TRI-CITIES AREA BIKEWAY PLAN UPDATE

August 4, 2003

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(Continued)

August 4, 2003

Draft for Discussion Purposes
Tri-Cities Area Bikeway Plan Update

I. INTRODUCTION

The Tri-Cities Area Metropolitan Planning Organization (MPO) recognizes that bicycling is an important part of a comprehensive intermodal transportation system. For bicycling to be a supporting or integral role in the overall transportation system, bicycle facilities and related programs need to be supported by all levels of government and agencies; local, regional and state.

To support the bikeway planning efforts in the Tri-Cities, the MPO has approved a work program in its FY 2002 Unified Transportation Work Program to prepare an update of the Tri-Cities Area Bikeway Plan. The update will consider the inclusion of trail and pedestrian elements with emphasis on safety. The last bikeway plan was reviewed in 1979.

The Unified Transportation Work Program for the Crater Planning District Commission is a multi-modal document dealing with the relationship between all modes of transportation.

Purpose

The purpose of this bikeway plan is to recognize that bicycling is a safe, convenient and viable transportation alternative and to integrate bicycles and walking in the transportation system of the Tri-Cities Urban Area. The Plan will study existing bicycling facility conditions and propose actions to improve the bicycling environments in the Tri-Cities Urban Area.

II. BICYCLE FACILITIES

Before the development of a bikeway 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

A. Environment

The development of a local bicycle network is largely dependent upon the nature of the locality. For the Tri-Cities Area, the environment for bicycle facilities can range from urban to suburban settings.

a. 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 bikeway plan may be to create a network of safe and convenient routes for bicyclists to use in traveling to and from work, and traveling to other popular destinations.

b. 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.

B. User Groups

While the type of environment shapes the focus of the bikeway 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:

a. 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.

b. 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 shoulder.

c. 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.

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.

C. 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 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. Bike Path (Shared Use Path, off-street)

Definition:
A bikeway physically separated from motorized vehicular traffic by an open space or barrier. Walking trail is considered as a form of shared use facility.

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.

b. 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.

c. Bike Route with Wide Outside Lane

Definition:
A wide outside travel lane shared by bicyclists and motorists. Wide outside lanes have no strips 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 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.

d. Bike Route with Shoulder Improvements

Definition:
Roadway 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.

D. 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. 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.

III. GOALS AND OBJECTIVES

The goals provide the long-term vision and serve as the foundation of the Plan. Goals are broad statements of purpose. Objectives are implementation guidelines for policy actions. Those general and specific actions, to be taken individually or collectively, will assist in achieving the goals. The following goals and objectives are recommendations for the planning and development of a bikeway system in the Tri-Cities Urban Area.

I. GOAL: TO ESTABLISH A BIKEWAY SYSTEM IN TRI-CITIES AREA

A. Objective: To prepare a bikeway plan for the Tri-Cities Urban Area

Policy: To research local needs for bikeways and delineate a bikeway system to meet these needs.

Policy: Coordinate with the local jurisdictions and other interested groups for their awareness, interest and ideas.

Policy: To use existing Policy and Technical Committees as a means of evaluating regional bikeway problems.

Policy: To follow the guidelines recommended by VDOT in the Virginia Bicycle Facility Resource Guide in establishing and implementing a bikeways system when possible.

Policy: Coordinate and integrate bikeway planning and greenway planning with other transportation programs.

B. Objective: Develop a system of bicycle routes, lanes, and paths/trails throughout the Tri-Cities Urban Area

Policy: Where at all possible utilize existing bikeways in conjunction with proposed routes.

Policy: Provide connecting routes between all of the jurisdictions in the study are wherever possible.

Policy: Encourage the design and development of inter-jurisdictional bikeways to be a continuous system and provide loop routes for different return trips.

Policy: Encourage the routing of bikeways through scenic areas.

Policy: Request VDOT to include provision for bikeways along all future highway construction, when there is support from locality, public and funding is available.

Policy: Research State and Federal funding sources to assist local governments in the financing of bikeways.

C. Objective: Develops bikeways that are direct, convenient, safe and easy to use.

Policy: Develop a system of bikeway graphics that clearly identifies bikeways. Bikeways signs, maps and painted lanes will suffice in most cases.

Policy: Encourage local jurisdictions to maintain and provide interested citizens with appropriate mapping of the bikeway system.

Policy: Develop a bikeway system that will be convenient to all sections of each jurisdiction.

Policy: Encourage use of roadway-maintenance funds to improve current routes along which bicycles are ridden by realigning grates, repairing potholes, making traffic signals more responsive to bicycles, etc.

Policy: Develop a network of off-street bike paths integrated with the on-street system.

II. GOAL: TO ENCOURAGE THE USE OF THE BICYCLE AS AN ALTERNATE MEANS OF EVERYDAY TRANSPORTATION

A. Objective: Provide bikeway access to and within the study areas' major Generators of bicycle and automotive traffic.

Policy: Encourage inclusion of all bicycle ways to connect all recreation and school sites whenever possible.

Policy: Wherever possible encourage bicycle paths or trails within the confines of the parks, recreational areas and school sites.

Policy: Connect all major commercial areas (shopping centers and central business districts) with convenient residential areas along safe transportation routes.

Policy: Encourage localities to establish bikeways that link major roadways.

B. Objective: Plan for support facilities and services for bicyclists.

Policy: Encourage bicycle-parking facilities in all new employment and commercial developments.

Policy: Encourage bicycle-parking facilities in all new apartment complexes, schools, parks, churches, hospitals, public buildings, and other areas of large gatherings.

Policy: Encourage the construction of bicycle-parking facilities in all of the existing areas mentioned above.

