Fredericksburg Pathways

A Bicycle and Pedestrian Master Plan

City of Fredericksburg, Virginia

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Prepared by: Transportation Division and the Pathways Steering Committee

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TABLE OF CONTENTS

List of Tables

List of Figures

Part 1: Introduction

Bicycling and walking are fundamental modes of travel and a good transportation network provides for them. Integrated bicycle and pedestrian accommodations ensure safe and convenient access to the community, connectivity with the overall transportation system, and independent mobility regardless of age, physical constraints, or income.

When people define the qualities that make Fredericksburg an attractive place to live and do business, they often resort to phrases like “quality of life,” “small town atmosphere,” and “sense of place.” These concepts are seemingly abstract, but they actually relate to a community’s physical attributes. The historic sections of Fredericksburg include an interconnected street grid, sidewalks, mixed land uses, and safe street crossings. All of these factors provide opportunities for social encounter and exchange in public places, as citizens attend to their daily activities.

Years ago, these routine opportunities for unplanned social interaction became diminished when public spaces were given over more emphatically to the needs of automobiles. Streets overwhelmed by vehicles sometimes made them dangerous to everything else. In recent years, however, the City has accommodated bicyclists and pedestrians in a more integrated transportation system. The intent has been to improve the environment in which bicyclists and pedestrian travel, to achieve a safe, efficient, and balanced multi-modal network of streets, sidewalks, and trails. Examples of this more comprehensive infrastructure include the provision of multi-use pathways, introducing the concept of bicycles and vehicles sharing a roadway, and the installation of traffic calming devices that enhance the safety of residential neighborhoods without diminishing route options for motorized vehicles.

This revised Pathways Plan builds on Fredericksburg’s careful attention to making neighborhoods safer, interconnected, and cohesive. The concentration of readily identifiable neighborhoods in Fredericksburg makes full pedestrian and bicycle-friendly accommodations throughout the community an achievable goal. By ensuring citizens are connected with a safe and usable street network, integrated with safe routes for walking and bicycling, Fredericksburg will retain its quality of life, its small town atmosphere, and its sense of place.

Purpose and Scope

This plan provides the policy framework through which the City of Fredericksburg will accommodate bicyclists and pedestrians in an integrated transportation system. The intent is to improve the environment in which bicyclists and pedestrian travel, to achieve a safe, efficient, and balanced multi-modal network of streets, sidewalks, and trails. Examples of this enhanced infrastructure include the provision of multi-use pathways, bicycle lanes and signs, as well as the installation of traffic calming devices, as appropriate, to enhance the safety of residential neighborhoods.

Previous Bicycle/Pedestrian Planning

The City of Fredericksburg has formally supported trails development since adopting its 1981 Comprehensive Plan. The Canal Park Trail was subsequently established in 1983, but further efforts languished as available staff time was directed toward an annexation of land from Spotsylvania County.

In 1989, with annexation completed and a revised Comprehensive Plan (1987) in place, the Fredericksburg City Council again endorsed the concept of a city-wide pathway system. The Department of Parks and Recreation worked with the Planning Department to research, plan, and design a multi-purpose trail network. During this process, trails planning moved beyond a recreational focus to the notion that a trail system could also facilitate safe, non-motorized travel within the community. Research showed that automobile travel typically excludes fully 25 percent of the population, those who are either too young or too old to drive or who do not own a vehicle. Buses and railways are considered necessary components of a transportation system, and it became clear that so were trails and sidewalks.

In 1996, the City Council adopted a comprehensive trails plan, called *Fredericksburg Pathways*. This document conformed to Virginia Department of Transportation (VDOT) guidelines, which committed that state agency to constructing substantial multi-use trails if the local government had adopted a plan that made them part of an overall road project. The first tangible result of this policy was the ten-foot wide asphalt-surfaced path incorporated into the design of Cowan Boulevard, which was completed in 2003.

The new Cowan Boulevard Trail generated public interest for more bicycle/pedestrian facilities. In January 2005, the Fredericksburg City Council authorized the Recreation Commission's Pathways Committee to review the 1996 plan and recommend revisions. As guidance, City Council articulated the concept of connectivity, to ensure residents and visitors would be able to travel between different sections of the City on streets, pathways, and sidewalks. The committee completed a new Pathways Plan that year, again called *Fredericksburg Pathways*, and City Council formally adopted it in January 2006.

The 2006 plan guided a significant expansion of the City's trail network that had begun with the Canal Park Trail (1.6 miles in 1983) and been revived with the Cowan Boulevard Trail (1.75 miles in 2003). New projects included the Rappahannock River Heritage Trail (1.6 miles) that connected to both ends of the Canal Park Trail and created a loop that caused that trail's use to expand dramatically. The Virginia Central Railway Trail (2.7 miles) followed an historic railway bed that linked downtown Fredericksburg to the City's new Idlewild neighborhoods and has the potential for future links with neighborhoods in Spotsylvania County. The Fall Hill Avenue Trail (1.4 miles) connected the Canal Trail to Central Park and included another safe route across Interstate-95, connecting jobs and neighborhoods. The overall trail network, not including sidewalks, has grown to more than nine miles. The challenge at this point, is to make connections across the many gaps that still separate some neighborhoods from their community.

The Fredericksburg Area Metropolitan Planning Organization (FAMPO) also engages actively in bicycle and pedestrian planning. The FAMPO staff looks very closely at multi-modal options and also completed a bicycle/pedestrian infrastructure study during 2017. Those study findings were presented to the City Council in October of that year. The governing body received the information and authorized the City staff to use the data to update the City's own Pathways Plan. This effort was handled by the Fredericksburg Pathways Steering Committee, which consists of an interdisciplinary team of City staff (Public Works, Parks and Recreation, Transportation, and Planning) as well as citizen volunteers who represent trail users, trail builders, and trails advocates.

Benefits of Bicycle/Pedestrian Facilities

A variety of benefits accrue from pedestrian and bicycle facilities – some of them very apparent, but others more difficult to quantify. Available facilities and the number of people who use them, for instance, can be measured with reasonable accuracy. The corresponding impact on traffic congestion and parking demand can be assumed, but is not so readily determined. Even without clear statistical evidence, pedestrian/bicycle facilities are still considered good for the overall health and fitness of users, good for the environment, and important components of the overall transportation network.

Health and Physical Fitness Benefits

Contemporary lifestyles are not as physically active as they have been in the past. Health professionals emphasize the connection between good health and physical activity and many citizens seek recreational opportunities as part of their daily life. Walking and cycling are very individualized activities and available trails allow citizens to pursue them as vigorously or as

carefully as they desire. Even moderate levels of walking or cycling provide excellent health benefits.

Physical activity has also been shown to reduce the risk of developing chronic diseases as well as to support healthy aging. A related aspect of overall health, however, is an assumption of user safety. Pedestrian and bicycle facilities need to be designed to minimize conflicts and reduce potential hazards, in order to ensure a high level of user comfort. Safety can be addressed through facility design, but more users will also improve overall trail safety. As trail use increases, the incidence of accidents decreases, as motorists and cyclists learn to accommodate one another. More users also reinforce safety as trails become more fully accepted as a component of the overall transportation system.

Environmental Benefits

As Fredericksburg and its neighboring jurisdictions plan and develop a regional transportation network, they must conform to air quality standards specified in the Clean Air Act. In this context, modes of travel that do not result in any vehicle emissions are a welcome development. Deriving such benefits, though, requires concerted attention to how a community is physically designed.

Livable communities will always have a convenient mix of characteristics that meet people's daily needs. Such places are characterized by a compact form that encourages walking, streetscapes designed for pedestrians, connected streets, neighborhood parks and open space, and a variety of uses and building types. Neighborhoods within a well-connected bicycle/pedestrian travel network generate far fewer vehicle trips, with a corresponding decrease in vehicle emissions.

Transportation Benefits

Lewis Mumford, the great urban philosopher, wrote:

> *A good transportation system minimizes unnecessary transportation; and, in any event, it offers change of speed and mode to fit a diversity of human purposes.*

Bicycle and pedestrian facilities can reduce automobile trips (*unnecessary transportation*), provide links to rail and bus facilities (*change of speed and mode*), and make the overall community more accessible to its citizens (with their *diversity of human purposes*).

There are two types of facilities within a comprehensive trails network. First are the wide multi-use trails on their own alignments. These routes mix cyclists and pedestrians, but keep them separated from motor vehicle traffic. They are fully functional bicycle and pedestrian alternatives to motor vehicle travel. Some of these off-road trails also provide welcome

recreational amenities, functioning as linear parks with both natural and historic points of interest.

The second type of bicycle/pedestrian facilities are integral components of a street. There are more than 100 miles of City streets that have sidewalks on at least one side of the right-of-way. There are also many streets without any sidewalks. The existing pedestrian network is extensive and provides a solid basis for growth and enhancement, but there is a compelling need to close the gaps. The challenge is to figure out how best to provide bicycle facilities on existing streets. A useable bicycle/pedestrian network requires that all potential connections be considered and that they be made safe if implemented. Enhancing safety will include provision of traffic calming features, clear signage and pavement markings, and physical barriers, when feasible, between cyclists and vehicles. These steps are meant to ensure that bicycle/pedestrian links will be used, and thus provide a true transportation benefit.

Quality of Life/Economic Benefits

A locality's quality of life is defined by such things as sidewalks that connect different parts of the community, safe street crossings, and convenient destinations for social activity. If points of interest are added – such as historic sites, a vibrant downtown, and the Rappahannock River – then the local quality of life becomes attractive to visitors and even investors looking to establish or re-locate a business.

In this economic context, bicycle and pedestrian networks have proven to be a wise investment for the communities that have created them. Studies such as *The Impact of Greenways in the Triangle* (2017) demonstrate that bicycle/pedestrian facilities have a direct impact on a community's ability to attract jobs, promote tourism, enhance real estate values, and help nearby small businesses be successful.

As an urban area, Fredericksburg is already a relatively compact community. Many destinations are within walking or biking distance and the City's most expensive homes are within an attractive urban center. Some of the outlying areas, however, are somewhat isolated, cut off from the community by busy roads as well as distance. A comprehensive trails network will connect all city neighborhoods with their larger community.

An added economic benefit could be derived through savings associated with transportation costs for City Schools. At present, operational and capital costs associated with school buses constitutes approximately 4 percent of the school system's annual budget. A program called Safe Routes to Schools seeks to encourage alternative means of travel, to promote student health as well as to save local dollars. This Pathways Plan identifies improvements to the actual travel routes that could make a Safe Routes to Schools program feasible, but the program itself will need to be a City/Schools partnership. Information on Safe Routes to Schools is found in Appendix A.

Walking and Biking Scores

Numerous studies show that walking and biking are growing in popularity. The clear implication is that jurisdictions should pay attention to how they respond to this need. A 2013 study of the hidden costs of suburban sprawl, for instance, found that rising Millennials and retiring Baby Boomers constitute fully half of the U.S. population and are driving the demand for walkable urban places. Another study (2015) by the National Association of Realtors found that 79 percent of the American population prefers walkable communities. That full percentage does not actually live in fully walkable communities, but it represents the market demand and it is strong and growing.

A private company called Walk Score developed a methodology to measure the walkability of cities, towns, neighborhoods, and even individual addresses. It is an index of a location's efficiency for convenient travel options. Walk Score cannot be considered an exact science because it relates to human behavior, but the index does provide useful relative comparisons and has been enthusiastically embraced by the real estate industry. In addition to walk scores, the company has expanded its analysis into transit scores and bike scores. The following table shows the criteria associated with the various conditions.

Table 1 – 1: Walk Score Standards.

SCORE	WALKING CRITERIA	TRANSIT CRITERIA	BIKING CRITERIA
90-100	Daily errands do not require a car	World class public transportation	Daily errands can be accomplished on a bicycle
70-89	Most errands can be accomplished without a car	Transit is convenient for most trips	Biking is convenient for most trips
50-69	Some errands can be accomplished on foot	There are many nearby public transit options	Some bicycle infrastructure is available
25-49	Most errands require a car	There are few nearby public transit options	Minimal bicycle infrastructure
0-24	Almost all errands require a car	It is possible to get on a bus	Minimal bicycle infrastructure

Walk Score has used its algorithm to calculate the walkability of cities large and small. New York, for instance, has a Walk Score of 89. San Francisco's Walk Score is 86. Washington D.C. has a score of 77. The City of Fredericksburg has an overall Walk Score of 45, which reflects the relative inaccessibility of several outlying neighborhoods. When Downtown Fredericksburg is evaluated on its own, however, the Walk Score jumps to an impressive 90. Fredericksburg's Transit and Bike Scores have not been calculated, but the City would not be as competitive in those categories as it is in walkability. As noted, these scores are based on an algorithm and

may not fully represent a community's actual conditions, but they are an intriguing window into how communities nationwide are being defined according to market demands.

Planning Process Overview

In October 2017, the City Council directed the staff to develop an update of the 2006 Pathways Plan. The City Manager turned that task over to the existing the Transportation Division, which mobilized the Pathways Steering Committee. This committee began its review process in November, by looking at the City's existing *Comprehensive Plan* (2015) as well as FAMPO's *Bike Share, Bicycle, & Pedestrian Study* (2017). It began to review background chapters in January, examined potential bicycle/pedestrian facilities in February, and began its public participation process in March.

Public Participation

The Pathways Steering Committee consisted of City staff as well as several citizens. The City built on this close citizen participation with a series of public meetings. The Committee hosted a public forum on March 29 at the Dorothy Hart Community Center. Draft plans and maps were available for citizens to examine and mark-up with comments and ideas. Five members of the Pathways Committee were in attendance, to answer questions and discuss various aspects of the plan with another 18 members of the public.

During April and May, staff received input from neighborhood groups and individual citizens who called or e-mailed. The Planning Commission received an advance copy of the draft Plan in May and held its public hearing on June 13. There were no speakers, but the Department of Parks, Recreation & Events submitted a list of park access improvements that needed formal attention in the Plan. This list became a part of Appendix F.

City Council held its public hearing on July 10, 2018 and adopted the Plan on a unanimous vote.

Part 2: Comprehensive Bicycle and Pedestrian Planning

Cities do not function well without several modes of transportation. Places that have built expressways into and through their downtown communities have learned an expensive lesson – ***that roadways alone do not revitalize central business districts***. Urban centers thrive on a variety of transportation modes to serve all citizens, a mix of commercial uses that draw customers, and appropriate residential densities that provide even more customers. Local commercial interests as well as healthy numbers of residents should also be seen as community caretakers. It is their community. Active places are inevitably focused on people.

Vibrant urban communities accommodate a diversity of human purposes and place due emphasis on the entire population, not just those who drive automobiles. There is no single action, however, that will provide an attractive, well-functioning place that also meets bicycling and pedestrian needs. Instead, it takes patience and perseverance, through many individual steps, over the course of many years, to build and maintain a pedestrian, transit, and cycling network that functions safely within the community's roads and rail infrastructure.

At one point, Fredericksburg established one-way pairs of streets across its historic downtown to address modern vehicular needs in a community laid out in the eighteenth century. That action did not abandon its urban core to traffic, though. The City maintained a commercial downtown zoning that fully supported a strong central business district and the one-way pairs have facilitated on-street deliveries for growing businesses, where alleys and loading zones have been lacking or insufficient. The downtown street grid with sidewalks along both sides of every block already provides an exceptional pedestrian network. Next steps are to expand pedestrian access to other parts of the City as well as to add bicycle ways.

Planning for Bicycle/Pedestrian Activity

Several factors make a community accessible to cyclists and pedestrians. They are a combination of urban design considerations, transportation planning elements, as well as land use provisions. The importance of including pedestrians in overall urban planning cannot be overestimated. The Virginia Department of Transportation has carefully studied pedestrian injuries and fatalities and have found that the overwhelming number of pedestrian injuries occur where the provisions for pedestrian travel, such as sidewalks and crosswalks, are either inadequate or non-existent.

The goal then is to provide appropriate facilities as well as make sure cyclists and pedestrians are visible to drivers. To ensure that Fredericksburg continues to develop as a community friendly to walking and cycling, it is necessary to pursue two strategies. First, multi-use infrastructure needs to be accommodated during new roadway development or existing

roadway improvements. This task has been successfully pursued on Cowan Boulevard and Fall Hill Avenue. Similar plans are in place for Gateway and Lafayette Boulevards. In addition, every bus operated by FREDericksburg Regional Transit has bicycle racks and these are surprisingly well-used. Second, existing places with a current emphasis on motorized transportation will be retrofitted, as feasible, to improve the bicycle/pedestrian environment. This latter task may appear overwhelming, but can be accomplished in stages, as opportunity and funding allows.

Planning Goals and Objectives

No single accomplishment ensures success, but the following principles of bicycle/pedestrian planning provide for an approach to the physical changes in the City that acknowledges travel of all kinds. It is the cumulative effect of careful decisions that help to achieve these goals.

Planning Goal 1: Design a Pedestrian-Friendly Environment

A pedestrian-friendly environment includes continuous sidewalks and safe, multi-modal connections to local destinations. Such facilities should also be pleasant to use. Pedestrians should also be protected from moving traffic by a variety of barriers, such as on-street parking, curbs, as well as street trees. A tree canopy also provides welcome shade. Transit stops should be safe and readily accessible. Adhering to the following objectives will help to establish Fredericksburg as a pedestrian-friendly community.

Objectives:

- Provide non-motorized access and coordinated transportation links to and between neighborhoods, commercial areas, schools, recreational opportunities, and work places.
- Locate bus stops close to the front doors of commercial and government buildings, rather than at the far edge of parking lots.
- Ensure streets have pedestrian crossings at bus stops.
- Ensure bus stops have shelters, benches, and readily-understood transit information.
- Provide safe crosswalks at intersections, through proper striping and pedestrian signals.
- Construct overpasses over selected routes, where they can provide a safe travel across heavily travelled roadways.
- Ensure sidewalks are paired with utility strips, to ensure trees can be planted adjacent to bicycle/pedestrian travelways.
- Provide shade trees along all streets with sidewalks.
- Ensure all applicable accommodations are made for persons with disabilities.
- Provide a clear wayfinding system to ensure pedestrians and cyclists can readily know where they are and how to get where they want to go.

Planning Goal 2: Ensure Bicycle/Pedestrian Connections

On average, commuting to work represents approximately 20 percent of all household trips. The other 80 percent of trips include travel to daycare, school, shopping, errands, and recreation. Local destinations that can be reached by walking or cycling provide residents with a choice of whether to drive or not. The following objectives help to increase the transportation choices available to residents and visitors.

Objectives:

- Provide a coordinated system of bicycle/pedestrian trails throughout the community.
- Locate bicycle and pedestrian routes along streets, as much as possible, rather than through parking lots or in the rear of residential areas.
- Link bicycle and pedestrian routes to local destinations and building entrances. Where street connections are limited by topography, provide bicycle/pedestrian connections as feasible.
- Connect bicycle and pedestrian routes to bus stops.
- Provide bicycle racks at destinations.
- Ensure bicycle and pedestrian routes are easily followed, through unified paving textures, street trees, street furniture, and a comprehensive wayfinding system.

