and/or require measures to accommodate bicycle travel and use.
- subdivision regulations – subdivision regulations could include specific requirements for inclusion of bicycle facilities depending on the size and density of the proposed development. These requirements could vary from inclusion of a shared use path through the development to bicycle lanes on proposed streets.

Develop Implementation Strategies

A plan is of little value unless steps are taken to ensure that the ideas contained in the plan will be translated into action. An implementation strategy serves this purpose by:

- identifying the organizations with responsibility for enacting the plan
- detailing the approximate costs for enacting the various projects in the plan
- identifying sources of funding for projects
- prioritizing projects

The objectives established for the plan must be reflected in the development of an implementation strategy to ensure the success of the plan. In addition, an implementation strategy should address maintenance issues for both existing facilities and new facilities resulting from the plan.

Priorities need to be developed for the implementation of the recommendations. The Bicycle Advisory Committee should be involved in developing criteria (i.e., preferred facility types, target user groups, etc.) used to set priorities. To be most effective, the bicycle plan should include both short-term and long-term components.

The short term plan, developed as a list of priorities, must be carefully based on and coordinated with available resources and may consist of such actions as physical improvements, changes in code and ordinances, changes in policy, educational programs, safety programs, and bicycle use promotion activities as well as a number of other recommendations. The short-term plan must be designed in conjunction with capital programming and coordinated with ongoing efforts that may impact identified action items. The short-term plan also needs to be an active, flexible plan that can respond to the changing needs of the community.

The long-range plan should list potential sources of funds to carry out the physical improvements it proposes. While costs are factored into the evaluation of the plan elements, there is no need to express dollar amounts in great detail because of the changing nature of such projections. The plan must have flexibility to adapt to the availability of funds. Including detailed projected costs simply assures that the plan will all too quickly become out of date or is too rigid to be broken down into smaller elements. It is better to leave the consideration of improvement programming to the more detailed short term planning efforts.

Create and Adopt Final Plan Document

Once the implementation strategy is complete, the final step is the actual creation and adoption of the plan document.

The importance of accurate and clear mapping in the plan cannot be overemphasized. Base mapping should include major roadways and landmarks that are clearly labeled. The different types of bicycling facilities should be coded on top of such a base map, preferably using a system of colors or line types to denote various bicycle facility

types. Depending on the extent of the proposed network, short-term and long-term priority projects can either be identified on one map or displayed on separate maps. Supporting documentation demonstrating the process, including public outreach, route selection, and plan adoption should also be included.

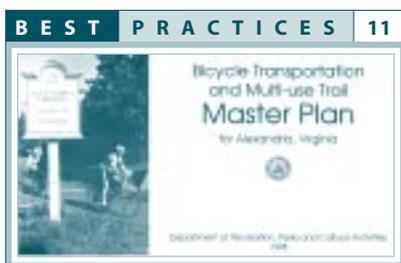
An adopted plan indicates community buy-in and political support, increasing the potential success of the plan. In Virginia, bicycle plans can take various forms and are commonly seen as:

- a stand-alone bicycle plan or bicycle and pedestrian plan
- a component of a transportation plan
- a component of a parks and recreation plan
- a component of a comprehensive plan

A locality's governing body (board of supervisors, city council, or town council) can formally adopt the bicycle plan in any one of these forms or variations thereof. For purposes of considering funding, VDOT does not distinguish between the various types of plans as long as the local governing body or an MPO adopts the plan.

While the bicycle plan can be adopted in various forms, it is recommended that the plan be adopted as a component of the locality's comprehensive plan. A local comprehensive plan is truly a locality's "blueprint" for future development and land use and zoning policies. Incorporating the local bike plan into the comprehensive plan indicates that a locality is committed to bicycling. Specific requirements set by state law specify procedures for comprehensive plan adoption, amendment, and review. Appropriate adoption ensures the bicycle plan is tailored to meet the locality's expectations through the adoption of the comprehensive plan.

It is important to note that even when the plan is created and adopted by the local governing body, the planning process does not end. At this stage the plan becomes a live document, guiding the actions and decisions of the locality so that the goals and objectives outlined in the plan are realized. The plan must be updated periodically to keep it current to the needs of the community. While the short-term elements of the plan may be updated as frequently as once a year as part of a capital programming plan, long-range elements may not need to be updated more than once every five years. Finally, consistent local support is critical in the success of any adopted bicycle plan. This support provides the foundation for quick implementation and future development of the plan.



Bicycle Parking Facilities

Bike Lockers



Bicycle security is one of the biggest concerns expressed by the bicycle commuter or "would be" bicycle commuter. The average cost of bicycles has significantly increased, yet most bike locks can be easily broken with the right tools. Taking your bike into the office or locking it in a common bike room are both popular solutions. Bike lockers are becoming a more common solution because of the increased security and flexibility they provide. Bike lockers benefit bicyclists by providing a secure environment for their bicycle and accessories, as well as protection from inclement weather.

Many private and public organizations in Virginia have taken initiatives to install bike lockers. The U.S. Patent & Trademark Office installed 10 bike lockers for its employees in an unsecured parking garage. VDOT installed bicycle lockers adjacent to the W&OD Trail and a park and ride lot in the City of Reston. The lockers are still highly sought after and sometimes require a waiting list. Along the same lines, VDOT is in the process of installing almost 100 bike lockers at eight "Park & Ride" locations. The Washington

Metropolitan Area Transit Authority has 780 bike lockers at its Metrorail stations and charges a yearly fee of \$70.00. Commuters are able to combine biking and rapid transit to greatly expand the opportunities for those who live too far from the office to commute by bike. The program has been very successful and well received.

More people commuting by bike benefits others by reducing congestion and freeing up more parking space for cars. The amount of space needed for bike lockers is relatively small – 18 bicycle lockers occupy the space of one car.



contact

Washington

Metropolitan Area

Transit Authority

600 Fifth Street, NW

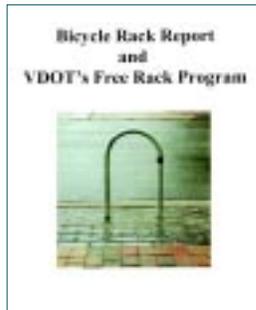
Washington, DC 20001

www.wmata.com/metrorail/BIKRKS.HTM



Bicycle Parking Facilities

VDOT Northern Virginia Bike Rack Program (NOVARacks)



Safe and secure bicycle parking is a critical issue for those traveling by bicycle. To encourage bicycling as a viable mode of

transportation, the VDOT Northern Virginia District office is using \$200,000 from Congestion Management and Air Quality (CMAQ) funds to purchase and install 1,000 bike racks in different communities. The bike rack program was part of a regional Transportation Emissions Reduction Measure (TERM) adopted through the Metro-Washington Council of Governments (MWCOC) Transportation Planning Board. Working with various communities in the area, VDOT, local officials, and business owners identified key locations where the bike racks would be of most benefit to encourage bicycling as an alternative mode of transportation.

Not surprisingly, the program has drawn praise from area bicyclists. It not only has provided nearly 1,000 needed new bike racks; it also clearly shows VDOT's intent to help create a seamless mobility chain that includes bicyclists and their special needs.



The racks chosen by VDOT were the inverted U-shape, popular with bicyclists and localities because they allow almost any style bike to be locked securely, have low maintenance needs, and are aesthetically pleasing. They can be placed individually or in clusters as needed, allowing a degree of flexibility.

contact
 VDOT
 Northern Virginia District
 3975 Fair Ridge Dr.
 Fairfax, VA 22033
 703.383.2231

Local Comprehensive Planning

Virginia Beach On-Road and Off-Road Facilities



The City of Virginia Beach has made great strides towards accommodating bicyclists whether they be residents of the city or one of the many tourists that visit the area each year. In fact, Virginia Beach's Boardwalk along the city's renowned beach has been recognized in national tourism magazines as a premier urban bike trail. Many tourists to the area take advantage of the numerous bicycle rental shops to make bicycling their preferred mode of travel in and around Virginia Beach.

In addition to the Boardwalk, the city has provided on-road and off-road facilities to enable bicycle travel in other areas of the city. For example, the city has developed a bicycle facility network linking the many hotels along the oceanfront with the Virginia Marine Science Center and other attractions. The city has also provided an off-road facility for its bayside community that provides access off the main road both to shopping facilities and First Landing State Park. Through the proper planning of these facilities, bicycling has become a regular activity throughout Virginia Beach for tourists and residents alike. A cornerstone of this planning effort

is the *Virginia Beach Outdoors Plan* (VBOP). The plan forms the framework for continued expansion of on-road and off-road bicycle facilities, recreation facilities, beach access, and preservation activities.

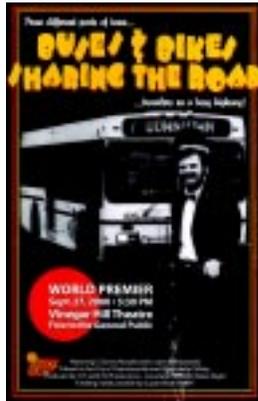


contact

City of Virginia Beach
Department of Planning
Operations Building
Room 115
2405 Courthouse Drive
Virginia Beach, VA
23456-9019
757.427.8593
www.vbgov.com

Bikes on Buses

Charlottesville Transit Service: Bikes and Buses Sharing the Road



Linking bicycles and transit is a win-win proposition. Studies have shown that most people will consider traveling by bike for distances of five miles or less.

Development patterns often require travel distances much farther than five miles. The combination of biking and taking the bus can increase the utilization of these two alternative modes of transportation by expanding the market areas of these services.

Charlottesville began its Bikes on Buses program in 1997. The City of Charlottesville Transit Service (CTS) has outfitted all of its buses, trolleys, and vans with bike racks. The racks, attached to the front of each bus, hold two bikes and are easy to use. The rider simply flips the rack down, places the bike in the rack, and gets on the bus. It's that simple! As part of an interactive training program in support of the Bikes on Buses program, CTS has representatives from the local bicycle advocacy group, CHABA, work with bus drivers regarding a bicyclist's needs. In turn, bus drivers share their perspective of

effectively supporting bicycling throughout the city.

Using grant money from the Virginia Department of Rail and Public Transportation, Charlottesville Transit Service has produced a video documenting the success of the Bikes on Buses program. "Bikes and Buses: Sharing the Road" premiered in October 2000 and is available to the public. To promote the use of alternative transportation, CTS and the City of Charlottesville continue to sponsor events, such as "Bike to Work Day," and plan to install bike lockers at key bus stops to further support the connection of these two modes.



contact

Charlottesville Transit Service

P.O. Box 911

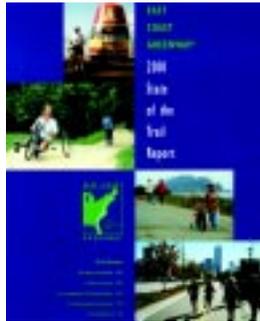
Charlottesville, VA 22902

804.970.3794

www.ci.charlottesville.va.us

Regional Trail Planning

East Coast Greenway



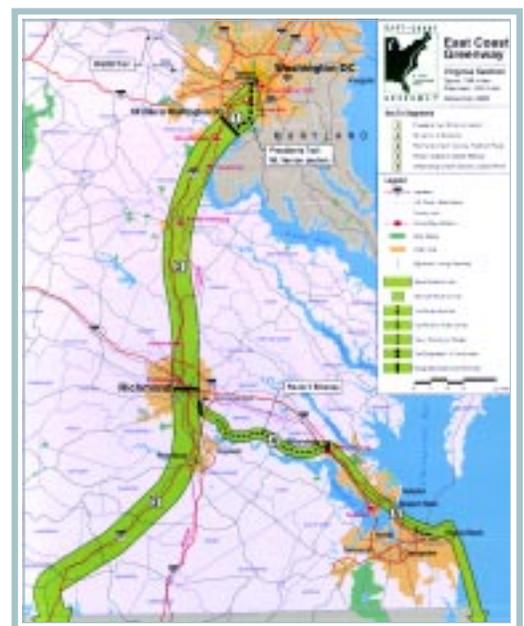
Virginia sits midway along one of the most ambitious trail projects for non-motorized travelers in the United States.

Designated as a "National Millennium Trail," the East Coast Greenway is being developed along the eastern seaboard, connecting cities from Maine to Florida. It is envisioned as a multi-use and urban compliment to the Appalachian Trail; the greenway is a unique bicycle and pedestrian facility, both off-road and on-road, that will serve as a linear park and travel corridor through our nation's densest region. Beginning as a vision ten years ago, it is becoming a

reality segment by segment through the efforts of citizens at national, regional, state, and local levels collaborating as partners.

In Virginia, the East Coast Greenway is largely in the planning phase.

Various state agencies, localities, regional planning commissions, trail advocates, and the Virginia Trails Association are all working together to help identify and develop trail segments. For planning purposes, the corridor generally follows the I-95 corridor from Washington D.C. to Richmond, including the existing Mount Vernon Trail along the Potomac River. From Richmond, the main spine would follow the I-95 and I-85 corridors to the North Carolina border towards Raleigh. An alternate route corridor under development is from Richmond to Williamsburg via the Route 5 Capital to Capital Bikeway, with continuation on to the Hampton Roads area and the outer banks of North Carolina.



contact

Barbara Nelson

Executive Director

Virginia Trails Association

P.O. Box 1132

Ashland, VA 23005

virginiatrails@aol.com

www.greenway.org

State Bicycle Routes

Interstate Bicycle Routes 1 and 76



The Commonwealth of Virginia is crisscrossed by two American Association of Highway and Transportation Officials (AASHTO) designated Interstate Bicycle Routes that

provide bicyclists with an opportunity to travel on-road with relatively low vehicular traffic volumes and decent pavement conditions. Interstate Bicycle Route 1 starts in Arlington and passes through Mt. Vernon, Occoquan, Fredericksburg, Ashland, and Richmond before heading south towards Mecklenburg County to connect with the continuation of the route towards Raleigh, North Carolina.

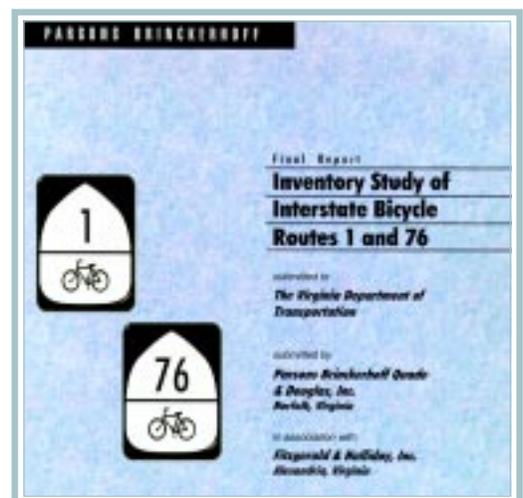
crosses the United States before ending at the Pacific Ocean in Oregon. These two routes were originally designated in the early 1980s as part of a nationwide push for bicycle facilities. As described by AASHTO, the purpose of the U.S. bicycle route numbering and marking system is to facilitate travel between the states over routes which have been identified as being more suitable than others for bicycling.

VDOT recently completed an inventory of the roadways that make up the bicycle routes and will soon be implementing minor maintenance and routing upgrades that will better accommodate bicycle travel on these facilities.



Interstate Bicycle Route 76 starts in Yorktown and travels through

Williamsburg, Richmond, Ashland, Charlottesville, Lexington, and many of the scenic counties of southwestern Virginia before continuing on into Kentucky and Illinois. Interstate Bicycle Route 76 is based on the TransAmerica Trail, which



contact
 VDOT-SBPP
 1401 E. Broad Street
 Richmond, VA 23219

Incorporating Bicycle Facilities into Bridge Reconstruction



Coleman Bridge Between Yorktown and Gloucester



Virginia's rivers often create barriers for both commuting and recreational bicyclists. The York River, forming the boundary between

Gloucester and York Counties, posed one such barrier for many years. The Coleman Bridge, a swing span bridge on U.S. Route 17, is located near the mouth of the York River and is the only York River crossing for 45 miles. Crossing the bridge by bicycle was impossible given the narrow two lanes, traffic conditions, lack of shoulders, and the steep grade. For many years, a commercial bicycle touring company offering bike tours in the Williamsburg/Yorktown area was forced to transport its guests across the bridge in a van.

bridge in Gloucester County, now participates in the Bike to Work efforts ongoing around the state. These bike accommodations also allow for a seamless bike route between the Lower Peninsula (York County, Hampton, and Newport News) and the Middle Peninsula (Gloucester, King and Queen, Mathews, Middlesex, and Essex Counties). Incorporating these bicycle accommodations during bridge improvements also provided bicyclists access to the Colonial National Historical Park and the 23-mile Colonial Parkway between Yorktown and Jamestown.



All of this changed in 1996 when VDOT widened and improved the Coleman Bridge. As part of the bridge upgrade, wide shoulders in each direction were added to better accommodate bicycle travel. Today, bicyclists can cross the York River safely for commuting purposes and recreation. The Virginia Institute of Marine Science, a major employer situated at the base of the

contact

VDOT-Williamsburg

Residency

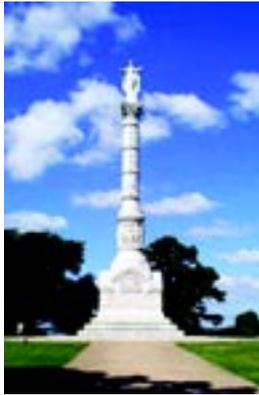
4451 Ironbound Rd.

Williamsburg, VA 23188

757.253.4832

Partnering with the National Park Service

Pedal the Parkway



Administered by the National Park Service, the Colonial National Historic Park includes two of the most historically significant sites in English North America. Jamestown,

the first permanent English settlement in North America in 1607, and Yorktown Battlefield, the final major battle site of the American Revolutionary War in 1781, are major tourism destination points. These two sites represent the beginning and end of English colonial America. They are connected by the 23-mile scenic Colonial Parkway.

Since 1998, the National Park Service has opened the 9-mile stretch of the Colonial Parkway between Williamsburg and Jamestown for the exclusive use of bicyclists from 8:00 AM – 1:00 PM on the first Saturday in May. The free bike event has been a tremendous success for families, young children, and adult riders who normally are not comfortable bicycling alongside motor vehicle traffic. Over 800 riders came out in intermittent rain for the inaugural year, and last year over 1,400

people enjoyed biking car-free along the Colonial Parkway while experiencing a variety of natural and historic resources.

This event is a great example of a successful collaborative effort between the National Park Service, local government, community health and education institutions, and the local bike club. It stemmed from a vision proposed by the local citizen bike advisory committee, and each player said, "Why not?" The citizens have responded positively, and the event has grown each year. More and more school and community groups from around Virginia are participating because it is a safe, car-free event for all ages.



contact

Colonial National
Historical Park
www.nps.gov/colo

Rails to Trails

Virginia Creeper Trail



The 34-mile long Virginia Creeper Trail, which runs from Abingdon to the North Carolina line near Whitetop Mountain, is one of the most popular rail trails in Virginia. The trail is both a regional and local success, with multiple agencies working together (i.e. towns, national forests) to ensure the trail's longevity.

Each year the trail is visited by more than 25,000 bicycles, hikers, horseback riders, fisherman, bird-watchers, railroad buffs, and folks just out for a stroll. The trail offers a convenient and scenic getaway from the stresses of modern life and provides an estimated annual economic boost of over \$2.4 million to the communities of Abingdon and Damascus. In these communities the trail is also used for local in town trips.

Named for the way trains had to "creep" their way up the mountainous terrain, the Virginia Creeper Trail is considered a highly successful rail-to-trail project. The trail would not have happened without the grass roots support and efforts of many different interests. Much of the trail actually

traverses private property; cooperation from the landowners and courteous trail users are both essential to the trail's success.

The Virginia Creeper Trail Club, a private non-profit corporation with a host of volunteers, acts as trail advocate and steward. The club members help maintain, promote, and preserve the trail corridor as well as educate the public on the historical, cultural, and natural beauty of the trail. Local bicycle shops, outfitters, visitors bureau, lodging proprietors, and many others contribute to help make this trail an enjoyable experience for users and thereby bring economic vitality to the region.



contact
Washington County
Planning Office
205 Academy Drive
Abingdon, VA 24210
www.ehc.edu/vacreeper

Regional Planning

Northern Virginia Regional Park Authority



The Northern Virginia Regional Park Authority (NVRPA) is a prime

example of multi-jurisdictional cooperation to achieve ambitious regional goals that may otherwise never happen. By pooling their resources and their funds, the participating localities are able to undertake larger projects and programs. Organized in 1959 under the Virginia Park Authorities Act, the NVRPA is responsible for planning, acquiring, developing, constructing, operating, and maintaining a regional park system. Today, it provides almost 2 million Northern Virginian residents (as well as many others) with some of Virginia's finest recreational opportunities within 19 regional parks, including the popular Washington & Old Dominion Railroad Regional Park.



representatives from each jurisdiction governs NVRPA. Volunteers and friends of the regional parks (i.e. Friends of the Washington & Old Dominion Trail) from the community actively participate in maintenance efforts and park promotion. This participation has proven to be an important element to the success of the regional park system.



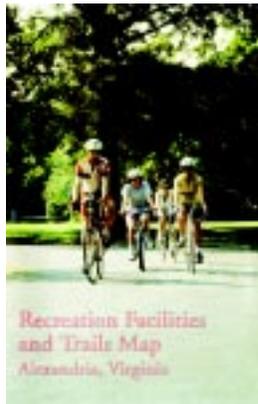
"Photographer Stoff Smulson courtesy of Rails-to-Trails Conservancy" BD

contact
 Northern Virginia
 Regional Park Authority
 5400 Ox Road
 Fairfax Station, VA 22039
 703.352.5900
www.nvrpa.org

NVRPA represents three counties and three cities – Arlington County, Fairfax County, Loudoun County, the City of Alexandria, the City of Falls Church, and the City of Fairfax. While full-time professional staff carries out day-to-day operations, a 12-member board composed of two

Implementable Bike Plan

A Master Plan for Alexandria, Virginia



Municipal bicycle and trail planning results in a broad array of benefits for communities ranging from providing local officials with alternatives to address traffic congestion to providing added

recreational options. After a comprehensive planning process that began in 1992, the Alexandria City Council adopted a *Bicycle Transportation and Multi-Use Trail Master Plan* in 1998, which then became an element of the transportation chapter of the city's Master Plan. Sponsored by the Alexandria Department of Recreation, Parks and Cultural Activities and funded by the City of Alexandria, the plan was prepared by a Bicycle Study Committee, composed of interested citizens.

To develop the plan, the Alexandria Bicycle Study Committee took to the streets of Alexandria to gain a first hand look at potential bike routes. Some of the key criteria used when considering bicycle routes for inclusion in the master plan were safe accommodation, connection to employment centers for commuting purposes, recreational opportunities, and neighborhood streets with access to stores, schools, libraries, etc. While developing the plan, the Bicycle Study Committee collaborated with many entities such as city transportation officials, the city's Environmental Policy

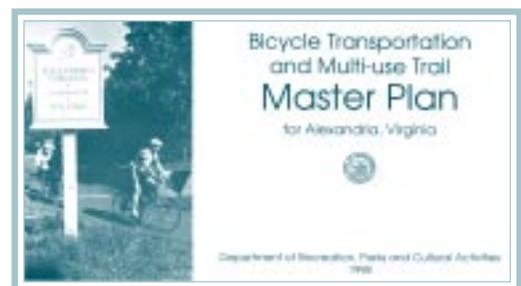
Commission and Archaeological Commission, neighboring localities, local bicycle groups, VDOT, civic associations, the general public, and many more. In addition to the plan, a user friendly bicycle map was produced showing current and proposed bike routes, Alexandria's recreational facilities, the location of bike shops, places to eat, municipal facilities, and trail connections to adjacent communities. The first printing of 10,000 maps distributed in bike shops, recreation centers, and libraries was exhausted in six months.