Policy: Encourage the installation of bicycle-parking facilities in the public right-of-ways.

Policy: Work with Virginia State University, Richard Bland College and area schools to promote bicycle commuting and to assist in siting bicycle parking areas.

Policy: Consider adopting zoning requirements for lockers and showers to be added to new buildings.

Policy: Consider requiring bicycle parking at major public events to help ease traffic and parking.

III. GOALS: TO MAKE BICYCLING AND WALKING SAFER IN THE TRI-CITIES URBAN AREA

A. Objective: Develop a comprehensive public-awareness program involving bicyclists, motorists and pedestrians on the use and safety of bikeways.

Policy: Expand the bicycle-safety education program in public schools whenever possible.

Policy: Utilize existing civic clubs and associations, as well as local police and sheriff's departments, for the continuation of bicycle-safety clinics.

Policy: Utilize media of television, radio, and newspapers in order to promote a public-awareness program for bicycle safety.

Policy: Implement a helmet usage campaign.

B. Objective: Increase enforcement of traffic laws for the protection and safety of bicyclists and pedestrians.

Policy: The bicycle safety-enforcement program must be applied to children as well as to adults.

Policy: The enforcement system must serve a dual purpose—for education and as a deterrent.

Policy: Promote citizen participation in planning, encouraging bicycle and pedestrian safety education and public-awareness programs.

C. Objective: Increase public awareness of the benefits of bicycling and walking and of available resources and facilities.

Policy: Develop adult and youth bicycle and pedestrian education and safety program.

Policy: Market the health benefits of walking and bicycling.

Policy: Develop a "Share the Road" public awareness campaign.

D. Objective: Complete a network of sidewalks and trails that serve pedestrians needs, especially for short trips to employment centers, schools, commercial districts, bus stops, and institutions.

Policy: Complete missing sidewalk connections wherever possible to make direct routes for walking.

Policy: Identify impediments and obstacles to walking to schools.

Policy: Consider the installation of sidewalks, where feasible, as part of all new transportation improvements.

Policy: Encourage walking for fitness and recreational purposes

IV. EXISTING LOCAL PLANNING DOCUMENTS

Existing comprehensive plans, recreational plans, and other relevant planning documents from six Tri-Cities Urbanized Area jurisdictions were reviewed as part of this study. In addition, The Lower Appomattox River Corridor Greenway and Blueway Conceptual Master Plan and Appomattox River Corridor Plan Summary were inspected. The primary purpose of the review was to identify plans for bicycle, pedestrians, and safety improvements in the urbanized area. Planning and recreation department staff in four of the six localities, plus public works staff in Petersburg and transportation staff in Chesterfield County were also interviewed to identify current status of bikeway plans and pedestrian safety issues in the urbanized area.

Chesterfield County

Chesterfield County is involved in the planning and development of bicycle and trail facilities. In 1975, the planning staff developed a guideline for planning bikeways in Chesterfield County through a list of goals and objectives aimed at providing safer, user-oriented facilities for the County.

In 1989, Chesterfield County Bikeway Plan was developed which proposes a combination of exclusive bicycle roadways (bike paths separated from automobile traffic), bicycle lanes (paved areas designated for bicyclists along existing highways) and bike routes (existing low volume highways signed for bike traffic, but not widened). The plan has been used in consideration of development proposals and public capital improvements projects.

The plan is considered as the first step in developing a comprehensive bikeway facility plan for the County. It identifies the primary routes for bike travel. Follow-up plans should be undertaken to address local and neighborhood level needs. It is also recognized that less hazardous bicycle travel over many of the identified routes can only be achieved when the existing highways are improved to include bike trails or lanes.

Chesterfield County Parks and Recreation Department also developed a study in July, 1998 entitled “The Appomattox Riverfront Trail”. The proposed trail will provide access to and along the River, linking Virginia State University’s Randolph Farm Research Station to the Village of Ettrick and the University’s main campus. The new trail is about two miles long and paved, encompassing 0.4 miles of sidewalks and 1.5 miles of trail.

The City of Colonial Heights

The City of Colonial Heights Comprehensive Plan adopted in February, 1997 includes a discussion of Bikeway Element. “Realizing the growing usage of bicycles,

congested roadways, and energy conservation needs, a Tri-Cities Area Bikeway Plan was prepared by the Crater Planning District Commission in 1975. The study was prepared to provide Colonial Heights, as well as the other Tri-Cities areas, with a series of guidelines and suggested routes to consider in their bikeway planning needs. While the study was prepared 20 years ago, the guidelines and proposals are still pertinent today.

There are currently no existing bikeways in Colonial Heights, however, in the City's adopted Recreation and Open-Space Master Plan (prepared by the Crater Planning District Commission in 1973) specific streets have been planned for a bikeway system. The City is building a diversified recreation system that is aimed at organized programs being planned at specific sites throughout Colonial Heights which may possibly require a bicycle trip".

In addition, the City's Comprehensive Plan also recommends the following objective for parks and recreation service and development.

"Plan for the establishment of a bicycle trail system for non-motorized vehicles in connection with planned recreation area".

Dinwiddie County

On August 7, 2002, the Dinwiddie County Board of Supervisors adopted Dinwiddie County's Comprehensive Plan Update. The County acknowledges the importance of alternative mode of transportation in the County. The following planning objectives are stated in the Plan.

"Encourage the use of alternative mode of transportation to provide for an efficient intermodel transportation system".

"Pursue the development of a connecting network of linear park, trail and/or greenway to connect with a future regional greenway system".

In addition, Dinwiddie County initiated a "Trekking Dinwiddie" project. The purpose of this initiative is to use a trail system to educate visitors and citizens alike, link communities and historic battlefield sites in the County.