Planning Goal 3: Provide Interconnected and Safe Streets

Interconnected streets are well-suited for cycling and walking. They provide convenient and direct routes, in marked contrast to the circuitous roads often found in contemporary suburban subdivisions. Interconnected streets also provide multiple routes to local destinations. The immediate impacts are that no single street gets overloaded with traffic and vehicles move at slower speeds through intersections, which is more conducive to pedestrian safety. A cohesive street grid provides for an interconnected community, while individual street design has impacts on driver and pedestrian safety. The concept of safe and accessible travelways for all people, regardless of age, ability, income, or mode of travel is known as Complete Streets. Complete Streets make walking and cycling convenient and safe. Care must be taken, however, to ensure Complete Streets are not undone by the notion that every City street must be wide enough for fire-fighting equipment to be set up within the curb lines. City streets certainly need to accommodate emergency vehicles, but the actual set-up that includes setting out stabilizing legs can extend beyond curbs, as needed. It is more cost-effective to make repairs resulting from emergency responses than to build and maintain excessively wide streets. The following development objectives help to achieve these ends.

Objectives:

- Ensure a hierarchy of streets, to ensure connections to local destinations while protecting neighborhoods from through-traffic.

- Avoid developing dead end streets (euphemistically called cul-de-sacs) that hinder pedestrian circulation and hinder provision of bus service in a neighborhood.
- Avoid over-designed neighborhood streets that promote excessive automobile speeds and threaten pedestrian safety. It is acceptable for fire-fighting equipment stabilization legs to extend beyond curbs in an emergency, rather than for every City street to be wide enough to set up large fire-fighting equipment within curb lines.
- Implement traffic calming improvements where connector streets pass through neighborhoods.
- Encourage on-street parking to buffer bicycle/pedestrians from moving traffic.
- Design intersections with minimum widths, to slow traffic as well as reduce pedestrian crossing distances.
- Design local streets to enhance pedestrian safety, through minimized widths, turning radii, and design speeds.

Planning Goal 4: Develop/Redevelop with Appropriate Densities and Mixed Uses

Concentrated activities within a well-planned street pattern provides a pedestrian-oriented place, with strong economic potential. Such development does not displace vehicular traffic, but simply integrates it better into the built environment. The defining element of any built place is infrastructure and turning the concept of Complete Streets into a reality is an ongoing planning goal. The following planning objectives provide for automobile needs, but accommodate and invite cycling and walking.

Objectives:

- Implement reduced parking standards, where warranted by walkable environments and mixed uses.
- Design parking lots so they do not dominate street frontages, interrupt pedestrian routes, or negatively impact surrounding neighborhoods.
- Minimize building setbacks, to help establish bicycle/pedestrian-friendly streetscapes.
- Integrate parking structures into existing streetscapes.
- Provide for increased densities during redevelopment of existing commercial areas.
- Integrate existing uses into the growing bicycle/pedestrian network.

Planning Goal 5: Meet Bicycle Parking Needs

Bicycle parking helps to encourage bicycle use. Parking accommodations range from basic racks on a street corner to larger facilities such as secure bicycle storage lockers at the rail station. Bicycle parking can also be classified as both short-term and long-term. Short-term parking needs to provide two features – proximity to destinations and ease of use. Short-term users may be infrequent visitors to a location, so the parking facilities needs to be readily visible and

self-explanatory. Corrals for eight to twelve bicycles can be placed in an on-street parking space or on a sidewalk bulb-out.

Long-term parking serves employees, residents, and public transit users. These riders park at home or at routine destinations, such as the train station, and they seek security and weather protection. With sufficient use, a high-end parking facility could also offer a bicycle maintenance service. Long-term parking can be accommodated through a variety of strategies. Options include bicycles parked in a room within a residential building or workplace, in a secure enclosure within a parking garage, or a grouping of bicycle lockers. The following objectives are essential elements of bicycle parking.

Objectives:

- Support - A rack should provide two points of contact with the bicycle frame.
- Variety - The available parking space should not restrict the length, height, or width of bicycles, attachments, or wheels.
- Security – Bicycle racks should include a closed loop, to allow a single U-lock to capture one wheel and a closed section of the bicycle frame.
- Intuitive – First-time users should be able to recognize a rack as bicycle parking and should be able to use it as intended without written instructions.

Planning Goal 6: Maintain Public Support

- Provide for public participation whenever trails and trail connections are planned for implementation.

Identification of Users

There are many categories of pedestrians. There are hikers and power walkers, children without their parents, children with parents, and a growing elderly population. There are also cyclists of varying levels of ability. Finally, there are persons with impaired vision and/or hearing, as well as those with other physical or mental disabilities. All of these users need to be considered when designing pedestrian facilities.

Pedestrians

Pedestrians will generally be the largest group of trail and sidewalk users. They often walk or jog in pairs, so multi-use paths should allow for two pairs of people to pass one another. Hikers are capable of more challenging terrain and often prefer trail locations that are more isolated. In terms of age, young children generally require supervision because they have not yet developed adequate perceptions of speed and distance. Teenagers can exhibit poor judgment

and might have a sense of invulnerability. Adults are usually fully aware, but with diminishing reflexes as they grow older. Older people may suffer from loss of sight or hearing, move more slowly, and may not react quickly.

The Americans with Disabilities Act (ADA) requires that all new design, construction, and renovation projects be readily accessible to users with disabilities, except where it can be demonstrated that it is impractical, excessively difficult, or too expensive to meet the requirements of ADA design. Not all trails (particularly hiking trails) can be made fully accessible, but every effort should be made to provide ADA compliant multi-use facilities. One of the challenges in Fredericksburg is its surrounding hills, which makes certain trails and sidewalks non-compliant with ADA standards. Under these circumstances, the goal of full accessibility must be tempered with the realistic standard of wherever feasible.

Bicyclists

There are two primary goals in developing bicycle trails. The first is to accommodate current bicycle users. The second is to encourage an increase in their level of use by new cyclists. Both goals rely on enhanced safety, but experienced cyclists will have very different needs than novice riders. As a consequence, trails development needs to address various skill levels. To assist in this process, bicycle riders can be classified as follows:

Group A – Advanced Cyclists – Advanced riders are highly skilled and usually prefer roads to multi-use paths. They have experience operating a bicycle under most traffic conditions and are best served by improvements to the existing street system. They seek direct access to destinations with the opportunity to operate at maximum speeds and minimal delays. This group seeks sufficient operating space on the roadway, to reduce the need for either the cyclist or the motor vehicle driver to change position when passing.

Group B – Basic Bicyclist – Basic riders are casual cyclists who are not as confident as advanced riders in their ability to operate in traffic. Some will develop advanced skills, but there will always be a large number of basic bicyclists. They seek comfortable access to their destinations, as directly as possible. They will use streets with low traffic volumes, but where the bicycle route must share the right-of-way of arterial streets, with higher traffic volumes, this group prefers a well-defined separation between bicycles and motor vehicles.

Group C – Children – Children are defined as pre-teen riders whose cycling is initially monitored by parents, but who will eventually need independent access to the bicycle/pedestrian trail system. This group looks for ways to get to destinations in their neighborhoods. Like basic bicyclists, children prefer low volume/low speed streets, separate paths, and well-defined separations between bicycles and motor vehicles.

Standard bicycle trails planning combine user groups into two broad classes – Group A riders and Group B/C riders. Group A riders are best served by making most (if not all) streets bicycle-friendly, through wide curb lanes or shoulders that allow cyclists to share the road with motor vehicles. Fast-riding Group A cyclists cannot be accommodated on crowded multi-use trails, so making on-street improvements is imperative. Group B/C riders are served by designated bicycle facilities on key travel corridors, such as multi-use trails, neighborhood streets (with traffic calming features), and roadways where the designated facilities can be carefully separated from vehicular traffic.

This two-tiered approach provides for every street where cycles are permitted to have at least the design treatments recommended for Group A riders. A network of selected routes will be enhanced by incorporating the type of designated facilities recommended for Group B/C riders.

Other Users

Safe travel routes invariably attract other types of wheeled conveyances, such as scooters and skateboards. These human powered devices are readily absorbed into the multi-use trail system. Motorized conveyances, other than wheelchairs, are not appropriate on trails.

Location and Design

The nature of the built environment determines how readily accessible it will be to pedestrians and bicyclists. Specific factors include the proximity of destinations, the densities and mix of uses sufficient to support transit as well local commercial activity, and convenient links to other modes of transportation, such as trains and buses. If sidewalks, bicycle routes, and crosswalks are going to be used, they also have to provide an acceptable level of security, comfort, and interest.

General Design

Trails provide one component of an interrelated system of transportation and recreation facilities. Their design needs to deliberately provide a high level of cohesiveness. The pathways system in general, should meet the goals and objectives outlined in Chapter 4. In addition, each trail should be designed according to the following guidelines:

- For multi-use trails, adhere to the bicycle/pedestrian facility design standards and safety requirements recommended by the American Association of State Highway Transportation Officials (AASHTO) recognizing that natural conditions and site specific limitations will entail their practical application.
- For all trails, respect environmental conditions in facility design.

- Ensure connectivity with other facilities and destinations.
- Protect natural and historic areas identified in local plans.
- Invite trail use by maintaining a good tree cover to the fullest extent possible.
- Maintain a focus on the end users.

Access by Persons with Disabilities

The Americans with Disabilities Act (ADA) Accessibility Guidelines apply to newly built or altered structures, including trails. While many nature trails will be exempt from ADA requirements, multi-use paths should be designed to be accessible to mobility impaired users to the fullest extent feasible, to include the use of motorized wheelchairs.

Bicycle Facility Design

Bicycle facilities range from pathways that can be used by both cyclists and pedestrians to on-road facilities for cyclists only.

Shared-Use, or Multi-Use Trails – Shared-use/multi-use trails are capable of being used simultaneously by both pedestrians and cyclists. They allow for safe movements free from motorized vehicles. Such facilities can also be made accessible, to the fullest extent possible, to persons with disabilities. Grade separations provide the greatest degree of safety at major intersections, but all at-grade intersections will require appropriate signs, signals, and crosswalks.

On-Road Facilities – On-road bicycle facilities provide direct connections within the framework of an existing roadway system. They consist of bicycle lanes as well as other types of marked bicycle routes, and their availability is determined primarily by the existing right-of-way and the roadway's traffic pattern.

- **Shared roadways** are used when there is insufficient right-of-way for any type of separate bicycle lane. They are designated by a standard symbol in the roadway called a Sharrow, a derivation of shared-use arrow. The cyclists who share this road must follow the direction of vehicular traffic.

- **Bicycle lanes** are also one-way facilities, although in lanes separate from vehicular traffic, as indicated by on-road markings. Bicycle traffic in bicycle lanes moves in the same direction as, and adjacent to the vehicular traffic.

- **Cycle tracks** are also separate bicycle paths within an existing street right-of-way and distinct from sidewalks. Unlike bicycle lanes, they are separated by a barrier from vehicular traffic, which could be a lane dedicated to parking or some other physical feature that puts the cycle track adjacent to the curb or edge of the road. A two-way cycle track, separated from the vehicle lanes, is an acceptable two-way bicycle route on a one-way street.

- **Bicycle boulevards** are bicycle routes on streets that have a relatively low volume of vehicular traffic, which allows the bicycles to have some level of travel priority. Bicycle boulevards are also distinct and separate from sidewalks. These types of facilities are designated by signs and pavement markings and may also incorporate vehicle speed/volume management (traffic calming) to discourage cut through traffic.

Pedestrian Facility Design

Walkways provide travel routes in the public right-of-way for people travelling on foot. Sidewalks are basic infrastructure in urban areas and have very specific design features to make them safe and comfortable to use.

Sidewalks or Walkways – Hard surfaced sidewalks/walkways provide pedestrian access for all types of foot traffic. Their width is fairly standardized, but their construction should be coordinated with the needs of trees that are present or will be planted, to ensure pavement does not preclude the viability of street trees.

Crosswalks – Marked crossings indicate the preferred location for pedestrians to cross a street. They will include curb ramps for wheelchairs, strollers, handcarts, and bicycles. Street markings are standardized so motorists know when and where to yield to pedestrians. In certain

corridors, crosswalk distances will be reduced through expanded sidewalks, called bulb-outs, which also have a traffic calming influence.

Transit Stops – Most pedestrians and cyclists will not be able to access all of their desired destinations by bicycle/pedestrian facilities alone. Conveniently located transit stops (for both bus and rail) will need to provide other modal links. Bus stops and rail facilities need to be visible and accessible. The bicycle and pedestrian networks are integral components of the public transportation system.

Overpasses/Underpasses – Bridges and tunnels provide a complete separation of bicycle/pedestrian routes and vehicular traffic. They become expensive when they must use elevators and/or extensive ramping, but are important features where bicycle/pedestrian trails must cross highways, high speed/high volume arterial roadways, or railroad tracks.

Roadway/Intersection Design

Cyclists and pedestrians are influenced by traffic volumes and vehicle speeds, but streets must still serve multiple functions. They provide for public access to destinations, as well as rights-of-way for many utilities (both above and below ground). In addition to simply providing surface transportation, streets also help to define the community's sense of place. They provide a setting for activities and celebrations (parades, races, special events). Tree-lined streets are also places where neighbors simply stop to chat. Streets are thus part of the City's social fabric. The challenge of meeting all these needs is through due attention to user safety.

The techniques for making streets safer for cyclists and pedestrians can also enhance the safety of vehicular traffic. The most obvious safety-related design is to separate travel modes through sidewalks, and various types of bicycle routes. The other strategy is to slow down traffic in general. Roundabouts, for example, reduce traffic speeds, allowing bicycle and pedestrian routes to be introduced. Slower speeds are also not necessarily detrimental to vehicular traffic needs because roundabouts can also eliminate the need for left turn movements, allowing traffic to keep moving, which avoids the queuing that occurs at traditional traffic signals. These physical features on roadways function to calm the flow of traffic.

Traffic Calming

Traffic calming is achieved through a variety of street design features that change a driver's perception of the travel route. The intent is to reduce vehicle speeds, to increase bicycle and pedestrian safety. The range of measures used to calm vehicular traffic are derived from a few basic principles. Strategies include narrowing the street, deflecting the vehicle path, incorporating raised devices, and adding complimentary effects through gateway features and landscaping.

Some residential streets in Fredericksburg are long, wide, and smooth – design characteristics that invite speed. These efficient roads are posted for slower speeds, but their design still encourages higher speeds (whether deliberately or simply inadvertently). Traffic calming makes the street less efficient, to restore the neighborhood quality of residential areas. Because traffic calming features are incorporated into the road design, they become self-enforcing, and the result is effective reduction of cut-through traffic and speeding in residential areas.

There are a series of principles applicable to implementing traffic calming measures, as follows:

- In terms of safety, vehicle speed is more critical than traffic volume and should be addressed first.
- Traffic calming measures should be implemented with neighborhood input.
- Traffic calming devices should visually enhance the existing street.
- Traffic calming devices should be predictable and easy to understand.
- Devices that meet multiple goals will gain greater acceptance. A raised crosswalk has a clear, understandable goal. In comparison, a speed bump is always a nuisance.
- Devices must accommodate emergency vehicles.
- A series of individual treatments are more effective when properly spaced (300-500 feet apart).
- Under-designed traffic calming devices will fail.
- Traffic calming measures should accommodate bicyclists and improve pedestrian conditions.
- Traffic calming is meant to encourage the use of fast moving arterial routes. If a measure is likely to divert traffic to another local street, a wider application needs to be considered so the problem is not shifted from one part of a neighborhood to another.

A fuller discussion of traffic calming techniques is contained in Appendix B.

Natural-Surface, Off-Road Trails

Fredericksburg includes a significant amount of land that consists of wetlands, floodplains, steep slopes, and other types of sensitive natural areas. Multi-use trails and dedicated bicycle routes will avoid these types of places. Those natural areas, however, can be made accessible with properly constructed pathways. Natural-surface trails can be located in many different types of natural environments, as long as their surface is kept pervious and the trail alignment conforms to the existing terrain. The overriding goal is to provide for the enjoyment of such resources, without causing erosion and without creating natural surface pathways that remain muddy long after the surrounding terrain has dried out after a rain. As appropriate, stream banks may need to be shored up and culverts installed, following primitive trail construction standards. Such guidance is contained in: *The Rappahannock River Recreational Access Guide: Planning Environmentally Low-Impact Recreational Access on Riparian Lands* (Friends of the Rappahannock, 2007).

A local mountain bike organization called Fred Trails has built extensive routes in natural areas that are a model of sustainable trail development. This group conscientiously follows the sustainable trail principles noted below:

- Avoid flat areas where the trail becomes the low point and thus collects water and remains muddy longer.
- Build on the contour and use frequent grade reversals.
- Follow the half rule – a trail's grade should not exceed half the grade of the sideslope.
- Do not exceed 15 percent grade. Average grade should stay under 10 percent.
- Route trails to positive control points – views, water features, and other attractions.
- Use bench-cut construction, and excavate soil from hillside.
- When re-routing trails, reclaim old route thoroughly (to avoid multiple routes on the landscape)

There is also a significant amount of trail construction guidance available on the internet and in libraries.

No Trails Planned on Upriver Riparian Lands

Construction of natural-surface trails will not extend farther west than the Motts Run Reservoir Recreation Area. Extensive mountain bike trails have been established in the natural areas between Fall Hill Avenue and the Rappahannock River, but no plans are in place to extend riverside trails beyond the Motts Run Reservoir. Much of the City's riparian lands further upstream consist of steep slopes, with limited areas adjacent to the river for trails. The more buildable uplands, typically remain in private ownership. The City has studied the potential for a trail along the Rappahannock River, but the topographic limitations are inhospitable to that effort. As a consequence, the river corridor continues to function primarily as a water trail.

The Fredericksburg Watershed Property Management Plan (January 2011) notes the presence of a variety of trails on City-owned riparian property. These pathways typically cross the property from the uplands to specific river locations, for camping, launching watercraft, and/or fishing. Most of the damage done by ATVs has been halted, that illegal activity curtailed by effective watershed patrolling. The damaged landscape has quickly reverted back to nature.

Natural Area Protection

Fredericksburg is an urbanized area, but retains considerable open space. Many of these natural areas are established parks, but others are multi-use trail corridors. The Virginia Central Railway Trail, for instance, courses through the Hazel Run valley. A well-established foot trail provides a quiet route along a section of Smith Run. The Rappahannock River Heritage Trail and the Canal Park Trail run alongside both natural and manmade waterways.

In addition to prominent streams, Fredericksburg is characterized by its surrounding hills, and its built environment occupies a series of natural terraces. The historic downtown, for instance, extends from flood-prone Sophia Street to the flood-free high ground of Princess Anne Street and beyond, until the land drops off at the Kenmore valley.

Beyond the low-lying Kenmore drainage, the land rises again, in a series of hills that surround the river town. This prominent terrain was once owned by landed gentry, but is now mostly held by institutions, such as the National Park Service, the University of Mary Washington, and Mary Washington Hospital.

Within these hills are many natural drainages, where rainwater accumulates to cut through the land. Such natural features have important ecological functions, but they are also fragile resources, previously subjected to excessive amounts stormwater runoff, which has caused severe erosion and other damage. Today, better regulation and an integrated strategy better protects the integrity of the City's many ravines, allowing them to handle their multiple uses.