The adopted plan serves as a blueprint for city planners, highway engineers, developers, and decision makers in the planning, design, construction, and maintenance of bicycle facilities. In addition, the adopted plan meets the VDOT requirement which stipulates that a locality have an adopted bicycle plan in order for VDOT to consider participating in the development of bicycle facilities. Through the plan, developers are encouraged to offer transportation alternatives when proposing new projects and to rely on the bike plan and map to support these alternatives.

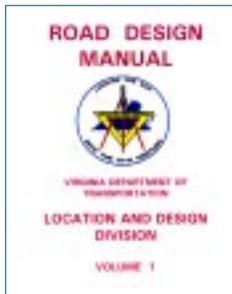
contact

The City of Alexandria Virginia
 Department of Parks,
 Recreation, and
 Cultural Activities
 1108 Jefferson Street
 Alexandria, VA 22314
 703.838.4340

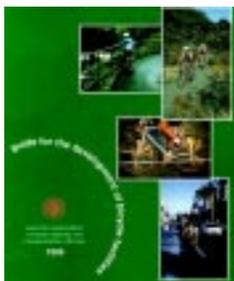
<http://ci.alexandria.va.us/rpca/bike-maps/index.html>



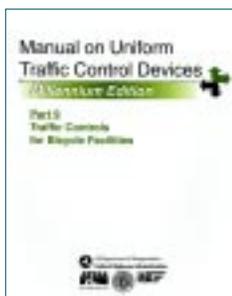
Design



www.VirginiaDOT.org



AASHTO Guide, 1999



<http://mutcd.fhwa.dot.gov>

Introduction

Bicycle facility design has been refined over the past decade with the increase in new facilities and the growing interest in bicycling as a viable form of transportation and recreation. Today's bicycle design guidelines may vary based on the type of use anticipated on the facility and environment in which it is to be built. For instance, an on-road bicycle facility serving a transportation function within a downtown area will require a different set of design guidelines than a mountain bike trail in a state park.

On-road bicycle facilities are considered part of the overall transportation system and need to be designed to ensure user safety for both the bicyclists and motorists. Off-road bicycle facilities include many types of "paths" that have varying design elements depending on the intended use and surroundings. This resource guide focuses on bicycle facilities designed for transportation that require specific guidelines to ensure uniformity, safety, and consistency in the overall system.

This chapter provides general design information for both on-road and off-road bicycle transportation facilities. Also covered in this chapter are the selection of roadway design treatments to accommodate bicycles, as well as the VDOT design process and programs supporting good bicycle design practices. The majority of the information presented in the chapter has been drawn directly from:

- *VDOT Road Design Manual*, Section A-5-Bicycle Facility Guidelines
- *Guide for the Development of Bicycle Facilities*, AASHTO, 1999
- *Selecting Roadway Design Treatments to Accommodate Bicycles*, FHWA, 1994
- *Manual on Uniform Traffic Control Devices*, FHWA, 2000

Only summary information from these publications is contained in this document.

Individuals involved in the planning and design of bicycle facilities should be familiar with and adhere to the latest *VDOT Road Design Manual*¹ and AASHTO design guidelines. AASHTO criteria are generally considered as "minimum criteria" by designers. The appendix of this guide identifies other manuals and publications that provide excellent design guidance for bicycle facilities.

VDOT/AASHTO Design Guidelines

Over the years, the Virginia Department of Transportation has been developing and refining its bicycle facility guidelines and policies, as well as general roadway design guidelines and policies, to better accommodate bicycling. These design guidelines consider six types of bicycle facilities.

¹ Available at www.VirginiaDOT.org

On-road Bicycle Facilities	Off-road Bicycle Facilities
<ul style="list-style-type: none"> ✓ Shared Roadway ✓ Paved Shoulder ✓ Wide Outside Lane ✓ Signed Shared Roadway ✓ Bike Lane 	<ul style="list-style-type: none"> ✓ Shared Use Path

The following sections describe each of these facilities, illustrate each facility type, and provide information on key design considerations.

Key Parameters Affecting Bicycle Accommodation

Key parameters affecting bicycle travel need to be quantified and evaluated when identifying roadway treatments to better accommodate bicycling. These key parameters should include:

User Groups

The “design bicyclist” needs to be identified based on the three types of bicycle users: A-Advanced, B-Basic, and C-Children. Group A riders can generally be accommodated on the majority of roadways by making these facilities more “bicycle friendly.” Whereas, Group B/C riders can generally be accommodated by identifying select travel corridors (often those with lower traffic demands or slower speeds) and by providing designated bicycle facilities on these routes. For a further description of each user group see Chapter 1: Planning.

Environment

Urban and rural areas may need different design treatments to appropriately reflect their surroundings. For instance, distinctive pavement markings identifying bike lanes are generally more appropriate in urban settings than in rural settings. In rural settings wide shoulders to accommodate bicycling should be considered.

On-street Parking

The presence of on-street parking increases the width needed in the adjacent travel lane or bike lane to accommodate bicycles. Extended mirrors, poor sight lines, and opening car doors can pose potential hazards for bicyclists.

Average Annual Daily Traffic (AADT) Volume

Higher motor vehicle traffic volumes represent greater potential risk for bicyclists. The more frequent overtaking situations are less comfortable for Group B/C bicyclists unless special design treatments are provided.

Average Motor Vehicle Operating Speed

The average motor vehicle operating speed is more important than the posted speed limit and better reflects local conditions. Wind turbulence caused by high motor vehicle speeds can cause bicyclists traveling within the roadway to become unstable and lose control.

Sight Distance

“Inadequate sight distance” relates to situations where bicycles are being overtaken by motor vehicles and where the sight distance is less than that needed for a motor vehicle operator to see the bicyclist and either change lane positions or slow to the bicyclist’s speed. This situation is primarily associated with rural roadways.

Heavy Vehicles

The regular presence of trucks, buses, and/or recreational vehicles can increase risk and have a negative impact on the comfort of bicyclists. At high speeds, the wind blast from such vehicles can create a serious risk of falls. Even at lower operating speeds, shared lane use is less compatible. Bicyclists prefer extra roadway width to accommodate greater separation from such vehicles.

Other parameters affecting bicycle travel need to be considered when evaluating various design treatments. These parameters may include curb-cut frequency, high crash locations, rumble strips, and grade. Each roadway is unique, and proper measures need to be taken to identify all potential obstacles and opportunities for bicycle travel to ensure the appropriate design treatment for the given conditions.

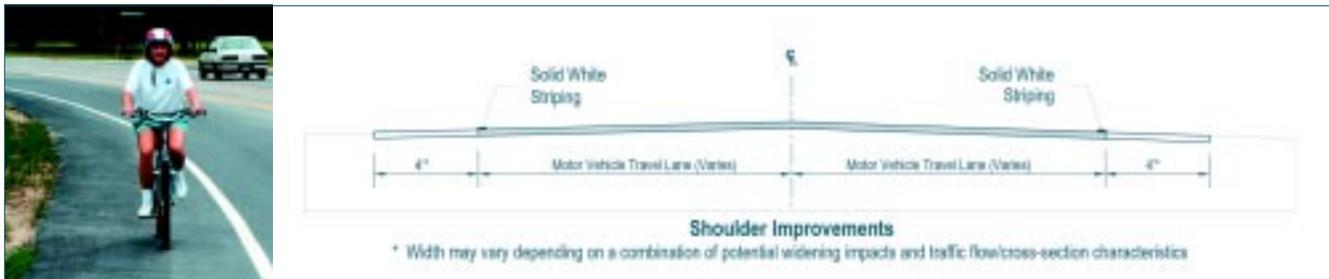
On-Road Bicycle Facilities

On-road bicycle facilities have the most potential in providing key connections in a bicycle network because of traditional development patterns most communities have undergone. Generally, the most critical variable affecting the ability of a roadway to accommodate bicycle traffic is width. Sufficient roadway width significantly dampens the impacts of adjacent traffic characteristics (i.e., traffic volumes, travel speeds, heavy vehicles) on the bicyclists. Adequate roadway width for bicycle travel may be achieved by providing paved shoulders, wide outside lanes, or bike lanes.

Shared Roadway –Paved Shoulders

Paved shoulders should be at least 4 feet wide to accommodate bicycle travel. 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 when side obstructions are present at the right side of the roadway, such as guardrails, barrier curbing, utility poles, and other static obstructions. Additional shoulder width may also be appropriate under the following conditions:

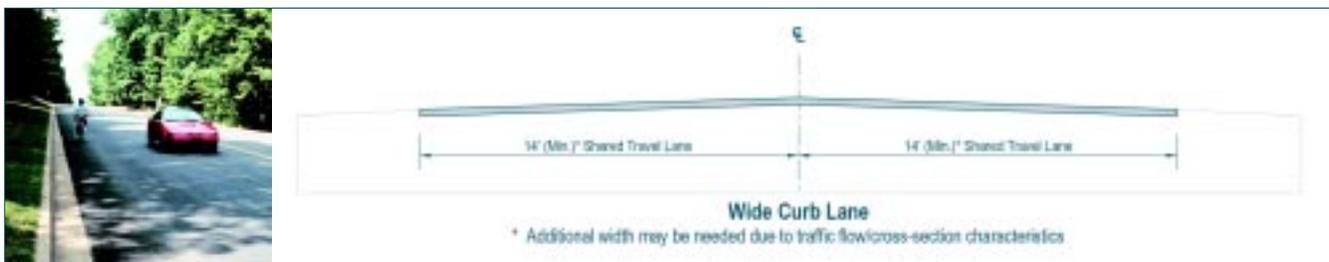
- high bicycle usage is expected
- motor vehicle speeds exceed 50 mph
- steep grades are present (bicycles need additional width when traveling uphill)
- percentage of trucks, buses, and recreational vehicles is high



AASHTO's recommendations for roadway shoulder width as described in *A Policy on Geometric Design of Highways and Streets* benefit bicycling as well, since wider shoulders are recommended on heavily traveled and high-speed roads and those carrying large numbers of trucks. Paved shoulders under these conditions facilitate bicycle travel and provide additional maintenance and safety benefits such as pull over areas, recovery areas, and increased pavement structure durability.

Shared Roadway –Wide Outside Lane

Wide outside lanes (or wide curb lanes) are outside vehicle travel lanes that provide adequate width for both motor vehicle and bicycle travel. On roadway sections without a designated bicycle facility, an outside or curb lane wider than 12 feet can better accommodate bicycles and motor vehicles in the same lane. Wide curb lanes for bicycle use are usually preferred where paved shoulders are typically not provided, such as in restricted urban areas.



In general, 14 feet of usable lane width is recommended for shared use in a wide outside lane. Usable width is defined from edge stripe to lane stripe or from the longitudinal joint of the gutter pan to lane stripe. The gutter pan should not be included as usable width.

A slightly wider outside lane width (15 feet) may be necessary under the following conditions:

- on stretches of roadway with steep grades where bicyclists need more maneuvering space
- adjacent to on-street parking where hazardous conditions for passing bicyclists exist
- where drainage grates and raised reflectors reduce the effective width of the outside lane

With these exceptions in mind, widths much greater than 14 feet that extend continuously along a stretch of roadway may encourage the undesirable operation of two motor vehicles in one lane, especially in urban areas, and are not recommended. In situations where more than 15 feet of pavement width exists, consideration should be given to striping bike lanes or shoulders.



Signed Shared Roadway

Signed shared roadways are roadways that have been identified by signing as preferred bike routes. Signed shared roadways can include a variety of different bicycle facilities including paved shoulders, wide outside lanes, and bike lanes. There are several reasons for designating signed bike routes:

- the route provides continuity to other bicycle facilities such as bike lanes and shared use paths
- the road is a common route for bicyclists through a high demand corridor
- in rural areas the route is preferred for bicycling due to low motor vehicle traffic volume or paved shoulder availability
- the route extends along local neighborhood streets and collectors that lead to an internal neighborhood destination such as a park, school, or commercial district

Signing of shared roadways indicates to bicyclists that there are particular advantages to using these routes compared to alternate routes. While these routes are preferred over other routes, signed shared routes may not represent ideal conditions for all bicyclists. The signage makes motorists more aware of potential bicycle activity along a particular roadway and heightens the overall presence of bicycling within the corridor.

Bike Lanes

Bike lanes are incorporated into a roadway design when it is desirable to delineate and separate available road space for use by bicyclists and motorists. Bike lanes are typically appropriate for urban and suburban settings, whereas rural areas will normally make use of a 4-foot minimum paved shoulder to accommodate bicyclists. Delineating bike lanes is not recommended within a required paved shoulder area. Drainage grates, railroad crossings, traffic control devices, etc. must be evaluated and modified, if necessary, when considering bike lanes.

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. Where this occurs, one-way roadway couples should be provided to ensure bicycle travel is accommodated in both directions.

If on-street parking is permitted, the bike lane should be placed between the parking area and the travel lane. Bike lanes should never be placed between the parking lane and curb line. Thirteen feet of combined bike lane and parking width should be the minimum considered for this type of shared use. Striping should be provided to delineate the parking stalls.

Bike Lane Width

The recommended width for bike lanes can vary depending on the roadway cross-section, edge treatment, and traffic characteristics. The following are minimum widths for bicycle lanes:

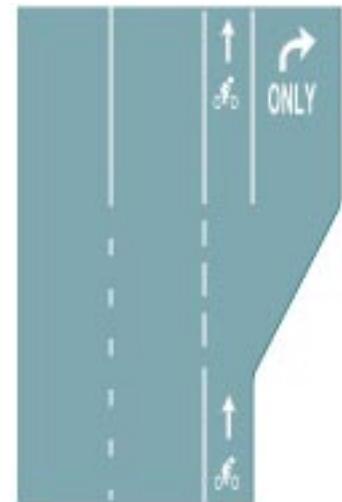
- 4-foot minimum for bike lanes on roadways with gutter pan and curb
- 5-foot minimum for bike lanes adjacent to barrier curb or other static side obstruction
- 5-foot minimum for bike lanes with adjacent on-street parking
- 6-foot bike lanes are desirable where substantial truck traffic is present or where motor vehicle speeds exceed 50 mph



Bike Lanes and Turning Lanes

Bike lanes can complicate bicycle and motor vehicle turning movements at intersections. Appropriate signage and pavement markings need to be used to assist bicyclists and motorists through the intersection. The width of the approaching bike lane should remain consistent and be placed to minimize potential conflicts between the two modes.

At intersections with exclusive right-turn lanes, the bike lane should continue along the left side of the right turn lane. In addition, the approach shoulder width should continue through the intersection, where feasible, to accommodate right turning bicyclists or bicyclists who prefer to use crosswalks to negotiate intersections.



Right Turn Only Lane

Other On-Road Design Considerations

The following factors should be reviewed during the design process for all shared roadway and signed shared roadway bicycle facilities.

Pavement Condition

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 debris. The smoothness of the riding surface affects the comfort, safety, and speed of bicyclists. Wide cracks, joints, or drop-offs at the edge of the traveled way can trap a bicycle wheel and cause loss of control. Holes and bumps in the paved surface can cause bicyclists to swerve into the path of adjacent motor vehicle traffic. Drain inlets and utility covers that extend into the travelway may also cause bicyclists to swerve and have the effect of reducing the usable width for bicycling. In areas where these pavement conditions exist, either the obstacles need to be addressed or the intended width of the bicycle accommodation adjusted to maintain a uniform usable pavement width.

On-Street Parking

On-street parking increases the potential for conflicts between motor vehicles and bicyclists. The preferred bicycle riding location on urban roadways is in the area between parked cars and moving motor vehicles. Here, bicyclists are subjected to opening car doors, vehicles exiting parking spaces, extended mirrors that narrow the travel space, and obscured views of intersecting traffic. To minimize these impacts, 12 feet of combined bicycle travel and parking width should be the minimum considered for this type of shared use (where bike lanes are not delineated).



BEST PRACTICES 12

Traffic Signals

At signalized intersections where bicycle traffic exists or is anticipated, the timing of the traffic signal cycle, as well as the method of detecting the presence of the bicyclists, should be considered. In mixed traffic flow the bicyclist normally can cross the intersection under the same signal phase as motor vehicles. The greatest risk to bicyclists is during the clearance interval. For signalized intersections with relatively high bicycle traffic, signals should be designed to provide an adequate clearance interval for bicyclists who enter at the end of the green interval to safely clear the intersection. Another problem exists when bicyclists approach an intersection on a low volume roadway where motor vehicle traffic may not be present to trigger the green light. In this case, loop detectors can be adjusted to detect and actuate a signal when a bicyclist is present.

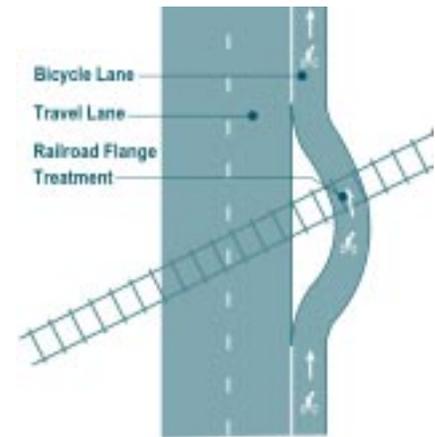
Rumble Strips

Rumble strips or raised pavement markers, where installed to discourage or warn motorists that they are driving on the shoulder, are not recommended where shoulders are used by bicyclists. When rumble strips are necessary within corridors with high bicycle travel, a 4-foot paved shoulder between the rumble strip and the outside edge of shoulder (or 5 feet to adjacent guardrail, curb, or other obstacle) should be considered. In addition, a rumble strip requires a minimum clear path of one foot from

the rumble strips to the traveled way. If existing conditions preclude achieving the minimum desirable clearance, the width of the rumble strip should be decreased or other appropriate alternative solutions should be considered.

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 the bicyclist to lose control and crash. Consideration should be given to the crossing surface materials and to the flangeway depth and width.



Railroad Crossing Treatment

Bicycle Facilities Through Interchange Areas

Ingress and egress points at interchange ramps often require bicyclists to perform merging, weaving, or crossing maneuvers with other vehicles. These conflict points are made challenging when a wide disparity in speed exists between traffic on the ramp and bicycle traffic crossing the ramp and when grade separations create significant grade changes. If a bike lane or route must traverse an interchange area, these intersection or conflict points should be designed to limit the conflict areas and define the crossing/weaving area with appropriate signage and striping. Unnecessary uncontrolled ramp connections to urban roadways could also be eliminated to minimize the conflicts.



Bicycle Crossing of Interchange Ramps

Restripe Existing Pavement

Some roadway corridors can be readily transformed to better accommodate bicycle travel by restriping lanes and/or redefining medians. Travel lanes that are over 11 feet in width can sometimes be restriped as 10-foot travel lanes to provide a wider shoulder for bicycle use. For multi-lane roadways, the benefits of reducing travel lane widths can result in the ability to provide more shoulder width or a wider outside lane. Before reducing travel lanes to better accommodate bicycle travel, traffic flow characteristics and operations need to be carefully evaluated to ensure that safe and efficient motor vehicle operations are maintained.

'Share the Road' Signs

To enhance safety, "Share the Road" signs may be installed 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.



Off-Road Facilities

BEST PRACTICES 13



Off-Road Facilities –Shared Use Paths

A shared use path is a bikeway physically separated from motorized vehicle traffic by open space or a barrier. Shared use paths are typically developed on a continuous right-of-way and experience minimal cross flow by motor vehicles. Users may include bicyclists, inline skaters, roller skaters, wheelchair users (both non-motorized and motorized), and pedestrians including walkers, runners, people with baby strollers, and people walking dogs. Shared use paths are most commonly designed for two-way travel. Some of the design elements of a shared use path follow.

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. 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

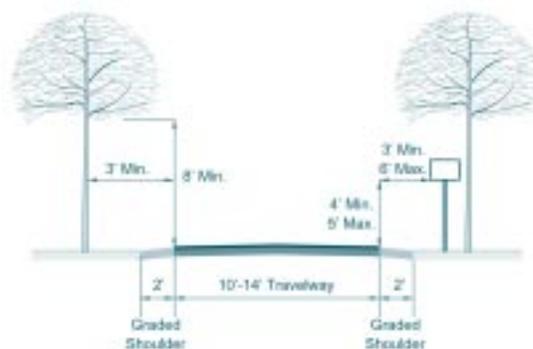
substantial use by bicycles, joggers, skaters, and pedestrians; use by large maintenance vehicles; and steep grades. In some cases it may be desirable to provide multiple treadways as part of a shared use path to separate user types to reduce potential conflicts. Multiple treadways can be a successful design approach for heavily used corridors.

A minimum 2-foot wide graded area should be maintained adjacent to both sides of the path. A minimum 3-foot clearance should be maintained from the edge of the path to signs, trees, poles, walls, fences, guardrail, or other lateral obstructions. Where the path is adjacent to canals, ditches, or slopes steeper than 1:3, a wider separation should be considered. A minimum 5-foot separation from the edge of the path to the top of slope is desirable. Where a slope of 1:2 or greater exists within 5 feet of a path and the fill is greater than 10 feet, a physical barrier such as dense shrubbery, railing, or chain link fence should be provided along the top of slope. Other situations may also dictate a physical barrier, such as the height on the embankment and condition at the bottom.

The vertical clearance to obstructions should be a minimum of 8 feet. Vertical clearance may need to be greater to permit passage of maintenance and emergency vehicles. In undercrossings and tunnels, 10 feet is desirable for adequate vertical shy distance.

In rare instances, a reduced width of 8 feet can be adequate. This reduced width should be used only where the following conditions prevail:

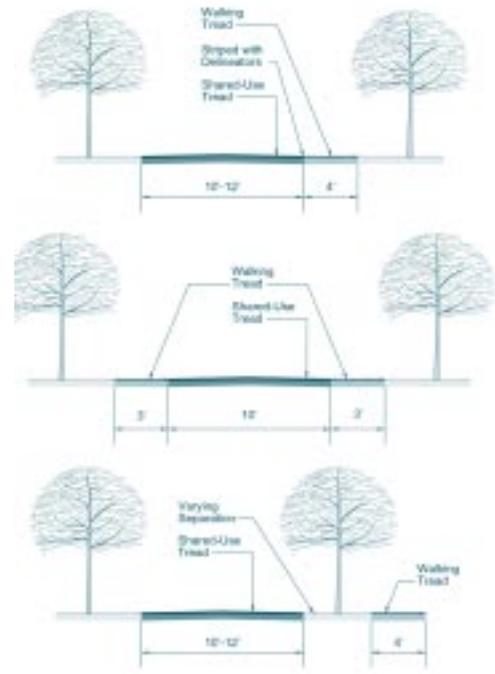
- bicycle traffic is expected to be low, even on peak days or during peak hours
- pedestrian use of the facility is not expected to be more than occasional



Courtesy of Rails-to-Trails Conservancy

- there will be good horizontal and vertical alignment providing safe and frequent passing opportunities
- during normal maintenance activities the path will not be subjected to maintenance vehicle loading conditions that would cause pavement edge damage.

If a one-way shared use path is necessary to make a key connection, the minimum width should be 6 feet. A one-way path would rarely be designed and only in a special situation. It should be recognized that one-way paths often would be used as two-way facilities unless effective measures are taken to assure one-way operation. Without such enforcement, it should be assumed that shared use paths would be used as two-way facilities by both pedestrians and bicyclists and designed accordingly.



Designing for High-Use Shared Use Paths



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. This demonstrates to both the bicyclist and the motorist that the path functions as an independent facility for bicyclists and others. This separation area also acts as a “recovery zone” for path users. For short distances, 7-foot separation between the edge of the shoulder and the shared use path is recommended with the minimum being 5 feet. When this is not possible, a suitable physical barrier is recommended. 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 *AASHTO Guide for the Development of Bicycle Facilities* recommends that 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 bicyclists. Future signs, mailboxes, and other side obstructions should also be considered when designing separation between the shared use path and roadway. Care should also be taken in providing adequate clearance along the rear right-of-way line for future expansion and necessary buffers to adjacent land uses.