"The proposed trail system focuses on developing a regional network linking Dinwiddie battlefield sites, schools, and facilities with extensions to the Appomattox River and neighboring localities. The foundation for this system currently exists by utilizing inactive railroad rights-of-way, utility corridors, and roads that could total approximately 100 miles. Multiple trails for walking, biking, and equestrian use could be developed with numerous trailheads. These trails could connect regional destinations such as Appomattox Riverside Park, Lake Chesdin, Petersburg National Battlefield, and Pamplin Historical Park with communities such as DeWitt, Carson, Sutherland, and Dinwiddie.

The proposed battlefield trails network would link sites identified by the Civil War Sites Advisory Commission as significant to the Petersburg Campaign. These battlefield areas include: Boydton Plank Road, Five Forks, Globe Tavern, Hatchers Run, Lewis Farm, Peebles Farm, Petersburg Breakthrough, Reams Station, Sutherland Station, and White Oak Road".

The City of Hopewell

On December 11, 2001, the Hopewell City Council adopted the newly updated Hopewell Comprehensive Plan. The Plan includes a discussion of the need to provide an alternative transportation option in the City.

"The City and State are looking at improving the alternative transportation methods available in Hopewell. The River Road project and the Courthouse Road/ Berry Street project both have proposed bike lanes. Attempting to address part of this problem is the Cabin Creek Trail connecting Atwater Park/Atwater Soccer Complex and Crystal Lake/Mathis Park while ultimately connecting the new athletic fields at Hopewell High School.

The Alternative Transportation Plan should also focus on connectivity in the City. All areas of the City should be connected and easily accessible by those who have limited mobility or lack access to a motorized vehicle. Connectivity of the neighborhoods, commercial areas, and industrial areas allows people to travel easily from one area of the City to another without clogging the main roads that move traffic through the City".

The transportation element of the Plan further states: As noted earlier in the plan there is a segment of the population of the City that does not have access to automobiles. These citizens, generally the elderly, the poor and the young, should also have access to transportation even though they may not own or drive an automobile. For these citizens transit, bicycles, and pedestrian lanes enable them to carry out their day-to-day activities.

The City endorses the 1979 Tri-Cities Urban Area Bikeways Plan and professes to implement.

"There are no designated bike routes in Hopewell. The Tri-Cities MPO has stated that a regional bike plan has been approved although this plan does not seem to have been implemented in the City.

(a) Implement the Tri-Cities MPO Bicycle Plan.
(b) Work with VDOT to have the establishment of bicycle lanes made a priority with all new road construction in the City.
(c) Add bicycle lanes to existing roadways where feasible.

The Plan also touches on pedestrian access and safety issues. "Many of the neighborhoods in the City have no sidewalks. This means that people choosing to walk must walk on the berm of the road. This is not a safe alternative, especially for those who must walk. Pedestrian lanes also do not connect many areas of the City, especially the retail centers near the I-295 interchange. Finally, crossing many of the major roads in the City is often risky due to continuous turn lanes and short signalization.

(a) Secure funding to complete the Cabin Creek Trail and study whether this trail can be extended to other parts of the City.
(b) Require new residential developments to ensure ease of pedestrian traffic.
(c) Work with VDOT to have sidewalks added to all roadway construction where appropriate.
(d) Conduct a Pedestrian Access study to show ways to improve pedestrian access in the City.
(e) Install signalized crosswalks at major intersections and ensure that pedestrians can cross safely".

The City of Petersburg

The City of Petersburg adopted its Comprehensive Plan in February, 2001. The Plan places a heavy emphasis on downtown planning and returning of pedestrian to downtown. It suggests that "any urban plan for downtown Petersburg should be a program of public outdoor pedestrian amenities, which are at present largely absent. There should be places to sit, to walk, to meet and talk, to relax, and, most importantly, to watch other people. Programming frequent outdoor activity is one way to attract people and create a sense of excitement, but the pedestrians themselves are the source of most of this energy. Therefore, every means must be found to attract pedestrians and to make them want to return".

It further identifies the Appomattox River Heritage Trail, currently under development along the waterfront downtown, is an important linkage. "The City should explore every means possible of linking this pedestrian amendity with downtown pedestrian ways"……"The goal is completion of the trail along the entire downtown waterfront and then at least as far west as Battersea; a preferable alignment would extend the trail west to the Appomattox Riverside Park, where the City owns three miles of the riverside up to the Abutment Dam. By this further extension, the Heritage Trail is intended to be part of an Appomattox trail system proposed as a priority by the Lower Appomattox River Corridor Plan".

Currently, there is no designated bikeway in Petersburg. However, the City recognizes the need of a bikeway system in the City. The Comprehensive Plan recommends that a city bikeway plan should be developed to accommodate increased bicycle traffic. "Bicycling is an important method of transit in a city dominated by low- and moderate income households".

Prince George County

Prince George County Board of Supervisors adopted Prince George County's Comprehensive Plan Update in May, 1999. Currently, there is no designated bikeway in the County. However, the Plan recommends that Prince George County develop a County Bikeway Plan to address the needs of providing alternative mode of transportation to its citizens in the urbanized area.

Regional Documents

Appomattox River Corridor Plan Summary

In June, 1999, Crater Planning District Commission, in collaboration with the National Park Service prepared an Appomattox River Corridor Plan Summary. The purpose of this Plan is to assist communities along the river in developing a consensus and building partnerships for their visions of recreation development, resource conservation, economic development, and water quality protection.

The major recommendation of the Plan is to develop a Regional Trail System. "It is recommended that a regional trail system along the corridor be established. The system may consist of natural, bike and heritage trails, and other linear open space in the region. The goal of this action is to link all recreational, cultural and natural features, and historic sites on both sides of the Appomattox.