Aside from their natural functions, ravines also provided avenues of travel. Today's Fall Hill Avenue, State Route 3, and Lafayette Boulevard follow routes that connected Fredericksburg with the rest of the world in its earliest days. Many of the City's smaller ravines can be similarly adapted to provide recreational opportunities, through connecting natural-surface trails. Such connections, however, need to be properly constructed and maintained, as specified in this Plan. The concept of protecting as well as using ravines for recreation will require coordinated attention. This task can be handled through a strategy to protect, invest, connect, and celebrate, as follows:

Protect – Ravines and steep slopes are natural spaces that absorb and channel runoff. Their ecological function and capacity must be respected to ensure their long-term sustainability. In years past, stormwater outfalls were directed into ravines, without proper regard for subsequent ecological damage. Contemporary stormwater regulations recognize that the quantity of stormwater, as well as its quality, must be properly addressed during land development. Public policy is meant to ensure that the ecological integrity of receiving streams is protected, rather than letting them become overwhelmed and impaired.

Invest – Managing the multiple pressures on ravines – from increased recreational use, weather events, and invasive species – requires consistent and sometimes substantial ongoing investment. Periodic inspections of the City's streams, especially ones that receive stormwater runoff, should be undertaken to ensure that any developing damage can be identified, evaluated, and properly addressed. The alternative is having to address substantial cumulative damage that will require significantly greater funding to repair.

Connect – Fredericksburg's ravines, steep slopes, and other natural spaces provide great opportunities for people to connect with nature as well as to understand certain historic events. In addition, trails become links between certain destinations and should be established to allow physical connections as well. Individuals and organizations are often interested in

becoming involved in the care and monitoring of specific areas. Partnerships have the potential to provide yet another type of connection.

Celebrate – The City's ravines, steep slopes, and other natural areas are defining features of Fredericksburg's historic and environmental character. These places should be recognized and respected for the magnificent natural system they are, as well as for their historic associations.

Part 3: Existing Conditions

A bicycle/pedestrian network is intended to connect citizens to jobs, schools, activity centers, as well as recreational opportunities. In that regard, the community's existing conditions present both challenges as well as opportunities.

Physical Setting

The City of Fredericksburg comprises an area of 10 square miles. Within that space is a range of topographical conditions and a growing population, but also a demonstrated desire for recreational facilities as well as a transportation network that accommodates non-motorized travel.

Topography

Fredericksburg is located at the falls of the Rappahannock River. In this geologic transition zone, the southern portion of the City is characterized by the gentle terrain of the Coastal Plain, while the rolling hills and upland plateaus in the northern and western portions of the City are more indicative of the Piedmont Region. The challenge in developing the Fredericksburg pathways system is to link these different elevations with easily travelled bicycle/pedestrian routes.

Demographics

Fredericksburg is situated on the southern edge of the Washington D.C. Metropolitan Area, along the heavily travelled Interstate-95. As a consequence, regional growth is rapid. The City's population exceeds 25,000 people, and is projected to grow to 30,000 people by the year 2040. By then, the regional population is projected to exceed 700,000 people, of which the City population will be slightly more than 4 percent.

Demand

Every five years, the Commonwealth of Virginia examines the state's recreational needs and develops an ambitious Virginia Outdoors Plan. This work is preceded by an Outdoors Demand Survey, which provides excellent data on citizen desires and needs. The latest survey was conducted in 2017 and provides relevant information on the public's attitude towards trails development. The City seeks to ensure that bicycle/pedestrian facilities provide the basic infrastructure for non-motorized travel, but the vast majority of Survey respondents (88

percent) indicate they like to use trails for pleasure and relaxation. A comprehensive trails network thus appears to serve two important, and mutually supportive functions. Over half of the Survey respondents also considered trails to be close-to-home if they could be reached within a 5 to 15 minute walk, with most favoring a ten-minute walk standard. The many trails and connecting links in this Plan will help to achieve this accessibility standard throughout the City.

Gaps Analysis

In 2012-2013, the City assessed walking conditions throughout Fredericksburg. This task confirmed that while certain parts of Fredericksburg are rather well connected, there are significant gaps in the available bicycle and pedestrian networks. That analysis also identified a series of safety issues that need attention. The 2017 FAMPO study further evaluated the existing bicycle/pedestrian infrastructure for deficiencies and identified a range of projects that would address the identified problem areas. The Pathways Steering Committee examined overall bicycle/pedestrian access and used the available data in the update of this plan.

Existing Bicycle/Pedestrian Infrastructure

Fredericksburg has a growing network of multi-use trails that have begun to link outlying parts of the City to its downtown core. Many connecting links have yet to be established, but the following table and map show the growing framework of bicycle/pedestrian routes.

Table 3 – 1: Existing Multi-Use Trails.

Name	Endpoints	Length	Bridges	Comments
Canal Path	Princess Anne St. to Fall Hill Ave.	1.6 miles	2 at Fall Hill Ave.; I each at Normandy Village, Virginia Ave. & Canal St.	Passes under Fall Hill Ave.
Cowan Boulevard	U.S. Route 1 to Carl D. Silver Blvd.	1.75 miles	Over I-95	Signalized crossing at U.S. Route 1
Rappahannock River Heritage Trail	Fall Hill Ave. to Princess Anne St.	1.7 miles	Over stream near FOR	Passes under Falmouth Bridge
Virginia Central Railway	Essex St. to Idlewild	2.7 miles	One boardwalk and two bridges over Hazel Run	Passes under Lafayette Blvd; Signals at B&G Pkwy and U.S. Route 1
Fall Hill Avenue	Canal to Gordon W. Shelton Blvd.	1.5 miles	Over I-95	
TOTAL		9.25 miles	9 footbridges; 2 hwy. bridges	

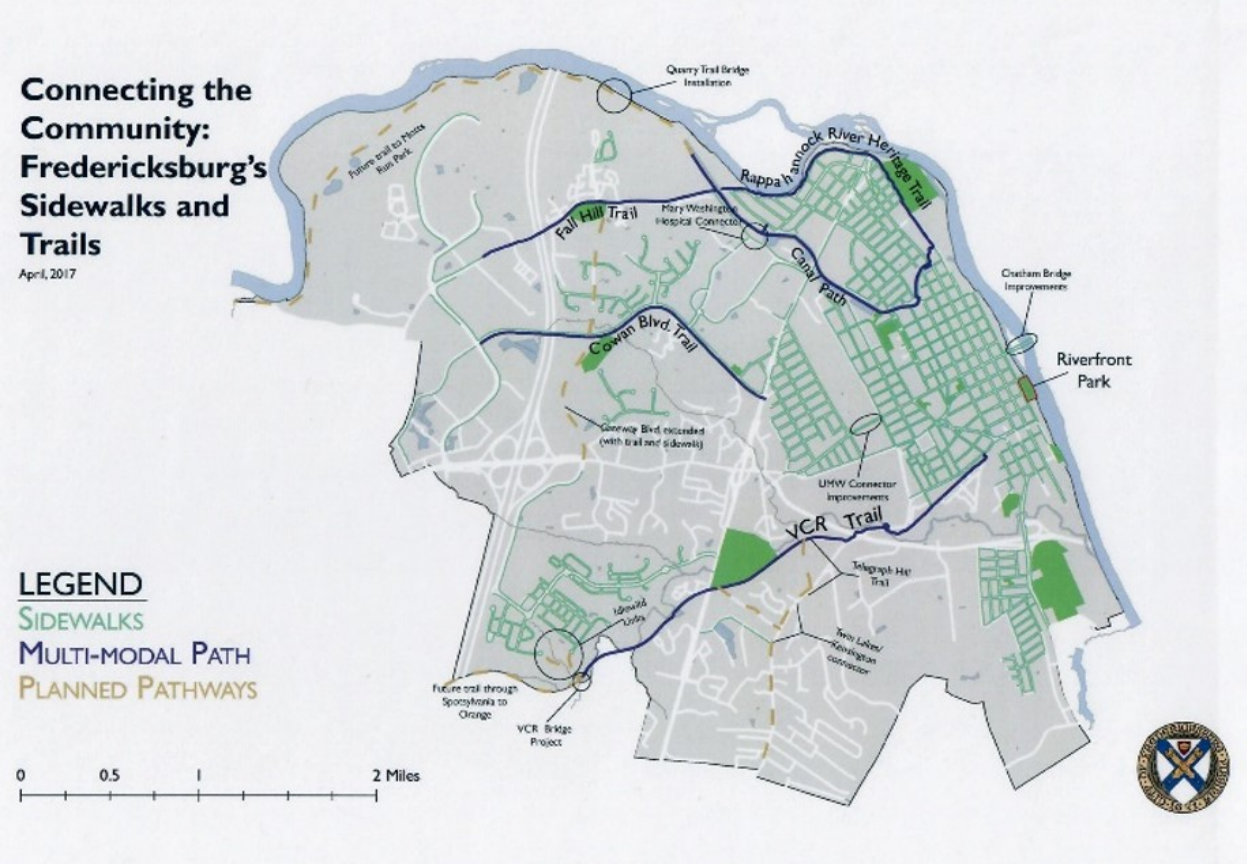


Figure 3-1. Fredericksburg's Sidewalks and Trails.

Accessibility

The City of Fredericksburg has a compact and walkable downtown that works well for getting around on foot. Getting around on bicycle is more challenging because there are substantial gaps in the available bicycle infrastructure. The 10-foot wide, multi-use trails are largely located on the periphery of the downtown community. On-street bicycle lanes are non-existent and there is no wayfinding system to guide cyclists (and pedestrians) between trails and downtown destinations. Pedestrians beyond the historic core of the community face challenges getting from their neighborhoods to the growing trail system.

Outside of downtown Fredericksburg, neighborhoods might have internal sidewalks, but are often without sufficient linkages to the larger trail network or to other destinations. Older neighborhoods as well as long sections of Lafayette Boulevard, U.S. Route 1, State Route 3/Plank Road lack any sidewalks, which results in significant breaks in the bicycle/pedestrian network. West of U.S. Route 1, it is nearly impossible to walk safely between adjacent neighborhoods. Poor connectivity in those areas discourages walking in general.

The challenge in providing connectivity is that different conditions will dictate varying solutions – not all of which will be comfortable to all users. As noted above, cyclists range from experienced riders, willing to share existing roadways with vehicular traffic, to less experienced riders who want more limited interactions with automobiles. When improving and developing bicycle/pedestrian infrastructure, the goal is to create an environment that the majority (less experienced) riders will be able to use.

Roads with slow traffic speeds and low volumes are more conducive to the introduction of cyclists. This potential for bicycle accommodations becomes more challenging as vehicle speeds and traffic volumes increase. Within the historic/downtown core, Fredericksburg is a place of easy walking and cycling. Main commercial corridors, such as Princess Anne Street, Caroline Street, William Street, and Amelia Street have higher traffic volumes and begin to challenge the provision of safe bicycle routes. The low stress network within Fredericksburg is also broken up by major roads that pose even greater barriers to safe bicycle/pedestrian travel. Major roads such as William Street/Plank Road, U.S. Route 1, and State Route 3 are real obstacles to creating a seamless, low-stress bicycle/pedestrian network.

Bicycle and Pedestrian Potential

Areas of the City with the highest population densities are also the ones with the highest demand for bicycle/pedestrian access. Improving bicycle/pedestrian facilities where people are already cycling and walking is logical and an obvious policy goal. It is also important, however, to find the linkages that will expand the opportunities for other parts of the City, to ensure all citizens have bicycle/pedestrian options.

Bicycle Racks

Bicycle racks enhance and encourage bicycle use. As a consequence, bicycle parking facilities are important components of active destinations. While additional bicycle parking remains an identified need, there are already many bicycle racks at several key locations. The most substantial network of bicycle racks is on the University of Mary Washington campus and the adjacent Eagle Village. The university campus is linear, extending for 10 blocks, without cross streets, and therefore an attractive place for bicycle travel. The next largest collection of bicycle racks is at City recreational destinations, such as Dixon Park, Alum Springs Park, the downtown headquarters of the Central Rappahannock Regional Library, Hurkamp Park, and Riverfront Park. Scattered around downtown are additional bicycle racks, configured for two and four bicycles. Every FREDericksburg Regional Transit bus also has the means to carry bicycles, providing critical connecting bicycle/transit links.

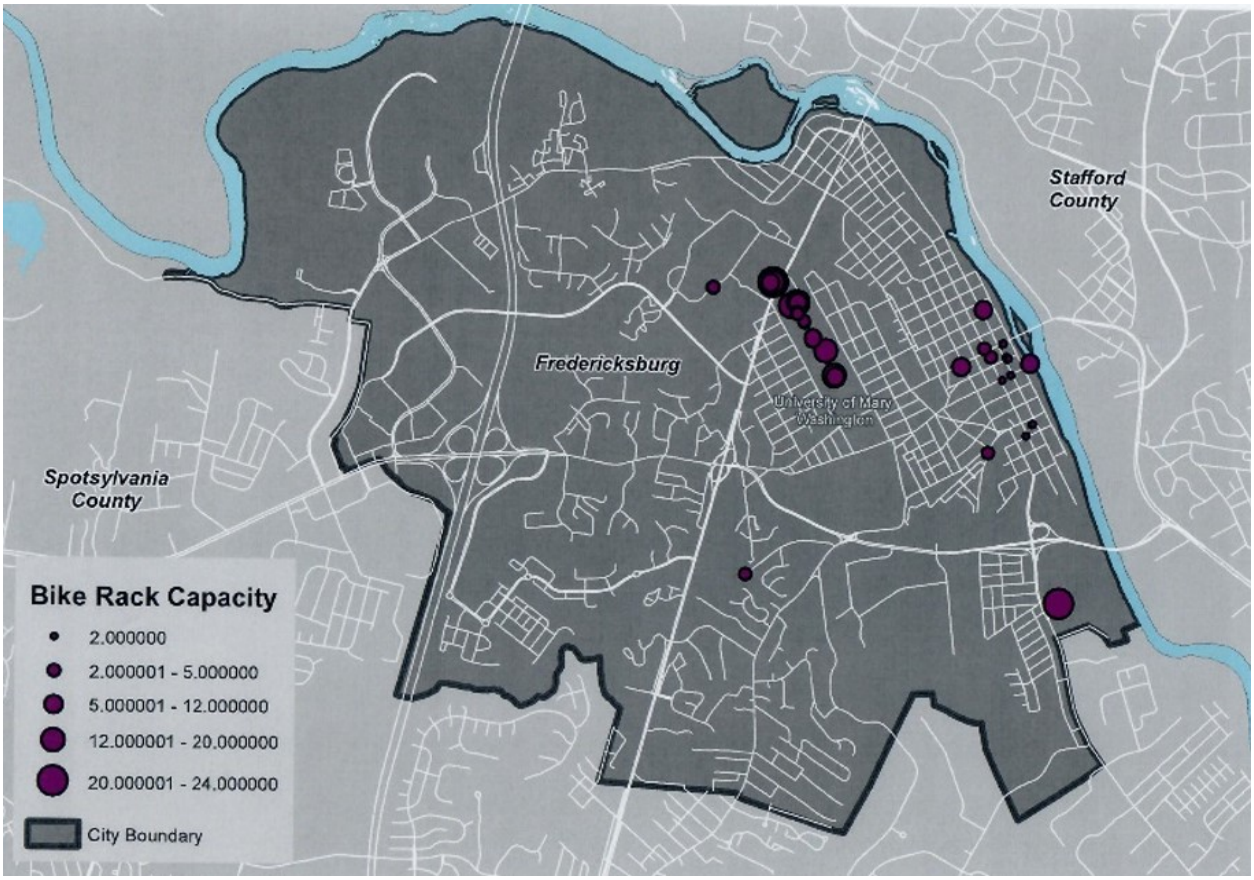


Figure 3-2. Bicycle Rack Distribution.

Constraints

Trail development requires attention to environmental and economic limitations. To avoid detrimental impacts to natural and historic resources, for instance, trail design and location requires attention to the location of wetlands, riparian zones, and historic and archaeological sites. The goal must be to ensure that access to natural and historic sites also includes their protection, through appropriate engineering that avoids adverse impacts.

Economic considerations also have a direct impact on trail use. Experience shows that cost-cutting is not conducive to a good trail system. Substandard trails resulting from neglect or inadequate design will simply not be used to their fullest potential. Further, poor trails do not generate public interest for a better system. It is better to wait until there are sufficient funds to build a trail correctly than to cut corners in construction or maintenance. Cutting corners can provide a short-term savings, but will result in costlier maintenance in the long-term.

Developing trails is also not as difficult as overcoming the barriers that prevent them from being linked together. Fredericksburg has always been a crossroads community and a usable

trails system needs to accommodate busy highways, safely negotiate heavily travelled roadways, and span numerous streams that routinely overflow their banks. Each barrier and intersection needs to have a crossing that is safe for both the vehicles as well as the trail users.

Recreational Trails in City Parks and Beyond

There are several parks in the City's inventory that have their own trails networks. Alum Springs Park, for example, has a great many natural surface pathways that branch off from the main parking area and from the VCR Trail. Dixon Park has a perimeter trail that is being enhanced with fitness stations. A new park to be established on Fall Hill will also have a trails network within what is supposed to remain a natural area. Many natural surface trails exist outside City parks, but within protected open space, such as within the Idlewild development and along Smith Run.

The Regional and National Trails Context

The City's network of multi-use trails has potential connections to both Spotsylvania and Stafford Counties. The historic Virginia Central Railway route, for instance, extends from Fredericksburg, through Spotsylvania County, to the Town of Orange, a distance of 30 miles. The eventual connection between the City's VCR Trail and Spotsylvania County will need to be through a tunnel under Interstate-95. Until such an ambitious link can be made, temporary connections between the jurisdictions can be considered along existing streets and bridges. Connections to Stafford County are more readily established on existing river bridges, at Falmouth and Chatham. The Virginia Department of Transportation has an active project to rehabilitate the Chatham Bridge and will establish a 10-foot wide bicycle/pedestrian lane on that facility when the bridge deck is rebuilt.

Stafford Trails

There are numerous trails in Stafford County and the one that links to Fredericksburg is Belmont-Ferry Farm Trail, which is planned to extend from Gari Melchers' Home and Studio at Belmont, in Falmouth, to George Washington's Boyhood Home, at Ferry Farm. The connecting links across the Rappahannock River occur at the Falmouth Bridge and the Chatham Bridge. The Chatham Bridge will soon be improved to include a dedicated bicycle/pedestrian lane, with construction starting in 2021. A similar facility is planned for the Falmouth Bridge, but funding has yet to be identified. A route for the East Coast Greenway has not yet been finalized.

Spotsylvania Trails

The Virginia Central Railway provided rail service between Fredericksburg and the Town of Orange. The tracks have been removed and much of the rail bed has the potential to be converted to a bicycle/pedestrian path. The VCR Trail within Fredericksburg extends to the Interstate-95 barrier. Long range plans call for a tunnel to be bored through the interstate embankment into Spotsylvania County, but there is not yet a similar trail facility with which to connect. The County has converted several sections of the VCR railbed to multi-use pathways, and is exploring alternative routes where the historic railbed is no longer available for such purposes. Spotsylvania County is also seeking to coordinate the route of the East Coast Greenway through their jurisdiction.