Other Off-Road Design Considerations

There are many other design considerations and elements for the development of shared use paths. A detailed description, as well as supporting formulas, tables, and

figures are well documented in *AASHTO's Guide for the Development of Bicycle Facilities* and the *VDOT Road Design Manual*. The following summarize some of these key elements:

Design Speed

Shared use paths should be designed for a selected speed that is at least as high as the preferred speed of the faster bicyclists. In general, a minimum 20 mph design speed should be used. When a downgrade exceeds 4 percent or where strong prevailing tailwinds exist, a design speed of 30 mph or more is advisable.

Desirable Minimum Radii for Paved Shared Use Paths Based on 15° Lean Angle

Design Speed (V) mph	Minimum Radius® feet
12	36
20	100
25	156
30	225

Horizontal Alignment

Most shared use paths built in the United States must meet the requirements of the Americans with Disabilities Act (ADA). ADA guidelines require that cross slopes not exceed 2 percent to 3 percent to avoid the severe difficulties that greater cross slopes can create for people using wheelchairs, walkers, canes, etc. Thus, for most shared use paths, the maximum superelevation rate will be 3 percent. When transitioning a 3 percent superelevation, a minimum 25 foot transition distance should be provided between the end and beginning of consecutive and reversing horizontal curves.

Grade

In keeping with ADA guidelines, 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 percent grade recommended for bicycles for some short sections.

Maximum Grade Lengths

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

Sight Distance

To provide bicyclists with an opportunity to see and react to the unexpected, a shared use path should be designed with adequate stopping sight distances. Minimum stopping sight distance for various design speeds, vertical and horizontal curves, and grades need to be considered to ensure safe breaking distance on a shared use path.

Bicyclists frequently ride side-by-side on shared use paths, and on narrow paths bicyclists have a tendency to ride near the middle of the path. For these reasons, and because of the higher potential for bicycle crashes, lateral clearances on horizontal curves should be calculated based on the sum of the stopping sight distances for

bicyclists traveling in opposite directions around the curve. Where this is not possible or feasible, consideration should be given to widening the path through the curve, installing a yellow center line stripe, installing a “Curve Ahead” warning sign in accordance with the MUTCD, or some combination of these alternatives.

Path-Roadway Intersections

Intersections between paths and roadways are often the most critical issue in shared use path design. Shared use paths should cross roadways as close to an intersecting road as practical. This allows for good sight distances for both motor vehicle operators and bicyclists. In addition, a minimum buffer of 4 feet from the edge of the parallel travelway is required to provide the necessary separation between motor vehicles and bicyclists at intersections. As the path approaches the crossing it should be aligned with the destination of the crossing on the other side of the road. Curb cuts should be appropriately aligned and be the same width as the path. The crossing should also be as perpendicular as possible to the road being crossed. Normally, two curb cuts are recommended at each corner where a path crosses an intersection. Sight distance should be evaluated and sound engineering judgment must be used in locating crossings.

Due to the potential conflicts at these junctions, careful design is of paramount importance to the safety of path users and motorists. Each intersection is unique and will require sound engineering judgment on the part of the designer as to the appropriate solution. The AASHTO guide provides examples and guidelines for various intersection treatments.



Signing and Marking

Adequate signing and marking are essential on shared use paths, especially to alert bicyclists to potential conflicts and to convey regulatory messages to both bicyclists and motorists at highway intersections. Both advanced crossing and crossing warning signs are needed on roadways to provide appropriate warning to the motorists of the upcoming path intersection. In addition, guide signing on a path, such as to indicate directions, destinations, distances, route numbers, and names of crossing streets, should be used in the same manner as they are used on highways. In general, uniform application of traffic control devices, as described in the MUTCD, provides minimum traffic control measures that should be applied.

Pavement Structure

The pavement structure should be designed to accommodate occasional maintenance and emergency vehicles. Hard, all weather pavement surfaces are sometimes 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. Some surface treatments may be appropriate to introduce a particular theme or gain a certain aesthetic quality for a shared use path. Finally, where the path intersects gravel roadways and driveways, 3-foot paved aprons on the roadway or driveway approaches are recommended to keep debris off the path and minimize pavement damage.



Structures

On new structures, the minimum clear width should be the same as the approach shared use path plus the minimum 2-foot wide clear areas on both sides of the path. The *AASHTO Guide for the Development of Bicycle Facilities* recommends railings, fences, or barriers on both sides of a path on a structure 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 off the structure, it is recommended that the path be totally enclosed 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. Other entrance treatments can be designed to discourage motor vehicle access, maintain emergency access, and act as an entrance treatment to a shared use facility.

BEST PRACTICES 14



Maintenance

A well cared for facility is usually a well-used facility. Maintenance is an important consideration for all transportation facilities including on-road bicycle facilities and shared use paths. Good maintenance practices, such as periodic sweeping, surface repairs, tree pruning, mowing, trash removal, litter pick-up, new pavement markings, etc. are critical in the success of bicycle facilities. Maintenance operations are usually undertaken by the locality or governing agency. In some instances, nonprofit groups, civic groups, and private organizations (i.e. bike clubs) partner with the locality by assisting in the smaller maintenance tasks.

Selecting Bicycle Facility Types

Selecting the most appropriate bicycle facility type is dependent on many factors, including targeted user group, specific corridor conditions, potential impacts, and facility cost. The Federal Highway Administration developed procedures to assist transportation engineers and planners in making appropriate recommendations for on-road bicycle facilities in its publication *Selecting Roadway Design Treatments to Accommodate Bicycles*. VDOT has incorporated the majority of these recommendations into the *VDOT Road Design Manual*. The following information has generally been drawn directly from the FHWA publication.

Selecting a Design Treatment

The FHWA report recommends the use of the following five basic types of facilities to accommodate bicyclists depending on the design parameters of the roadway being evaluated:

Shared Lane

Shared motor vehicle/bicycle use of a “standard” width travel lane.

Wide Outside Lane

Also known as wide curb lane, an outside travel lane with a width of at least 14 feet.

Bike Lane

A portion of the roadway designated by striping, signing, and/or pavement markings for preferential or exclusive use of bicycles. On urban projects the bike lane width is considered the distance from the face of the curb to the bike lane stripe or the distance between the parking stall delineation and the bike lane stripe.

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.

Bicycle Facilities Terms

- ✓ The shared lane, wide outside lane, or shoulders types may be appropriate designs within AASHTO's shared roadway (no bikeway designation) category
- ✓ The bike lane types are the same
- ✓ All on-road treatments may be supplemented with a route designation and signage (the signed shared roadway category)
- ✓ The separate bike path correlates to AASHTO's shared use path

The “look-up” tables on the following pages have been directly taken from *Selecting Roadway Design Treatments to Accommodate Bicycles* and are also presented in the *VDOT Road Design Manual*. Tables 1 through 6 suggest appropriate design treatments given various sets of traffic operational and design factors and environment. The design treatments are considered “desirable widths” by the FHWA. There are three basic types of roadway environments presented in the tables:

Basic Roadway Environments		
✓ Urban without parking	✓ Urban with parking	✓ Rural

Controlled-access freeways are not addressed by the tables and require special consideration. In these cases the traffic parameters affecting bicycle travel may be too overwhelming for Group B/C bicyclists and may dictate the selection of an alternative route or consideration of an adjacent shared use path.

wc and sl 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.

Table 1: Group A Bicyclists, Urban Section, No Parking

average motor vehicle operating speed	average annual daily traffic (AADT) volume											
	less than 2,000				2,000–10,000				over 10,000			
	adequate sight distance		inadequate sight distance		adequate sight distance		inadequate sight distance		adequate sight distance		inadequate sight distance	
	truck, bus, rv				truck, bus, rv				truck, bus, rv			
less than 30mph	sl 12	sl 12	wc 14	wc 14	sl 12	wc 14	wc 14	wc 14	wc 14	wc 14	wc 14	wc 14
30–40 mph	wc 14	wc 14	wc 15	wc 15	wc 14	wc 15	wc 15	wc 15	wc 14	wc 15	wc 15	wc 15
41–50 mph	wc 15	wc 15	wc 15	wc 15	wc 15	wc 15	sh 6	sh 6	wc 15	wc 15	sh 6	sh 6
over 50 mph	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6

wc widths represent "usable widths" of outer travel lanes, measured from the left edge of the parking space (8 to 10 ft. minimum from the curb face) to the left stripe of the travel lane.

Table 2: Group A Bicyclists, Urban Section, With Parking

average motor vehicle operating speed	average annual daily traffic (AADT) volume											
	less than 2,000				2,000–10,000				over 10,000			
	adequate sight distance		inadequate sight distance		adequate sight distance		inadequate sight distance		adequate sight distance		inadequate sight distance	
	truck, bus, rv				truck, bus, rv				truck, bus, rv			
less than 30mph	wc 14	wc 14	wc 14	wc 14	wc 14	wc 14	wc 14	wc 14	wc 14	wc 14	wc 15	wc 15
30–40 mph	wc 14	wc 14	wc 15	wc 15	wc 14	wc 15	wc 15	wc 15	wc 14	wc 15	wc 15	wc 15
41–50 mph	wc 15	wc 15	wc 15	wc 15	wc 15	wc 16	sh 16	sh 16	wc 15	wc 15	sh 16	sh 16
over 50 mph	na	na	na	na	na	na	na	na	na	na	na	na

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.

Table 3: Group A Bicyclists, Rural Section

average motor vehicle operating speed	average annual daily traffic (AADT) volume											
	less than 2,000				2,000–10,000				over 10,000			
	adequate sight distance		inadequate sight distance		adequate sight distance		inadequate sight distance		adequate sight distance		inadequate sight distance	
	truck, bus, rv				truck, bus, rv				truck, bus, rv			
less than 30mph	sl 12	sl 12	wc 14	wc 14	sl 12	wc 14	wc 14	wc 14	wc 14	wc 14	sh 4	sh 4
30–40 mph	wc 14	wc 14	sh 4	sh 4	wc 14	wc 15	sh 4	sh 4	sh 4	sh 4	sh 4	sh 4
41–50 mph	sh 4	sh 4	sh 4	sh 4	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6
over 50 mph	sh 4	sh 6	sh 6	sh 4	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6

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.

wc and sl widths represent "usable widths" of outer lanes, measured from the left edge of the parking space (8 to 10 ft. minimum from the curb face) to the left stripe of the travel lane.

K E Y
widths are in feet
wc = wide curb lane
sh = shoulder
sl = shared lane
bl = bike lane
na = not applicable

Table 4: Group B/C Bicyclists, Urban Section, No Parking

average motor vehicle operating speed	average annual daily traffic (AADT) volume												
	less than 2,000				2,000–10,000				over 10,000				
	adequate sight distance		inadequate sight distance		adequate sight distance		inadequate sight distance		adequate sight distance		inadequate sight distance		
	truck, bus, rv				truck, bus, rv				truck, bus, rv				
less than 30mph	wc 14	wc 14	wc 14	wc 14	wc 14	wc 14	wc 14	wc 14	wc 14	bl 5	bl 5	bl 5	bl 5
30–40 mph	bl 5	bl 5	bl 5	bl 5	bl 5	bl 6	bl 6	bl 6	bl 5	bl 5	bl 6	bl 6	bl 5
41–50 mph	bl 5	bl 5	bl 5	bl 5	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6
over 50 mph	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6

Table 5: Group B/C Bicyclists, Urban Section, With Parking

average motor vehicle operating speed	average annual daily traffic (AADT) volume												
	less than 2,000				2,000–10,000				over 10,000				
	adequate sight distance		inadequate sight distance		adequate sight distance		inadequate sight distance		adequate sight distance		inadequate sight distance		
	truck, bus, rv				truck, bus, rv				truck, bus, rv				
less than 30mph	wc 14	wc 14	wc 14	wc 14	wc 14	wc 14	wc 14	wc 14	wc 14	bl 5	bl 5	bl 5	bl 5
30–40 mph	bl 5	bl 5	bl 5	bl 5	bl 5	bl 6	bl 6	bl 5	bl 6	bl 6	bl 6	bl 6	bl 6
41–50 mph	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6	bl 6
over 50 mph	na	na	na	na	na	na	na	na	na	na	na	na	na

Table 6: Group B/C Bicyclists, Rural Section

average motor vehicle operating speed	average annual daily traffic (AADT) volume												
	less than 2,000				2,000–10,000				over 10,000				
	adequate sight distance		inadequate sight distance		adequate sight distance		inadequate sight distance		adequate sight distance		inadequate sight distance		
	truck, bus, rv				truck, bus, rv				truck, bus, rv				
less than 30mph	sh 4	sh 4	sh 4	sh 4	sh 4	sh 4	sh 4	sh 4	sh 4	sh 4	sh 4	sh 4	sh 4
30–40 mph	sh 4	sh 4	sh 4	sh 4	sh 4	sh 6	sh 6	sh 4	sh 6	sh 6	sh 6	sh 6	sh 6
41–50 mph	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6	sh 6
over 50 mph	sh 6	sh 6	sh 6	sh 6	sh 8	sh 8	sh 8	sh 8	sh 8	sh 8	sh 8	sh 8	sh 8



VDOT Design Process and Programs

In addition to developing bicycle design guidelines, the Virginia Department of Transportation is committed to improving bicycling throughout the Commonwealth through a defined design process and series of supporting programs. This section briefly illustrates the design process and identifies these programs.

VDOT Design Process

VDOT has an established design process for all roadway design projects including bicycle facilities. VDOT's Location and Design Division (L&D) designs or oversees the design of bicycle facilities funded by VDOT and/or bicycle facilities within VDOT rights-of-way whether they be on-road or off-road. The roadway design process provides the opportunity for bicycle facilities to be appropriately considered for all projects overseen by VDOT. As presented in Chapter 1: Planning, only bicycle projects that are included in an adopted bicycle plan will be considered for inclusion in a highway project by VDOT. The design process provides for continuous collaboration between VDOT, designers, localities, and the public.

VDOT Shoulder Improvements

VDOT roadway design standards have recently been revised to specify paved shoulders for construction of some new collector and local roadways thereby better accommodating bicycles. Designers are directed to provide a minimum 4-foot wide paved shoulder when the graded shoulder is 5 feet wide or greater and:

- the design year average daily traffic (ADT) is greater than 2,000 vehicles per day (VPD), with 5 percent or more truck and bus usage or
- the route is an AASHTO approved Interstate Bicycle Route or designated as a bicycle route on a locality's thoroughfare plan and the minimum graded shoulder width is 6 feet or greater.

Designers are directed to provide a 3-foot wide paved shoulder when the graded shoulder is 4 feet wide and the design year ADT is greater than 2,000 VPD with 5 percent or more truck and bus usage.

It is intended that the additional shoulder width will better accommodate bicycling within the roadway corridor, as well as improve safety and reduce maintenance costs for the overall corridor.

VDOT Bicycling Support

VDOT Bicycling Support	
<ul style="list-style-type: none"> ✓ Bicycle Advisory Review Team ✓ Internal Bicycle Task Force ✓ Bicycle Advisory Committee 	<ul style="list-style-type: none"> ✓ State Bicycle/Pedestrian Coordinator ✓ District Bicycle Coordinators

Bicycle Accommodation Review Team (BART)

The Bicycle Accommodation Review Team (BART) is a multi-disciplinary team within VDOT with extensive knowledge in aspects of bicycle planning, design, and safety. This team serves a quality control function by reviewing proposed plans to ensure consistency and adequacy in bicycle facility design. Whether the plans are prepared internally by VDOT or by an engineering firm, BART reviews:

- roadway plans for state-maintained roads that include a bicycle accommodation
- ISTEA or TEA-21 funded projects that include a bicycle component

Comprised of representatives from the State Bicycle and Pedestrian Program and the Location and Design and Traffic Engineering Divisions, the Bicycle Accommodation Review Team meets regularly to review and comment on pending plans and recommend changes as appropriate. If necessary, the team will meet on-site (with designers and localities) to review special site conditions and discuss and resolve design issues.

Internal Bicycle Task Force (ITF)

The Department’s Internal Bicycle Task Force (ITF) is responsible for ensuring consistent implementation of the bicycle program within VDOT. The ITF periodically reviews, evaluates, and recommends modifications to VDOT’s bicycle policies and practices. It is the primary venue by which information on bicycle facility design issues is disseminated internally through VDOT. The ITF consists of one representative from each of VDOT’s nine construction districts as well as representatives from the following VDOT divisions:

Internal Bicycle Task Force		
✓ Transportation Planning	✓ Maintenance	✓ Structure and Bridge
✓ Location and Design	✓ Secondary Roads	✓ Environmental
✓ Traffic Engineering	✓ Urban	✓ Programming and Scheduling

Bicycle Advisory Committee (BAC)

VDOT established a Bicycle Advisory Committee (BAC) in 1989 as a forum for open communication and information exchange between the Department, other state/federal agencies, local/national bicycle advocates, and citizens regarding bicycling issues across the Commonwealth. Members of this committee meet periodically to discuss VDOT policies, standards, and practices that affect the bicycling community. The committee members, in turn, are asked to share this information with their respective organizations, local officials, and other interested parties. In addition to keeping the bicycling community informed on VDOT’s activities and federal legislation/policies that affect VDOT, it provides an opportunity for committee members to address a variety of issues and foster mutual understanding. The committee works together on specific projects as well. Together, the BAC has completed projects involving bicycle race permits, “Share the Road” signs, and information material. Overall, the goal of the committee is to help provide a positive experience for bicycling in the Commonwealth.

**VDOT Bicycle/
Pedestrian Program**Phone:
800-835-1203Email:
vabiking@virginiadot.org**State Bicycle/Pedestrian Coordinator**

VDOT has had a designated State Bicycle/Pedestrian Coordinator since 1978 to oversee and coordinate all activities related to bicycle and pedestrian issues for the Department. The State Bicycle/Pedestrian Coordinator is with the Transportation Planning Division and has one full-time assistant who is primarily dedicated to the Department's Bicycle and Pedestrian Program. Responsibilities of the State Bicycle/Pedestrian Coordinator and the Assistant Coordinator include the following:

- administer the Bicycle and Pedestrian Program within the Department
- provide training to VDOT personnel on bicycle planning and design issues
- provide training and education to localities, planning district commissions, and others on bicycle planning and design issues
- assist with the development of promotional and educational material regarding bicycling in Virginia
- develop and maintain the VDOT bicycle program web site and toll free number
- serve as primary liaison with other agencies, planning organizations, localities, and the public on bicycle activities and programs
- lead intradepartmental efforts to shape bicycling related policies and practices within the Department
- coordinate extensively with other VDOT divisions to ensure statewide consistency with VDOT's bicycling policies and practices
- coordinate bi-monthly and annually with state bicycle/pedestrian coordinators from other states
- coordinate and participate in the Bicycle Advisory Committee (BAC)
- coordinate and participate in the Internal Bicycle Task Force (ITF)
- serve as an active participant in the internal Bicycle Accommodation Review Team (BART)
- represent VDOT at state and national conferences on bicycle programs

District Bicycle Coordinators

Each of Virginia's nine construction districts has a designated Bicycle/Pedestrian Coordinator to assist with implementation of the Department's Bicycle and Pedestrian Program. The coordinators also have other responsibilities within the district whether it is transportation planning, traffic engineering, or roadway design. In general, their role in the bicycle and pedestrian program is to provide local support as needed to encourage, educate, and implement bicycling related efforts within their respective districts. Responsibilities of the district bicycle coordinators include:

- act as liaison with the local bicycling community and local municipalities

- provide planning and design information and technical assistance
- coordinate with other VDOT districts and divisions to ensure safe accommodations are provided and maintained for bicyclists and pedestrians
- participate in and support the State Bicycle and Pedestrian Program
- participate in the Internal Bicycle Task Force (ITF)
- review and comment on VDOT's bicycle and pedestrian policies and practices

Contact the VDOT Bicycle/Pedestrian Coordinator for the most up to date list of VDOT District Bicycle/Pedestrian Coordinators.

Intersection Improvement to Better Accommodate Bicycles



Bicycle Detection in Alexandria, VA



Under the *Code of Virginia*, bicycles are vehicles and need to follow the same laws as motor vehicles. This can

be difficult for bicyclists at signalized intersections as many loop detectors, embedded in the pavement to detect the presence of vehicles, do not detect the presence of bicycles. VDOT and the City of Alexandria have taken note!

With the construction of a new connector road between the Capital Beltway and Eisenhower Avenue in Alexandria, VDOT and city traffic engineers not only set the sensors for bicycles, they also installed signs directing bicyclists to stop on a "T" painted on the roadway to assist the bicyclists in locating the detectors. This small improvement has made a significant difference for bicyclists using this popular bicycle commuter route connecting Alexandria and Fairfax County.

contact

City of Alexandria

Transportation and

Environmental Services

301 King St. City Hall

Rm 4130

Alexandria, VA 22314

703.838.4328

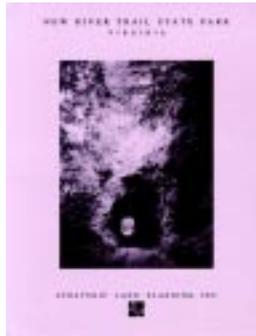
Based on the success of this one intersection improvement, the City of Alexandria has instituted a program to adjust the sensitivity of the detector settings at other intersections heavily used by bicyclists. Taking a hands-on

approach, members of the Alexandria Bicycle Study Committee assist the city in several ways. Not only do they identify intersections in need of improvement, they even assist city traffic technicians adjust the detector settings by riding their bicycles to an intersection and providing real life conditions. These modifications have contributed to an improvement in the overall bicycling experience and truly support bicycling as a mode of transportation.



Rails to Trails

New River Trail State Park



Virginia's longest linear park and a prime example of an abandoned rail corridor being reinvigorated as a recreational greenway is the

New River Trial State Park. The 57 mile converted rail trail meanders along the banks of the New River, Chestnut Creek, and Claytor Lake through the heart of the Blue Ridge Mountains. Named as one of 50 Millennium Legacy Trails by the White House, the New River Trail runs through remote mountainous areas from Pulaski to Galax in southwestern Virginia. The trail features 28 trestles and 3 bridges, which crisscross the New River and its tributaries. The longest bridge, located at Fries Junction, is 1,089 feet long. The majority of these structures have been retrofitted to meet the new transportation and recreational needs of the corridor. Much of the trail meanders along the New River with many opportunities to enjoy its historic and scenic characteristics. Over 700,000 visitors use the trail annually, making it one of the highest use rail-trails in the country.



contact

New River Trail
State Park

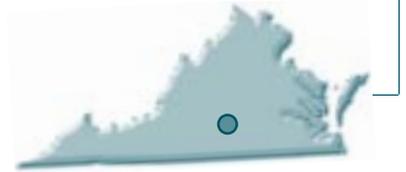
176 Orphanage Drive
Foster Falls, VA 24360

540.699.6778

www.dcr.state.va.us

Adopt-A-Trail

City of Lynchburg Adopt-A-Trail Program

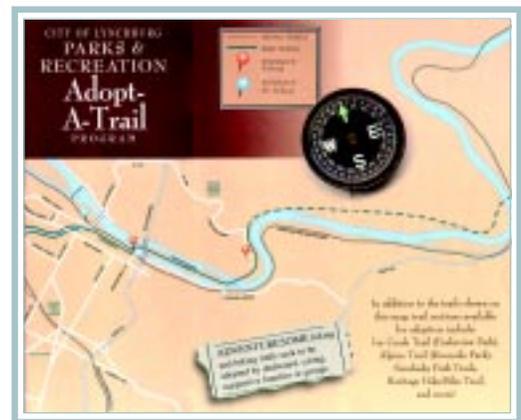


The City of Lynchburg is located in the center of Virginia and has a population of over 60,000. To the east of the city are the beautiful Blue Ridge Mountains that provide an abundance of recreational opportunities including bicycling. The City of Lynchburg Parks and Recreation Department recognizes the importance of maintaining bicycling and hiking facilities to ensure the prosperity of trails for years to come. Maintenance costs can add up and become a deterrent to the successfulness of a trail system. To that end, the Department implemented an "Adopt-A-Trail Program" to enlist the help of trail volunteers to participate in the maintenance of the facilities.