There are numerous corridors of land within the Appomattox River Basin that offer the potential to serve as trails. The preliminary regional trail system could include river and stream corridors, canals, utility easements, abandoned railroad rights-of-way, flood plains, designated resource protection areas and existing trails. There are hundreds of acres of flood plains and wetlands in the corridor. They are considered unsuitable for development but are excellent elements for a trail system.

There are significant public land holdings in the River Basin. These properties include the Petersburg National Battlefield, the U. S. Army Quartermaster Center and Fort Lee, two national cemeteries, the Federal Correctional Institute, Virginia State University, Central State Hospital, Southside Virginia Training Center, and several state and local park and recreational sites. All of these public lands can be potentially linked through a regional trail system".

National Project

National Millennium Trails

To celebrate America's rich history and its bright future in the 21st century, First Lady Hillary R. Clinton and U. S. Secretary of Transportation Rodney E. Slater designated 16 National Millennium Trails in June, 1999. "The National Millennium Trails connect our nation's landscape, heritage and culture and demonstrates our national commitment to improving the quality of life for all Americans" said Secretary Slater.

One of the sixteen designated trails, Civil War Discovery Trail, travels through the study area. It calls for a trail connecting the civil war battlefields, military routes and site of historical significance in the area and from New York to Florida. This is a public/ private partnership program which is led by the U. S. Department of Transportation, the Rails to Trails Conservancy and a collaboration of other agencies and organizations. In Virginia, the partner organization is Virginia Trails Association.

V. BIKEWAY PLAN

A bikeway plan should accommodate as many bicyclists' interests as possible, provide continuity of purpose and satisfy bicyclists' desired corridors of travel. Bikeway planning is commonly thought of as the effort undertaken to develop a bikeway system—a system of bike paths, bike lanes, and bike routes—all interconnected and spaced closely enough to almost totally satisfy the travel needs of bicyclists. In fact, no such system could really provide for the vast demand for bicycle travel. Bicyclists, even more than motorists seek the most direct routes from where they are to where they want to go, particularly those who are using the bicycle for more than casual recreation. Because of the diversity of needs of bicyclists, and the fact that many trips are quite short, a bikeway system could not provide for most bicycle travel unless it were of the same detail as the street system. For this reason, roads, together with bikeway, must serve as the bicycle-transit system to provide for the travel needs of bicyclists.

Bicycle planning is more appropriately defined as the effort undertaken to provide for safe and efficient bicycle travel. An effective program is one that is conducted in recognition of the fact that billions of dollars have been spent on a road system to allow people to travel almost any place they wish. Most of these roads are sufficient to accommodate shared use by bicyclists and motorists, and hence, most bicycle travel has occurred and will continue to occur on that system.

Probably the most important effort that could be undertaken to enhance bicycle travel would be improved maintenance and upgrading of existing roads that are used regularly by bicyclists, regardless of whether or not bikeways are designated. This effort requires that increased attention be given to the right-hand portion of roadways where bicyclists are expected to ride. An attempt should be made to improve the width and quality of the surface and to maintain the right-hand portion in a condition suitable for bicycle riding. Also important is the consideration of bicycle needs in the implementation of major construction projects and normal safety and operational improvements. For example, in constructing new roads, adequate width should be provided to permit shared use by motorists and bicyclists. When resurfacing, full shoulders should be resurfaced, as well as traffic lanes. When constructing truck-passing lanes, the paved shoulders should not be sacrificed, causing bicyclists to ride within a truck lane. When placing a roadway-edge stripe, an attempt should be made to provide sufficient room outside the stripe for bicyclists. When considering the restriping of roadways for more traffic lanes, the impact on bicycle travel should be assessed. These efforts, to preserve or improve an area for bicyclists to ride, can benefit motorists as well as bicyclists.

Another very important aspect of providing for the needs of bicyclists is in the area of support facilities. If bicycles are to be used extensively for daily trips, secure bicycle storage at common destination points (e.g., office buildings, shopping centers, schools, etc.) is necessary. The lack of secure bicycle parking can be a serious deterrent to bicycle use.

In order to take maximal advantage of the opportunities for bicycling, bicycle planning should be an integral part of the planning for other transportation modes and land-use development. Only through this effort can adequate provisions for bicycle parking and transit interface (e.g., "bikes on buses"; parking at transit terminals and park-and-ride facilities) be assured.

COMMUTING

Experts indicate that bike commuting is practical when distances do not exceed six or seven miles. However, some individuals cycle great distances, but they are exceptional. Therefore, the selection of major arterial streets, which carry motorists into the major employment centers from medium- and low density residential areas six miles away, should be considered. It is suggested by The Bicycle Institute of America, when planning bike routes to consider using parallel quiet streets which could become alternative routes along major thoroughfares, but utilize the major boulevards when there is no alternative. Attention should also be given to wide streets that could potentially accommodate an exclusive bike lane. To simplify the study areas to the bare essentials and identify only those streets which the bicyclists will use is another consideration.