East Coast Greenway

The East Coast Greenway (ECG) is the urban alternative to the Appalachian Trail. The East Coast Greenway Alliance (of which the City of Fredericksburg is a member) is working toward a 3,000 mile route from Canada to the Caribbean. The Alliance works through state committees to partner with national, state, and local organizations, agencies, and governments to establish a 12-foot wide trail on its own alignment, although narrower (8 to 10-feet) is acceptable, and on-street facilities can be used to close gaps until a dedicated route is feasible. In Virginia, a 299-mile route is planned from Alexandria to North Carolina, and already includes the Mount Vernon Trail, a section of the City's VCR Trail, and other trails near Richmond. From Richmond, an alternative 139-mile coastal route is planned, and already includes the Virginia Capital Trail (Richmond to Williamsburg) and the Dismal Swamp Canal Trail. The Chatham Bridge rehabilitation project is the designated ECG route across the Rappahannock River. The link to Spotsylvania County will extend down Dixon Street (Route 2/17). The long term goal for the East Coast Greenway is to have a travel route that is an off-road facility for its entire length. A 12-foot trail width is preferred, but narrower pathways (8 to 10-feet) is acceptable.

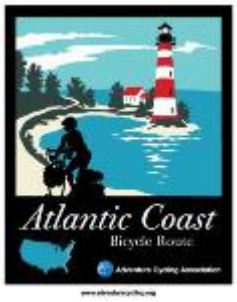
Potomac Heritage National Scenic Trail

The Potomac Heritage National Scenic Trail (PHT) is a network of pathways and waterways that celebrate the natural and cultural history of the lands between the Chesapeake Bay and the Allegheny Highlands. The overall network is loosely administered by the National Park Service, but individual components comprise 710 miles of existing and planned trails managed by federal, state, and local entities. Within the City of Fredericksburg, the PHT directs visitors to sites associated with George Washington.

U.S. Bicycle Route System

Bicycle routes have also been established on existing roadways for experienced cyclists. These national facilities are part of the U.S. Bicycle Route System and include more than 40,000 miles of trails. The Atlantic Coast Route extends from Bar Harbor, Maine to Key West, Florida, essentially following U.S. Route 1, which passes through Fredericksburg. A transcontinental route extends from Yorktown, Virginia to Astoria, Oregon. It passes through Ashland, Virginia. There are many riders who travel the Atlantic Coast Route, through Fredericksburg, to get on the TransAmerica Route at Ashland. As a consequence of this national cycling activity, there are opportunities for the City to provide selected services that invite overnight stays or longer.

Long range cyclists look for a variety of services. Bicycle repair facilities, for instance, can be important resources. Other services include overnight accommodations, whether a convenient campground, a hotel or motel, or even staying with other cyclists in a network called WarmShowers.



Part 4: Maintenance and Promotion

Pathways as Community Assets

Fredericksburg is engaged in providing bicycle/pedestrian access throughout the community, but like any transportation system, the overall network requires concerted maintenance to remain attractive and functional. Its components have necessarily been developed as opportunity and funding allowed, so a maintenance program can be developed to address the wear and tear of the various facilities on a rotating basis. The whole network does not need to be addressed as a single overwhelming task. Instead, a cycle of maintenance can be established that keeps the system in good repair within reasonable budgetary limits.

There is also a need to introduce certain support features to the trail system. Properly maintained restrooms, provision of bicycle parking facilities, and readily available trails information are strong indicators of the City's regard for those who choose to use the trails system. This basic attention to user needs can help to generate and maintain community ownership and respect for the trails network.

Maintenance Goals and Objectives

The following goals and objectives provide a basis for public and private investments that will help to maintain the Fredericksburg Pathway System.

GOAL 1: Maintain Established Trails in Good Repair

Objectives:

1. Ensure a periodic maintenance program is established for each trail section (the facility on the ground) and for each trail link (bridges and road crossings).
2. Systematically assess the physical and structural condition of bicycle/pedestrian facilities and ensure any required maintenance is accomplished in a timely manner.
3. Ensure conformity with accessibility standards as they evolve.
4. Monitor bicycle parking facilities at destination points for adequacy and condition.
5. Monitor the need for additional benches, signs, and safety features.
6. Monitor existing signs, bollards, benches, and trash receptacles for vandalism and other damage.
7. Provide trash receptacles at appropriate locations that can be administered efficiently. Avoid placing receptacles in remote areas where they cannot be serviced on a daily basis, including weekends.

8. Remove encroaching vegetation and tree roots that can damage trails.
9. Maintain grass borders and trim designated slopes and banks.
10. Assess and mitigate erosion problems in a timely manner.
11. Encourage community participation in pathways maintenance and cleanliness.
12. Ensure trails are kept free of unauthorized signs and uses.

GOAL 2: Promote Trail User Safety

Objectives:

1. Identify and eliminate operational hazards.
2. Monitor trees and limbs for unsafe conditions.
3. Ensure user safety where at-grade crossings occur.
4. Reduce bicycle/pedestrian conflicts with vehicles by removing at-grade crossings on multi-use trails, when feasible.
5. Document accident patterns to help determine appropriate safety improvements.
6. Work toward designing transportation infrastructure that makes it safe for all users.
7. Ensure safe and easy trails use, through adequate signage and trail surface markings.
8. Provide educational materials to ensure trail users know how various types of trails/bicycle routes function to ensure user safety.
9. Remove debris and any obstacles from trails following heavy weather.
10. Continue to evaluate policies and procedures that further enhance the safety of pathways users.
11. Provide sufficient benches and trail signage to serve all potential trail users.
12. Ensure opportunities for ongoing public input related to trail use.

GOAL 3: Provide for continuous improvement of trails and trails access

Objectives:

1. Ensure new development and new activity centers are designed to accommodate bicycle/pedestrian access in the most convenient manner possible.
2. Establish linkages between new development and the City's pathways system.
3. Ensure all new trail sections adhere to established trail specifications and that they incorporate established sign and pavement marking standards, to ensure individual parts of the system combine to become a cohesive whole.
4. Ensure trails have only minimal impacts on natural and historic resources.
5. Do not alter the terrain along existing or proposed trails without ensuring that the physical feature is not part of a battlefield landscape or some other cultural resource.

6. Remove invasive trees and other vegetation, and promote the growth of native trees and other species between trails and related vistas and viewsheds, following the concept of Save the Trees; Save the View.

GOAL 4: Promote and encourage use of the city trail system

Objectives:

1. Provide restroom facilities in suitable locations that meet all contemporary standards for accessibility and family needs (changing stations).
2. Provide information (maps, trail descriptions, destination choices) that is useful to both residents as well as visitors.
3. Develop educational/tourism opportunities through unobtrusive access to natural and cultural resource areas.
4. Ensure that organized events (races, charity walks, etc.) that use city trails do not degrade the experience of other users.
5. Maintain the scenic quality of trails by ensuring that only authorized benches, signs, and public art are placed within the trail rights-of-way.
6. Place fitness stations within established recreational parks, such as Old Mill Park, Dixon Park, etc., rather than along multi-use trails.
7. Provide camping areas, with shower facilities, to encourage long-range cyclists to stay overnight in Fredericksburg.

Viewsheds Management (Save the Trees; Save the View)

Many trails course through scenic areas where vistas can become obscured by vegetation. Vistas will be kept open through careful removal of invasive trees and vegetation and promotion of native species. This process will need to be undertaken in consultation with the City Arborist.

Maintaining attractive trails also requires attention to items placed within the rights-of-way. Special event promotion signs, for instance, are prohibited along the trails. Special event notices are accommodated at kiosks established at key locations. Similarly, wayside exhibit panels and benches are strategically placed to be useful, without being intrusive. Trail side amenities are not considered appropriate in more remote areas, where natural surface trails are more rustic in nature and historic resources are an integral part of the landscape. To maintain the natural settings and the delight in discovery of historic features, no wayside panels or benches are placed or proposed beyond the Embrey Dam site or on other natural surface trails.

Fitness stations are popular recreational amenities for many users, but these too can impact the trail setting. The City has allowed such equipment to be placed along trails in recreational settings, such as Dixon Park, rather than being scattered along riverside trails. The intent is to provide something for all users, but in the appropriate setting.

Restroom Facilities

The 2017 Virginia Outdoors Demand Survey shows that restrooms are extremely important to trail users. Fredericksburg provides public restrooms at its downtown Visitor Center, as well as in selected recreational areas. Table 4-1 shows existing restroom facilities. Table 4-2 shows additional locations where restrooms are being established. Table 4-3 identifies places where restrooms will be needed as trail activity grows and this list can certainly grow.

Table 4 – 1: Existing Public Restrooms.

Location	Area Served	Comments
Dixon Park	Dixon Park	Standard restrooms plus port-a-johns
Alum Springs Park	Alum Springs Park/VCR Trail	Non ADA compliant; Funds in FY2020 to replace
Old Mill Park	Old Mill Park/Rappahannock River Heritage Trail	
Visitor Center at 706 Caroline Street	Downtown	New facility, ADA compliant

Table 4 – 2: Public Restrooms Being Established.

Location	Area Served	Comments
Hurkamp Park	Hurkamp Park/Downtown	
Riverfront Park	Riverfront/Downtown	
Memorial Park	Kenmore Avenue facilities	

Table 4 – 3: Public Restrooms Needed.

Location	Area to be Served	Comments
Rappahannock Canal/Fall Hill Avenue	Canal Trail Fall Hill Avenue Trail River Heritage Trail	
Market Square	Downtown	City looking to establish restrooms in an existing building

There are many recreational facilities where Port-a-Johns are provided. These types of units provide very necessary facilities, but cannot be considered permanent. The City needs to evaluate the cost of renting and servicing Port-a-Johns, on a yearly basis, with the cost of providing and maintaining more permanent restrooms in key locations. Places such as the Dog Park, Motts Run Reservoir, and even Sunshine Park, need permanent restroom facilities.

Periodic Maintenance of Trails and Bridges

Roads are routinely repaved to ensure smooth vehicular travel, and sidewalks are also evaluated every few years for replacement of cracked/broken panels. As the multi-use trail network grows, it too needs to be brought into a periodic inspection and maintenance program. Appendix C lists all paved, multi-use pathways, including their year of construction and construction specifications. Appendix D lists all bridges associated with trail facilities and scheduled for periodic inspections.

Promotion, Orientation, and Wayfinding

As noted in Chapter 3, walking and biking rank high as preferred outdoor activities. Also demonstrably popular is visiting historic sites. The City's growing network of multi-use trails has drawn many local users, and off-road trails are already attracting numerous visitors to Fredericksburg. The City's trails provide a strong basis for marketing and to both local residents as well as additional out-of-town visitors who want cycling opportunities as well as access to historic sites.

Bicycle/pedestrian facilities, well integrated into the community, provide a necessary framework for travel and recreation. There are related components, however, to promote and encourage use. These efforts ensure that the system becomes properly promoted to potential users/visitors, can be readily introduced to actual users/visitors, and made both compelling and user-friendly so users/visitors become increasingly engaged.

Promotion – Residents and potential visitors need detailed information to help them understand what is available, learn how to access the places that might interest them, appreciate what they see, and learn to respect the resources they will encounter.

Orientation – Complimentary visitor information needs to be available on both printed and digital media that welcomes user/visitor exploration of what the community has to offer. There are a great many potential audiences that can be targeted. A concierge-type visitor contact can provide specific recommendations that will suit each potential user/visitor.

Wayfinding – Wayfinding provides ways to help users/visitors understand their surroundings and to travel from place to place with confidence and anticipation. Wayfinding signs primarily

focus on welcoming information, identification of resources, point to point navigation, and location of destinations. More detailed wayfinding concepts and strategies are contained in Appendix G.

Part 5: The Trail System

Pathways System Overview

The Fredericksburg Pathways system is designed to provide non-motorized access throughout the City. Anticipated users include residents travelling to local destinations as well as visitors exploring historic and natural attractions.

The planned pathway system consists of the following components

- Multi-use/shared-use paths
- On-road bicycle facilities
- Natural and historic sites trails
- Trails within developments

The projects list below consists of multi-use trails, shared roadway projects, and some natural surface trails. Additional natural area trails are discussed in Appendix H.

Performance Measures

The following criteria has been developed to help evaluate and design individual components of the Fredericksburg Pathways system.

- **Connectivity** – A transportation system's connectivity is measured both by how it can be physically reached as well as by the destination opportunities within a given range (in both space and time). Physical access to the system will be determined by the potential to reach the facility by cycling or walking. Destination opportunities will be determined by the cycling/walking opportunities as well as reasonable access to public transit.
- **Accessibility** – Accessibility relates to the American with Disabilities Act (ADA). It is a construction standard that is applied when a facility is developed. There will be instances when full ADA compliance will not be feasible and these will be called out and justified, as they occur. The overall policy, however, is to meet ADA compliance standards to the greatest extent possible.
- **Directness** – Bicyclists and pedestrians want direct routes and will not use even the most elaborately built facility if it unreasonably increases their travel distance or time of travel. Directness is evaluated by comparing the facility to available alternatives and whether the facility is providing a transportation route or a recreational opportunity.
- **Continuity** – Bicycle/pedestrian facilities should have as few gaps as possible. Where gaps do exist, short-term accommodations may be necessary until a permanent solution can be achieved. A short-term solution will need to be identified as such.

- **Consistency** – Bicycle/pedestrian facilities should be relatively consistent in design within in any given corridor. Switching facility types can create confusion, so when different types of routes are needed to overcome physical constraints, clear directions/signs need to be provided as needed.
- **Route Attractiveness** – Users prefer facilities that are visually pleasing, well-maintained, and physically safe. Trails that meet these standards will be used more frequently and enhance their use.
- **Low Conflict** – The trails network should minimize conflicts between automobile traffic and cyclists/pedestrians. Sometimes it will be useful to reduce conflicts between cyclists and pedestrians. Conflicts are reduced through physical separation of different modes of travel, intersections that accommodate cyclists/pedestrians, and provision of adequate trail right-of-way.
- **Ease of Implementation** – Construction difficulties can be anticipated by the availability of right-of-way, the potential to be able to coordinate with other facilities, vehicle traffic patterns, and how readily various constraints (environmental, topographic, and fiscal) can be overcome.
- **Multi-modal Coordination** – The utility of various transportation modes is enhanced when they can be coordinated. Multi-modal connections are enhanced through such things as installation of decent bicycle racks at destinations (rather than those that are expediently inexpensive).
- **Multi-jurisdictional Coordination** – Fredericksburg area localities have identified connections between planned bicycle/pedestrian facilities and specified these in regional planning documents.
- **Safety and Security** – Trail users need to feel safe. This emphasis on safety includes not only appropriate facility design, but the provision of user education and effective law enforcement.

Mapping Features

Individual project maps show trail alignments in specific colors, depending on type of facility.

Red	Multi-use trails on their own alignment, even if adjacent to a roadway
Blue	Sidewalks
Yellow	On-street facilities

Projects

Table 5-1 identifies planned projects that are within the City, although not in any order of priority. Table 5-2 lists regional projects, including those for FREDericksburg Regional Transit.

Table 5 – 1: Local Projects.

Project	Description	Status	Page No.
Virginia Central Railway (VCR) Trail Bridge	80-foot bridge across Hazel Run, to extend VCR Trail to west city limit	Funded by Smart Scale. Work to be completed in 2018.	44
Kensington Connector	10-foot wide trail on west side of Lafayette Blvd., from Twin Lakes Dr. to St. Paul St.	Funded by Smart Scale (FY 2019-2023)	46
Telegraph Hill Connector	10-foot wide trail on west side of Lafayette Blvd., from St. Paul St. to the VCR Trail	Proffered by Telegraph Hill developer	48
Quarry Trail Bridge	New bike/ped bridge over natural drainage	Local funds (FY2018)	50
Idlewild Connector # 1	Trail connection from Graham Drive area to VCR Trailhead	Local funds for PE (FY 2019)	52
Idlewild Connector # 2	Trail connection from Yates Circle/Walker Drive area to VCR trailhead	Local funds for PE (FY 2019)	54
Fall Hill Avenue Corridor	Sidewalks from Gordon W. Shelton Blvd. to River Road	HSIP application submitted	56
VCR Trail/Alum Spring Park Access	ADA access from parking area to trail	$224K in local funds (FY2020) for restrooms; incorporate ramp	58
U.S. Route 1 Bypass Bridge over Rappahannock Canal	Replace U.S. Route 1 bridge, with improved access to Canal Trail	VDOT seeking SGR funds	60
Greenbrier Drive Corridor	On-street route between Lafayette Blvd and VCR Trail		62
VCR Trail extension to Sophia Street	On-street route from VCR trailhead to Sophia Street		64
Kenmore Avenue Corridor	On-street route from Lafayette Blvd to Canal Trail		66
East-West Connector: Sophia Street to Stafford Avenue	On-street routes – Fauquier and Lewis Streets, from Sophia St to Washington Ave; Cornell Ave/UMW/Rowe St to Stafford Avenue		68

East-West Connector: Sophia Street to Blue&Gray Parkway	On-street routes – on Hanover and George Streets		70
Adams Street – Stafford Avenue Corridor	On-street route from Hanover to Rowe Street		72
Riverfront Corridor: Lafayette Blvd to Rapp R Heritage Trail	On-street routes along Sophia and Caroline Streets		74
Caroline Street – Dixon Park Connector	Multi-use path adjacent to river		76
Old Mill Park Entrance Improvements	Reconfigure culvert, provide pedestrian stairway		78
Mayfield Connector: Railroad Avenue to Downtown	Multi-use path adjacent to proposed VRE parking deck access road		80
Lansdowne Road Connector	Bicycle/pedestrian route from Dixon Street to Industrial Parks		82
Airport Avenue Connector	On-street route		84
Lafayette Boulevard Trail	10-foot wide shared-use path along improved roadway, from Twin Lakes Drive to South City Limits		86
Springwood Drive Connector	On-street route		88
Gateway Blvd. Trail (South)	10-foot wide shared-use path along new road, between Route 3 and Cowan Blvd		90
Gateway Blvd. Trail (North)	10-foot wide shared-use path along new road, between Cowan Blvd and Fall Hill Ave		92
Gateway Crossing	Bicycle/pedestrian bridge over State Route 3		94
Central Park Grid	Shared-use path along new road west of I-95, between Fall Hill Ave and Cowan Blvd		96

William Street Corridor Trail	Shared-use path and sidewalk along Plank Rd/William St, from B&G Pkwy to Gateway Blvd		98
Oakwood Street Corridor	Sidewalk on Oakwood Street, from Route 3 to Great Oaks subdivision		100
Westwood Drive Connector	On-street route, from William St to Cowan Blvd		102
Downman House Connector	Bike/ped connection between Gateway Blvd and Sand Circle		104
Altoona Connector	Bike/ped connection between Altoona and Semple Court		106
Huntington Hills – Estates of Idlewild Connector	Bike/ped connection between Hunt Lane and Downman Place		108
Walker-Grant School Connector	Sidewalk on U.S. Route 1 – Cowan Blvd to Learning Lane		110
Hospital Drive Connector	10-foot wide shared-use path on Hospital Drive, between Mary Washington and Cowan Boulevards		112
Mary Washington Hospital Connector	10-foot wide shared-use path and new ramp, between Canal Trail and Mary Washington Boulevard		114
Villas at Snowden Connector	Bike/ped route between Cadmus Dr and Hospital Dr		116
Upper Princess Anne Street Corridor	On-street bike/ped accommodations		118
River Quarry Trail	Natural surface trail		120
Motts Run Connector	Natural surface trail		122
University of Mary Washington Connector	Widen sidewalk when UMW retaining wall rebuilt		124
Normandy Village Bridge	Improve accessibility		126
Battlefield Park Connector	Crosswalk at Willis Street, across Lafayette Blvd		128

VCR Trail Bridge over Blue & Gray Pkwy	New bike/ped bridge, west of Lafayette Boulevard		130
VCR Trail Bridge over U.S. Route 1 Bypass	New bike/ped bridge		132
Fredericksburg Cemetery Sidewalks	Sidewalk/wall protection on Washington Avenue		134
Idlewild Boulevard Bicycle Lanes	On-street pavement markings for bicycles		136
Gateway Boulevard Bicycle Lanes	On-street pavement markings for bicycles		138
Idlewild – VCR Connector	Shared-use path adjacent to road		140

Table 5 – 2: Regional Projects.