The first group of volunteers was the Linkhorne Middle School Science

volunteers spend a few hours a day, two or more times a year, cleaning their designated section of the trail, generally a half mile. Some volunteers participate in additional trail work, such as mowing, tree and shrub pruning, and special projects if needed. The Park and Recreation Department provides volunteers with all the necessary equipment, supplies, training, guidelines, and registration materials. The Adopt-A-Trail program has capitalized on a partnership with the trail users and successfully reinforced a sense of community pride for the City of Lynchburg.



contact

City of Lynchburg
Division of Parks
and Recreation
301 Grove Street
Lynchburg, VA 24501

www.ci.lynchburg.va.us/parksandrec/

Club. The club used the Adopt-A-Trail program for "hands on training" in ecology and environmental responsibility. Since then, the Boy Scouts have also taken an active role in the program and account for almost seventy-five percent of the volunteers. The

Regional Design Approach

PABAC — Hampton Roads District Pedestrian and Bicycle Advisory Committee



In 1997, the Virginia General Assembly passed a resolution

recommending that VDOT designate a bicycle and pedestrian coordinator for each of its nine districts. VDOT's Hampton Roads District built on this resolution by establishing a district bicycle and pedestrian advisory committee — the Hampton Roads District Pedestrian and Bicycle Advisory Committee (PABAC).

The committee is composed of citizens and public officials with an interest in encouraging bicycle and pedestrian projects and programs.

The committee's mission statement is:

"To foster reduced traffic congestion and more livable communities by encouraging the safe and continued use of bicycle and pedestrian facilities through the multi-faceted education of the pedestrian and bicycling community, vehicle operators, policy makers, and facility designers for the purposes of ensuring the recognition of pedestrians and bicyclists as necessary components of an intermodal transportation system."

contact

VDOT Hampton Roads District
1700 North Main Street
Suffolk, VA 23434
757.925.2481

Since its inception, the committee has been busy working with localities, Planning District Commissions, and local citizens to address the interest and needs of the bicycle and

pedestrian community regarding issues of planning, design, and maintenance of facilities at both the local and regional levels. The regional cooperation among municipalities fostered by the formation of this committee has helped plan and implement many bicycle projects and programs within the Tidewater area. Projects with a regional scope often have a greater chance of receiving federal enhancement monies.

Two current projects spearheaded by the Advisory Committee include: (1) the creation of a Hampton Roads District Bicycle Plan and (2) creation of a project development process that will assist localities and users provide input on specific projects. PABAC has been a tremendous asset to VDOT's Hampton Roads District and continues to blaze the way for bicycling in this region.



Education, Encouragement, Enforcement

Introduction

The overall success of integrating bicycling into the local transportation network not only depends on good planning, design, and the ability to obtain funding, but also relies heavily on supporting education, encouragement, and enforcement programs (the “3Es”). In many instances these are grassroots programs that generate local interest in bicycle safety and promote the many benefits of bicycling. Local government agencies (i.e., police, parks and recreation departments, etc.) and private industry (i.e. local hospitals) sponsor programs. Many state agencies in Virginia also play an important role in these programs. Some of the key agencies include:

- Virginia Department of Transportation
- Virginia Department of Rail and Public Transportation
- Virginia Department of Education
- Virginia Department of Health
- Virginia Department of Motor Vehicles
- Virginia Department of Conservation and Recreation
- Virginia Tourism Corporation

This chapter identifies education, encouragement, and enforcement programs that support a comprehensive bicycle plan. Checklists of popular 3E programs are provided throughout this chapter. When developing bicycling education or encouragement programs, it is important to keep the fundamental benefits of bicycling in mind.

Transportation Benefits

Bicycling can play an important role in the overall transportation system. It is an easy way to complete short trips, such as errands or commuting, while helping to reduce traffic congestion. In addition, people without a driver’s license (i.e., teenagers and seniors) or access to a motor vehicle may need to rely on bicycle travel as their main mode of transportation.



BEST PRACTICES 16

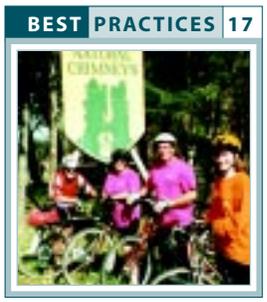


Health Benefits

Bicycling is recognized as an excellent form of physical activity, and it can help prevent and/or control the chronic conditions that lead to cardiovascular disease, including diabetes, obesity, high blood pressure, and high blood cholesterol, through increased physical fitness. The health benefits associated with bicycling should be highlighted to encourage bicycling at the local level.

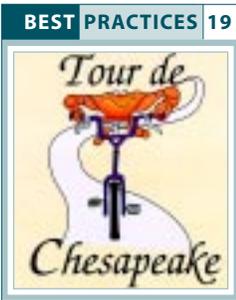
Economic Benefits

Organized bicycle tours and bicycle facilities can economically benefit communities. When touring, bicyclists and their families often spend money for food, accommodations, and souvenirs. Bicycle tours bring tourists to communities that may otherwise not see a great deal of tourism. Bicycle facilities, especially popular shared use paths, have also proven to attract tourists and related businesses such as bicycle shops, restaurants, and bed-and-breakfast inns.



Community Benefits

Bicycling can help define a community’s character. A community with an extensive bicycle network will tend to generate a significant amount of local bicycle travel. This tends to translate to a more healthy community. In addition, bicycling promotes more interaction among people in the community and helps create a more friendly environment.



Recreational Benefits

Bicycling as a form of recreation is important to Virginians. In the 2000 Virginia Outdoors Survey, bicycling was rated the sixth most popular form of outdoor recreation in the Commonwealth, with 39.2% of the population participating. Homebuyers and businesses often seek out communities offering bicycle facilities because of the transportation and/or recreation benefits.

Education

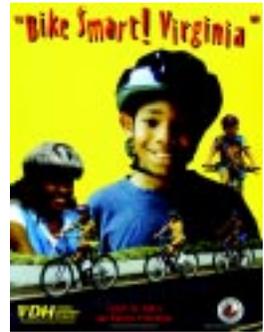
Bicycling education programs form the foundation of communities supporting bicycling. Comprehensive public information and education programs are often used to raise community awareness and improve both bicyclists’ riding and traffic skills and motorists’ attitude toward bicyclists. Ensuring that both bicyclists and motorists understand and practice the fundamental “rules of the road” is one way of accomplishing this goal. To ensure a safer bicycling experience, public education programs frequently address effective riding principles and the use of safety equipment such as helmets and reflectors. Common bicycle education programs include:

Education	
<ul style="list-style-type: none"> ✓ “Bike Smart! Virginia” ✓ Bicycle safety rodeos ✓ Helmet programs ✓ Community youth bicycle safety initiatives 	<ul style="list-style-type: none"> ✓ BikeWalk Virginia conferences ✓ Public service announcements ✓ Ride-Like-a-Pro safety events ✓ Adult bicycle programs

Education programs can be targeted towards an array of audiences including varying age and bicycling skill levels (children, teens, and adults), as well as varying socioeconomic sectors of the community. Institutions such as universities and hospitals often provide bicycle safety and skill programs. Local government officials and state agencies concentrate on providing information regarding the benefits of bicycling. The following examples demonstrate the range of educational programs in Virginia.

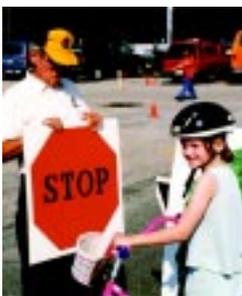
“Bike Smart! Virginia”

“Bike Smart! Virginia” is a comprehensive program to promote bicycle helmet use among children in Virginia. The cornerstone of the program is a guide book that equips educators and other community leaders with resources encouraging helmet use. The resource guide provides injury facts and legislation, essential components of childhood bicycle helmet programs, safe riding tips, sample classroom activities, and national, state, and local resources. This program is currently funded by a 402 Federal Highway Safety Grant. The guidebook is distributed by the Virginia Department of Health.



BikeWalk Virginia Conferences

The BikeWalk Virginia Conference is an annual event organized by BikeWalk Virginia for citizen advocates; local, state, and federal agency officials; educators; public safety officials; transportation and recreation planners; and others who want to make Virginia “biking and walking friendly.” The conference provides a series of workshops and presentations promoting current programs in support of bicycling and walking in Virginia and elsewhere.



Bicycle Safety Rodeos

Bicycle rodeos are conducted across the state and provide a fun environment for teaching the benefits of bicycling and bicycling safety skills to the entire community. Rodeos can be developed and organized for small or very large groups, and they provide a forum for other community programs such as bicycle registration, health fairs, book fairs, motor vehicle driver’s license renewal, etc. Area hospitals and other health care providers are frequently involved in sponsoring bicycle rodeos as a measure to help reduce head trauma injuries through the proper use of bicycle helmets and safe bicycling practices.

Public Service Announcements

Public service announcements can be an effective way to educate the community on the importance of bicycle safety. For example, during the summer of 2000, the Virginia Department of Health sponsored local public service announcements about bicycle helmet use which were broadcast on local radio stations. Public television stations may be willing to broadcast pre-recorded educational messages as well. Using local and national role models, such as sports heroes, can be an effective way to gain the attention of children and adolescents and deliver a positive message regarding bicycle safety.

Helmet Programs

Helmet use is an important consideration in bicycle safety. Bicycle helmet programs can include demonstrations on proper fit, public service announcements, reduced helmet prices, and free helmet giveaways. Local hospitals, health care providers, state agencies, private organizations, and local police departments often play an active role in promoting, organizing, and participating in safe helmet programs.

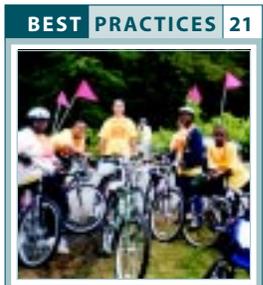


Ride Like a Pro Safety Events

“Ride Like A Pro” safety events are part of a national program to promote measures that reduce crash-related bicycle fatalities and injuries suffered by children and adolescents. The premise of this program is to increase bicycle safety awareness and skills through a variety of training events and to promote bicycle safety by generating media interest. These events depend on collaboration between local, regional, and state organizations, as well as the private sector, to deliver high impact and highly visible media events. Professional athletes often play a tremendous role in these events and provide the much needed “link” to deliver the message to today’s youth.

Community Youth Bicycle Safety Initiatives

Bicycle safety can also be targeted locally through community youth bicycle safety initiatives. These programs are on-going and continually reinforce bicycle safety through local youth groups, school groups, local recreation programs, and community police programs. Helmet use, “rules of the road,” and local bicycle rides are often organized by youth groups and local volunteers.



BEST PRACTICES 22



Adult Bicycle Programs

Bicycle programs targeted to adults are needed to educate adult bicyclists on today’s “rules of the road” for bikes and the importance of helmet use for all bicyclists. There are many programs and organizations that have materials and courses targeted towards adult bicyclists. For example, the League of American Bicyclists offers a National Bicycle Education Program for adults.

BEST PRACTICES 23



Encouragement

Programs and initiatives that encourage bicycling are also an important element of creating a bicycle friendly community. One way to promote and encourage bicycling is to provide assistance in the form of maps, brochures, and/or travel guides to make bicycling more approachable and enjoyable for novice and advanced bicyclists alike. Another effective technique is to highlight the multitude of benefits bicycling provides.

Ways to encourage bicycling include:

Encouragement	
<ul style="list-style-type: none"> ✓ Bicycle maps/brochures ✓ Web site information ✓ Bikes with transit ✓ Bicycle clubs 	<ul style="list-style-type: none"> ✓ Statewide or regional bicycle guides ✓ Bike to Work Week ✓ Bicycle tours ✓ Health benefits

Descriptions of these programs and examples from Virginia are highlighted below.



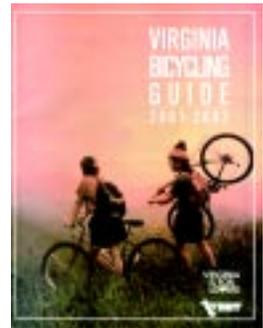
Bicycle Maps/Brochures

Bicycle maps can provide a variety of information to encourage bicycling. Specific bicycle routes are often highlighted in regional and local bicycle brochures, as well as other attractions or destinations such as scenic roads, intermodal connections, historic sights, and recreational areas. Area accommodations and unique events are often featured within a bicycling brochure as well.



The 2001/2002 Virginia Bicycling Guide

The 2001/2002 *Virginia Bicycling Guide* is a comprehensive summary of bicycling opportunities in Virginia. The guide is organized into seven geographic regions, presents brief descriptions of popular road and mountain bike rides along with directions and contacts for further information within each region, and offers general tips for safe bicycling. The guide is jointly developed and sponsored by the Virginia Department of Transportation and the Virginia Tourism Corporation.



Web Site Information

The Internet can be an excellent source of information to encourage bicycling. Established bicycle routes, local bike programs, and upcoming bicycle events such as organized rides and bicycle rodeos can be periodically posted on the web. For example, VDOT currently maintains a web page for its bicycle and pedestrian program and provides a variety of bicycle-related information and resources. In addition, many bike clubs in Virginia maintain web sites to encourage participation and keep members informed on upcoming events. The appendix provides some popular websites for bicycling resources.



www.VirginiaDOT.org

Bike to Work Week

Bike to Work Week is a national event encouraging commuters to bike to work during a designated week in May. Bike to Work Week is intended to demonstrate that bicycle commuters have the potential to help alleviate traffic congestion, reduce parking problems, and support healthy communities. At the local level, communities can

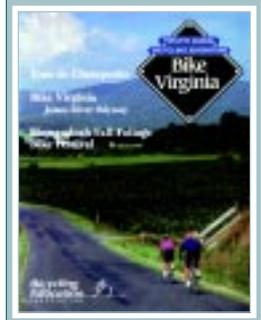
sponsor special events to generate awareness of Bike to Work Week. These events can include breakfast receptions with local officials, organized rides, and raffles for bicyclists participating in Bike to Work Week. Out of the success of Bike to Work Week, some communities have designated a particular day per month, week per month, or entire month for bicycle awareness.

BEST PRACTICES 25**BIKE TO WORK DAY****BEST PRACTICES 26****Bikes with Transit**

Provisions for bicycles on transit services help encourage bicycling and transit as alternative modes of transportation. Bicycle racks on buses and bicycle access to rapid transit passenger cars will encourage some commuters to consider bicycling to stations instead of driving. Providing secure and safe bicycle parking at intermodal stations, bus stops, and train stations also reinforces bicycling as a viable mode of access to transit.

Bicycle Tours

Organized bicycle tours are a popular means to encourage bicycling in Virginia. Tours vary from short local rides for all bicyclist levels to major multi-day events. Virginia has a series of well known bicycle tours including Bike Virginia, Pedal the Parkway, the Great Peanut Festival, Fun Day on the Bay, and the Fall Foliage Festival. These tours have been extremely successful and not only showcase great biking in Virginia, but encourage the many communities that the tours go through to become actively involved in bicycling.

BEST PRACTICES 27**BEST PRACTICES 28****Bicycle Clubs**

Local and regional bicycle clubs are often very active in bicycle education and encouragement. Bicycle clubs are a key advocacy group in developing local and regional bicycle networks. In addition to bicycle advocacy, bicycle clubs are often dedicated to promoting health and fitness benefits of bicycling, as well as the sport of bicycle racing. Bicycle clubs are also involved with volunteer efforts for trail development, promotion, and maintenance.

Spot Improvement Programs

Bicycle spot improvement programs can assist in maintaining (trash removal, sweeping, pruning, etc.) a bicycle network and thus increase the potential use of the facility. Too often the lack of proper maintenance turns the best-designed bike facility into one that is underused. Spot improvement programs provide a mechanism for the public to inform the locality and/or facility manager about maintenance issues or problems. Successfully used in Virginia, this can be done via hotline, Internet, or mail-back post cards.

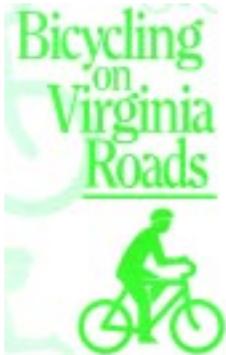
BEST PRACTICES 29

Enforcement

Enforcement of Virginia’s bicycle laws and local bicycle regulations is an important element in providing a safe bicycling environment. Like any other transportation system, uniform rules and regulations define user expectations and reduce the risk of injury. Rules and regulations need to be easily accessible and taught through education and encouragement venues to ensure that bicyclists and motorists are aware of and follow the “rules of the road.” In Virginia, a bicycle is considered a vehicle when operated on a roadway. Thus, bicyclists and motorists basically have the same rights and duties, and the laws governing traffic regulation apply equally to both. Bicyclists must obey the same traffic laws as those who are operating motor vehicles and follow traffic signs, signals, lane markings, directions, etc. Bicycle laws and regulations must be readily enforced in a manner to encourage bicycle use.

Enforcement

- | | |
|------------------------------|---------------------------|
| ✓ Police on bikes | ✓ Park rangers on bikes |
| ✓ Bicycle rules of the road | ✓ Helmet ordinances |
| ✓ Bicycle ticketing programs | ✓ Bicycle crash reporting |



Bicycle ‘Rules of Road’

Developing, adopting, and publicizing easy to understand “rules of the road” at the local level is the first step in any enforcement program. The VDOT web site provides a summary of state laws concerning bicycles and their use and safety tips that should be incorporated into local bicycle programs. Bicycle “rules of the road” should target a wide audience including children, adolescents, adults, and seniors from varying backgrounds.

Example Safety Tips

- ✓ **Be a responsible bicyclist** – obey all traffic control devices and use proper hand signals. Always ride with the flow of traffic.
- ✓ **Dress safely** – wear a helmet, wear bright colored clothing, and secure loose pant legs.
- ✓ **Ride defensively** – anticipate the actions of other road users and watch for road hazards.
- ✓ **Pass vehicles with extreme care** – turning vehicles may not see you.
- ✓ **Be aware of motor vehicle blind spots** whether riding or stopped at an intersection.
- ✓ **Maximize your visibility at night** – wear reflective clothing and apply reflective tape to your bicycle.
- ✓ **Walk your bicycle** when you get into traffic situations beyond your cycling abilities.
- ✓ **Exercise great caution when riding in bus traffic** – watch out for buses pulling to and from curbs and passengers getting on and off buses.
- ✓ **Park your bicycle** so you do not block sidewalks, handicap and building accesses, or emergency drives.
- ✓ **Lock your bicycle** – secure both wheels and the frame to a stationary object using a sturdy lock.
- ✓ **Register or license your bicycle** if required or provided by your community.

BEST PRACTICES 30



Police on Bikes

Numerous police departments throughout the Commonwealth have successfully introduced bike patrols as part of their overall patrol efforts. These patrols have proven to be a particularly positive way for police officers to interface with the community. Police on bikes can readily enforce laws and regulations by quickly and effectively addressing bicycle infractions. Bicycle police patrols have an added responsibility of following the “rules of the road” and demonstrating proper bicycling etiquette by setting an example for other bicyclists in the community. As far as crime fighting goes, the bicycle has become known to some as the “stealth” vehicle of police departments. An officer can ride up to a crime in progress without being as readily detected and easily chase down fleeing perpetrators in areas where vehicles cannot travel. Bike patrols have also proven effective in educational, encouragement, and community outreach efforts.



BEST PRACTICES 31



Park Rangers and Others on Bikes

Park rangers on bikes can be instrumental in enforcing many of the rules and regulations at state and national parks. Parks with shared use bicycle facilities can particularly benefit from this type of enforcement. Park rangers on bikes can educate shared use path users on proper use of the bike facility and increase the overall safety of the facility. Emergency response staff have also adopted the bicycle as an effective means of transportation at gatherings. For instance, Emergency Medical Technicians (EMT’s) use bicycles to patrol during major events, such as fairs, road races, and parades.

Helmet Ordinances

Bicycle helmet ordinances requiring young bicyclists to wear approved helmets can help to ensure bicycle safety. Helmet programs that provide free or reduced price bicycle helmets may be needed to support a helmet ordinance to make sure helmets are easily available to everyone. The *Code of Virginia* allows jurisdictions to pass ordinances to require every person fourteen years of age or younger to wear a protective helmet whenever riding or being carried on a bicycle on any highway, sidewalk, or public bicycle path.

Virginia Jurisdictions with Helmet Ordinances

- | | |
|-------------------------|--------------------------|
| ✓ Arlington County | ✓ Fairfax County |
| ✓ Prince William County | ✓ York County |
| ✓ City of Alexandria | ✓ Town of Blacksburg |
| ✓ City of Falls Church | ✓ City of Manassas |
| ✓ City of Newport News | ✓ City of Virginia Beach |

Bicycle Ticketing Programs

Ticketing illegal bicycle operations is sometimes needed to reinforce the importance of the “rules of the road.” Warnings may be more appropriate in most cases, allowing the bicyclist to recognize their mistake without paying a fine. At the national level, some police departments administer “tickets” that are coupons redeemable for discounted or free bicycle helmets for youth that are spotted without a helmet. Other communities distribute leaflets with the “rules of the road” or “safety tips” as a warning to bicyclists not obeying the traffic laws and bicycle regulations.

Bicycle Crash Reporting

Reporting, cataloging, and analyzing high bicycle crash locations can help determine appropriate mitigating measures to improve bicycle travel. Bicycle crashes are often not reported unless they involve serious injury and the deployment of emergency response units. Efforts to report all bicycle crashes can assist in identifying potential safety hazards for other bicyclists. The bicycling community and local bike clubs can assist localities in identifying these areas.

Health Benefits

Cardiovascular Healthy Hickory Hills Community Project



Lack of physical activity is one of the major risk factors for cardiovascular diseases and many other chronic diseases. Lifestyle modifications, such as increasing physical activity, can

help prevent these diseases and are a top priority for the Centers for Disease Control and Prevention (CDC). Bicycling is recognized as an excellent form of physical activity and can help prevent and/or control the chronic conditions that lead to cardiovascular disease, including diabetes, obesity, high blood pressure, and high blood cholesterol through increased physical fitness. The Virginia Department of Health (VDH) has taken note and has been actively promoting lifestyle modifications and infrastructure improvements to reinforce a healthy lifestyle.

"In 1998, 37 percent of all deaths in Virginia, almost 19,500 people, resulted from cardiovascular disease".

— Virginia Department of Health

this project, VDH provided funding to Richmond City Health Department for the "Cardiovascular Healthy Hickory Hills Community Project." This project is an ongoing pilot project with an eye on implementing environmental, policy, and social strategies to increase the cardiovascular health of the citizens in the surrounding communities.

The initial focal point of the project quickly became the Hickory Hills Community Center, which rests in the middle of ten low-income communities with a high minority population. The community center provides a central gathering location and presents an excellent forum for educational and recreational programs. One of the key resolutions of the project is to provide increased bicycle and pedestrian opportunities in and around the community center with key connections to each of the surrounding communities. These enhancements would encourage bicycling and walking as forms of transportation and recreation for residents and visitors, in essence improving the overall quality of life of the community.