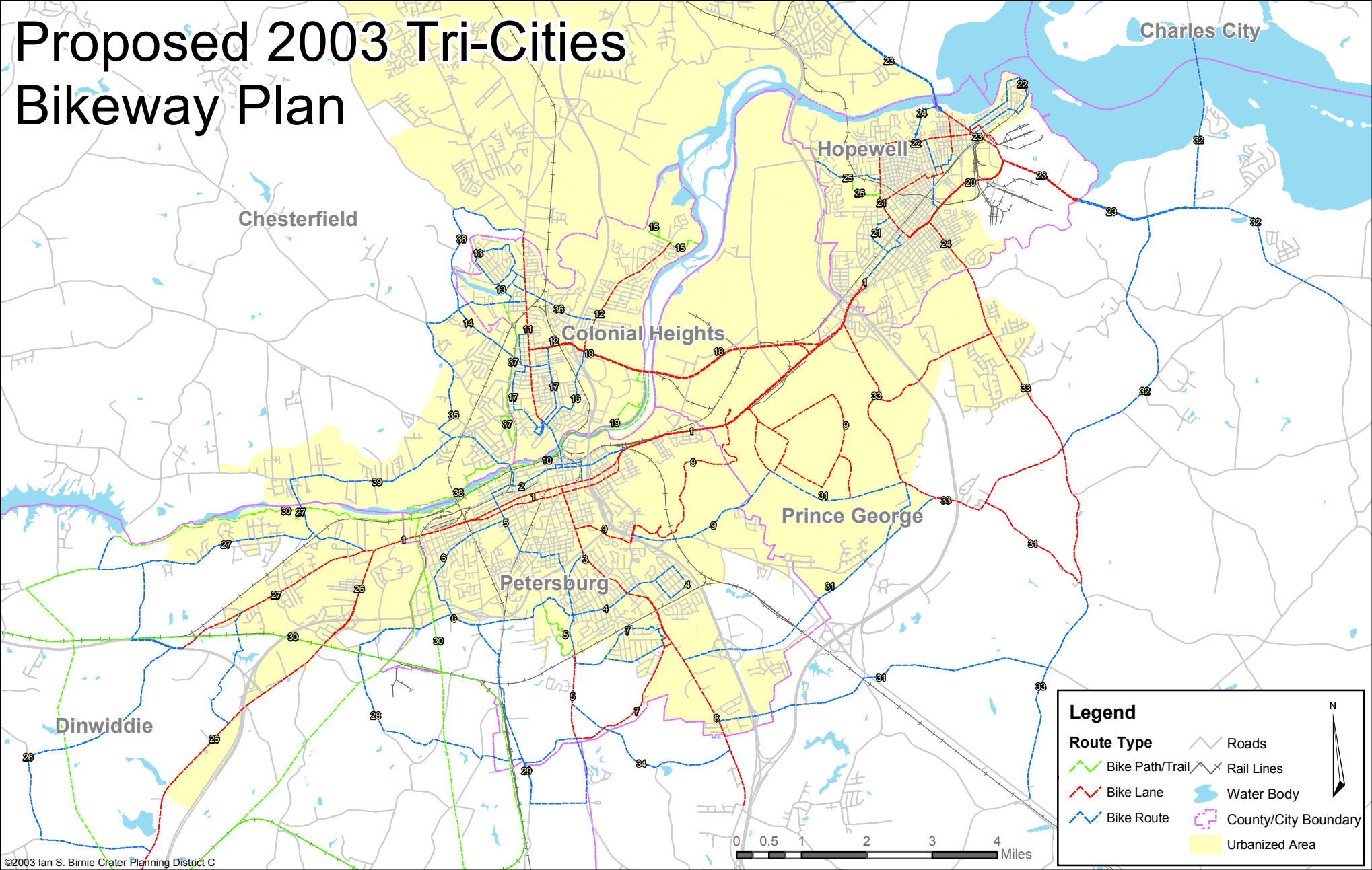
LOCATING BICYCLE FACILITIES

Adaptable locations which might easily be developed into Bike Paths/Trails with alterations, other than vehicular thoroughfares, are:

1. Abandoned railroad rights-of-way.
2. Telephone-line, power line and gas-pipeline rights-of-way provide more than adequate clearances for bicycles trails. Grades may or may not be within grade specifications.
3. Riverbanks, embankments and certain greenways usually provide long and gently curved scenic locations for bicycle trails.
4. National, state, regional and local parks and forest preserves offer scenic and historic locations for bicycle trails, as well as recreational facilities and terminal parking lots for bicyclists.
5. Abandoned roadways, when their short lengths might provide adequate services.
6. Fire breaks offer sufficient widths and clearances for bicycle trails.
7. Sidewalks or pedestrian walkways in areas of low-pedestrian volumes may easily be converted to bikeways when permitted by local ordinance.

Bicycle paths could be located almost any place where there is available space accessible to the cyclist. While the bicycle is a wheeled vehicle, it is still capable of being negotiated over a wide variety of types of terrain and surfaces. Most persons who ride bicycles will take the easiest and quickest route to reach their destination. The bicyclist will take every shortcut he can; however, he is required by law to obey all laws and traffic requirements that pertain to operators of motor vehicles. The bikeways presented have been developed to encourage safe bicycling and walking, provide a means to commute to and from any major businesses and allow a recreationalist to tour his community by pedal power or foot power.

Proposed 2003 Tri-Cities Bikeway Plan



DESCRIPTION OF BIKEWAYS

More than 100 miles of bikeways have been selected through the cooperation and assistance of affected local jurisdiction staffs. The majority of bikeways shown will be using existing local streets and highways and link activity areas and major destination points, such as schools, recreation areas, employment centers, historic sites, shopping areas, etc.

Some of the bikeways follow selected collector streets and major thoroughfares for efficient intra-city trips. Individual and group needs for longer recreational and sport-riding trips are accommodated through regional bikeways which connect with proposed routes in other jurisdictions, as well as with commuter routes in the study area.

Currently, there are no designated bike lanes or bike routes in the study area. All planned bikeway facilities are presented in the proposed 2003 Tri-Cities Bikeway Plan and are described as follows:

Petersburg

The City of Petersburg has no dedicated bikeways incorporated within its roadway system. The plan combines proposed bike routes and bike lanes with a system to provide a safe and adequate amount of bicycle commuting and recreational activity. The City proposed to have 28 miles of bike routes, and the Petersburg National Battlefield Park adjacent to the City has 4.5 miles of bike lanes, and approximately 9 miles of bike paths. The bikeway system is developed in neighborhood "loop-routes" enabling the cyclist to begin and end his ride at the same location. The system also provides a connecting bike-route link to other neighborhood routes.