Project	Description	Status	Page No.
Chatham Bridge Connector	10-foot wide shared-use path	By VDOT; Const. in 2021	142
Falmouth Bridge Connector	10-foot wide shared-use path	In FAMPO Long Range Transportation Plan	144
Banks' Ford Footbridge	Suspension bridge over river		146
VCR Trail-Spotsylvania County Connector Tunnel	Tunnel for 10-foot wide shared use path under I-95	In Comp Plan	148
East Coast Greenway	10-foot wide shared-use path	In Comp Plan In FAMPO Long Range Transportation Plan	150
FRED bus stops	Provide shelters and benches	In Comp Plan	N/A

Title: Virginia Central Railway (VCR) Trail Bridge

Type: Bicycle/pedestrian bridge
Location: Hazel Run crossing, just west of Idlewild trailhead
Length: Approximately 80 feet
Description: Steel frame and rails, with TREX decking

Consistency with Performance Criteria

Connectivity – The VCR Trail reaches as far west as the trailhead near the Idlewild neighborhood. This bridge will provide a crossing over Hazel Run that will open up an additional ¾ of a mile of historic railway bed for recreational use.

Accessibility – The bridge will meet all ADA standards.

Directness – The bridge re-establishes a direct route.

Continuity – Hazel Run is a barrier to being able to reach the historic VCR alignment west of the Idlewild trailhead.

Consistency – The new bridge will have the same design as other bridges already in place along the VCR Trail.

Route Attractiveness – The bridge site is within a protected natural area and will provide access to additional protected wooded acreage.

Low Conflict – There are no conflicts with vehicular traffic.

Ease of Implementation – The construction site is on City-owned land, but an easement will be needed from the Kingswood neighborhood HOA to access the site.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – The Kingswood neighborhood is in Spotsylvania County and the new bridge will provide its residents with access to the City's larger trails network, which includes a direct route to downtown Fredericksburg and to the VRE station.

Safety and Security – The bridge design includes safety barriers where the railway embankment has steep slopes.

Figure 5-1. Virginia Central Railway Trail Bridge.

Title: Kensington Connector

Type: Multi-use trail on its own alignment
Location: West side of Lafayette Boulevard
Length: Approximately 0.27 miles, from Twin Lakes Drive to St. Paul Street
Description: Ten-foot wide trail with an asphalt surface

Consistency with Performance Criteria

Connectivity – This multi-use pathway will link up on its south end with an existing sidewalk on Twin Lakes Drive. At its north end, this facility will be able to connect with a planned multi-use pathway associated with a private development on Telegraph Hill. Nearby neighborhoods that will have immediate access to this facility include Twin Lakes, Kensington, and St. Paul. New neighborhoods on Telegraph Hill will also benefit from the new trail. The Raines Drive and Adair Street neighborhoods on the east side of Lafayette Boulevard will be within convenient reach of the new pathway, but will require safe crossings at Lafayette Boulevard.

Accessibility – Full ADA compliance can be attained on this facility, but the topography of connecting links to west and north will not be able to meet ADA standards. There are steep slopes on the Twin Lakes Drive sidewalk as it drops toward U.S. Route 1, and on Lafayette Boulevard to the north, where the Telegraph Hill Connector will be established.

Directness – The pathway will follow the Lafayette Boulevard travel route.

Continuity – A crosswalk at Twin Lakes Drive will need to be part of the project design. Crosswalks across Lafayette Boulevard will need to be planned and implemented consistent with planned roadway improvements.

Consistency – A ten-foot wide multi-use pathway is a standard design.

Route Attractiveness – Lafayette Boulevard is a busy corridor, but tree cover should be established wherever possible.

Low Conflict – The new multi-use path will be on its own alignment, with clearly marked crosswalks at Twin Lakes Drive, Springwood Street, the Kensington subdivision entry, and St. Paul Street.

Ease of Implementation – Additional right-of-way will have to be acquired and some utilities will likely need to be relocated. The attractive landscaped entry to the Kensington neighborhood will also have to be significantly modified.

Multi-modal Coordination – This multi-use trail will be part of the network designed to connect neighborhoods along Lafayette Boulevard with downtown Fredericksburg and the VRE station. There will also be opportunities to accommodate FRED Transit stops.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – A multi-use path on its own alignment provides a physical separation of bicycle/pedestrian traffic from vehicular traffic.

Figure 5-2. Kensington Connector.

Title: Telegraph Hill Connector

Type: Multi-use trail on its own alignment
Location: West side of Lafayette Boulevard
Length: Approximately 0.4 miles, from St. Paul Street to the VCR Trail
Description: Ten-foot wide trail with an asphalt surface

Consistency with Performance Criteria

Connectivity – This facility will connect with the planned (and funded) Kensington Connector at its south end. It will connect with the existing VCR Trail at its north end. The proposed Telegraph Hill neighborhoods will have immediate access to the new trail.

Accessibility – The topography in this area is steep. The proposed trail along Lafayette Boulevard will not be able to meet ADA standards.

Directness – The southern section of the trail will follow the Lafayette Boulevard travel route and its northern section will course through the Telegraph Hill development. This project will also include a realignment of a portion of the VCR Trail, to provide a more direct link to a planned bicycle/pedestrian trail bridge over the Blue and Gray Parkway.

Continuity – This new pathway will be able to include a safe bicycle/pedestrian crossing to Lee Drive, which courses through the Fredericksburg National Battlefield Park. The National Park Service and City staff have determined that a Lafayette Boulevard crosswalk will be safest at the upper (south) entry to Lee Drive, but such a crossing will not be established until the National Park Service is ready to allow it.

Consistency – A ten-foot wide, multi-use pathway design is a standardized configuration throughout the City.

Route Attractiveness – The planned facility will follow the busy Lafayette Boulevard corridor at its southern end, but then travel through the Telegraph Hill development. There will be opportunity along its entire length for tree cover.

Low Conflict – The new pathway will be on its own alignment, with clearly marked crosswalks across roads within the new development.

Ease of Implementation – The new trail will be part of a larger project that includes a widening of Lafayette Boulevard. It will also be included in development plans on land presently undeveloped. There are no apparent conflicts or issues.

Multi-modal Coordination – The multi-use trail will be part of the network designed to connect neighborhoods along Lafayette Boulevard with the downtown VRE station. There will also be opportunities to accommodate FRED Transit stops.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – A multi-use path on its own alignment provides a physical separation of bicycle/pedestrian traffic from vehicular traffic.

Figure 5-3. Telegraph Hill Connector.

Title: Quarry Trail Bridge

Type: Bridge
Location: Across drainage on Quarry Trail
Length: TBD
Description: Steel frame bridge

Consistency with Performance Criteria

Connectivity – A creek/drainage off of the uplands cuts across the Quarry Trail. A bridge is needed to make the trail usable.

Accessibility – The trail is not ADA accessible.

Directness – The bridge is as direct as possible.

Continuity – The Quarry Trail is a riverside link to an entire network of natural surface trails. The bridge fills a significant gap.

Consistency – The bridge will be a modest design, consistent with the nature of the Quarry Trail.

Route Attractiveness – The travel route extends along the river.

Low Conflict – There is no conflict with vehicular traffic.

Ease of Implementation – The right-of-way if public, but access to the work site must occur on the quarry access road.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – The bridge will provide a safe crossing over a creek.

Figure 5-4. Quarry Trail Bridge.

Title: Idlewild Connector # 1

Type: Multi-use trail on its own alignment
Location: Idlewild subdivision
Length: Approximately 1,000 feet, from Graham Drive area to VCR trailhead
Description: Eight-foot wide, natural surface trail

Consistency with Performance Criteria

Connectivity – This facility will connect a substantial portion of the Idlewild community with the western trailhead of the VCR Trail. This link will allow safe, bicycle/pedestrian access to downtown Fredericksburg and the rail station.

Accessibility – The topography along this travel route is steep in places. Achieving full ADA compliance is a goal, but an engineering study is needed to ensure meeting that standard is feasible.

Directness – The proposed route is as direct as possible, but meanders will be needed to address ADA issues, as noted above.

Continuity – The trail will address a significant gap between the Idlewild neighborhood, with its full network of sidewalks, and the VCR Trail.

Consistency – The trail design will adhere to standards developed for natural surface trails.

Route Attractiveness – The trail route is through wooded terrain that is ecologically intact.

Low Conflict – There are no conflicts to address.

Ease of Implementation – A careful engineering analysis is needed to ensure the trail meets ADA standards as fully as possible and does not create any erosion issues or otherwise damage its setting.

Multi-modal Coordination – The proposed trail is a link between similar facilities. There is no multi-modal coordination.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – The new trail will be designed to be physically safe to use.

Figure 5-5. Idlewild Connector #1.

Title: Idlewild Connector # 2

Type: Multi-use trail on its own alignment
Location: Idlewild subdivision
Length: Approximately 2,400 feet, from Yates Circle/Walker Drive area to VCR trailhead
Description: Eight-foot wide, natural surface trail

Consistency with Performance Criteria

Connectivity - This facility will connect a substantial portion of the Idlewild community with the western trailhead of the VCR Trail. This link will allow safe, bicycle/pedestrian access to downtown Fredericksburg and the rail station.

Accessibility – The topography along this travel route is steep in places. Achieving full ADA compliance is a goal, but an engineering study is needed to ensure meeting that standard is feasible.

Directness – The proposed route is as direct as possible, but meanders will be needed to address ADA issues, as noted above.

Continuity – The trail will address a significant gap between the Idlewild neighborhood, with its full network of sidewalks, and the VCR Trail.

Consistency – The trail design will adhere to standards developed for natural surface trails.

Route Attractiveness – The trail route is through wooded terrain that is ecologically intact.

Low Conflict – There are no conflicts to address.

Ease of Implementation – A careful engineering analysis is needed to ensure the trail meets ADA standards as fully as possible and does not create any erosion issues or otherwise damage its setting.

Multi-modal Coordination – The proposed trail is a link between similar facilities. There is no multi-modal coordination.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – The new trail will be designed to be physically safe to use.

Figure 5-6. Idlewild Connector #2.

Title: Fall Hill Avenue Corridor

Type: Sidewalks
Location: Both sides of Fall Hill Avenue
Length: Approximately 1,700 feet, from Carl D. Silver Boulevard to Vidalia Street
Approximately 1,300 feet, from Carl D. Silver Boulevard to Riverside Manor Blvd.
Description: Four-foot wide concrete sidewalks

Consistency with Performance Criteria

Connectivity – The new sidewalks will provide a bicycle/pedestrian link to the Riverside Manor and Vidalia Street neighborhoods, at the western edge of the City.

Accessibility – The new sidewalks will be fully accessible.

Directness – The new sidewalks will be within the Fall Hill Avenue right-of-way and thus be as direct as possible.

Continuity – The new sidewalks will link with the existing sidewalk network.

Consistency – The sidewalks will be five feet in width, consistent with the City's current sidewalk standards.

Route Attractiveness – The bicycle/pedestrian route will follow a well-travelled avenue for vehicular traffic. Tree cover will need to be established and maintained.

Low Conflict – The sidewalks will have the standard separation from automobiles of curbing and a utility strip. At intersections, appropriate signalized crosswalks will be established.

Ease of Implementation – The new sidewalks will be constructed within an existing public right-of-way.

Multi-modal Coordination – The proposed sidewalks are a link to similar facilities. There is no multi-modal coordination.

Multi-jurisdictional Coordination – The new sidewalks will extend to the west City limits, but there are no similar facilities in Spotsylvania County with which to connect.

Safety and Security – The new sidewalks will meet all standards for safety.

Figure 5-7. Fall Hill Avenue Corridor.

Title: VCR Trail/Alum Spring Park Access

Type: Ramp to address six-foot grade differential (approximately)
Location: Alum Spring Park
Length: Approximately 180 feet, from the parking area to the VCR Trail
Description: Five-foot wide concrete ramp

Consistency with Performance Criteria

Connectivity – A new ramp will provide a route for wheeled conveyances (bicycles, wheelchairs, strollers, etc.) to get from the parking area to the VCR Trail. There is a set of steps already in place, but the grade differential between the parking area and the trail is about six feet.

Accessibility – A new ramp can be made fully compliant with ADA standards.

Directness – The ramp will be as direct as possible, but will need to be angled to achieve the necessary run to meet ADA standards.

Continuity – The ramp will close a significant gap between a parking area and a major multi-use trail.

Consistency – Both the parking area and the VCR Trail have asphalt surfaces, but this connecting ramp need not have a similar treatment. The facility will be short enough to avoid any confusion.

Route Attractiveness – Alum Spring Park is an attractive natural and historic area.

Low Conflict – The ramp will not result in any conflicts with vehicular traffic.

Ease of Implementation – The site is already in public ownership. The constraint will be the need to cut into a slope, which will require a short retaining wall.

Multi-modal Coordination – There are already bicycle racks at Alum Springs Park as well as vehicle parking.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – The new ramp will be constructed to meet all current Building Code standards.

Figure 5-8. VCR Trail/Alum Spring Park Access.

Figure 5-9. Detail of Alum Spring Park Access Ramp.

Title: U.S. Route 1 Bypass Bridge over Rappahannock Canal

Type: Roadway bridge with bicycle/pedestrian facilities
Location: U.S. Route 1 Bypass (Jefferson Davis Highway) and the Rappahannock Canal
Length: The new bridge will be 133 x 88 feet
Description: Replace the existing roadway bridge with a new facility that extends the southbound right turn lane on to Mary Washington Boulevard, and provides safe bicycle/pedestrian connections between the roadway and the Rappahannock Canal Trail.

Consistency with Performance Criteria

Connectivity – Pedestrian facilities on the U.S. Route 1 Bypass bridge will be part of a north-south pedestrian route along that arterial highway. The new bridge will also provide connections to the Rappahannock Canal Trail.

Accessibility – The new bridge and its connections to the Rappahannock Canal Trail will meet all applicable ADA standards.

Directness – The bicycle/pedestrian routes across and under this bridge are as direct as possible.

Continuity – The new bridge will replace an inadequate section of the bicycle/pedestrian route along the U.S. Route 1 Bypass with a facility that is consistent with the existing sidewalks.

Consistency – The bicycle/pedestrian links associated with the new bridge will meet all applicable standards for configuration and safety.

Route Attractiveness – The existing setting at the Rappahannock Canal will not be compromised.

Low Conflict – The new bridge will ensure that there are no conflicts between cyclists/pedestrians and vehicular traffic.

Ease of Implementation – Replacement of a bridge is always challenging, but this project will only require minor right-of-way acquisition (0.79 acres total).

Multi-modal Coordination – The new facility accommodates both bicycle/pedestrian and vehicular traffic.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – The new bridge will be constructed on a new set of piers that will allow the overhead clearance along the Rappahannock Canal Trail to be increased.

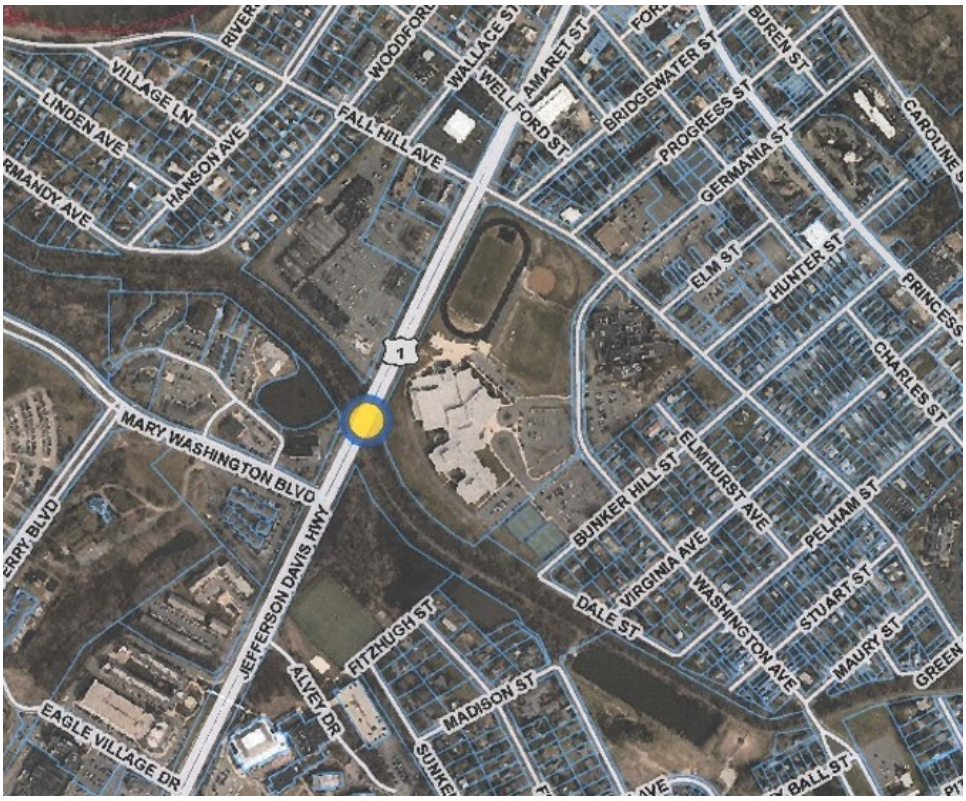


Figure 5-10. U.S. Route 1 Bypass Bridge Over Rappahannock Canal.

Title: Greenbrier Drive Corridor

Type: Shared roadway and intersection improvements
Location: Greenbrier Drive
Length: Approximately 0.38 miles, from Blue & Gray Parkway to Alum Spring Park
Description: On-street bicycle route, with bicycle/pedestrian crossing at the Blue & Gray Parkway

Consistency with Performance Criteria

Connectivity – A designated bicycle/pedestrian route along Greenbrier Drive will serve the many apartments and condominiums along that roadway, connecting them to the larger community.

Accessibility – The bicycle/pedestrian route will be on the existing street, which will only partially complaint with ADA standards.

Directness – The bicycle/pedestrian route will follow the existing roadway.

Continuity – This on-street facility and intersection improvements will fill a gap between affected neighborhoods and the community

Consistency – Shared roadway designation is standardized.