VDH, through funding provided by the CDC, has undertaken the "Virginia Cardiovascular Health Project" (VCHP) to quantify the disease and

identify implementable strategies to reduce the risk of cardiovascular diseases. As part of



contact

Virginia Department
of Health

Division of Chronic Disease
Prevention and Nutrition

1500 E. Main Street
Richmond, VA 23219

Economic and Social Benefits

Shenandoah Valley Fall Foliage Bike Festival



The Shenandoah Fall Foliage Bike Festival draws over 1,200 bicyclists to the incomparable Shenandoah Valley each autumn. The festival draws

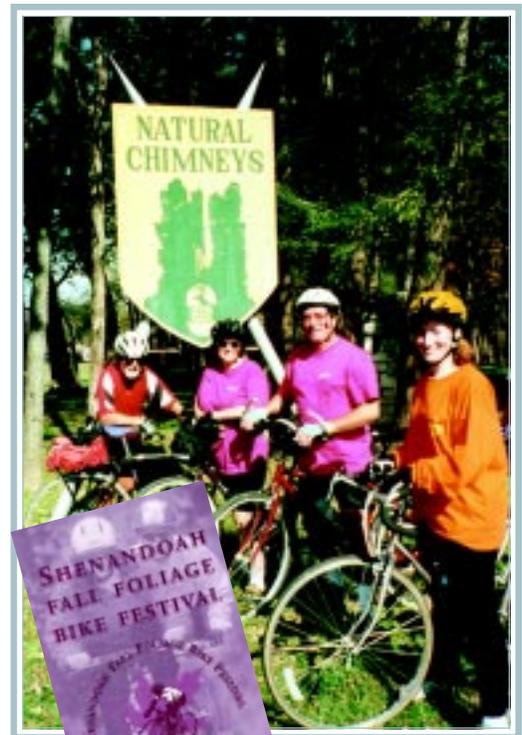
people of all walks of life for a memorable weekend of on-road and off-road bicycling and leaf peeping. The City of Staunton and Augusta County partnered with the Bicycling Education Association to begin the event; beginning in 2001 the City of Staunton, through the non-profit Tour de Shenandoah, will organize and fund the festival to ensure a successful event each year.

The tour is designed for bicyclists of all abilities, and participants can choose routes from 10 to 100 miles in length. Families are also encouraged to attend with their young children to participate in specially designed ten-mile routes. Either along this route or the lunch stop, children and adults can learn bicycle safety tips taught by BikeSmart Virginia instructors certified by the League of American Bicyclists. All routes have rest stops along the way, mechanical assistance, and volunteer bike safety monitors to ensure that everyone has a safe ride.

contact

Shenandoah Fall
Foliage Bike Festival
P.O. Box 3187
Staunton, VA 24402
540.885.2668
www.bikevirginia.org
www.ShenandoahBike.org

Since its inception, over 10,000 bicyclists have enjoyed an active, healthy weekend biking under a canopy of fall colors in the Shenandoah Valley. As a side benefit, the City of Staunton and Augusta County enjoy tourism revenue year after year from this event. It has been estimated the 1999 tour's direct economic impact on the local community was \$186,000.



Touring – A Learning Experience

The Great Peanut Tour



The Great Peanut Tour started in 1978 with 15 riders and has grown to

over 1,100 riders from at least 20 states. The purpose of the ride is to encourage people to learn about the production and harvesting of peanuts and to enjoy the beautiful south side Virginia scenery. Each of the rides is a circular route, starting and ending at Cattail Creek Campground. The distances vary from 13 to 81 miles on moderately rolling to flat terrain. The uniqueness of the ride comes from the unusual water stops manned by over 40 volunteer families. At these stops, a large variety of snacks are served including cucumbers and pickled watermelon rinds. Each night a campfire with entertainment and marshmallow roasts is held.



In 1999, it was estimated each participant generally spent, on an average, \$105 in surrounding communities as part of the event. This represents over \$100,000 as a direct economic boost for the communities that participate in the Great Peanut Tour.

contact

Emporia Bicycle Club

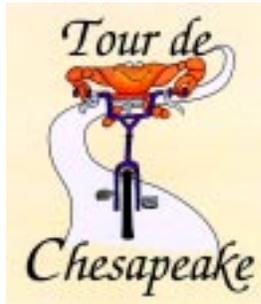
P.O. Box 668

Emporia, VA 23847

800.449.2453

Exploring the Chesapeake Bay by Bike

Tour de Chesapeake



Special events help promote bicycling in the Commonwealth and emphasize healthy lifestyles. The Tour de Chesapeake is one

such event that began in May of 1997. Over 600 bicyclists converged on Mathews County on the shore of Chesapeake Bay to enjoy miles of flat, meandering, scenic back roads. The event was born as a partnership between Bike Virginia and local supporters. The 4th Annual Tour de Chesapeake drew over 1,300 bicyclists wanting to explore this scenic area at the slow pace of a bicycle ride. The 5th annual event in 2001 was organized and run by Mathews County Sustainable Economic and Environmental Development (MCSEED).

Many factors contribute to the success of this event. The infectious hospitality of the citizens of Mathews, well-stocked rest stops, delicious meals, mileage options tailored for all abilities, a bike safety rodeo for children, bike safety workshops, and a chance to take a river cruise all enhance this annual bike event. The Tour de Chesapeake is a model for the creation of other bicycling events that can be managed entirely by the local community.

contact

Tour de Chesapeake

P.O. Box 522

Mathews, VA 23109

www.tourdecheseapeake.org



Helmet Safety and Distribution

Bike Virginia Helmet Distribution Program



One of the most important safety features for bicyclists of all ages is a properly fitted and approved helmet specifically designed for

bicycling. Bike Virginia has been doing its part to help spread the word. The Bike Virginia helmet program gives helmets to youths under age 17 in the towns, cities, and counties it visits when sponsoring bicycle events such as the annual Bike Virginia ride. Event registration fees coupled with Virginia Department of Motor Vehicle mini-grants fund the helmet distribution program, a clear commitment of Bike Virginia and its participants to give back to the communities through which they bike.



The helmets are distributed by the local community, most often during bike safety rodeos held by parks and recreation departments, police departments, and other groups. Bell Sports makes available the previous

year's models at a discounted price to groups affiliated with SAFEKIDS Coalitions. This partnership with Bell Sports has provided over 5,000 helmets for children in Virginia.

Many Virginia localities have adopted an "under 14 mandatory helmet" ordinance,

which makes this program even more important. In some communities, police officers carry a few helmets in their cars and give them to children they see biking without a helmet. Bike Virginia began this program with the City of Williamsburg Police Department and is promoting it statewide. In addition, many area hospitals support safe bicycling by providing helmets at a discounted price or for free. Finally, adult helmet use is encouraged for not only safety purposes, but for the unmeasurable "role model" benefits.



contact

Bike Virginia

P.O. Box 203

Williamsburg, VA 23187

757.229.0507

www.bikewalkvirginia.org

Grass Roots-Youth Program

Spratley Middle School Bike Education Program



Spratley Middle School, in Hampton, formed the Spratley Middle School Bicycle Club in January 1999. The club developed a nationally recognized bicycle program called "Bicycle Chain Reaction" which seeks to teach others in this urban community safe bicycling habits through education and example. The program was originally funded by grants and contributions from local and state agencies, including Hampton Youth Commission, Virginia Department of Health, Virginia Department of Motor Vehicles, Virginia Power, Hampton Parks and Recreation Department, Virginia Department of Education, and Hampton Neighborhood Commission. Membership in the popular club is limited, with a waiting list of 6th, 7th, and 8th graders vying to get in. The members take seriously their preeminence as role models in the community and advocates for bicycle safety. This program has since been viewed as a model program for the Commonwealth of Virginia.

adoption of a mandatory bicycle safety helmet ordinance. The resolution was approved in July 1999 by the city council. The club was instrumental in the passage of another bicycle safety ordinance permitting bicycles on sidewalks under certain conditions. Through a "Celebrate Community Safety Day," club members conducted a bike rodeo and distributed free helmets to Hampton residents. These youth of Hampton have certainly recognized the benefits and the fun of bicycle travel!



contact

Spratley Middle School
339 Woodland Road
Hampton, VA 23669
757.850.7248

The club has received numerous state and national awards for its contributions. For example, the club updated the bike route maps for the City of Hampton and promoted the posting of signs designating the routes. The club presented a resolution to the Hampton City Council requesting the

Promoting Safe Bicycling

Bicycling Safety Tips



Virginia is on the move. Each year over 4,000 bicyclists attend organized bike events sponsored by Bike Virginia. Added to the sheer enjoyment of

bicycling in these events, Bike Virginia integrates learning sessions to educate new and veteran bicyclists on bike safety.

The concept is simple. Three "bike safety" or "better biking" topics are covered during each event. Specific topics might be: helmet fitting, brake safety checks, proper bike handling, flat tire repair, and proper gearing for climbing. Information is presented in a lecture format at "Bike Smart" workshops during registration and then reinforced during the event with on-the-road skill building at selected rest stops. Most large bike events have rest stops every 15 miles, making this approach a perfect hands-on opportunity to cover bike safety and skill improvement while bicyclists take a break from riding. Once back on their bikes, bicyclists can immediately apply what they have learned.

contact

Bike Virginia

P.O. Box 203

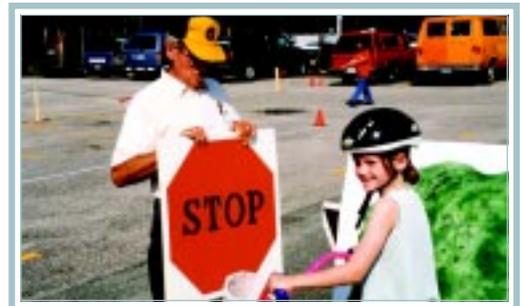
Williamsburg, VA 23187

757.229.7969

www.bikewalkvirginia.org

Participation in the safety program during the event is entirely voluntary, but incentives

are given to encourage participation. Each bicyclist completing the workshops receives an official Bike Virginia hand towel and, more importantly, bicycle safety tips that last a lifetime.



Ped and Bike Access for a Day

'Fun Day on the Bay'—Chesapeake Bay Bridge



Since 1998, the 17-mile Chesapeake Bay Bridge-Tunnel (CBBT) has been transformed for one day out of the year into a unique bicycling and walking experience across the Chesapeake Bay. Spectacular views of the Chesapeake Bay, bird life, and pristine marsh can be enjoyed first hand while walking or bicycling on one of the longest bridge spans in Virginia. Other than on this day, pedestrians and bicyclists cannot use the bridge-tunnel facility.



By diverting vehicular traffic onto the newly constructed parallel bridge structure, walkers and bicyclists are given exclusive use of the original structure. Starting at the northern toll plaza on the Eastern Shore, bicyclists can ride 8½ miles to the fourth island and take a shuttle back to the toll plaza or enjoy the full 17 mile round trip. In addition, walkers can enjoy the carefree environment and the incredible views of the Chesapeake Bay from Virginia Beach to the first island. CBBTA runs a well planned and organized event with plenty of parking and shuttle buses available for participants.



contact Since 1998, an estimated 15,000 people
CBBTA have participated in this event.

P.O. Box 111

Cape Charles, VA 23310

www.cbbt.com/cbbevent.html

Intermodal Connections

Arlington's Bike Trails and Bus Route Maps



The City of Arlington is located in northern Virginia and is a progressive community when it comes to alternative modes of transportation. Arlington has a bicycle network system in place consisting of on-street and off-street bicycle facilities, as well as "unofficial bicycle routes," in support of bicycle commuting. In addition, Arlington's Metrobus and Metrorail System provide numerous opportunities for bicyclists to make connections to public transit in order to complete work and non-work trips. Arlington Metrobus carries more than 40,000 riders per day. Service is provided within the county on 18 major bus lines with approximately 99 route variations. Arlington Metrobus operates seven days a week with frequent, dependable, economical service through the entire Arlington area.

To promote transit and bicycle commuting, Arlington Metrobus developed "Arlington's Bike Trails & Bus Route Maps." The four-page brochure provided bicycle and bus route information, bicycle locker and rack information, periods of operation when bikes are permitted on Metrorail, bicycle safety tips, and other commuting services for the greater Arlington area. As part of the brochure, four free ride coupons were

offered. The coupons also served as entry forms for an all expenses paid trip to Holland. This brochure is an excellent example of providing and promoting intermodal opportunities in a congested metro area.



contact

The Commuter Store™
at Crystal City
1615-B Crystal Square Arcade
Arlington, VA 22202
703.413.4287
Fax 703.413.4291
comstorecc@aol.com

Grass Roots-Local Bike Club

Charlottesville Albemarle Bicycling Association



Local bicycle advocacy groups are often a valuable community resource for promoting bicycle programs, providing

information, and organizing efforts related to bicycling in the community. Most metropolitan areas in Virginia have at least one bicycle advocacy group. The Charlottesville Albemarle Bicycling Association (CHABA) in central Virginia is considered to be an effective community bicycling advocacy group in the Commonwealth. Their primary purpose is "to promote the bike as everyday transportation; and to educate politicians, planners, engineers, and educators about bicycles." Through their web site, CHABA provides a wealth of information on bicycle routes, transit accommodations, Virginia traffic laws for motorists and bicyclists, and national resources, manuals, and guides.

bicycle safety and the rules of the road.

Using successful examples in other cities as models (Portland OR, Princeton NJ, St. Paul MN), CHABA is currently developing a Free Bike Program for Charlottesville. The program would provide free bicycles for local use at designated locations for use by anyone in the community.

BIKE TO WORK DAY



September 11th

- Commute to Work by Bike
- Stop by City Hall for a Complimentary Breakfast
7:30 AM - 10:30 AM
- Enter the Random Drawing for Bicycling Accessories
 - Watch Bike Safety Demonstrations
 - Learn to Use CTS Bike Racks
 - Visit the Commuter Information Booth

Sponsored by CTS & the City of Charlottesville

Serving as the voice of citizens in the community who travel by bicycle, CHABA is actively involved in working on issues that affect bicycling. For example, they were instrumental in convincing local transit operators to carry bicycles on buses. They also work closely with local law enforcement officials to educate the community on

contact

www.homestead.com/chaba

Bikes on Board

Amtrak's Bicycle Initiatives Support the East Coast Greenway



All Aboard!!!

Sometimes you need to go further than a local trip.

Amtrak and the East Coast Greenway Alliance have formed a partnership to develop easy-to-use bicycle carrying capacity on a Amtrak Northeast Corridor regional train service as part of the East Coast Greenway's auto-free transportation network. This type of partnership recognizes the importance of intermodal travel and the natural extension of mass transportation services to the bicyclist. The program will connect Amtrak's passenger trains to 2,600 miles of bikeways and trails in 15 states, including Virginia, which is at the heart of the greenway. The East Coast Greenway, which will link cities from Maine to Florida through a continuous network of trails, bikeways, and recreational paths, has been designated a "National Millennium Trail" by the White House.

Amtrak plans to begin a pilot program of limited service between Newport News and Boston, MA on the Twilight Shoreliner. Current plans call for equipping baggage cars with bike racks on selected trains that serve cities in the South and the Northeast. Amtrak is also considering incorporating bicycle facilities into new or overhauled equipment used in non-express and regional service. During the next 10 years, Amtrak will work closely with the Greenway Alliance to plan for and phase in more accommodations for travelers with bicycles on regional trains that serve the East Coast.

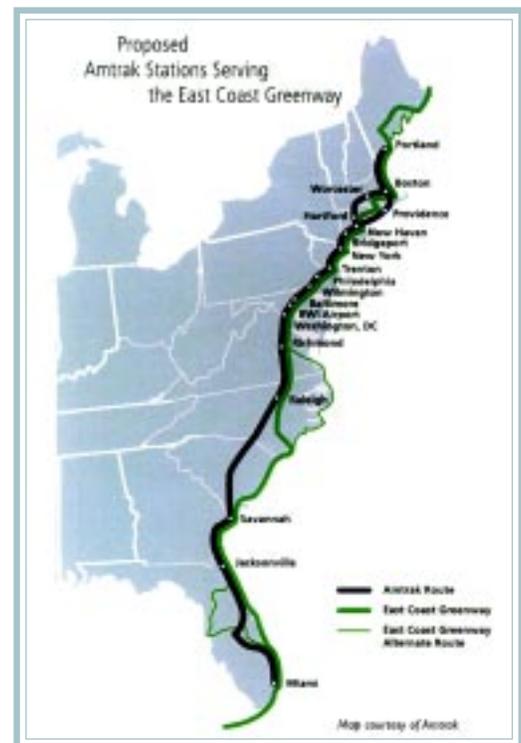
"We want to be as inviting as possible for people who want to use rail. This is a wonderful opportunity to get people out of their cars and onto trails and trains when they are vacationing. It makes good sense for Amtrak to respond to a growing eco-tourism market and adventure travel."

— Michael Dukakis,
Vice Chair of the Amtrak Board

contact

East Coast Greenway
Alliance

135 Main Street
Wakefield, RI 02879
401.789.4625
www.greenway.org



Virginia –A Bicyclists Destination

Bike Virginia –The Annual Adventure



For the past 14 years, the third week in June has found over 1,500 Bike Virginia bicyclists pedaling the scenic roadways of Virginia. Covering

an average of 50 miles each day, the bicyclists visit different towns, cities, and counties during their five-day journey undertaken entirely by human power. The event becomes a rolling festival as communities along the route organize rest stops, meals, and entertainment for bicyclists to enjoy. The participants have an opportunity to explore each of these communities while supporting the local economy. Bike Virginia

has truly become an annual Virginia tradition and is recognized as a major tourism attraction for Virginians and visitors alike.

Since it began, more than 25,000 bicyclists have pedaled over 6 million miles during

the past 14 events on Virginia's historic back roads. The event, which raises awareness of the transportation opportunities and recreation associated with bicycling, highlights the economic benefits for host towns of major bicycling events. After a visit by a Bike Virginia tour, many host towns have applied for TEA-21 Transportation Enhancement grants to make facility improvements for bicyclists in their town or county. As these facility improvements become reality, the bicycling infrastructure is improving across the state.

Hundreds of Bike Virginia and host town volunteers work for over a year to plan all of the logistics for this event. The unique needs of a Bike Virginia event have never daunted the host towns. Each Virginia town or city has rolled out the red carpet to welcome bicyclists from around the state, the country, and the world. This is what many consider Virginia tourism at its best.



contact

Bike Virginia

P.O. Box 203

Williamsburg, VA

23187-0203

www.bikevirginia.org



Grass Roots Support

Williamsburg Area Bicyclists



Williamsburg Area Bicyclists is an example of a local bike club that does much more than simply hold rides for its members. It is involved in local advocacy, events for the entire community, and developing new bike facilities in the Williamsburg area through the implementation and support of local bicycle plans.

Formed in January 1998, the club grew to over 300 members by its third anniversary. The club promotes both on-road and off-road biking to appeal to all types of bicyclists. Three activities organized by the group have been especially successful – Casual Rides, Women on Wheels, and the annual Capital to Capital ride from Richmond to Williamsburg. The Casual Rides are leisurely, slow paced rides where no one is left behind. New riders are encouraged to come out and just have fun! The Women on Wheels program includes a Wednesday evening ride for women only and several bike repair and technical workshops given by and for women. Each spring, members of the club receive the Governor's "May is Bike Month" proclamation at the Capitol in Richmond and deliver it by bike to the mayor of Williamsburg. In 2001, the annual event was expanded to include bike clubs from across the state whose members rode back to their communities and presented the

proclamation to elected officials to promote bicycling and support bicycling projects throughout Virginia. To show their support for the proposed Capital to Capital Bikeway currently under development by VDOT, the club members ride over 50 miles along scenic Route 5, the route of the proposed bikeway.

Working with local police departments, the Williamsburg Area Bicyclists also sponsor and conduct several bike safety rodeos for children. This young club has had an immediate impact throughout the Williamsburg area and beyond.



contact

Williamsburg Area Bicyclists

P.O. Box 2222

Williamsburg, VA 23185

757.229.2017

www.WABonline.org

Spot Improvement Program

Alexandria's Bicycling Improvement Request Program



Maintenance is an important consideration for the success of any transportation corridor, including

bicycle facilities. Too often the lack of proper maintenance turns the best designed bike facility into one that is underused. The City of Alexandria's "Bicycling Improvement Request" form is an innovative approach at the local level to identify and address specific maintenance needs. Recognizing that the bicycling public is often the best source of information, the program relies on people using the bike facilities to identify problems that need attention. Self-addressed postcards to the Park Planning Department are distributed to bike shops, community centers, and other places bicyclists might frequent. Individuals provide the location and description of the problem, along with their name and daytime phone number. When the form is

received, city staff investigate the situation

contact
City of Alexandria

Park Planning

1108 Jefferson Street

Alexandria, VA 22314

703.838.5040

www.AlexRide.org/bikeped.html

www.bicycle.alexandria.va.us

and determine a course of action. The sender is then notified that the problem:

(1) will be fixed, (2) will require further investigation, or (3) is something that the

city cannot solve at this time. The city's

commuter website has also added a link for people to report a problem on the trail.

This is a popular program with citizens because they have direct input into the ongoing maintenance of the bike facilities they use. Bicyclists can be a part of the solution by spotting minor maintenance problems before they become major, and in so doing, promote safety for all bicyclists.



Police on Bikes

Community Policing



Community policing has become an effective way to build partnerships between communities and local police forces. Numerous

police departments throughout the Commonwealth have successfully introduced bike patrols to provide better interface between police officers and citizens. Bicycle officers on patrol seem to "bridge the gap" between foot beat officers and officers in cruisers. People are generally friendlier and are more apt to approach an officer on a bicycle. As far as crime fighting goes, the bicycle has become known as the "stealth" vehicle of police departments. Often an officer will ride right up on a crime in progress without being detected. These bike patrols have proven to be successful educational, enforcement, and community outreach tools.

contact

Martinsville Police
Department
55 W. Church Street
P.O. Box 1101
Martinsville, VA 24114
540.656.5300
www.ci.martinsville.va

For example, the Martinsville Police Department started its bicycle patrol unit on July 1, 1994. Utilizing five fully equipped patrol bicycles, the Community Oriented Policing Unit rely on bicycles rather than cars to patrol. Martinsville has successfully utilized the bike patrols in several target areas as

well as for many special events requiring police interaction with the public. The Martinsville Police Department sponsors an annual bike rodeo that is designed to teach good, safe bicycling practices. The Community Oriented Policing Unit teaches these good practices by example on a year-round basis.



Capitol Police on Bikes

Increase Access and Maneuverability



Restaurants, clubs and other entertainment spots make the historic Shockoe Slip area of downtown Richmond a popular destination on Friday and

Saturday nights. Helping to keep area residents and patrons of these establishments safe, the Capitol Police are now able to patrol the area in an even more effective manner by bike. The Capitol Police have recently joined the City of Richmond Police Department in using bicycles for community enforcement in the Commonwealth's capitol area. Ten bicycles are in use year-round to patrol the capitol grounds and surrounding areas in downtown Richmond. On bicycles, the police officers are able to access areas not suitable for vehicular traffic and readily maneuver through streets congested with cars. This increased access gives officers higher visibility in areas that may otherwise not be patrolled.

fundraising activities for fellow police officers, Special Olympics, and other events sponsored by non-profit organizations.



contact The program started in October 1999 and
Capitol Police has been considered a success. Many of the
Richmond, Virginia bicycle officers from the Capitol Police have
804.786.1689 supported community programs including

Funding

BEST PRACTICES 32



Introduction

All aspects of bicycle facility planning and implementation require varying amounts of financial and human resources. The ultimate cost of building and maintaining bicycle facilities can vary tremendously depending on the type of facility, the complexity of the project, the degree to which volunteer labor is used, and many other factors. Apart from the planning, design, construction, and maintenance components, there are also costs associated with programs aimed at promoting bicycling and ensuring a safe bicycling experience: bicycle education, encouragement, and enforcement programs.