Improvements to the proposed system will incorporate added bike routes, bike lanes and additional bike paths throughout the municipal park areas. A short narrative explanation of the types of bikeways planned for Petersburg follows:

1. Washington Street-Wythe Street: This roadway system is a one way traffic circulation, going west along Washington Street and east along Wythe Street. A bike lane is proposed, from the beginning of the one-way system in both directions. Parking should be removed along the right side of the street to accommodate the bike lane. The bikeway will act as the City's primary east-west bicycle commuting roadway, carrying persons to Fort Lee, Hopewell and Central State Hospital.

2. South West Street-West High Street-Madison Street: A bike-route system connecting the Washington-Wythe Streets corridor to the City's northern residential area. Along High Street and throughout the restored neighborhoods and the redeveloping downtown area, the same classification will continue. The YMCA along Madison Street presently attracts numerous bicycle riders.

3. North and South Sycamore Street: Due to narrow streets, a bike-lane system is suggested. It connects the neighborhoods in the Walnut Hill area to downtown, the hospital, and library. This is one of the major north-south thorough-fares in the City carrying high volumes of vehicular traffic at all times of the day. A possible alternate parallel route could encompass Monticello and Westover Avenues.

4. South Boulevard-Walnut Hill East: Primarily a recreational bike-route system to carry cyclists to the proposed bicycle lanes along Sycamore Street and Johnson Road.

5. Johnson Road-Baylors Lane-Lee Park: This bikeway encompasses an alternate roadway in a north-south direction into the central business district from the southwestern residential neighborhoods, the high school and major city park area. A bike lane designation along Johnson Road, and a bike route for Baylors Lane and Virginia Avenue, should be connected to the Lee Park existing bike trails.

6. Defense Road-Fort Lee Road-Ferndale Avenue-Farmer Street: This bike-route system loops a residential neighborhood in West Petersburg and connects to the Washington-Wythe Streets bike lanes and South West Street loop route. A neighborhood park and fairground area are located along this route, as well as a historic scenic road.

7. South Halifax Road-Flank Road-Battlefield Park Subdivision: A bike lane should be developed along the historic Flank Road, and continuation of the bike-route classification in the Battlefield Park neighborhood, as well as along South Halifax Road.

8. South Crater Road-Wagner Road-Rives Road: South Crater Road from Walnut Boulevard southward to Rives Road a bike lane should be developed. At this point, Rives and Wagner Road will act as connecting bike routes to Prince George County and Fort Lee.

9. Hickory Hill Road-Fort Lee-National Battlefield Park: This roadway is a valuable connecting thorough-fare between the National Battlefield Park, Fort Lee and Prince George County. A bike route is prescribed for Hickory Hill Road and bike lane into Fort Lee.

10. Appomattox River Heritage Trail-Upper Appomattox Canal Trail-Appomattox Riverside Park: This bike path/trail starts from Pocahontas Island along the River to Old Town Harbour, and westward to Fleet Street/Campbell's Bridge area. The proposed Upper Appomattox Canal Trail System is from Campbell's Bridge, follow the River to Matoaca Bridge. It connects to the canal trail system inside the Appomattox Riverside Park. Connection will be provided to other bikeway systems in southern Chesterfield, northern Dinwiddie and the downtown Petersburg area.

- Bicycle-Bus Transfer Stations: There is need for three bicycle-transfer locations in Petersburg. One in the central business district to carry bicycles across into Virginia State University, another along West Washington Street near Central State Hospital and a third at the National Battlefield Park-Fort Lee vicinity.

Colonial Heights

There are no existing bikeways in Colonial Heights; however, in the City's adopted Recreation and Open-Space Master Plan, specific streets have been planned for a bikeway system. The City is primarily a bedroom community for local employment elsewhere in the Tri-Cities Urban Area. The planned system includes:

11. Boulevard (U.S. 301-1): This street is the City's major local thoroughfare and carries the largest number of commuter and shopping vehicles per day. Along this street are located the City's business and commercial establishments. A bike lane is suggested along the Boulevard.

12. Ellerslie Avenue-Temple Avenue-Conduit Road: These streets should be developed for bike lanes connecting residential neighborhoods, schools and recreation areas to the north and shopping mall to the south. A spur bike path is proposed for the area between Covington Road and Yacht Basin Drive on Conduit Road where an elementary school, public library and White Bank park are planned.

13. Sherwood Drive-Forest View Drive-Fairmont Drive-Biltmore Drive: A bike-route system should encompass this neighborhood and connect the cyclists to the Boulevard bike lanes.

14. Lakeview-Springdale-Woodale-Seaboard Coastline Railroad Right-of-Way: A continuation of the bike route system from the Sherwood Hills area, connecting the Lakeview Elementary School to the recently acquired abandoned railroad right-of-way, where a bike path should be encouraged as a north-south connecting bikeway throughout the City.

15. White Bank Park-Fort Clifton: There is a bike-path/trails system through White Bank Park. This system should link with a trail system in the Fort Clifton area connecting the two facilities and offering access to Tussing Elementary School. These trail systems would be accessible to residents by way of Conduit Road bike lanes.

16. East Westover Avenue-Lower Conduit-Flora Avenue and the Junior High School: This system will constitute a bike route, encompassing the residents around the junior high school. East Westover Avenue should be classified as a bike lane, to safely carry the City's southern bicycle traffic towards the bike lanes on the Boulevard and Conduit Road.