Route Attractiveness – Greenbrier Drive is an attractive wooded route that will not be compromised by the project.

Low Conflict – The on-street bicycle/pedestrian route will not be physically separated from vehicular traffic. There are some sections of sidewalk that are separated by curbing.

Ease of Implementation – No additional right-of-way is needed.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – This connection will be an on-street facility, but will be made as safe as possible with signage and street markings.

Figure 5-11. Greenbrier Drive Corridor.

Title: VCR Trail Extension to Sophia Street

Type: Shared roadway
Location: Lafayette Boulevard
Length: Approximately 0.35 miles, from VCR Trailhead to Sophia Street
Description: On-street bicycle route. Pedestrians have use of sidewalks.

Consistency with Performance Criteria

Connectivity – At present, there is no designated bicycle/pedestrian connectivity to and from the VCR trailhead. This project will provide a marked, on-street route between the trailhead and Sophia Street, where another on-street bicycle facility is planned along the riverfront.

Accessibility – The sidewalk network is fully accessible.

Directness – The route along Lafayette Boulevard is direct.

Continuity – The project will fill a substantial gap between the VCR trailhead, the VRE station and Sophia Street.

Consistency – Switching from the multi-use VCR Trail to an on-street facility will require clear signage and street markings.

Route Attractiveness – The Lafayette Boulevard corridor is a historic route, which will not be compromised.

Low Conflict – This project will provide an on-street bicycle route that will require all appropriate signs and pavement markings.

Ease of Implementation – No additional right-of-way is needed.

Multi-modal Coordination – A bus pull-off area is proposed to be located along the south side of Lafayette Boulevard, between Charles and Princess Anne Streets.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – Pavement markings and signage will be used to make the bicycle route as safe as possible.

Figure 5-12. VCR Trail Extension to Sophia Street.

Title: Kenmore Avenue Corridor

Type: Shared roadway
Location: Kenmore Avenue
Length: Approximately 0.92 miles, from Lafayette Boulevard to Mary Ball Street
Description: On-street bicycle route. Pedestrians have use of sidewalks.

Consistency with Performance Criteria

Connectivity – This on-street facility courses through numerous residential areas, providing good connections to several multi-use trails.

Accessibility – The existing sidewalk system is fully accessible.

Directness – This on-street facility provides for the shortest possible route between the VCR Trail and Lafayette Boulevard and the Rappahannock Canal/Rappahannock River Heritage Trail.

Continuity – This facility provides a north-south route through several neighborhoods.

Consistency – The Kenmore Corridor is an on-street bicycle route for its full length. Continuous sidewalks are already in place for pedestrians.

Route Attractiveness – The travel route is through residential neighborhoods. Tree cover should be maintained and enhanced.

Low Conflict – Intersections will need appropriate signage and street markings.

Ease of Implementation – The travel route is on existing public right-of-way.

Multi-modal Coordination – Bicycle racks will be needed at destination points.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – Pavement markings and signs will be used to make the on-street bicycle route as safe as possible.

Figure 5-13. Kenmore Avenue Corridor.

Title: East-West Connector: Sophia Street to Stafford Avenue

Type: Shared roadways; bicycle boulevards

Location: Fauquier and Lewis Streets, from Sophia Street to Washington Avenue; Washington Avenue; Cornell Street, from Washington Avenue to UMW; through the UMW campus; Rowe Street, from UMW to Stafford Avenue.

Length: Approximately 1.33 miles to travel, but Fauquier and Lewis Streets are parallel one-way facilities, requiring another 0.45 miles of on-street improvements. Total linear distance in the overall project is approximately 1.78 miles.

Description: On-street bicycle route. Pedestrians have use of sidewalks.

Consistency with Performance Criteria

Connectivity – This route courses through residential areas, except where it travels through the University of Mary Washington campus. It will provide a link from numerous neighborhoods to the larger City trails network.

Accessibility – The topography inherent in Fredericksburg's natural terraces makes full ADA compliance unfeasible.

Directness – The travel route follows existing roadways and is thus as direct as possible.

Continuity – The travel route provides a much needed east-west route for cyclists.

Consistency – The bicycle route will need to consist of shared roadways, for the most part, but on the one-way streets (Fauquier and Lewis Streets) there is the potential to create bicycle boulevards, which are streets enhanced to ensure bicycle safety.

Route Attractiveness – The on-street route travels through quiet residential neighborhoods.

Low Conflict – The project route must cross some busy streets, such as Prince Edward Street and Washington Avenue. Crosswalks can be established and bulb outs can be considered as potential traffic calming measures.

Ease of Implementation – Affected City streets are already public right-of-way. The portion of the facility that travels through the University of Mary Washington campus will require UMW authorization.

Multi-modal Coordination – Bicycle racks will be needed at destination points, including at the downtown library. The west end of the travel route reaches the FREDericksburg Regional Transit Center, on the U.S. Route 1 Bypass.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – Selected intersections will need to be considered for improvements and traffic calming features – including at Prince Edward Street, Washington Avenue, Sunken Road, and College Avenue.

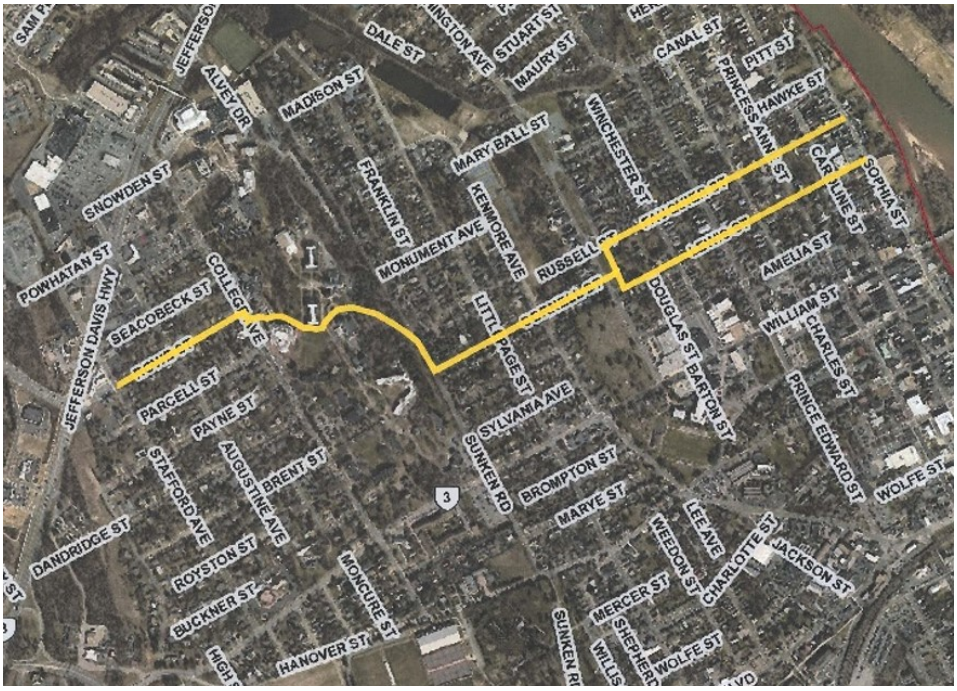


Figure 5-14. East-West Connector: Sophia Street to Stafford Avenue.

Title: East-West Connector: Sophia Street to Blue & Gray Parkway

Type: Shared roadways
Location: Hanover and George Streets
Length: Approximately 1.43 miles, but Hanover and George Streets are parallel facilities, requiring another 0.42 miles of on-street improvements. Total linear distance in the overall project is approximately 1.85 miles.
Description: On-street bicycle route. Pedestrians have use of sidewalks.

Consistency with Performance Criteria

Connectivity – East-west connections can be a challenge for bicycle/pedestrian travel. This project provides a bicycle route along a major east-west roadway, connecting a significant number of residential neighborhoods with links to Alum Springs Park and the VCR Trail.

Accessibility – The bicycle route will follow the existing roadway topography, which cannot be made fully ADA accessible.

Directness – The route follows an existing roadway and is thus as direct as possible.

Continuity – The on-street route will fill a major gap for east-west bicycle travel.

Consistency – The travel route will be an on-street facility for its entire length.

Route Attractiveness – The travel route is through residential neighborhoods and along the University athletic facilities.

Low Conflict – The selected route has low vehicle speed limits. The crossing at Kenmore Avenue is a four way stop intersection. The intersection at College Avenue is a three way intersection where the travel route has the right-of-way. A bicycle/pedestrian crossing is needed at the Blue & Gray Parkway, as specified for the Greenbrier Drive project.

Ease of Implementation – The travel route is entirely within public right-of-way.

Multi-modal Coordination – Bicycle racks will be needed at destination points.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – Except for the Blue & Gray Parkway, the intersections along the travel route do not require accommodation except for additional signs.

Figure 5-15. East-West Connector: Sophia Street to Blue & Gray Parkway.

Title: Adams Street – Stafford Avenue Corridor

Type: Shared roadway
Location: Stafford Avenue
Length: Approximately 0.51 miles, from Hanover Street to Rowe Street
Description: On-street bicycle route. Pedestrians have use of sidewalks.

Consistency with Performance Criteria

Connectivity – The travel route will link the University athletic facilities with a substantial part of the College Heights neighborhood.

Accessibility – The travel route is reasonably level and will be able to meet ADA standards.

Directness – The travel route follows an existing roadway that is as direct as possible.

Continuity – The bicycle facility extends to the U.S. Route 1 Bypass, where there are two safe crossings – at Cowan Boulevard and at College Avenue.

Consistency – The travel route will be an on-street facility for its entire length.

Route Attractiveness – The route is through a quiet residential neighborhood.

Low Conflict – The travel route has the right-of-way for its entire length. A bicycle/pedestrian crossing will be needed at William Street.

Ease of Implementation – The travel route is entirely within public right-of-way.

Multi-modal Coordination – The travel route connects to FRED Central.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – A bicycle/pedestrian crossing will need to be established at William Street.

Figure 5-16. Adams Street - Stafford Avenue Corridor.

Title: Riverfront Corridor: Lafayette Boulevard to the Rappahannock River Heritage Trail

Type: Shared roadways
Location: Sophia, Pitt, Caroline, and Princess Anne Streets
Length: Approximately 1.13 miles, from Lafayette Boulevard to the Rappahannock River Heritage Trail
Description: On-street bicycle routes. Pedestrians have use of sidewalks.

Consistency with Performance Criteria

Connectivity – The travel route will connect the VCR Trail and the rail station at one end, with the Rappahannock River Heritage Trail at the other end. The many residential neighborhoods in between will have ready access. Additional destinations and points of interest include the Central Rappahannock Regional Library, a new Riverfront Park, French John's Wharf at Canal Street, and a portion of the Mill District.

Accessibility – The route is reasonable level and substantial portions can be made ADA accessible.

Directness – The travel route follows existing roadways and is as direct as possible.

Continuity – The bicycle facility will consist of a shared roadway along Sophia Street, from Lafayette Boulevard to Amelia Street. From Amelia Street to the Heritage Trail, the streets are one-way, which requires that the bicycle route be split along the one-way pairs of Caroline and Princess Anne Streets.

Consistency – As noted under Continuity, above, the vehicular traffic pattern requires that the bicycle route be split along the one-way streets. Another option would be to pull the one-way traffic pattern back to Pitt Street, to accommodate a shared roadway configuration for both directions of travel.

Route Attractiveness – The travel route follows the Rappahannock River for several blocks and courses through quiet residential neighborhoods.

Low Conflict – The intersection of Sophia Street with William Street will need a pedestrian signal and crosswalk.

Ease of Implementation – The travel route is entirely on public right-of-way.

Multi-modal Coordination – Bicycle racks will be needed at destinations such as Riverfront Park, the downtown library, and French John's Wharf.

Multi-jurisdictional Coordination – The travel route will connect to the new bicycle/pedestrian facility that will be a part of the Chatham Bridge rehabilitation.

Safety and Security – A bicycle/pedestrian crossing will be needed at William Street.

Figure 5-17. Riverfront Corridor: Lafayette Boulevard to the Rappahannock River Heritage Trail.

Title: Caroline Street - Dixon Park Connector

Type: Multi-use trail on its own alignment
Location: Rappahannock River floodplain
Length: Approximately 0.38 miles, from the lower end of Caroline Street to Dixon Park
Description: Ten-foot wide pathway with an asphalt surface

Consistency with Performance Criteria

Connectivity – This travel route will connect downtown Fredericksburg residents with Dixon Park.

Accessibility – The travel route is reasonably level and substantial portions will be able to meet ADA standards.

Directness – The trail will be a direct link to recreational facilities at Dixon Park.

Continuity – This travel route will fill a substantial gap in the bicycle/pedestrian network.

Consistency – The facility will have a standard multi-use path configuration and design.

Route Attractiveness – The trail will follow the Rappahannock River

Low Conflict – There will be no conflicts with other types of travel.

Ease of Implementation – The route follows existing public right-of-way. A bridge will be needed to cross Hazel Run, which will be challenging because it will need to cross the widest part of that waterway within the floodway of the Rappahannock River.

Multi-modal Coordination – Bicycle racks will be needed at Dixon Park.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – The trail will be in a remote section of the City and will require the attention of law enforcement.

Figure 5-18. Caroline Street - Dixon Park Connector.

Title: Old Mill Park Entrance Improvements

Type: Reconstruction of park entrance, including culvert improvements
Location: Caroline Street entry to Old Mill Park
Length: Not yet determined
Description: Two-lane entryway, with pedestrian accommodations and improved culvert

Consistency with Performance Criteria

Connectivity – The entry to Old Mill Park is already established for vehicular traffic, but needs to be modified to accommodate pedestrian access.

Accessibility – The ADA compliant access to Old Mill Park is by way of the Rappahannock River Heritage Trail, accessible 190 feet north of the Park entrance, with another 1,350 feet of travel from there to the Park, and yet more travel to restrooms and playgrounds.

Directness – A modified entrance will provide a more direct route for pedestrians into the Park. Cyclists can readily use the existing ramp.

Continuity – The Park entrance is an existing gap in the pedestrian network.

Consistency – The terrain is steep, but a set of stairs adjacent to the roadway will close the existing gap in pedestrian access.

Route Attractiveness – Old Mill Park is an attractive river floodplain, but the existing culvert is causing severe erosion damage to the existing park. A new culvert that directs drainage to the existing canal will allow the eroded sections of the Park to be repaired.

Low Conflict – A pedestrian accommodation at the Park entrance will remove an existing pedestrian/vehicle conflict area.

Ease of Implementation – A modified Park entrance will require that the existing driveway be removed and the culvert repositioned to provide positive drainage. A new driveway with a reduced grade can then be installed.

Multi-modal Coordination – An improved driveway will better accommodate buses and other large vehicles.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – The existing eroded areas of the Park are a hazard to the young children who use the existing playground equipment. Once the driveway culvert is properly configured, the eroded areas of the Park can be repaired, graded, and seeded.

Figure 5-19. Old Mill Park Entrance Improvements.

Title: Mayfield Connector: Railroad Avenue to Downtown

Type: Multi-use trail on its own alignment, adjacent to a new roadway
Location: Adjacent to planned VRE parking deck access road
Length: Approximately 0.53 miles, from Railroad Avenue to Prince Edward Street
Description: Ten-foot wide pathway with an asphalt surface

Consistency with Performance Criteria

Connectivity – The Mayfield community, including the Airport and Canterbury neighborhoods, are somewhat isolated from the City as a whole. Sidewalks are in place along Dixon Street, but this multi-use path will better connect these residential areas to downtown Fredericksburg.

Accessibility – The travel route has the potential to be ADA compliant in its entirety.

Directness – The travel route will follow a new roadway to the VRE parking area and thus be as direct as possible.

Continuity – The new pathway will address a significant gap in the bicycle/pedestrian network.

Consistency – The pathway design will be a standard configuration used throughout the City.

Route Attractiveness – The travel route will cross Hazel Run and the Old Walker-Grant playing fields.

Low Conflict – The pathway will be constructed adjacent to the new roadway and not require any crossings.

Ease of Implementation – The travel route will need to cross Hazel Run and an extensive wetlands area. The environmental considerations are potentially challenging.

Multi-modal Coordination – Bicycle racks will be needed at downtown destinations.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – The trail will be adjacent to a roadway that will see heavy use by VRE riders, primarily in the morning and evening hours. Other times will require law enforcement attention.

Figure 5-20. Mayfield Connector: Railroad Avenue to Downtown.

Title: Lansdowne Road Connector

Type: Multi-use trail on its own alignment, adjacent to an improved roadway
Location: West side of Lansdowne Road
Length: Approximately 0.42 miles, from Dixon Street to the City Limits
Description: Ten-foot wide pathway with an asphalt surface

Consistency with Performance Criteria

Connectivity – This connector will provide a link between several industrial and business locations on Lansdowne Road with several residential areas where many employees live.

Accessibility – The terrain is relatively flat and there is a strong potential for full ADA compliance.

Directness – The travel route follows an existing roadway, which is as direct as possible.

Continuity – The new facility will address a significant gap in the bicycle/pedestrian network.

Consistency – A multi-use pathway design is a standardized configuration throughout the City.

Route Attractiveness – The travel route is a busy roadway that is reasonably attractive. Tree cover should be maintained and enhanced.

Low Conflict – There will be a need for bicycle/pedestrian crossings in order to reach specific employment centers.

Ease of Implementation – There will be a need to acquire right-of-way in selected locations.

Multi-modal Coordination – Bicycle racks will be needed at destination points.

Multi-jurisdictional Coordination – Lansdowne Road continues into Spotsylvania County. It would be appropriate to extend the bicycle/pedestrian route into the County, to reach additional employment centers.

Safety and Security – The travel route will need to cross the CSX Railway tracks, if it is extended into Spotsylvania County. The Southeast High Speed Rail project plans to raise Lansdowne Road over the railway corridor, separating vehicular traffic from the trains. It will be necessary to ensure that the elevated Lansdowne Road includes an adjacent bicycle/pedestrian route over the tracks as well.

Figure 5-21. Lansdowne Road Connector.

Title: Airport Avenue Connector

Type: Shared roadway
Location: Airport Avenue
Length: Approximately 0.7 miles
Description: On-street bicycle/pedestrian route

Consistency with Performance Criteria

Connectivity – This connector will provide a link between the Mayfield residential community and the bicycle/pedestrian trail on Lansdowne Road.

Accessibility – The terrain is relatively flat and there is a strong potential for full ADA compliance.

Directness – The travel route follows an existing roadway, which is as direct as possible.

Continuity – The new facility will address a significant gap in the bicycle/pedestrian network.

Consistency – On-street markings for a shared roadway are a standardized design.

Route Attractiveness – The travel route is attractive as it courses through the Airport subdivision, but becomes more industrial closer to Lansdowne Road.

Low Conflict – Airport Avenue can get busy at certain times of the day, so clear markings supplemented with appropriate signage will be needed.

Ease of Implementation – All of the right-of-way is in public ownership.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – The travel route will need careful attention to user safety, to include appropriate signage and traffic calming devices.

Figure 5-22. Airport Avenue Connector.