This chapter will briefly describe some of the factors that affect the cost of bicycle facility planning and implementation. It will also highlight potential sources of state and federal funding that are available for a variety of activities from planning through the 3E's. While there are other sources of funding, this guide will focus on monies most readily available from state and federal sources. Although not specifically discussed below, other sources of funding include private funds from foundations or citizen donations, and money from local jurisdictions through their capital improvement program or other such programs.

The Cost of Bicycling

Knowing how much money to ask for is the first step when seeking funding. Before delving into the commitment of financial resources and the realm of grant applications, it is important to estimate the amount of money needed for a project, whether it is for planning, design, construction, or maintenance phases. This estimate is an important piece of information for anyone reviewing a request for funding or a grant application. Input from a variety of people including planners, engineers, and contractors may be necessary to develop a cost estimate. This section will describe some of the key factors to take into consideration when estimating costs for the planning, design, and construction of bicycle facilities.

Planning

Planning activities may include the actual preparation of a bicycle plan, completing a feasibility study for a particular bike facility, or developing bike facility concepts. When developing a cost estimate, factors to take into consideration include:

- *Who is completing the activity?* Labor cost to complete the assignment will vary depending on whether it is being completed by local/regional staff, a consultant, a citizen group, or a combination thereof.

- *How much public involvement is necessary and with whom?* Determine the extent of outreach most appropriate for the project including coordination with the general public, special interest groups, local/state/federal officials, neighborhood associations, local elected officials, etc. Meetings and other outreach methods can become costly.
- *What will the mapping and/or graphics requirements be, who will produce them, and how?* Having clear mapping and graphics is often an important part of the planning process. Determine the type of graphics the planning effort will require such as mapping, renderings, brochures, or other graphical products. Consider the type of software to be used and whether or not mapping will utilize Geographical Information System (GIS) data.
- *What is the level of complexity of the activity?* The length of the project, the level of public acceptance, corridor constraints, and political climate can all impact planning costs.
- *Is this project starting from scratch or has work been previously completed?* The cost to complete the planning effort may also vary depending on how much legwork has already been completed.

Design

Once all aspects of facility planning are complete, the project enters into the design preparation phase. By this point in time, the general location and type of facility should be relatively certain.

Gross Cost Estimate

A common way to roughly estimate design fees is to say “Design=10% of construction costs.” When using this method of estimating, keep in mind that certain activities are not considered part of the design effort and need to be added on separately. The cost for the following types of activities, if needed for a project, must be added onto the design cost estimate:

- environmental services such as the preparation of federal National Environmental Policy Act (NEPA) documents and wetland permitting
- additional public involvement beyond a design public hearing

Cost Estimate

Although it is usually acceptable to grossly estimate design fees using the above method, it is often advantageous to develop a more accurate estimate of cost based on the specifics of the project.

Cost Estimate Check List

- ✓ Type and length of facility
- ✓ Surface treatment: asphalt, crushed stone, other
- ✓ Number, length, and type of bridge structures (including boardwalks)
- ✓ Topographic conditions affecting any grading or bridging requirements
- ✓ Setting: urban, suburban, rural
- ✓ Need for aerial photography and survey
- ✓ Plan development and type of plans needed: No-Plan, Minimum Plan, Full Plan set
- ✓ Drainage
- ✓ Retaining walls to reduce right-of-way impacts
- ✓ Signage, including development of special route signs if desired
- ✓ Pavement markings
- ✓ Traffic control devices: signals, easy-bike-access buttons, etc.
- ✓ Environmental requirements: NEPA, wetland permitting, etc.
- ✓ Public involvement

Construction

Construction costs are influenced by many of the same factors noted above as they have direct bearing on the type and amount of materials needed for construction. Other factors to consider when estimating construction cost include:

- right-of-way acquisition
- utility relocation



Virginia Department of Transportation

Virginia has the third largest state-maintained highway system in the country. The Virginia Department of Transportation is responsible for building, maintaining, and operating over 56,500 miles of the state's roads, bridges, and tunnels. VDOT also plays a very important role in terms of bicycle accommodation as it directly funds or administers programs that fund a large portion of the state's bicycle facilities.

With few exceptions, the appropriation of funding is largely driven by the locality. With limited highway construction funds available throughout the state to satisfy overall transportation needs, VDOT relies heavily on local governments to make decisions on how transportation money will be spent within their jurisdiction, including which modes of transportation should receive funding and how projects should be prioritized. When awarding funds, VDOT gives preference to projects in localities with a bicycle plan adopted by the local governing body.

This section provides information on the primary sources of funding available through VDOT for bicycle facilities or bicycle related programs:

- Highway Construction Funds
- TEA-21 Transportation Enhancement Program
- Congestion Mitigation and Air Quality Improvement (CMAQ) Funds
- Recreational Access Program
- Hazard Elimination Program
- Revenue Sharing Program

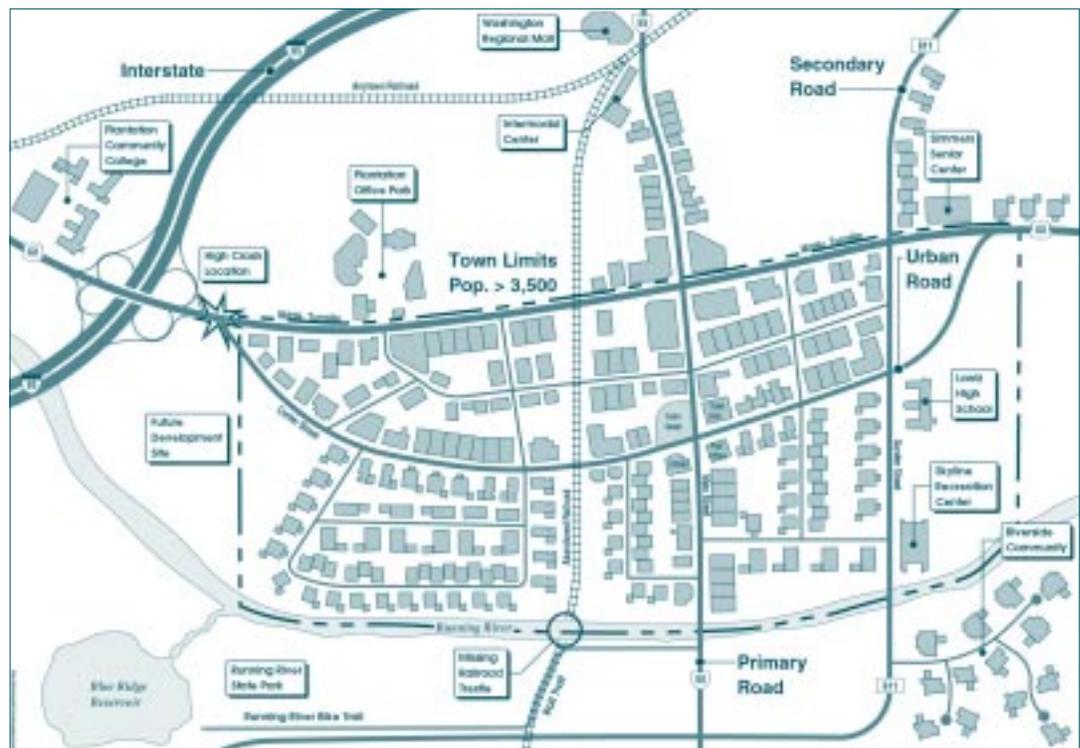


Highway Construction Funds

Local governments are encouraged to develop bicycle facilities on a local and a regional basis in order to satisfy the need for bicycling accommodation 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. The most common source of VDOT money for bicycle facilities is highway construction funds.

VDOT is responsible for constructing and maintaining the roadways within each county with the exception of secondary routes in Henrico County and Arlington County. Using both state and federal funding sources, VDOT's annual construction budget (over \$1.5 billion/year) is one of the largest among state transportation departments in the country.

-  Interstate
-  Arterial Roads
-  Collector Roads
-  Local Roads
-  Residential Roads
-  Town Limits



With this source, bicycle facilities are built in conjunction with the construction of new roadways and roadway improvements. Of course, the roadway improvement project itself must first be in the *Virginia Transportation Development Plan*. Since the funding does not distinguish between the amount used for the roadway improvement and the amount used for the bicycle facility, it is not possible to estimate the amount of money allocated specifically to bicycle projects.

How roadway projects actually get onto the *Virginia Transportation Development Plan* can be somewhat confusing. Depending on the administrative system of the roadway (interstate, primary, secondary, or urban), the process is slightly different as summarized below.



All capital improvement projects are annually adopted by the Commonwealth Transportation Board as part of the *Virginia Transportation Development Plan*.

Getting the roadway project in the *Virginia Transportation Development Plan* is just the first step towards constructing bicycle facilities with highway construction funds. In order for VDOT to **consider** using highway construction funds for the construction of bicycle facilities, each of the following conditions must be met.

VDOT Participation Conditions

- ✓ The bicycle facility is designed to meet current AASHTO and/or VDOT guidelines
- ✓ The bicycle facility is located or designed pursuant to a bicycle plan that has been adopted by the local jurisdiction or MPO or is part of the Interstate Bicycle Route system
- ✓ The bicycle facility will have sufficient use in relation to cost to justify expenditure of public funds, or it is a significant link in a bicycle system that is needed for route continuity
- ✓ VDOT will initiate the construction of a bicycle facility only at the request of the affected local government, with the exception of the Interstate Bicycle Routes
- ✓ Bicycle facility design plans must be coordinated with the affected local government and approved by VDOT prior to implementation
- ✓ Construction of the bicycle facility must be concurrent with the highway construction

As evidenced by these conditions, it is important that localities take an active and proactive role in providing bicycle accommodation with roadway improvement projects. VDOT will not construct bicycle facilities without the approval and support of local governments. Perhaps the most important indication of that support is the existence of a bicycle plan adopted by the local governing body.



TEA-21 Transportation Enhancement Program

The Transportation Enhancement Program is funded through the 1997 Transportation Equity Act for the 21st Century, more commonly known as TEA-21 (preceded by the Intermodal Surface Transportation Efficiency Act of 1991). Unlike other federal discretionary funding programs (see Federal Highway Administration Section), this federal program is actually managed and administered by VDOT at the state level. In order to be eligible for funding, a project must meet certain requirements including:

- a relationship to the surface transportation system
- qualifies under one of the Enhancement Program categories
- formally endorsed by a local jurisdiction or public agency as evidenced by a resolution and commitment of 20% minimum local match
- it must be endorsed by the MPO if within a Metropolitan Planning Organization (MPO) area
- a duly advertised public hearing must have been held on the project

Currently, there are twelve Transportation Enhancement Program categories eligible for funding, including “bicycle and pedestrian facilities” and “bicycle and pedestrian safety and educational activities.” Between 1993 and 2001, the Enhancement Program has provided a total of over \$104 million to all categories of projects across Virginia.

Of that amount, approximately \$59 million has been awarded to bicycle and pedestrian related projects. In order to be funded, a minimum 20% match is required in the form of money, labor, donations of land or materials, or a combination thereof. Historically, the match provided by Virginia project sponsors has far exceeded the 20% minimum. Approximately \$124 million in local matches has been provided across the state in the same time period from 1993 to 2001.

Bicycle and Pedestrian Facilities

Examples of types of projects eligible and not eligible for funding in the category of Bicycle and Pedestrian Facilities include:

Eligible	Non-Eligible
<ul style="list-style-type: none"> ✓ Paved shoulders/wide outside lanes ✓ Bicycle paths ✓ Bike lanes ✓ Bicycle lockers and racks 	<ul style="list-style-type: none"> ✓ Maintenance activities ✓ Bicycle facilities that serve a recreational function only ✓ Widening of roadway to VDOT standards ✓ Incidental element of new highway project to accommodate routine use (paved shoulders, wide curb lanes)

Bicycle and Pedestrian Safety and Educational Activities

Examples of types of projects eligible and not eligible for funding in this category include:

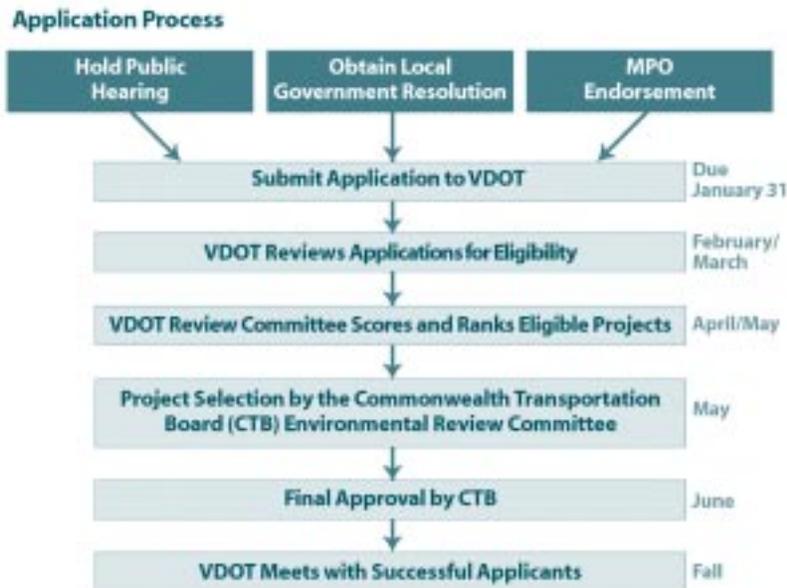
Eligible	Non-Eligible
<ul style="list-style-type: none"> ✓ Development of educational materials ✓ Safety campaigns and programs ✓ Safety training ✓ Activities related to safety enforcement 	<ul style="list-style-type: none"> ✓ Activities currently funded and provided by the community such as police bicycle patrols and school safety patrols

Who is Eligible?

Applicants for TEA-21 Transportation Enhancement money may include local governments, non-profit organizations, federal agencies, Planning District Commissions, state agencies, and even private citizens. If a project is within VDOT right-of-way, VDOT may administer the project and provide assistance if requested by the sponsor. Otherwise, the project may be administered directly by the applicant.

Application Process

Prior to completing an application, applicants need to obtain the required endorsements from the locality, and the MPO as appropriate, and hold a public hearing. Conducted on an annual basis, the application process for this funding is shown on the following page.



Evaluation Criteria

Scoring criteria used to evaluate projects include:

- relationship to surface transportation
- inclusion in state, regional, or local plans
- demonstrable need and community improvement
- community support
- public accessibility
- compatibility with adjacent land use
- public/private venture
- environmental/air quality benefit
- aesthetic value
- impact on community economy and tourism
- educational impact
- safety impact
- originality and number of enhancement categories
- historic value
- strategy for maintenance
- relationship to previously funded project

Transportation Enhancement Program

Type:	Annual competitive application process; reimbursable funds
Local Match:	20%; the federal share is 80% for selected projects
Due date:	Applications due to VDOT by January 31
Contact:	VDOT Enhancement Program: (800) 444-7832 In Richmond area: (804) 786-2872 or (804) 786-2264
Website:	www.VirginiaDOT.org
Example:	Thomas Jefferson Memorial Parkway Trail Albemarle County, Virginia: Awarded 1993

Congestion Mitigation and Air Quality Improvement Program

Certain urbanized areas in Virginia are designated as being in non-attainment for national air quality standards or in air quality maintenance areas: the Richmond metropolitan area, Hampton Roads, and Northern Virginia. Localities within these urban areas are eligible for funding through the Congestion Mitigation and Air Quality Improvement Program (CMAQ).

These federal funds, in the amount of approximately \$37 million a year in Virginia, are available for a wide variety of projects aimed at reducing congestion and improving air quality in those areas. To be funded, projects must be able to demonstrate an air quality benefit. Projects eligible for funding include the construction of bicycle facilities.

Who is Eligible?

Localities and regional entities within certain urban portions of the state are eligible for funding. In order to be eligible, an urban area must be designated as being “in non-attainment” or “in maintenance for attainment” in terms of meeting air quality standards.

Application Process

Each year, money is allocated to each Metropolitan Planning Organizations (MPO) within a non-attainment or maintenance urban area. The MPO then decides how to distribute the money among the various projects.

CMAQ Improvement Program

Type:	Annual process, competitive within an MPO
Local Match:	Urban: 0.4% Counties: No match required
Due date:	Varies
Contact:	VDOT Programming and Scheduling Division: (804) 786-2921
Website:	www.VirginiaDOT.org
Example:	Oyster Pointe Commercial Center bike path, Newport News

Note: May vary slightly by Metropolitan Planning Organization

Recreational Access Program

The Recreational Access Program is funded through an annual appropriation of up to \$3 million from the state's Transportation Trust Fund. The purpose of the program is to provide adequate access to public recreational facilities or historic sites operated by a state agency, a locality, or a local authority. Projects involving access to private parks or recreational facilities operated by a federal agency are not eligible for funding. "Access" can either be provided by an access road or a bicycle facility. Projects eligible for funding include the construction, reconstruction, maintenance, or improvement of bikeways that provide access to such public areas. Activities not eligible for funding include the acquisition of right-of-way or utility adjustments.

The program is administered by VDOT's Secondary Roads Division in conjunction with the Virginia Department of Conservation and Recreation.

Who is Eligible?

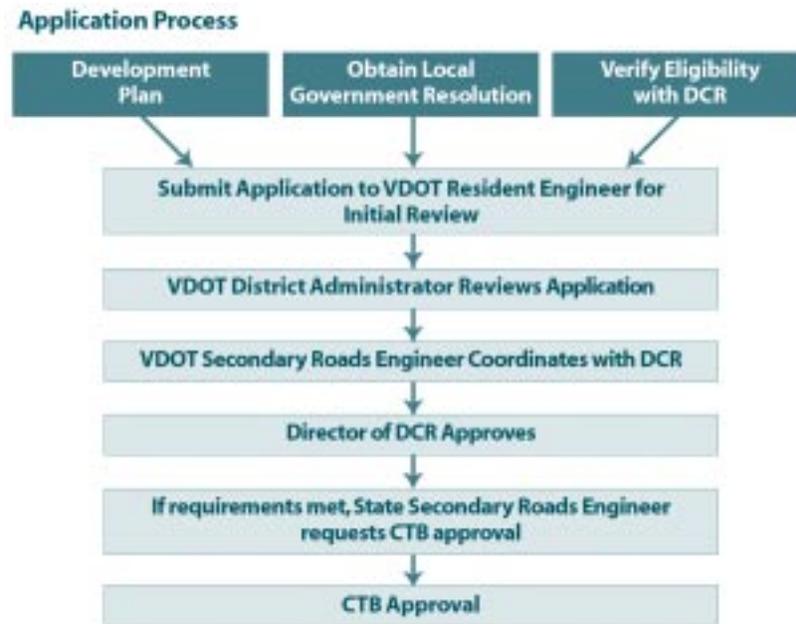
Applications for Recreational Access Program funding may only be made by the governing body of the county, city, or town in which the access road or bike facility is to be located.

Application Process

Prior to proceeding through the formal application process, several steps need to be taken by prospective applicants:

- If the recreational facility or historic site is not already established, prepare a plan for development and funding for the site. Adequate assurance must be provided that the attraction will be operational at the approximate time the access facility is proposed for completion.
- Contact the Department of Conservation and Recreation to verify eligibility of the recreation facility or historic site to make sure it meets the funding criteria.
- Prepare the preliminary design of the access facility. Contact the appropriate Resident Engineer for advice and assistance. A list of VDOT Residencies and phone numbers is provided in the Appendix.

Once these items are completed, the formal application process, completed on a year-round basis, is as shown below.



Funding Limitations

■ **State facilities**

Up to \$75,000 may be awarded for bicycle facilities operated by a state agency.

■ **Local facilities**

Up to \$60,000 may be awarded for bicycle facilities operated by a locality or local authority. An additional \$15,000 may be awarded if matched dollar for dollar by the locality from other than highway sources.

Recreational Access Program

Type:	Year-round competitive application process; reimbursable funds
Local Match:	None; except as noted above in funding limitations
Due date:	None; applications can be submitted anytime
Contact:	VDOT Secondary Roads Division: (804) 786-2744
Website:	www.VirginiaDOT.org
Example:	Bikeway to Sherando Park, Frederick County



Hazard Elimination Safety Program

The Hazard Elimination Safety (HES) portion of the federal Highway Safety Improvement Program (HSIP) provides funding to improve areas where there are an abnormally high incidence of crashes, including railroad crossings. Many different types of safety projects are considered for the HES program, and projects often include installing turn lanes, traffic signals, or signs, and improving sight distance or roadway geometry. Given the increased concern with bicycle crashes and fatalities in Virginia, areas with bicycling hazards are included in the list of eligible activities for this program. Since the focus of this program is related to safety, enhancement type projects are not appropriate for this type of funding.

Potential locations are analyzed using a benefit-cost ratio (B/C) by comparing the anticipated reduction of crashes to the total cost of the project. A location must have a B/C greater than 1.0 to qualify for the HES program. Qualifying projects are ranked by B/C from highest to lowest and funded until the federal allocation amount is reached. Due to the limited amount of HES funds, not all the qualifying projects may receive funding. HES funds are limited to \$500,000 per project and projects costing more than \$500,000 will be considered only if they are jointly funded. Multiple improvements within a corridor may qualify as one project if certain criteria are met. VDOT's Traffic Engineering Division, administrator of the program, can provide program guidelines, application forms, and B/C calculation information.

Who is Eligible?

Applications for Hazard Elimination Safety Program funds may be submitted by localities and Planning District Commissions.

Application Process

- An application form can be obtained from VDOT's Traffic Engineering Division.
- The application must be complete and should include detailed information on the location of the project and a description of the proposed improvement, the estimated cost, and the number of bicycle crashes. Crash data can be obtained from VDOT or the police. The last three complete years of crash data are used to analyze the applications. Applicants submitting projects in cities and towns must submit crash data in the form of police accident reports (FR-300).
- The application must be signed by an individual with the authority to expend the necessary 10% matching funds.
- Applications for this funding may be submitted to VDOT between May 1 and June 30 each year. Cities and towns should submit their applications to the State Urban Engineer. All other applications must be submitted through the appropriate VDOT Residency or District office.
- For secondary road and urban projects, a local resolution is required upon notification of program approval.

Hazard Elimination Safety Program

Type:	Annual competitive application process; reimbursable funds
Local Match:	10%; the federal share is 90% for selected projects
Due date:	Applications are due to VDOT by June 30 or sooner
Contact:	VDOT Traffic Engineering Division: (804) 786-0132
Website:	www.VirginiaDOT.org
Example:	None

Revenue Sharing Program

VDOT’s state funded Revenue Sharing Program provides additional funding to construct, improve, or maintain primary and secondary roadways within the counties of the Commonwealth, including the former Nansemond County portion of the City of Suffolk. Towns and cities that maintain their own roadway system are not eligible for this program except as noted above for that portion of the City of Suffolk formerly designated as Nansemond County. Also not eligible are secondary road improvements in Arlington and Henrico Counties. In 2000, \$15 million in state funds was awarded throughout the state. A maximum of \$500,000 is available for each county. The Revenue Sharing Program requires a 1:1 match from the locality, and this match must come from the county’s General Fund.

Projects eligible for funding through this program include:

- deficits on completed construction or improvements
- supplemental funding for ongoing construction or improvements
- supplemental funding for future construction or improvements listed in the adopted *Virginia Transportation Development Plan*
- construction or improvements not included in the adopted *Virginia Transportation Development Plan*
- unprogrammed maintenance whose accomplishment is consistent with the Department’s operating policies

Bicycle facilities are most often funded through the Revenue Sharing Program as part of a roadway widening project not included in the *Virginia Transportation Development Plan*.

Who is Eligible?

Applications for Revenue Sharing funding may only be submitted by the governing body of counties or the City of Suffolk for projects within the area formerly designated as Nansemond County.