17. Carroll Avenue-Chesterfield Avenue-Battery Place-Meridian Avenue: Basically a bike-route system connecting the City's southwestern neighborhoods with the recreational areas at the stadium.

18. Temple Avenue: This roadway system carry commuter motorists and cyclists in an easterly direction to Fort Lee and Hopewell. Bike lanes should be developed in conjunction with future improvements projects.

19. Proposed Appomattox River Park: Also indicated for future park usage is a linear park along the river encompassing the landfill area. A series of bike trails should be developed.

Hopewell

The City of Hopewell recognized the importance of providing alternative transportation method in the City. The River Road project and the Courthouse Road/Berry Street project both have proposed bike lanes. The Cabin Creek Trail is another option to connect Altwater Park and Crystal Lake/Mathis Field area.

20. Route 36-Oaklawn Boulevard-Woodlawn Street-Winston Churchill Drive: Oaklawn Boulevard , Woodlawn Street and Winston Churchill Drive represent the City's main east-west thoroughfare connecting the Fort Lee area and Petersburg to the west and the industrial plants and Route 10 to the east. A bicycle lane should be encouraged along these streets. All other local bike routes connect with this system and are funneled in either an eastern or western direction.

21. South Mesa-Mesa Drive (and Smithfield Avenue-Wilmington Avenue): A bike lane should be developed along this route connecting bicycle traffic from the City's eastern and northern most residential areas and the high-school recreation area. A bike route along Wilmington Avenue will connect Smithfield Avenue, Woodlawn Street and Oaklawn Boulevard across the Norfolk and Western Railroad tracks.

22. City Hall-Central Business District-City Point: Continuing a bicycle lane from South Mesa Drive into the CBD, at which point a loop-bike route carries cyclists around Appomattox Street, Cedar Lane to City Point Park, and Brown Avenue and back to the East Broadway area. Historic Appomattox Manor is seen along this route. It may also connect to the planned new waterfront marina area.

23. Route 10-Central Business District-Hopewell Street-Randolph Road: This system connects Hopewell with Chesterfield County across the Appomattox River on the north and south toward Prince George County and places beyond. A bicycle lane should be constructed from the Hopewell Yacht Club at the City's northern boundaries, to the southern City limits beyond Bailey's Creek at which point a bike route shall begin through Prince George County.

24. Weston Circle-15th Avenue-High Avenue-Arlington Road: This bike route connects the northern city bicycle traffic along Randolph Road and Broadway and the major east-west thoroughfare and bike lane along Winston Churchill Drive then continues via Arlington Road into Prince George County. The Cavalier Square Shopping Center and numerous neighborhoods can be reached by this bike lane.

25. Cabin Creek Trail: This bike path/trail connects Atwater Park/Atwater Soccer Complex to Crystal Lake/Mathis Park, following River Road and ultimately linking the new athletic fields at Hopewell High School.

Dinwiddie

Dinwiddie is presently in need of a bikeway system in the urbanized area of the County to carry commuter and recreational cyclists to and from employment in the Petersburg area, County schools and recreational sites. The County has initiated a "Trekking Dinwiddie" project. The purpose of this initiative is to promote a trail system by linking communities and historic battlefield sites in the County. The proposed bikeway system reads as follows:

26. U. S. 1-Route 613-Virginia 226: A bicycle lane should carry cyclists along U. S. Highway 1 from the West Washington Street bike lane in Petersburg down to Route 613 beyond Lake Jordan. Routes 613, 631, and 632 could be developed as collector bike routes up to Route 460.

27. Route 632-Route 601-Route 776: Development of a bike-route system along Route 601 toward Route 600 to the east, where the Appomattox Riverside Park is located. This is a linear historic park along the river providing bike paths and bike trails throughout. To the west, the bike route leads to the Lake Chesdin Dam and boat landing area.

28. Route 672-Route 613-Defense Road: The bicycle-route designation should continue from Petersburg along historic Defense Road, past the entrance to Central State Hospital into Dinwiddie County. A bike-route designation should also be introduced along Route 603, 672 and 613, encompassing the Petersburg National Military Park along Route 613. This will connect to the historic Flank Road coming from Petersburg. This will provide a continued Historic Road Tour through both communities.

29. South Johnson Road-Route 677: This will connect Richard Bland College with the Johnson Road bike lane system, and provide a bike-route designation along Route 677 connecting Halifax Road to the Dinwiddie bikeways.

30. Trekking Dinwiddie Trail: The proposed trail system will utilize inactive railroad right-of-ways, utility corridors and roads for walking, biking and equestrian uses. In the urbanized area the following battlefield sites are to be linked: Boydton Plank Road, Globe Tavern, Hatchers Run, Reams Station, Pebbles Farm, and White Oak Road.

Prince George County

The bicycle plan has investigated the northern portion of Prince George County for a bikeway system. Only this portion of the County is within the urbanized area and the transportation study area has the greatest need for a bikeway system. This system acts primarily as a commuter route and as a secondary recreational cycling system. The bikeways connect with adjoining community bikeways wherever possible. The major concerns in the County are the narrow roads and their high speeds of traffic. Suggested bikeways are described as follows:

31. Route 106-Route 460-Route 630: A bicycle route should be planned along Route 106 from Route 460; eastward toward the courthouse is suggested. Walton Elementary School is located along this road and will carry recreational cyclists to events at the school, as well as link Petersburg, and the planned bike routes along Route 5 toward Williamsburg. Route 630, 629 and 156 will provide a southern connection from the Rives Road bike route over to the Prince George County High School area. From the high school, Route 156 should be classified as a bike lane.