Title: Lafayette Boulevard Trail

Type: Multi-use trail on its own alignment, adjacent to an improved roadway
Location: West side of Lafayette Boulevard
Length: Approximately 0.67 miles, from Twin Lakes Drive to the South City Limits
Description: Ten-foot wide pathway with an asphalt surface

Consistency with Performance Criteria

Connectivity – There are numerous residential areas along Lafayette Boulevard that will benefit from a bicycle/pedestrian route that provides safe travel to downtown Fredericksburg, the VRE station, and other parts of the City's overall trail network.

Accessibility – The terrain between the South City Limit and Twin Lakes Drive is reasonably level. The entire route has the strong potential to be made fully ADA compliant.

Directness – The travel route is already a major roadway that is as direct as possible.

Continuity – The new facility will connect to other major bicycle/pedestrian routes that provide direct connections to downtown Fredericksburg and the downtown rail station.

Consistency – A multi-use pathway design is a standardized configuration throughout the City.

Route Attractiveness – The travel corridor is a mix of commercial and residential uses. It can be enhanced with tree cover.

Low Conflict – There will be several places where bicycle/pedestrian crossings of Lafayette Boulevard will be needed, to allow residents on the opposite side of the roadway to be able to gain access to the multi-use trail.

Ease of Implementation – There will be significant right-of-way expenses, especially in places where residences were built too close to the road and will need to be removed.

Multi-modal Coordination – Bicycle racks will be needed at a variety of destination points.

Multi-jurisdictional Coordination – Lafayette Boulevard extends into Spotsylvania County. The City's multi-use path can end at the City/County line without causing any problems for users because there are several destination points in that area. The multi-use path could also be extended into the County when that jurisdiction is ready to proceed.

Safety and Security – Lafayette Boulevard is planned to be improved to a four-lane, divided roadway. Appropriate crossing points will need to be identified and built.

Figure 5-23. Lafayette Boulevard Trail.

Title: Springwood Drive Connector

Type: Shared roadway
Location: Springwood Drive
Length: Approximately 0.38 miles
Description: On-street bicycle/pedestrian route

Consistency with Performance Criteria

Connectivity – Springwood Street provides a direct link for the many Lafayette Boulevard neighborhoods to the VCR Trail.

Accessibility – The roadway is established and will not meet an ADA standard.

Directness – The travel route follows the existing road is as direct as possible.

Continuity – The VCR Trail and Lafayette Boulevard intersect at the Blue and Gray Parkway, but then diverge as each courses south. Springwood Drive provides a good connection for the many residential neighborhoods along Lafayette Boulevard with that significant recreational resource.

Consistency – On-street markings for shared roadways are standardized.

Route Attractiveness – Springwood Drive is a quiet residential neighborhood.

Low Conflict – Springwood Drive ends at the VCR Trail. There is no through-traffic.

Ease of Implementation – All of the right-of-way is in public ownership.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – There are no sidewalks on Springwood Drive. Appropriate signs and pavement markings will be needed for both cyclists and pedestrians.

Figure 5-24. Springwood Drive Connector.

Title: Gateway Boulevard Trail (South)

Type: Multi-use trail, on its own alignment adjacent to a new roadway
Location: East side of Gateway Boulevard, extended
Length: Approximately 0.75 miles, from State Route 3 to Cowan Boulevard
Description: Ten-foot wide pathway with an asphalt surface

Consistency with Performance Criteria

Connectivity – This trail will provide a critical north-south connection between residential neighborhoods south of State Route 3 to Cowan Boulevard, which crosses Interstate-95 to Central Park and Celebrate Virginia. It is not feasible to provide a bicycle/pedestrian link across the interstate at Route 3, so this travel route will provide cyclists/pedestrians a safe route to a variety of destinations.

Accessibility – The topography of the right-of-way will determine the feasibility of meeting ADA standards.

Directness – The travel route will follow a new roadway alignment, which will be as direct as possible.

Continuity – This facility will connect to an existing multi-use path along Cowan Boulevard at its north end, and to the sidewalk network south of Route 3.

Consistency – A multi-use pathway design is a standardized configuration throughout the City.

Route Attractiveness – The travel route will be through land that is planned for intense development. The setting will not be a natural one, but careful attention to site design will ensure a welcoming facility. Tree cover will need to be established and maintained.

Low Conflict – There is a substantial conflict between cyclists/pedestrians and vehicle traffic at State Route 3. An at-grade crossing can be established for the short term, but there are also plans for a bicycle/pedestrian bridge across Route 3, called the Gateway Crossing (see below).

Ease of Implementation – The multi-use path will be constructed as part of the larger roadway project.

Multi-modal Coordination – Bicycle racks will be needed at destination points.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – All applicable safety features will be included in the overall roadway and intersection designs.

Figure 5-25. Gateway Boulevard Trail (South).

Title: Gateway Boulevard Trail (North)

Type: Multi-use trail, on its own alignment adjacent to a new roadway
Location: East side of Gateway Boulevard, extended
Length: Approximately 0.70 miles, from Cowan Boulevard to Fall Hill Avenue
Description: Ten-foot wide pathway with an asphalt surface

Consistency with Performance Criteria

Connectivity – This facility will connect several residential neighborhoods with the City's larger trails network. Immediate connections will occur at Fall Hill Avenue and Cowan Boulevard.

Accessibility – The topography of the right-of-way will determine the feasibility of meeting ADA standards.

Directness – The travel route will follow a new roadway alignment, which will be as direct as is possible.

Continuity – This facility will connect to the multi-use path along Cowan Boulevard at its south end and to the multi-use path on Fall Hill Avenue, at its north end.

Consistency – A multi-use pathway design is a standardized configuration throughout the City.

Route Attractiveness – The travel route is through quiet residential neighborhoods and a recreational area near Fall Hill Avenue. Tree cover will need to be established and maintained.

Low Conflict – A bicycle/pedestrian crossing will be needed at Cowan Boulevard. Pedestrian signals are already in place on Fall Hill Avenue.

Ease of Implementation – The multi-use path will be constructed as part of the larger roadway project. Some of the necessary right-of-way is already in public ownership.

Multi-modal Coordination – Bicycle racks will be needed at destination points, such as the recreational area on Fall Hill Avenue.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – The new road and its adjoining multi-use trail will cross several neighborhood streets, requiring installation of appropriate signs and signals.

Figure 5-26. Gateway Boulevard Trail (North).

Title: Gateway Crossing

Type: Bicycle/pedestrian bridge
Location: Gateway Boulevard and State Route 3
Length: Route 3 is over 130 feet wide at Gateway Boulevard. Installation of ramps will extend the overall facility even further.
Description: Overpass

Consistency with Performance Criteria

Connectivity – A new bridge will be a critical part of the Gateway Boulevard trails, safely avoiding the heavy vehicular traffic of State Route 3

Accessibility – The bridge will need to be made ADA compliant, either through ramps or elevators.

Directness – A bridge connecting the bicycle/pedestrian facilities along Gateway Boulevard, north and south of State Route 3, is as direct as possible.

Continuity – A bridge at State Route 3 will close a significant gap in the Gateway Boulevard Trail.

Consistency – The new bridge will need to tie in with the existing and planned trails on both sides of State Route 3.

Route Attractiveness – A bridge can be made attractive and can also function as a gateway feature for travelers arriving on State Route 3.

Low Conflict – The bridge will remove the substantial conflict of an at-grade crossing.

Ease of Implementation – A bridge will require substantial funding and its footprint could also be extensive, depending on whether ramps or elevators are used.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – A bridge will provide for cyclist/pedestrian safety in crossing the busy State Route 3 corridor.

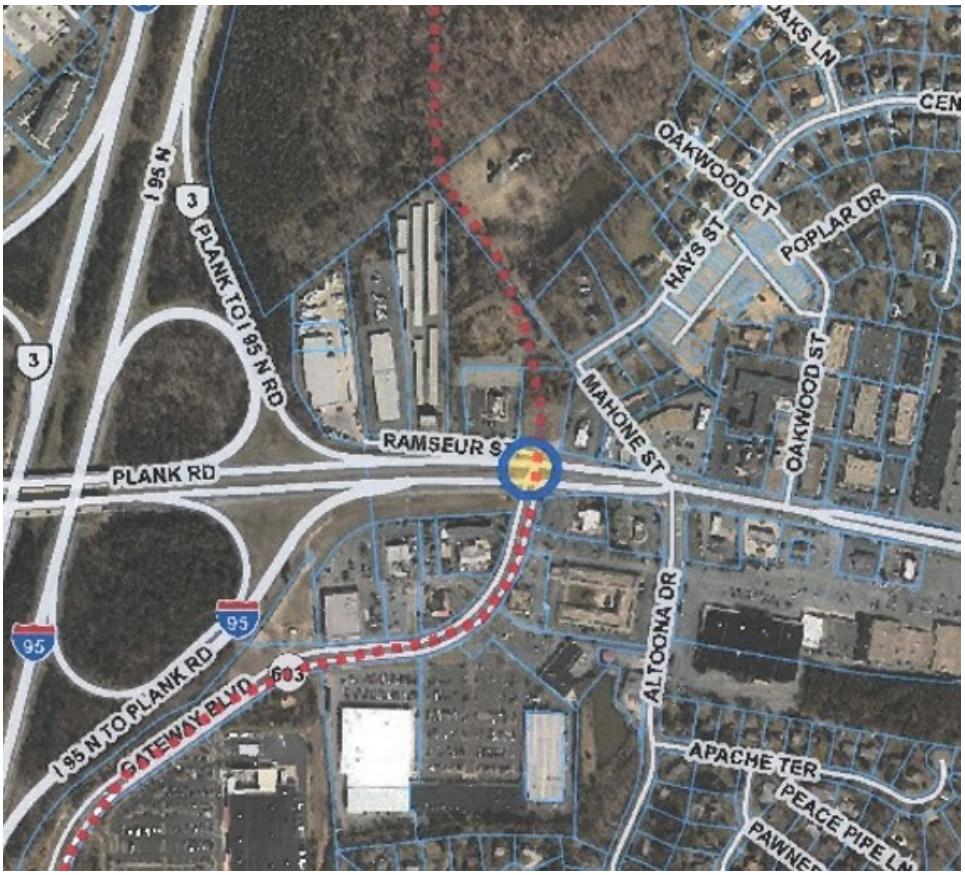


Figure 5-27. Gateway Crossing.

Title: Central Park Grid

Type: Multi-use trails on their own alignments adjacent to new roadways
Location: Adjacent to new roads planned on west side of Interstate-95
Length: Approximately 0.45 miles, from Cowan Boulevard to Fall Hill Avenue
Approximately 0.23 miles from Tuckahoe Drive to existing travel route
Description: Ten-foot wide pathway with an asphalt surface

Consistency with Performance Criteria

Connectivity – The initial road network in Central Park was not conducive to good circulation patterns, but a more urban type of street pattern has been implemented during subsequent development. The depicted travel routes reflect this effort.

Accessibility – The topography of the rights-of-way will determine the feasibility of meeting ADA standards.

Directness – The travel routes are as direct as possible.

Continuity – The new trails will link to multi-use trails on Fall Hill Avenue and Cowan Boulevard.

Consistency – A multi-use pathway design is a standardized configuration throughout the City.

Route Attractiveness – The travel routes will be through land that is planned for intense development. The setting will not be a natural one, but careful attention to site design will ensure attractive facilities. Tree cover will need to be established and maintained.

Low Conflict – Appropriate crossings will need to be established at both Fall Hill Avenue and Cowan Boulevard.

Ease of Implementation – The multi-use paths will be constructed as part of the larger roadway project.

Multi-modal Coordination – Bicycle racks will be needed at destination points.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – All applicable safety features will be included in the overall roadway and intersection designs.

Figure 5-28. Central Park Grid.

Title: William Street Corridor Trail

Type: Multi-use trail on its own alignment
Location: North side of William Street
Length: Approximately 1.0 miles, from Blue & Gray Parkway to Gateway Boulevard
Description: Ten-foot wide pathway with an asphalt surface

Consistency with Performance Criteria

Connectivity – East-west travel is the most constrained in Fredericksburg, due to north-south highways. This new trail will provide an east-west connection along the heavily travelled William Street corridor, which is State Route 3.

Accessibility – The topography of the existing roadway and right-of-way constraints will preclude full ADA compliance.

Directness – The William Street corridor is as direct as possible.

Continuity – The new trail will provide an important link to east-west travel for neighborhoods within the William Street corridor.

Consistency – A multi-use pathway design is a standardized configuration throughout the City.

Route Attractiveness – William Street is a tree lined roadway between the Blue & Gray Parkway and Oak Hill Cemetery. From the cemetery to Interstate-95, the travel route is intensely commercial. As this area redevelops, there will be opportunities through the site planning process to ensure a bicycle/pedestrian travel route is made safe and attractive. Tree cover can also be re-established and maintained.

Low Conflict – William Street/State Route 3 is a busy arterial roadway. Appropriate signage and well-designed crossings will be needed.

Ease of Implementation – Placing a multi-use trail alongside a busy arterial roadway will entail acquisition of right-of-way and attention to existing utilities.

Multi-modal Coordination – Bicycle racks will be needed at destination points.

Multi-jurisdictional Coordination – Not applicable. The multi-use trail will not extend across the interstate. Instead, it will tie in with the Gateway Boulevard Trail.

Safety and Security – Providing for user safety will require careful attention to road crossings.

Figure 5-29. William Street Corridor Trail.

Title: Oakwood Street Corridor

Type: Sidewalk adjacent to roadway
Location: Along Oakwood Street
Length: Approximately 0.24 miles, from the William Street Corridor Trail to the Great Oaks subdivision
Description: Five-foot wide concrete sidewalk

Consistency with Performance Criteria

Connectivity – A sidewalk on Oakwood Street will link several neighborhoods north of State Route 3 with a multi-use trail proposed to be built on the north side of William Street/State Route 3.

Accessibility – The topography of the existing road will allow substantial, but not complete compliance with ADA standards.

Directness – The bicycle/pedestrian travel route will follow the existing roadway.

Continuity – The residential area just north of State Route 3 was built without sidewalks, while later adjacent neighborhoods were constructed under different development standards, which requires sidewalks. The new sidewalk will fill a gap through an older neighborhood, between William Street/State Route 3 and the Great Oaks subdivision.

Consistency – The new sidewalk will be a standard configuration.

Route Attractiveness – The travel route is through a quiet residential neighborhood.

Low Conflict – Oakwood Street is a neighborhood street and installation of a sidewalk will not create conflicts.

Ease of Implementation – The new sidewalk will require acquisition of right-of-way.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – The new sidewalk will allow safe pedestrian travel along Oakwood Street.

Figure 5-30. Oakwood Street Corridor.

Title: Westwood Drive Connector

Type: Shared roadway
Location: Westwood Drive
Length: Approximately 0.61 miles, from the William Street Corridor Trail to the Cowan Boulevard Trail.
Description: On-street bicycle/pedestrian route

Consistency with Performance Criteria

Connectivity – The Westwood neighborhood is an older subdivision without sidewalks. Provision of a shared roadway will provide a designated bicycle/pedestrian route to both Cowan Boulevard (which has an existing multi-use trail) and the William Street Corridor Trail (which is planned).

Accessibility – The topography of the existing road will allow substantial, but not complete compliance with ADA standards.

Directness – The roadway meanders through the neighborhood, but is reasonably direct.

Continuity – Westwood Drive as a shared roadway will fill a large gap in the trails network.

Consistency – Shared roadway markings are standardized.

Route Attractiveness – Westwood is a quiet residential neighborhood, with mature trees and large open front yards.

Low Conflict – The intersections within the subdivision are neighborhood streets only.

Ease of Implementation – The shared roadway can be established on existing public right-of-way.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – Westwood Drive is a neighborhood street that is sometimes used as a cut-through. Traffic calming measures can be constructed to minimize this undesired outside traffic, which will enhance the safety of the shared roadway for cyclists/pedestrians.

Figure 5-31. Westwood Drive Connector.

Title: Downman House Connector

Type: Multi-use trail on its own alignment
Location: Across City-owned land adjacent to the Idlewild mansion
Length: Approximately 0.22 miles, from Gateway Boulevard to Sand Circle
Description: Ten-foot wide pathway with an asphalt surface

Consistency with Performance Criteria

Connectivity – The Idlewild neighborhood is a well-planned community, with an enviable network of quiet streets, alleys, and sidewalks. The main road in and out of the subdivision, however, is limited to a single route the runs through the center of the community, from State Route 3 to the U.S. Route 1 Bypass. This trail connection will provide a shorter link to Gateway Boulevard for a few hundred houses.

Accessibility – The travel route can be made fully ADA accessible.

Directness – The travel route will provide a much needed direct route to Gateway Boulevard.

Continuity – The new route will provide a much needed short-cut to Gateway Boulevard.

Consistency – A multi-use pathway design is a standardized configuration throughout the City.

Route Attractiveness – The travel route will cross a wooded natural area, past the historic Downman House (ruin). Tree cover should be maintained and enhanced.

Low Conflict – There will be no conflicts along this route with vehicular traffic.

Ease of Implementation – The travel route crosses property that is publicly owned.

Multi-modal Coordination – Bicycle racks will be needed at destination points.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – The trail will cross open City land and will require the attention of law enforcement.

Figure 5-32. Downman House Connector.

Title: Altoona Connector

Type: Multi-use trail
Location: Through North Hazel Run valley
Length: Approximately 0.07 miles (350 feet), from the end of Altoona Drive to the Idlewild loop trail.
Description: Natural surface trail and a bridge

Consistency with Performance Criteria

Connectivity – The Altoona neighborhood is located south of State Route 3, with only one way in and out. There are no sidewalks. This trail will connect this community to a trail within the Idlewild community, which will provide access to the Gateway Boulevard Trail.

Accessibility – The topography is relatively flat, which may allow full compliance with ADA standards.

Directness – The travel route is as direct as possible.

Continuity – The new trail will fill a substantial gap in the trails network and provide bicycle/pedestrian access to the larger trail network for an entire neighborhood.

Consistency – The new trail will connect to a neighborhood street within Altoona and to a similar type of trail (natural surface) within the Idlewild development.

Route Attractiveness – The travel route is within the North Hazel Run valley and is an attractive natural area.

Low Conflict – The necessary right-of-way is within public ownership.

Ease of Implementation – There is a need to install a bridge over North Hazel Run. There is an existing concrete bridge that once accommodated the entry road to the Downman House, but that feature is too far west to be a logical travel route. A new bridge can be established across that waterway, but it will need to be designed and built to withstand flooding.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – The trail will cross a remote part of the City and will require the attention of law enforcement.