Application Process

- In January or February of each year, VDOT's Secondary Roads Engineer sends an invitation letter to all county governments to participate in the program.
- Interested counties prepare a prioritized plan requesting funds for eligible projects and submit to the appropriate VDOT Resident Engineer.
- The Resident Engineer submits prioritized plan to the VDOT Secondary Roads Division.
- The Secondary Roads Division reviews plans and notifies the Resident Engineer of the amount of state matching funds available for use.
- VDOT develops a statewide plan based on acceptable individual county plans and submits it to the Commonwealth Transportation Board for approval.

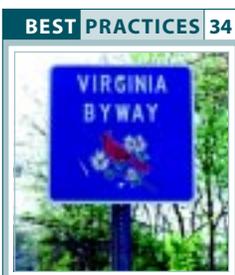
Revenue Sharing Program

Type:	Annual competitive application process
Local Match:	50%; the state share is 50% for selected projects
Due date:	Varies per year; due date noted on invitation letter
Contact:	VDOT Secondary Roads Division: (804) 786-6663
Website:	www.VirginiaDOT.org
Example:	Airport Road widening and bike lanes, Albemarle County, Virginia



Federal Highway Administration

Under the umbrella of the U.S. Department of Transportation, the Federal Highway Administration (FHWA) administers a variety of programs with money available for bicycle related projects. Perhaps the best known federal program often used for bicycle projects is the TEA-21 Enhancement Program. In Virginia, the Enhancement Program is administered by the Virginia Department of Transportation (VDOT) and is discussed in the VDOT section of this chapter. Three other federal programs are described below. Each one is part of FHWA's overall discretionary funds program which distributes money over twelve categories including the three noted below. For all three programs, FHWA manages and administers the funding process. In two cases VDOT acts as a clearinghouse for FHWA.



TEA-21 Scenic Byways Program

Under the Scenic Byways Program, the Federal Highway Administration recognizes the value of national and state designated scenic byways, roads with special scenic, historic, recreational, cultural, archaeological and/or natural qualities. In Virginia, designated scenic byways are referred to as Virginia Byways and marked with the familiar blue sign with a red cardinal

and dogwood blossoms. Discretionary funding is available for a variety of categories related to scenic byways including the construction of facilities along a scenic byway for the use of bicyclists and pedestrians. Approximately \$25 million a year is available through this grant program for scenic byway projects nationwide through federal fiscal year 2003. Virginia has approximately \$400,000 available each fiscal year through FY 2003.

Who is Eligible?

Eligible applicants include local governments, state agencies, MPO’s, and PDC’s.

Application Process

- Applicants, including localities, must complete a specific application form.
- Applicants must submit their application to VDOT, which acts a central clearinghouse.
- VDOT then submits the applications to the Federal Highway Administration, which reviews and selects the projects for funding.

Evaluation Criteria

Criteria used by FHWA when evaluating applications include:

- state and byway priorities
- project benefits
- timely expenditure of previously awarded scenic byway funds
- leveraging of private or other public funding

Scenic Byways Program

Type:	Annual competitive application process; reimbursable funds
Local Match:	20%; the federal share is 80% for selected projects
Due date:	Application to VDOT no later than June 15
Contact:	VDOT Byway Coordinator: (804) 371-6820
Information:	www.byways.org and www.fhwa.dot.gov/discretionary
Example:	Route 5 Capital to Capital Bikeway: multiple grants awarded between 1993–1997

TEA-21 Public Lands Highways Program

The Public Lands Highways Program was originally established in 1930 with funds provided by the General Fund of the U.S. Treasury. The program has continued with each transportation act since then, currently the Transportation Equity Act for the 21st Century (TEA-21). Approximately \$65–\$70 million is available from the Public Lands Highways Program for candidate projects nationwide for each federal fiscal year through 2003. The intent of the program is

to improve access to and within the nation's federal lands. Any type of transportation project, including provision for pedestrians and bicycles, is eligible as long as it provides or improves access to federal lands that are also served by a public lands highway.

According to FHWA, "public lands highways" are defined as "a forest road under the jurisdiction of and maintained by a public authority and open to public travel or any highway through unappropriated or unreserved public lands, nontaxable Indian lands, or other Federal reservations under the jurisdiction of and maintained by a public authority and open to public travel."

Who is Eligible?

Eligible applicants include localities, federal agencies, state agencies, and others.

Application Process

- Applicants must prepare a summary of the project (limited to two pages) that addresses 16 specific items requested by FHWA.
- Applicants must submit their application (the two-page summary) to VDOT, which acts a central clearinghouse.
- VDOT then submits the applications to the Federal Highway Administration, which reviews and selects the projects for funding.

Evaluation Criteria

Criteria used by FHWA when evaluating applications include:

- equitable distribution of funding among states – preference is given to those states "behind" in their fair share of the funding
- leveraging of private or other public funding – the commitment of other funding sources is viewed very favorably
- expeditious completion of project – preference given to the completion of viable projects over requests for initial funding of projects dependent on future commitment of funding, and preference is given to construction projects over planning or design projects
- amount of money requested – for states with a relatively small amount of federal lands, moderately sized project requests (< \$500,000) are viewed more favorably than requests for large amounts of money
- state priorities – for states which submit more than one project, consideration is given to that state's priorities
- special federal public lands transportation needs – consideration of special or unique needs that merit additional consideration or satisfy a particular emphasis area
- congressional direction or guidance – Congress often specifies that funding be directed to particular projects

Public Lands Highway Program

Type:	Annual competitive application process; reimbursable funds
Local Match:	None; the federal share is 100% for selected projects
Due date:	Application to VDOT by mid-June
Contact:	VDOT Secondary Roads Division: (804)786-2744
Website:	www.fhwa.dot.gov/discretionary
Example:	Chincoteague National Wildlife Refuge/Assateague Island improvements including trail construction for bicycles (2000)

TEA-21 Transportation and Community System Preservation Pilot Program

Introduced in 1998, the Transportation and Community and System Preservation (TCSP) pilot program was designed to encourage governments to integrate transportation services with community needs such as community development, environmental protection, preservation of green space, and access to jobs and services. Consistent with livable communities concepts, it is designed to encourage activities that meet the following goals:

- improve the efficiency of the transportation system
- reduce the impact of transportation on the environment
- reduce the need for costly future infrastructure investments
- provide people with better access to jobs, services, and trade centers
- encourage private-sector development patterns that achieve these goals

While “bicycling” is not specifically mentioned, projects that provide bicycle accommodation as part of overall community planning are certainly eligible for this type of funding since they can help achieve many of these goals. Bicycle facilities may also be an integral component of a larger and multi-faceted proposal aimed at meeting the above stated goals. The types of projects eligible for funding are broad and, unlike the Transportation Enhancement Program, requirements are not specified. Activities eligible for TCSP funding include:

Eligible Activities	
✓	those activities eligible for federal highway and transit funding
✓	other activities determined by the U.S. Secretary of Transportation to be appropriate

Administered and managed by FHWA, the TCSP is a collaborative effort between FHWA and other federal agencies including the Federal Transit Administration and the U.S. Environmental Protection Agency. A total of \$120 million is authorized for this program for fiscal years 1999–2003.

Who is Eligible?

State agencies, local governments, and Metropolitan Planning Organizations.

Application Process

- Applicants must prepare a proposal that describes the project and addresses the five goals of the program described above.
- Proposals are sent directly to FHWA.
- FHWA reviews the proposals and selects the projects to be funded.

Evaluation Criteria

Criteria used when evaluating the proposals include:

- how well the project meets the above noted goals
- demonstrated commitment of non-federal resources with priority given to projects that leverage other sources of funding and take advantage of in-kind contributions
- effectiveness of the proposal's project evaluation component that should include a description of activities to disseminate project results
- equitable distribution of grants with respect to a diversity of populations
- proposed involvement of non-traditional partners in the project team such as non-profit organizations, health agencies, private land developers, environmental groups, etc.

A comprehensive discussion of this program and the application requirements can be found on FHWA's TCSP web site noted below.

TCSP Pilot Program

Type:	Annual competitive application process; reimbursable funds
Local Match:	None; the federal share is 100% for selected projects
Due date:	January 31 to FHWA in Richmond
Contact:	FHWA Division Office: (804) 775-3320
Website:	www.fhwa.dot.gov/tcsp/ and www.fhwa.dot.gov/discretionary
Example:	Virginia Beach bike trail: grant awarded 2001

Virginia Department of Rail and Public Transportation



TEA-21 Transit Enhancement Program

Similar to the TEA-21 Transportation Enhancement Program, TEA-21 legislation also provides money for enhancements to transit systems including the accommodation of bicycles, bicycle access, and multi-modal connections. Projects typically funded include the installation of bicycle storage facilities and the installation of equipment for transporting bicycles on mass transit vehicles.

Transit Enhancement Program

Type:	Annual competitive application process; reimbursable funds
Local Match:	5%; the federal share is 95% for selected projects
Due date:	Applications due to DRPT by January 31
Contact:	Virginia Department of Rail and Public Transportation (DRPT): (804) 786-8135
Website:	www.drpt.state.va.us
Example:	Charlottesville Transit Service production of educational video "Buses and Bikes: Sharing the Road."

State Aid Transit Grants

The Virginia Department of Rail and Public Transportation also administers state aid grant programs. Approximately \$100 million in state grant money is available each year for transit systems including bicycle accommodation. A local match is required in order to receive state transit grants. Although there is no minimum match requirement, a project with a 20% local match is more likely to receive funding than a project with only a 5% match.

State Aid Transit Grants

Type:	Annual competitive application process; reimbursable funds
Local Match:	Varies per program
Due date:	Applications due to DRPT by March 1 of each year
Contact:	DRPT: (804) 786-8135
Website:	www.drpt.state.va.us/business/grants/stateaid/stateaid.htm

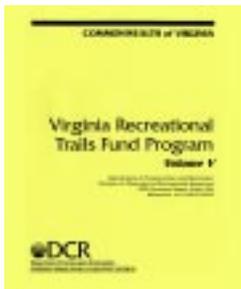
Virginia Department of Conservation and Recreation



Virginia Recreational Trails Fund

Federally funded through TEA-21 using monies primarily from the Federal Highway Administration, the Virginia Recreation Trails Fund is administered in Virginia by the Virginia Department of Conservation and Recreation (DCR). Grant money through this program is available for the purposes of providing and maintaining recreational trails and trails-related facilities. While the emphasis of the TEA-21 Transportation Enhancement Program is on “transportation” projects, the focus of the Recreational Trails Fund is “recreation.” In order to be eligible, a project must involve a trail or trail-related facility that is open to the public. With significantly less money available through this program, the focus is towards projects involving implementation and construction. It is important to note that planning activities for future trails or trail facilities are not eligible, i.e. the development of a bicycle master plan. Eligible activities include, but are not limited to:

- development of urban trail linkages near homes and workplaces
- maintenance and restoration of existing recreational trails
- easement acquisition and development for trails/trail corridors in a state or local trail plan
- construction of new trails that meet identified needs on state, county, municipal, or private lands
- construction of new trails on federal lands if certain conditions are met



Approximately \$1 million is available per year in Virginia through this highly competitive program. In order to spread the money as far as possible, projects of smaller scope typically have a greater chance of receiving funds. In previous years, the average award per project has been \$55,000. As mandated by the federal guidelines, the pool of available money is split between projects involving motorized and non-motorized trail use as follows:

- 30% of the program funds are for motorized recreational trail use
- 30% are for non-motorized recreational trail use
- 40% of the funds are for projects (either motorized or non-motorized use) with the greatest number of compatible recreational purposes or that provide for innovative trail corridor sharing

Who is Eligible?

Funding is available to private organizations, some city, town, and county governments, or other governmental entities. Federal government entities are eligible, and they are encouraged to team with private trail groups or organizations.

Application Process

- Applications are available from the Virginia Department of Conservation and Recreation.
- The deadline for submissions is January 31 of each year.
- Applications are reviewed by a DCR review committee for eligibility.
- Applications for eligible projects are reviewed and evaluated by the DCR Trail Advisory Board for recommendation to the Department of Conservation and Recreation Board and the DCR director.
- Upon recommendation of the DCR Board, the DCR director selects projects and notifies successful applicants.

Evaluation Criteria

Applications are reviewed on the following criteria:

- project need – linkages, unique characteristics, expected usage, in a plan
- project innovation – shared usage, design/maintenance, conservation, safety
- design parameters – incorporation of user needs, safety issues, environmental issues
- population served – demographics, user groups, compatibility
- support of project – community support/opposition, partnerships, funding support from others
- provisions for continuing existence – maintenance/operations, education, availability

Virginia Recreational Trails Fund

Type:	Annual competitive application process; reimbursable funds
Local Match:	20%; the federal share is 80% for selected projects (as of 2001)
Due date:	Applications due to DCR by January 31
Contact:	Department of Conservation and Recreation: (804) 786-3218
Information:	www.dcr.state.va.us
Example:	Washington & Old Dominion Railroad Trail rehabilitation project in Leesburg, Virginia



Virginia Department of Motor Vehicles

Federal money from the National Highway Traffic Safety Administration (NHTSA) and the Federal Highway Administration is used to fund the 402 Federal Highway Safety

Grant Program. In Virginia, the grant program is administered by the Virginia Department of Motor Vehicles (DMV). The goal of this program is to provide money for projects or programs designed to reduce crashes, injuries, and fatalities on our highways. A wide range of transportation safety related activities is eligible to receive funding through this program including bicycle safety. While the total funding available varies from year to year, approximately \$4 million in grants was available to Virginia in 2000. The 402 Highway Safety money is actually distributed through two different types of grant programs – an “annual grant” program and a “mini-grant” program, both described below.

402 Highway Safety Program — Annual Grants

The 402 annual grants can be obtained through a competitive grant process. Overall, the diversity of eligible programs ranges from drunk driving prevention to motorcycle safety and child safety seat/safety belt use. Bicycle and pedestrian safety is also an eligible program. Each application must identify a specific safety issue (i.e. bicycle safety) and present a plan to address that issue. To be considered, proposals may address efforts to start a new program or they may look at expanding an existing program.

Who is Eligible?

Entities eligible for funding include non-profit organizations, local governments and any sub-unit of local government, and state agencies.

Application Process

- For state agencies and non-profit organizations, applications are due May 31 each year to DMV headquarters in Richmond.
- For localities or sub-units of local government, applications are due April 14 each year to the appropriate DMV district’s transportation safety field representative.
- For applications submitted by localities, the district field representative reviews the proposals, prioritizes the applications, and forwards them to DMV headquarters.
- The Virginia Transportation Safety Board approves the final list of grant recipients.
- Successful projects are funded for a one-year duration.

Evaluation Criteria

According to the DMV guidelines for submission of applications, proposals that meet the following criterion receive more favorable consideration than those that do not:

- precise definition of the safety problem
- clearly stated project or program objectives that are measurable and relate directly to the identified safety problem
- description of the proposed solution in sequential time frames, including performance indicators and cost

- a cost assumption plan that addresses funding and support after the 402 funds are exhausted
- description of how the proposed project fits into the applicant’s total highway safety problem
- the ability to evaluate effectiveness of the project or program including documentation of results and achievements

Projects or programs that are innovative, with the potential for statewide or multi-jurisdictional application receive special attention during the review process. Also, projects that identify and seek to solve safety problems within “high emphasis communities” (areas with high crash incidents) also receive special attention.

402 Highway Safety Program — Annual Grants

Type:	Annual competitive application process; reimbursable funds
Local Match:	None
Due date:	Applications are due to DMV district by April 14 for localities or other sub-units of government; applications are due to DMV headquarters by May 31 for state agencies and non-profit organizations
Contact:	Department of Motor Vehicles Headquarters: (804) 367-1143 Bristol District: (540) 228-8698 Roanoke District: (540) 561-7408 Staunton District: (540) 801-0374 Fairfax District: (703) 313-9443 Richmond District: (804) 378-3425 Portsmouth District: (757) 416-1742
Website:	www.DMVNOW.com
Example:	Safe Routes to School Program in Norfolk, Virginia

402 Highway Safety Program — Mini Grants

Department of Motor Vehicle safety field representatives administer the 402 mini-grant program. Unlike the annual grant program, monies available through this program are available throughout the entire year while funds last. This enables localities and others to react to safety issues that may suddenly arise in their communities. Funds are available for a wide variety of safety programs including bicycle safety and education. Each year, approximately \$35,000 is awarded across the state specifically for bicycle and pedestrian programs. This grant program does have a maximum allowable amount per grant of \$1,500.



BEST PRACTICES 35

Who is Eligible?

Entities eligible for funding include non-profit organizations, local governments and any sub-unit of local government, and state agencies.

Application Process

- Applications can be turned in any time of the year to the appropriate district DMV office
- DMV district transportation safety field representatives review the proposals, determine if the proposed program meets funding requirements, and evaluate the proposal's potential effectiveness in addressing the local safety issue

Funding Limitation

Localities and organizations can apply for mini-grants grants of up to \$1,500.

402 Highway Safety Program — Mini Grants

Type:	Year-round application process; reimbursable funds
Local Match:	None
Due date:	None; applications can be submitted anytime
Contact:	Bristol District: (540) 228-8698 Roanoke District: (540) 561-7408 Staunton District: (540) 801-0374 Fairfax District: (703) 313-9443 Richmond District: (804) 378-3425 Portsmouth District: (757) 416-1742
Website:	www.DMVNOW.com
Example:	Richland's Police Department bicycle education program to encourage children in rural southwest Virginia to wear helmets

**Virginia Tourism Corporation**

Bicycling and bicycling events are popular activities in Virginia, a fact that the Virginia Tourism Corporation (VTC) seeks to advertise and promote for tourism purposes. Two sources of funding, briefly described below, are available through the Virginia Tourism Corporation to assist others in their tourism-related marketing efforts.

Cooperative Marketing Fund

Established by the General Assembly in 1994, the Cooperative Marketing Program provides state funds for the purpose of promoting, marketing, and advertising Virginia's tourism

opportunities. For the 2000–2001 fiscal year, the program was funded at \$6 million. This fund is available for joint advertising between the VTC and others to share the cost of producing promotional materials. Under these arrangements, the travel attributes of Virginia and the co-sponsor are presented in one advertisement, thus leveraging the advertising money available in the Corporation’s budget. Co-sponsor’s for such funding may be a wide variety of private and public entities including localities and state agencies.

Cooperative Marketing Fund Eligibility	
Eligible	Non-Eligible
<ul style="list-style-type: none"> ✓ Print media – newspapers, magazines, and directories ✓ Broadcast media – radio and news spots ✓ Printed materials – brochures, visitor guides, etc. ✓ Information technology – development of web sites ✓ Travel trade shows – booth space rental ✓ Familiarization tours 	<ul style="list-style-type: none"> ✓ Administrative expenses – salaries, rent, phone, etc. ✓ Equipment purchase or rental

Who is Eligible?

Numerous public and private entities, either individually or in partnerships with each other.

Application Process

- Applicants must submit a Letter of Intent to VTC by August 31 of each year. This letter must include a brief description of the proposed program, a list of partners in the program, and an estimate of funding to be provided by the partners.
- Applicants (at least one representative) must attend at least one of the three pre-application meetings conducted by VTC during September and/or October of each year.
- Final applications, including marketing plans, financial information, time-lines, etc. are due to VTC on the date specified by VTC for each year. In 2001, applications were due on February 5.
- VTC staff reviews all complete applications and submits a summary to the Tourism Development Committee of the VTC Board of Directors.

Cooperative Marketing Fund

Type:	Annual competitive application process
Local Match:	50%; the state share is 50% for selected projects
Due date:	Varies each year
Contact:	Virginia Tourism Corporation: (804) 371-0048
Information:	www.vatc.org Select "Tourism Development"

Matching Grants Marketing Program

VTC's Matching Grants Marketing program was created by the Virginia General Assembly in 1997 to stimulate and create tourism marketing and provide assistance to small tourism programs. In 2001, this program was funded at \$200,000 for projects across the state with a cap of \$5,000 available per application. Money is awarded through a competitive grant application process that occurs two times during the year. All applications must be for future projects; programs underway prior to the funding period will not be considered. A clear plan to measure the effectiveness of the proposed marketing campaign, also referred to as a Performance Measurement Plan, must be included with the application.

Who is Eligible?

At least three entities, (a lead applicant and two supporting partners) must join to apply for grant consideration. Eligible entities include towns, cities, chambers of commerce, private businesses, museums, visitors bureaus, etc.

Application Process

- Applicants must submit a detailed application available from the VTC by the date specified for each grant cycle.
- Applications are reviewed by VTC staff and are awarded based on evaluation criteria.

Matching Grants Marketing Program

Type:	Competitive application process that occurs twice a year
Local Match:	50%; the state share is 50% up to a maximum of \$5,000 for selected projects
Due date:	Varies each year
Contact:	Virginia Tourism Corporation: (804) 371-0048
Website:	www.vatc.org

Innovative Local Funding

Blacksburg Round-Up for Bikeways



The Town of Blacksburg is located in western Virginia and is the home of Virginia Tech. Blacksburg has a very active bicycle program and has approximately 15 miles of bicycle network connecting most of Blacksburg with trails in neighborhoods, on campus, and in commercial areas.

Initiated in 1992, the "Round-up for Bikeways" program is a unique method of funding bicycle programs in Blacksburg. The citizens of Blacksburg are given the option on their utility bills to contribute to a dedicated bicycle fund by simply "rounding up" their water bill to the next whole dollar or five dollar increment. Customers who participate in the town's automatic direct debit payment method (money deducted directly from their bank account) can also contribute a fixed sum every billing period as specified on their enrollment form. This is a voluntary program that generates between \$2,000 to \$4,000 per year.

The purpose of the program is to promote, enhance, and/or build new bike lanes and trails. Money generated by the program has been used to support a bicycling safety and education program, promote Bike-to-Work day, and produce educational materials in support of bicycling in the

town. A greenway brochure is currently under development that will feature trails throughout Blacksburg. In addition, the town is producing a bicycle etiquette and safety brochure for distribution to local trail users and advocates.



contact

Town of Blacksburg
Planning and Engineering
300 South Main Street
Blacksburg, VA 24062
540.961.1183

Transportation Enhancement Funds



Park Boulevard Pedestrian and Bicycle Path — Town of Marion

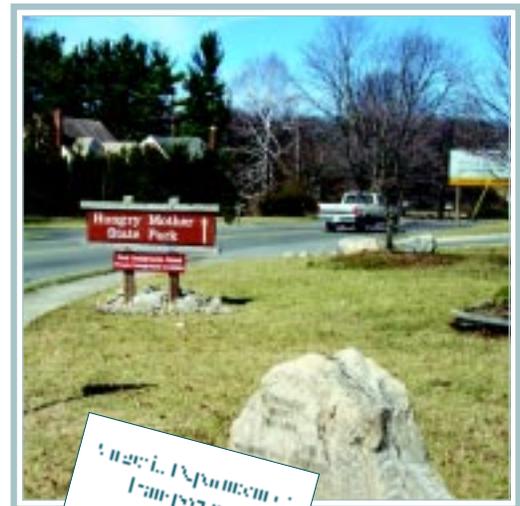


The Town of Marion's Park Boulevard Pedestrian and Bicycle Path is

a good example of a small community's efforts to secure funds available through the Transportation Enhancement Program to build a key bicycle facility linking to important activity centers. The Smyth County Grassroots Conservancy and Friends of Hungry Mother State Park shaped the vision of the project to not only include a bicycle facility, but restore the landscape features of the original Civilian Conservation Core (CCC) project in the 1930's. Funding was obtained through a competitive application process that recognized the cooperative and collaborative effort between local advocacy group members, local and regional planners, state officials, and others.