32. Route 644-Route 10/Route 156: After the Route 156 intersection, Route 106 becomes Route 156 bypass and should be developed as a bike route over to Route 10/Route 156, which is designated as bike route continuing to the east. Route 10/ Route 156 should be designated as a bike route due to the narrowness of the bridge over the James River. This route, however, will undoubtably attract numbers of cyclists going to and from historic Route 5 and the Williamsburg area.

33. Route 156-Route 106-Route 630: The continuation of Arlington Road's bike lane in Hopewell joining Prince George County's Route 156 at the City limits will carry cyclists safely into and out of Hopewell and major employment centers. This bike lane should continue southward to Route 106 and go west by the Beazley Elementary School, Courthouse and County offices, and connect with Route 630 going north toward Route 36 in Hopewell.

34. South Crater Road-Birdsong Road-Richard Bland College: A bike route should be planned along Birdsong Road from its intersections with South Crater Road to Flank Road and Johnson Road, then sourthward to Richard Bland College.

The Prince George County bikeways that are designated as bike routes should be expanded into bike lanes when future highway widening occur, or when a large influence, such as a subdivision or employment center, may be developed. Other power-line easements and right-of-way should also be considered as possible recreational bike paths.

Southern Chesterfield County

A portion of Chesterfield County is located within the Tri-Cities Urban Area and is included in the study. The County is involved in the planning and development of bikeways and trail facilities. Followings are examples attempting to coordinate the jurisdictional systems with southern Chesterfield County.

35. Chesterfield Avenue-Hickory Road: Chesterfield Avenue from Campbell's Bridge to River Road, passing Oldtown Creek and along Hickory Road should be designated as a bike route system. At its intersection with Southlawn Avenue, a bike route is recommended to lead into the Ettrick Community Center/Park. This bike route will follow Woodpecker Road to its intersection with Matoaca Road/ Lakeview Drive.

36. Branders Bridge Road-Colonial Heights City Limits-Lakeview Avenue: This system along Branders Bridge Road should be used as a bike route carrying commuters and recreationalists into Colonial Heights. The Lakeview Avenue extension into Chesterfield County should contain a bike-route classification.

37. Virginia State University (VSU): Throughout the campus, a system for bikeways should be examined and developed with River Road and Chesterfield Avenue as bike lanes around the school. An intra-campus bikeway system could use College Avenue and Hayden Street as double bike-laned streets bisecting the campus and consider bicycle routes along the other streets.

38. VSU Randolph Farm-Ettrick: This is a bike path/trail system along the north bank of the Appomattox River, from VSU's Randolph Farm to Ettrick Cemetery, then follow sidewalk to Chesterfield Avenue. At this point, it can go north connecting to VSU campus bikeways network or go south connecting to the Appomattox River Heritage Trail in Petersburg.

39. Route 600-River Road (Virginia 36): This bike route will carry cyclists from Colonial Heights, westerly along River Road, toward Matoaca and Route 600, connecting with the bike route in Dinwiddie County and the Appomattox Riverside Park and its bike-trail network.

VI. 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.

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.

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:

- "Bike Smart! Virginia"
- Bicycle safety rodeos
- Helmet programs
- Community youth bicycle safety initiatives
- BikeWalk Virginia conferences
- Public service announcements
- Ride-Like-a-Pro safety events
- Adult bicycle programs

* A detailed descriptions of bicycle safety education programs are available in "Virginia Bicycle Facility Resources Guide", Virginia Department of Transportation, 2002.

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:

- Bicycle maps/brochures
- Web site information
- Bikes with transit
- Bicycle clubs
- Statewide or regional bicycle guides
- Bike to Work Week
- Bicycle tours
- Health Benefits

** Descriptions of these encouraged programs and examples from Virginia are highlighted in "Virginia Bicycle Facility Resource Guide", Virginia Department of Transportation, 2002.

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.

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

<u>Bicycle "Rules of Road"</u>

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.

<u>Example Safety Tips</u>

- Be responsible bicyclists – 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 you 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.

VII. IMPLEMENTATION

A bikeway plan cannot become effective without an instrument of implementation. The Plan's acceptance is the first consideration that requires approval; with this is the need for each local jurisdiction to make a commitment as to its own demands and desires for the bikeway systems. A phased plan of development at each local jurisdiction should follow as the next step in the implementation process. But the upmost question of implementation is financial funding sources.

VDOT plays an 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. The primary sources of funding available through VDOT for bicycle facilities or bicycle-related programs are:

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

Highway Construction Funds

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's money for bicycle facilities is highway construction funds.

VDOT is responsible for constructing and maintaining the roadway within each of these counties in the urbanized area. Bicycle facilities are generally built in conjunction with the construction of new roadways and roadway improvements. To get the roadway project in the *Virginia Transportation Development Plan* is 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.

- The bicycle facility is designed to meet current VDOT guidelines
- The bicycle facility is located or designed pursuant to a bicycle plan that has been adopted by the local jurisdiction or MPO
- 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
- 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

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 bikeway 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. Unlike other federal discretionary funding programs, 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
- 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".

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

A portion of the Tri-Cities Urban Area has been designated as being non-attainment in an air quality maintenance area. Chesterfield County, the cities of Colonial Heights and Hopewell are eligible for funding through the CMAQ program. The fund aims at reducing congestion and improving air quality in affected areas. Projects eligible for funding include the construction of bicycle facilities.

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. "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. 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.

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.

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

Revenue Sharing Program

VDOT's state funded Sharing Program provides additional funding to construct, improve, or maintain primary and secondary roadways within the counties of the Commonwealth. Cities that maintain their own roadway system are not eligible for this program. The Revenue Sharing Program requires a 1:1 match from the locality, and this match must come from the county's General Fund.

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*.