Located in Smyth County, the Town of Marion is just south of Hungry Mother State Park. The County Grassroots Conservancy, Friends of Hungry Mother State Park, and local and regional officials identified a need for direct bicycle and pedestrian connection to the park from the town's downtown area. This key connection to Hungry Mother State Park, a regular stop for touring

bicyclists, will provide easy access to the town proper for residents and visitors alike. It was recommended that an off-road facility be constructed to meet this need. Working with the community, local planners and the Mount Rogers Planning District Commission applied for and received Transportation Enhancement funding for the design of the path to make this critical connection for bicyclists.



contact
 MRPDC
 1021 Terrace Drive
 Marion, VA 24354
 540.783.5103

National Scenic Byways Program

Route 5 Capital to Capital Bikeway



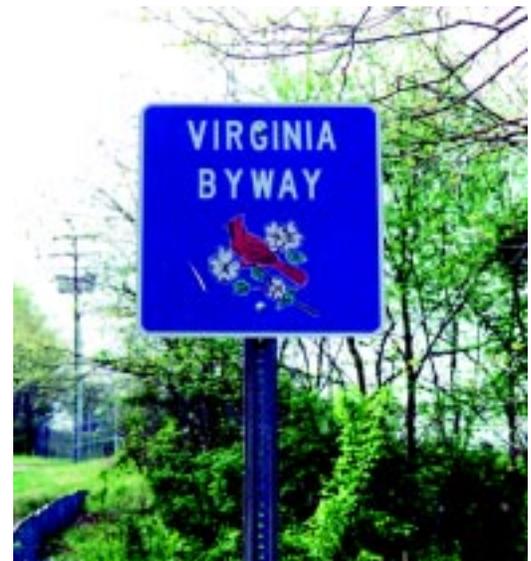
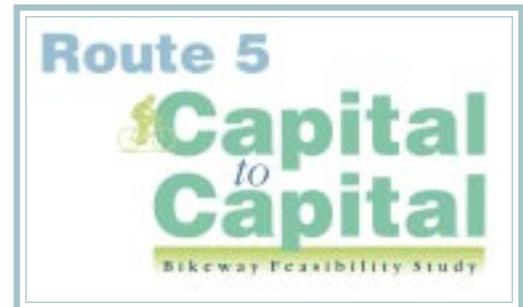
A Virginia Byway is a roadway with high aesthetic and/or cultural

value that leads to or is within an area of historical, natural, or recreational significance. Roughly 1,500 miles of roadways have been designated as Virginia Byways and are marked by the familiar byway sign depicting a cardinal and dogwood blossoms on a deep blue background.

To assist people across the country in planning, preserving, promoting, and managing scenic byways, the Federal Highway Administration (FHWA) administers the National Scenic Byways Program through the Transportation Equity Act for the 21st Century (TEA 21). Between 1992 and 2001, the National Scenic Byways Program has funded almost \$6 million in scenic byways projects in Virginia through a competitive grant program. One of the many categories of projects eligible for this type of funding is the construction of bicycle facilities. In order to be considered for funding, the project must be along a National Scenic Byway, an All-American Road, or a state designated byway (a Virginia Byway).

One bikeway project that has been particularly successful in obtaining National Scenic

Byways Program funding is the 50-mile Route 5 Capital to Capital Bikeway planned along scenic Route 5. The two-lane primary roadway links Virginia's modern capital, Richmond, to her colonial capital, Williamsburg. Currently in the planning and design phases (all funded by the Scenic Byways Program), a bikeway along this route will offer superb bicycling opportunities for those seeking a unique Virginia experience.



contact
Virginia Department of
Transportation
Environmental Division
1401 E. Broad Street
Richmond, VA 23112
804.371.6749

Helmet Give-Away

Richmond Braves Bicycle Helmet Giveaway/ Sport Night



The Virginia Department of Health, through its Center of Injury and Violence

Prevention Division, sponsored a "Bicycle Helmet Giveaway/Sport Night" at the Diamond baseball stadium in conjunction with a Richmond Braves AAA baseball game on June 2, 2000. The evening was organized to highlight the importance of bicycle safety through helmet use and an understanding of the "rules of the road" for child bicyclists. The evening was a great success. The first 500 children ages 12 and under received a free bicycle helmet and a \$25 bicycle coupon. Free game tickets were also awarded to thirty children's groups based on the level of participation in an earlier art safety contest. In addition, a drawing was held for 25 free VIP box seat tickets. Finally, the VIP Superbox was available for all groups that sent in ten entries to the art safety contest. This program highlights the ability of Virginia state agencies to leverage funding from each other for bicycling education, encouragement, and injury prevention. The event was funded by a 402 Federal Highway Safety Mini-grant administered by the Virginia Department of Motor Vehicles.

contact
Virginia
Department of Health
P.O. Box 2448
Richmond, VA 23218
804.371.2434



VDOT Districts and Residencies

Bristol District

Phone: 540.669.6151

Residency	Phone Number	Counties Within Residency
Abingdon	540.676.5503	Smyth, Washington
Jonesville	540.346.1911	Lee, Scott
Lebanon	540.889.7600	Buchanan, Russell
Tazewell	540.988.2566	Bland, Tazewell
Wise	540.328.9331	Dickenson, Wise
Wytheville	540.228.2153	Grayson, Wythe

Culpeper District

Phone: 540.829.7500

Residency	Phone Number	Counties Within Residency
Charlottesville	434.293.0011	Albemarle, Greene
Culpeper	540.829.7620	Culpeper, Madison, Orange
Louisa	540.967.3710	Fluvanna, Louisa
Warrenton	540.347.6441	Fauquier, Rappahannock

Fredericksburg District

Phone: 540.899.4288

Residency	Phone Number	Counties Within Residency
Bowling Green	804.633.5091	Caroline, Essex, King William
Fredericksburg	540.899.4300	King George, Spotsylvania, Stafford
Saluda	804.758.2321	Gloucester, King and Queen, Mathews, Middlesex
Warsaw	804.333.3696	Lancaster, Northumberland, Richmond, Westmoreland

Hampton Roads District

Phone: 757.925.2500

Residency	Phone Number	Counties Within Residency
Accomac	757.787.5810	Accomack, Northampton
Franklin	757.562.3194	Greensville, Southampton
Norfolk	757.494.2451	Chesapeake, Norfolk, Virginia Beach
Suffolk	757.925.2274	Isle of Wight, Suffolk
Waverly	804.834.3994	Surry, Sussex
Williamsburg	757.253.4832	James City, Hampton, Newport News, Poquoson, Williamsburg, York

Lynchburg District

Phone: 434.947.6559

Residency	Phone Number	Counties Within Residency
Amherst	434.946.7631	Amherst, Nelson
Appomattox	434.352.7135	Appomattox, Campbell
Chatham	434.432.7214	Pittsylvania
Dillwyn	434.983.2017	Buckingham, Cumberland, Prince Edward
Halifax	434.476.6342	Charlotte, Halifax

Northern Virginia District

Phone: 703.383.8368

Residency	Phone Number	Counties Within Residency
Fairfax	703.383.8368	Arlington, Fairfax
Leesburg	703.737.2000	Loudoun
Manassas	703.366.1900	Prince William

Richmond District

Phone: 804.524.6000

Residency	Phone Number	Counties Within Residency
Amelia	804.561.2411	Amelia, Lunenburg, Nottoway
Ashland	804.752.5511	Goochland, Hanover
Chesterfield	804.674.2800	Chesterfield, Powhatan
Petersburg	804.863.4000	Dinwiddie, Prince George
Sandston	804.328.3044	Charles City, Henrico, New Kent
South Hill	434.774.2300	Brunswick, Mecklenburg

Salem District

Phone: 540.387.5320

Residency	Phone Number	Counties Within Residency
Bedford	540.586.7910	Bedford
Christiansburg	540.381.7200	Giles, Montgomery, Pulaski
Hillsville	540.728.2813	Carroll, Floyd
Martinsville	540.629.2581	Henry, Patrick
Rocky Mount	540.483.5262	Franklin
Salem	540.387.5488	Botetourt, Craig, Roanoke

Staunton District

Phone: 540.332.9075

Residency	Phone Number	Counties Within Residency
Edinburg	540.984.5600	Frederick, Shenandoah
Harrisonburg	540.434.2586	Rockingham
Lexington	540.463.3108	Alleghany, Bath, Rockbridge
Luray	540.743.6585	Clarke, Page, Warren
Verona	540.332.8991	Augusta, Highland

Resource Publications

Virginia State Agency Publications

Planning and Design

Connecting our Commonwealth — The Virginia Greenways and Trails Toolbox, Virginia Department of Conservation and Recreation.

Road Design Manual, Virginia Department of Transportation.

Education, Encouragement, Enforcement

2001/2002 Virginia Bicycle Guide, Virginia Department of Transportation and Virginia Tourism Corporation.

Bike Smart! Virginia, Virginia Department of Health.

Bicycling on Virginia Roads — Laws and Safety Tips, Virginia Department of Transportation.

A Map of Scenic Roads in Virginia, Virginia Department of Transportation.

Put a Lid On It — Wear a Helmet, Videotape by the Virginia Department of Health.

Traffic Crash Facts, Virginia Department of Motor Vehicles, Annual.

Funding

Guide to the Recreational Access Program of the Virginia Department of Transportation, Virginia Department of Transportation.

Virginia Recreational Trails Fund Program, Department of Conservation and Recreation, Annual.

Transportation Enhancement Program — Application Guide, Virginia Department of Transportation, Annual.

Transportation Enhancement Program — Guide Pamphlet, Virginia Department of Transportation, Annual.

Transportation Enhancement Program — Procedural Manual, Virginia Department of Transportation, Annual.

Studies

Economic Benefits of Bicycle Trails and Events in Virginia, Virginia Department of Transportation, June 2000.

Inventory Study of Interstate Bicycle Routes 1 and 76, Virginia Department of Transportation, June 1999.

Route 5 Capital to Capital Bikeway Feasibility Study, Virginia Department of Transportation, May 1999.

National Publications

Planning and Design

Bicycle and Pedestrian Data: Sources, Needs & Gaps, U.S. Department of Transportation, 2000.

The Bicycle Compatibility Index: A Level of Service Concept, Implementation Manual, Federal Highway Administration, Publication No. FHWA-RD-98-095, 1998.

Bicycle Lanes Versus Wide Curb Lanes: Operational and Safety Finding and Countermeasure Recommendations, Federal Highway Administration (FHWA), Publication No. FHWA-RD-99-035, 1999.

A Comparative Analysis of Bicycle Lanes Versus Wide Curb Lanes: Final Report, Federal Highway Administration (FHWA), Publication No. FHWA-RD-99-034, 1999.

Conflicts on Multiple-Use Trails: Synthesis of the Literature and State of the Practice, Federal Highway Administration (FHWA), Publication No. FHWA-PD-94-031, 1994.

Design Guidance – Accommodating Bicycle and Pedestrian Travel: A Recommended Approach, U.S. Department of Transportation, 2000.

Designing Sidewalks and Trails for Access: Part I of II: Review of Existing Guidelines and Practices, Federal Highway Administration (FHWA), Publication No. FHWA-HEP-99-006.

Designing Sidewalks and Trails for Access: Part II of II: Best Practices Design Guide, Federal Highway Administration (FHWA), Publication No. FHWA-EP-01-027.

The Effects of Bicycle Accommodations on Bicycle Motor Vehicle Safety and Traffic Operations, Federal Highway Administration (FHWA), Publication No. FHWA - RD-92-069, 1994.

Flexibility in Highway Design, Federal Highway Administration (FHWA), Publication No. FHWA-PD-97-062.

Guide for the Development of Bicycle Facilities, American Association of State Highway and Transportation Officials (AASHTO), 1999.

Guidebook on Methods to Estimate Non-Motorized Travel, Federal Highway Administration, Publication No. FHWA-RD-98-165, 1999.

Guidebook on Methods to Estimate Non-Motorized Travel: Supporting Documentation, Federal Highway Administration, Publication No. FHWA-RD-98-166, 1999.

Implementing Bicycle Improvements at the Local Level, Institute of Traffic Engineers (ITE), 1999.

Implementing Bicycle Improvements at the Local Level, Federal Highway Administration (FHWA), Publication No. FHWA-RD-98-105, 1998.

Improving Conditions for Bicycling and Walking — A Best Practices Report, Federal Highway Administration (FHWA), January 1998.

Manual on Uniform Traffic Control Devices, U.S. Department of Transportation, 2000.

A Policy on Geometric Design of Highway and Streets, American Association of State Highway and Transportation Officials, 1990.

Rails-With-Trails: Sharing Corridors for Recreation and Transportation, Brilliot, Michael and Julie A. Winterich, Rails to Trails Conservation, 1993.

Selecting Roadway Design Treatments to Accommodate Bicycles, Federal Highway Administration (FHWA), Publication No. FHWA-RD-92-073, 1994.

Technical Brief: Maintenance of Bicycling and Pedestrian Facilities, National Bicycle and Pedestrian Clearinghouse, 1995.

FHWA National Bicycling and Pedestrian Reports

Final Report: The National Bicycling and Walking Study, Transportation Choices for a Changing America, Federal Highway Administration (FHWA), Publication No. FHWA-PD-94-023, 1994.

Reasons Why Bicycling and Walking are Not Being Used More, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #1, Publication No. FHWA-PD-92-041.

The Training Needs for Professionals, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #2, Publication No. FHWA-PD-92-038.

What Needs to be Done to Promote Bicycling and Walking, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #3, Publication No. FHWA-PD-93-039.

Measures to Overcome Impediments to Bicycling and Walking, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #4, Publication No. FHWA-PD-93-031.

An Analysis of Current Funding Mechanisms, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #5, Publication No. FHWA-PD-93-008.

Analysis of Successful Grass-Roots Movements, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #6, Publication No. FHWA-PD-93-024.

Transportation Potential and Other Benefits of Off-Road Bicycle and Pedestrian Facilities, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #7, Publication No. FHWA-PD-92-040.

Organizing Citizens Support and Acquiring Funding, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #8, Publication No. FHWA-PD-93-007.

Linking Bicycle/Pedestrian Facilities with Transit, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #9, Publication No. FHWA-PD-93-012.

Trading Off Among the Needs of Motor Vehicle Users, Pedestrians, Bikes, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #10, Publication No. FHWA-PD-94-012.

Balancing Engineering, Education, Law Enforcement and Encouragement, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #11, Publication No. FHWA-PD-93-09.

Incorporating Consideration of Bicyclists & Pedestrians into Education, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #12, Publication No. FHWA-PD-92-06.

A Synthesis of Existing Bicyclist and Pedestrian Related Laws and Enforcement Programs, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #13, Publication No. FHWA-PD-93-018.

Benefits of Bicycling and Walking to Health, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #14, Publication No. FHWA-PD-93-025.

The Environmental Benefits of Bicycling and Walking, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #15, Publication No. FHWA-PD-93-015.

A Study of Bicycle and Pedestrian Programs in European, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #16, Publication No. FHWA-PD-92-037.

Bicycle/Pedestrian Policies and Programs in Asia, Australia, New Zealand, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #17, Publication No. FHWA-PD-93-016.

Analyses of Successful Provincial, State, and Local Programs, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #18, Publication No. FHWA-PD-93-010.

Traffic Calming, Auto-Restricted Zones and Other Traffic Management Techniques — Their Effects on Bicycling and Pedestrians, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #19, Publication No. FHWA-PD-93-028.

The Effects of Environmental Design on the Amount and Type of Bicycling and Walking, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #20, Publication No. FHWA-PD-93-037.

Incorporating Bicycle and Pedestrian Consideration Into State and Local Transportation Planning, Design, and Operations, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #21, Publication No. FHWA-PD-93-017.

The Role of State Bicycle/Pedestrian Coordinator, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #22, Publication No. FHWA-PD-93-019.

Current Planning Guidelines and Design Standards Being Used By State and Local Agencies for Bicycle and Pedestrian Facilities, Federal Highway Administration (FHWA), National Bicycling and Walking Study, Case Study #24, Publication No. FHWA-PD-93-006.

Education, Encouragement, Enforcement

Access 2000: Bicycle and Pedestrian Access to Rail Transit Stations in Maryland, Maryland Department of Transportation, 1997.

The Basics of Bicycling— A Curriculum for Elementary Level Bicyclists Training, Bicycle Federation of America, 1995.

Bicycle and Pedestrian Provisions of the Federal-Aid Program, U.S. Department of Transportation, Publication # FHWA-PD-98-049, 1998.

Bicycling and Walking in Colorado — Economic Impact and Household Survey Results, The Colorado Department of Transportation, April 2000.

Bicycling & Walking in the Nineties and Beyond: Applying Scandinavian Experience to America's Challenge, Federal Highway Administration (FHWA), 1994.

Evaluation of the Burke-Gilman Trail's Effect on Property Values and Crimes, City of Seattle, Seattle Engineering Department, Office of Planning, Seattle Washington, 1987.

The Guide to Bicycle Rodeos, John Williams and Dan Burden, Outdoor Empire Publishing Company, Inc., Third Edition, 1994.

The Impacts of Rail Trails, U.S. Department of the Interior, 1992.

FHWA Study Tour for Pedestrian and Bicyclist Safety in England, Germany and the Netherlands, Federal Highway Administration (FHWA), 1994.

Rail-Trails and Safe Communities: The Experience of 372 Trails, Rails-to-Trails Conservancy, 1998.

Sourcebook for Federal, State, and Foundation Assistance, National Park Service, 1999.

Street Smarts — Bicycling's Traffic Survival Guide, John Allen, 1995.

Trails for the 21st Century, Rails to Trails Conservancy, 1993.

Statewide Bicycle Plans Examples

Bicycle Facility Design Standards, City of Philadelphia Streets Department, 1998.

Idaho Bicycle and Pedestrian Transportation Plan, Idaho Transportation Department, January 1995.

Massachusetts Bicycle Transportation Plan, Massachusetts Highway Department, 1998.

North Carolina Bicycle Facilities Planning and Design Guidelines, North Carolina Department of Transportation, 1994.

Oregon Bicycle and Pedestrian Plan, Oregon Department of Transportation, 1995.

Resource Websites

Virginia

Agencies

Official Homepage of the Commonwealth of Virginia –The site maintains an electronic gateway to public information, as well as assists Virginia government entities in providing information and services via the Internet.

www.vipnet.org

Virginia Department of Conservation and Recreation — The website provides information on Virginia’s State Parks, recent greenways initiatives, and bicycling and bikeways standards.

www.dcr.state.va.us

Virginia Department of Transportation Bicycle and Pedestrian Program –The website identifies existing bicycling opportunities (events, trails, organizations, etc.) throughout the commonwealth, defines bicycle laws and safety tips in support of safe bicycling in the Commonwealth, and acts as a clearing house for various bicycle information and products.

www.VirginiaDOT.org

Organizations

BikeWalk Virginia –The site provides information and resources to promote responsible and safe bicycling and walking for transportation, recreation, and health and fitness.

www.bikewalkvirginia.org

Virginia Bicycling Federation (VBF) –The VBF is a bicycle advocacy group with the goal to help build a bicycle-friendly Virginia by joining a statewide alliance of bicyclists working together to improve conditions on city streets, rural roads and off-road trails.

www.vabike.org

National

Planning and Design

American Association of State Highway and Transportation Officials (AASHTO) — AASHTO is an advocate for multimodal and intermodal transportation and provides leadership, technical services, information and advice as well as contributing to national policy on transportation issues.

www.aashto.org

Association of Pedestrian and Bicycle Professionals –The Association of Pedestrian and Bicycle Professionals site promotes excellence in the emerging professional discipline of pedestrian and bicycle transportation and provides resources and information to leaders in the engineering, planning, landscape architecture, safety and promotion fields who specialize in improving conditions for bicycling and walking.

www.apbp.org

Federal Highway Administration (FHWA) –The site provides expertise, resources, and information to continually improve the quality of our nation’s highway system and its intermodal connections.

www.fhwa.dot.gov

Institute of Transportation Engineers (ITE) –The site provides information and resources for safe and efficient surface transportation through planning, designing, implementing, operating and maintaining surface transportation systems worldwide.

www.ite.org/

Pedestrian and Bicycle Information Center (PBIC) –The site was established to provide transportation engineers and planners, safety and health professionals, and advocates, access to the best available information on improving conditions for bicycling and walking in the United States.

www.bicyclinginfo.org

Education, Encouragement, Enforcement

Adventure Cycling Association –The site promotes bicycling for exploration, discovery, and adventure and provides resources and information in support of advocacy and education for a bicycle-friendly America.

www.adventurecycling.org

American Trails –The site provides trails and greenways information such as trail news, resources, contacts, advocacy, calendar of trail events, funding, legislation and links to other trails-oriented web sites for all trail users –including hiking, bicycling, mountain biking, horseback riding, water trails, snowshoeing, cross-country skiing, trail mototcycling, ATVs, snowmobiling, and four wheeling.

www.AmericanTrails.org

Bikes Belong Coalition –The Bikes Belong Coalition is a bicycle advocacy group with the goal to put more people on bikes more often through the implementation of TEA-21. The websites primary focus is to assist local organizations, agencies, and citizens in developing bicycle facilities projects that will be funded by TEA-21. In addition, Bikes Belong Coalition is the bicycle industry’s political lobbyist.

www.bikesbelong.org

Commuter Connections –The site provides information and resources to assist businesses and employees in the Washington metropolitan area with commuter services.

www.mwcog.org/commuter/ccindex.html

East Coast Greenways –The site provides information for walkers, cyclists, and other trail advocates in support of a 2,600 mile traffic-free path linking East Coast cities from Maine to Florida.

www.greenway.org

Federal Highway Administration Bicycle and Pedestrian Program Office –The site provides information and resources for promoting bicycle and pedestrian transportation accessibility, use, and safety.

www.fhwa.dot.gov/environment/bikeped/

International Bicycle Fund –The International Bicycle Fund is a non-governmental, nonprofit organization, promoting sustainable transport and international understanding. Major areas of activity are non-motorized urban planning, economic development, bike safety education, responsible travel and cycle tourism, and cross-cultural, educational programs.

www.ibike.org

League of American Bicyclists –The site promotes bicycling for fun, fitness and transportation and provides resources and information in support of advocacy and education for a bicycle-friendly America.

www.bikeleague.org

National Center for Bicycling and Walking –The site presents informational resources and focuses on issues of public health, including physical activity promotion, chronic disease prevention and environmental health, as well as transportation, land use, and public safety and injury prevention.

www.bikefed.org

National Highway Traffic Safety Administration Bicycle Safety Program –The site highlights education, enforcement, outreach and legislation towards reducing bicycle injuries and fatalities. Some of the goals and programs include: increasing the use of bicycle helmets, increasing awareness about sharing the road with cyclists and motorists, and promoting safe bicycle practices.

www.nhtsa.dot.gov/people/injury/pedbimot/bike/index.htm

Trails and Greenways — The Trails and Greenways Clearinghouse provides technical assistance, information resources and referrals to trail and greenway advocates and developers across the nation. Services are free and available to individuals, government agencies, communities, grassroots organizations and anyone who is seeking to create or manage trails and greenways.

www.trailsandgreenways.org

Funding

Transportation Equity Act for the 21st Century (TEA-21) –The site provides updated information on TEA-21.

www.tea21.org

National Scenic Byways Program — The National Scenic Byways Program site is provided by the U.S. Department of Transportation and provides information on America’s Byways, funding opportunities, news releases and other information in support of scenic byways.

www.byways.org

FHWA Discretionary Programs — This site presents FHWA special funding categories and provides information on various project categories, eligibility criteria, required application process, selection process, and on-going projects.

www.fhwa.dot.gov/discretionary

Transportation and Community and System Preservation Pilot Program — This site provides information on the Transportation and Community and System Preservation Pilot Program. The program is sponsored by the U.S. Department of Transportation and provides grants to states, local governments, and metropolitan planning organizations to investigate the relationships between transportation and community and system preservation and private sector-based initiatives.

www.fhwa.dot.gov/tcsp/

Notes