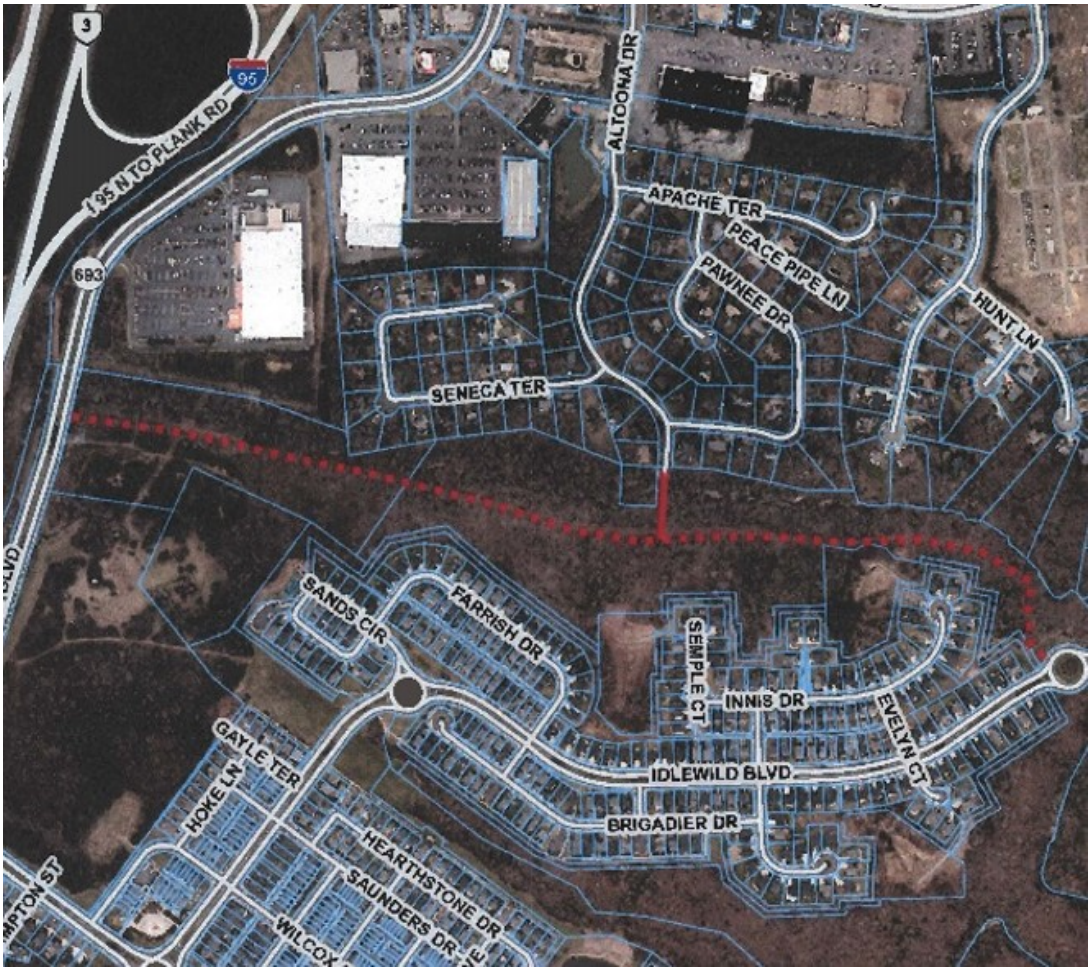


Figure 5-33. Altoona Connector.

Title: Huntington Hills - Estates of Idlewild Connector

Type: Multi-use trail or sidewalk
Location: Residential neighborhood
Length: Approximately 0.1 miles (540 feet), between Downman Place and Hunt Lane
Description: Natural surface trail or a paved sidewalk (neighborhood preference)

Consistency with Performance Criteria

Connectivity – The Huntington Hills neighborhood has a single vehicular access route to State Route 3. The Estates of Idlewild have a single vehicular access route to Idlewild Boulevard. A short link between the two neighborhoods would provide bicycle/pedestrian access to Route 3 for the Estates of Idlewild residents and to Idlewild and its several linked trails for residents of Huntington Hills.

Accessibility – The topography of an acceptable route will dictate the feasibility of meeting ADA standards.

Directness – The connection between neighborhoods will be dictated by available right-of-way.

Continuity – This facility would open up travel opportunities for both neighborhoods.

Consistency – The affected neighborhoods have sidewalks. This connecting facility could have either a natural or a paved surface, depending on neighborhood preference.

Route Attractiveness – The travel route is through residential neighborhoods.

Low Conflict – There will be no conflicts with vehicular traffic.

Ease of Implementation – The necessary right-of-way will need to be acquired from private owners.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – This short connector between well-established neighborhoods can be made safe with proper attention to its physical design.

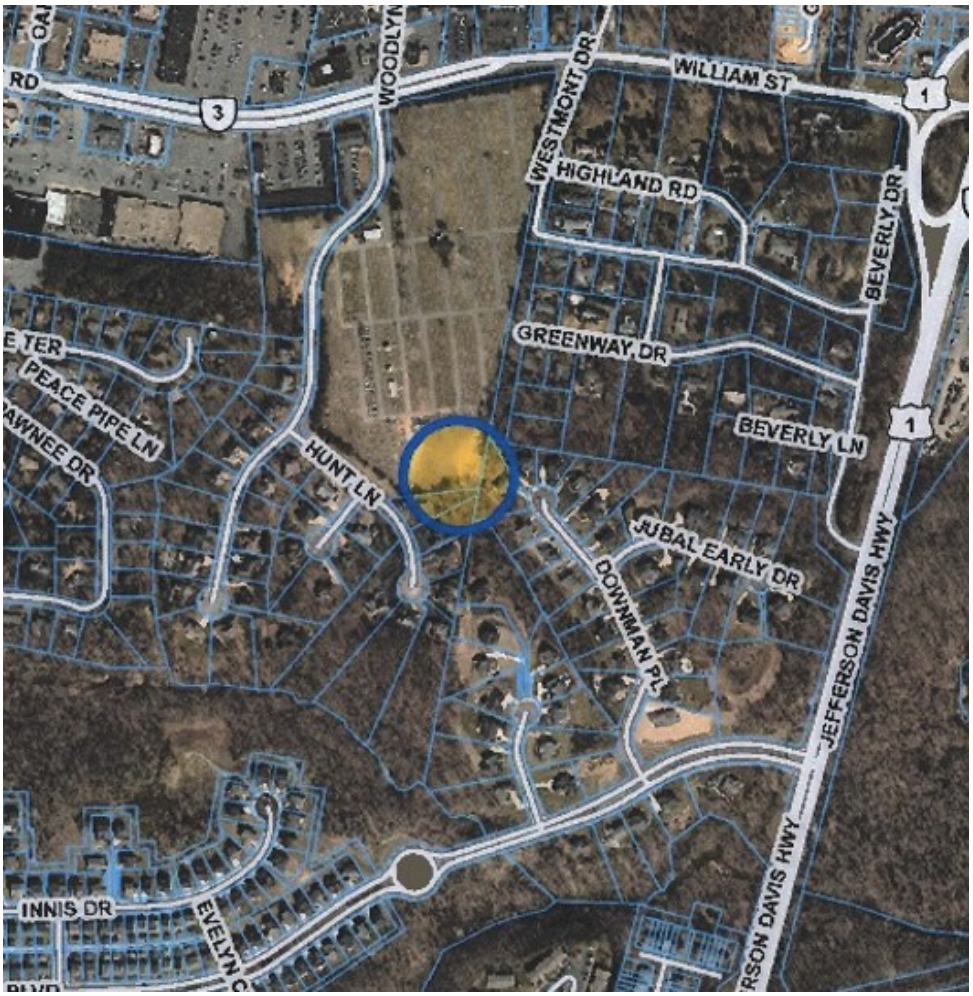


Figure 5-34. Huntington Hills - Estates of Idlewild Connector.

Title: Walker-Grant School Connector

Type: Sidewalk
Location: East side of the U.S. Route 1 Bypass
Length: Approximately 1.92 miles, from Cowan Boulevard to Learning Lane
Description: Five-foot wide concrete sidewalk

Consistency with Performance Criteria

Connectivity – The area of the City south of Cowan Boulevard consists of older residential neighborhoods designed primarily for automobile access. They typically do not have sidewalks. A bicycle/pedestrian facility along the U.S. Route 1 Bypass will provide a connecting link for these many outlying communities to gain access to the City's trails network.

Accessibility – The topography of the existing road will preclude full compliance with ADA standards.

Directness – The travel route follows an existing highway and is as direct as possible.

Continuity – The primary destination of a sidewalk along the U.S. Route 1 Bypass will be the two schools at the South City Limits – Lafayette Upper Elementary School and Walker-Grant Middle School.

Consistency – Five-foot wide concrete sidewalks are a standard facility throughout the City.

Route Attractiveness – The travel route is along a principal arterial highway, with high traffic volumes. The sidewalk is utilitarian rather than attractive. Where possible, tree cover should be established/maintained.

Low Conflict – The travel route will need to cross several streets. Appropriate signals and signage will need to be part of the project.

Ease of Implementation – The necessary right-of-way is in public ownership.

Multi-modal Coordination – Bicycle racks will be needed at destination points.

Multi-jurisdictional Coordination – The sidewalk will end at Learning Lane. There is no compelling reason to continue into Spotsylvania County, unless that jurisdiction desires to incorporate similar facilities along the U.S. Route 1 Bypass.

Safety and Security – A guard rail, or other similar barrier, should be considered in selected locations.

Figure 5-35. Walker-Grant School Connector.

Title: Hospital Drive Connector

Type: Multi-use trail
Location: North side of Hospital Drive
Length: Approximately 0.58 miles, from Cowan Boulevard to Mary Washington Boulevard
Description: Ten-foot wide pathway with an asphalt surface

Consistency with Performance Criteria

Connectivity – Hospital Drive provides a connecting link between Cowan Boulevard and Mary Washington Boulevard, recently expanded to extend from Fall Hill Avenue to the U.S. Route 1 Bypass.

Accessibility – The topography of the travel route precludes a full compliance with ADA standards.

Directness – The travel route follows Hospital Drive and is as direct as possible.

Continuity – Both Mary Washington Boulevard and Cowan Boulevard have bicycle/pedestrian facilities and a bicycle/pedestrian facility is also needed along the roadway that connects them.

Consistency – A ten-foot wide multi-use pathway design is a standardized configuration throughout the City.

Route Attractiveness – The Mary Washington Hospital campus is a pleasant, well-designed area of the City. Additional tree cover should be established and maintained.

Low Conflict – There are only limited numbers of street crossings needed.

Ease of Implementation – The necessary right-of-way will need to be acquired.

Multi-modal Coordination – Bicycle racks at destination points will be needed, especially if hospital employees use this facility to get to work.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – Hospital Drive is the route for vehicles to get to the hospital Emergency Room. Constructing this facility on the north side of the roadway will ensure that cyclists/pedestrians will not interfere with emergency vehicles.

Figure 5-36. Hospital Drive Connector.

Title: Mary Washington Hospital Connector

Type: Multi-use trail, new ramp, and rebuilt stairs
Location: Through a natural area adjacent to the Rappahannock Canal
Length: Asphalt pathway - approximately 220-foot, from Canal Trail to existing stairs
Ramp - approximately 180-foot, from foot of stairs to MW Boulevard
Description: Resurface existing ten-foot wide asphalt pathway, construct five-foot wide wooden ramp, and rebuild wooden stairs

Consistency with Performance Criteria

Connectivity – There is a ten-foot grade differential between the Rappahannock Canal Trail and Mary Washington Boulevard. There is currently a set of stairs in place, but a ramp will accommodate wheeled conveyances such as bicycles, wheelchairs, and strollers.

Accessibility – A new ramp can be made fully compliant with ADA standards.

Directness – The existing stairs are as direct as possible. The travel route for the ramp is as direct as it can be and still meet ADA standards.

Continuity – The new ramp will fill a large gap in the bicycle/pedestrian network.

Consistency – A ramp will meet all applicable Building Code standards.

Route Attractiveness – The travel route is through a natural area.

Low Conflict – The travel route has no conflicts with vehicular traffic.

Ease of Implementation – The ramp will need to be constructed through a wooded area. Its route has been selected to minimize the loss of trees.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – The new ramp will provide a safe route for vehicles with wheels.

Figure 5-37. Mary Washington Hospital Connector.

Title: Villas at Snowden Connector

Type: Sidewalk
Location: Natural area
Length: Approximately 500 feet, from Cadmus Drive to Hospital Drive
Description: Five-foot wide concrete sidewalk

Consistency with Performance Criteria

Connectivity – The Villas at Snowden have only a single route in and out, through the Hills at Snowden neighborhood. A sidewalk that connects residents with Hospital Drive will provide better access to the City's bicycle/pedestrian network.

Accessibility – The travel route can be made fully compliant with ADA standards.

Directness – The travel route is as direct as possible.

Continuity – The new sidewalk will connect to sidewalks on both Cadmus Drive and Hospital Way.

Consistency – A five-foot wide concrete sidewalk is a standard design throughout the City.

Route Attractiveness – The travel route will skirt a protected natural/historic area owned by the Central Virginia Battlefields Trust. Tree cover should be established and maintained.

Low Conflict – This travel route has no conflicts with vehicular traffic.

Ease of Implementation – Acquisition of right-of-way from private ownership is needed.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – This short connector between a well-established neighborhood and the hospital campus can be made safe with proper attention to its physical design.

Figure 5-38. Villas at Snowden Connector.

Title: Upper Princess Anne Street Corridor

Type: Shared Roadway
Location: Princess Anne Street
Length: Approximately 0.5 miles, from RRH Trailhead to Forbes Street
Description: On-street bicycle route. Pedestrians have use of sidewalks.

Consistency with Performance Criteria

Connectivity – Upper Princess Anne Street is an area of the City in transition. As the Business Route 1, that roadway functions as a corridor of commercial activity oriented to automobile travelers. As highway travel became reoriented to interstate highways, Princess Anne Street has become an area of increasing commercial activity that serves the local community. An on-street bicycle route will reinforce this transition.

Accessibility – The travel route is an established roadway. Portions of it meet ADA standards, but some areas do not.

Directness – The travel route follows an existing roadway and is as direct as possible.

Continuity – The travel route will link residents from nearby neighborhoods with commercial and entertainment opportunities within the Princess Anne Street corridor.

Consistency – Shared roadway markings are standardized

Route Attractiveness – The travel route is a developed area, but its sidewalks have been rehabilitated and utility strips re-established as needed to promote street trees. Further, overhead wires run perpendicular to Princess Anne Street, which expands the options for tree selection. Tree cover should be maintained and enhanced.

Low Conflict – This project will provide an on-street bicycle route that will have all appropriate signs and pavement markings.

Ease of Implementation – The travel route will be on existing public right-of-way.

Multi-modal Coordination – Bicycle racks will be needed at destination points.

Multi-jurisdictional Coordination – The upper Princess Anne Street corridor can be made to connect with the Falmouth Bridge, which is planned for eventual rehabilitation, with provision of an enhanced bicycle/pedestrian facility.

Safety and Security – Pavement markings and signs will be used to make the on-street bicycle route as safe as possible.

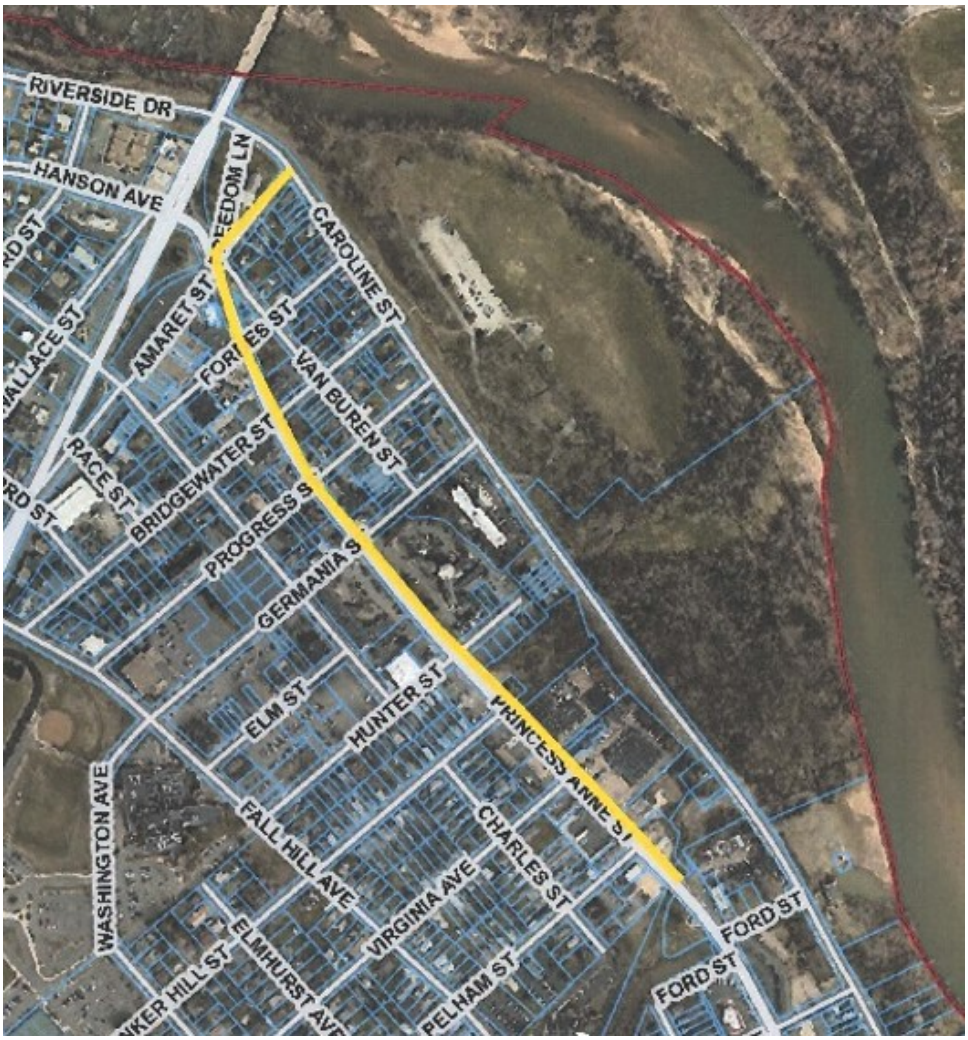


Figure 5-39. Upper Princess Anne Street Corridor.

Title: River Quarry Trail

Type: Natural surface trail
Location: Along Rappahannock River
Length: Approximately 1.2 miles, from Fall Hill Avenue to the Quarry
Description: Off-road bicycle/pedestrian route

Consistency with Performance Criteria

Connectivity – The River Quarry Trail is a recreational facility along the river. It connects to Fall Hill Avenue, where existing multi-use trails converge, which provides access from numerous residential neighborhoods.

Accessibility – The travel route follows existing topography. It does not meet ADA standards.

Directness – The travel route courses the terrain between river bluffs and the Rappahannock River. Within those constraints, it is as direct as possible.

Continuity – The trail has a variety of characteristics, depending on the type of terrain involved. For the most part, the travel route is on a hard crushed-gravel surface. In areas that remain naturally wet, trail construction has used a technique appropriate to such terrain that ensures positive drainage without causing erosion or damage to the landscape.

Consistency – Trail construction follows national standards developed for natural surface trails that preclude erosion and environmental damage.

Route Attractiveness – The travel route is through an intact natural landscape.

Low Conflict – There are no conflicts with vehicular traffic, although a canoe launch and take-out area near the I-95 bridge requires the occasional recreational vehicle and canoe trailer.

Ease of Implementation – The travel route is on City-owned property, except for a small section near the old Embrey Dam site.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – The trail has been made as safe as possible through appropriate construction techniques, but users must exercise caution in the natural setting.

Figure 5-40. River Quarry Trail.

Title: Motts Run Connector

Type: Natural surface trail
Location: Along Rappahannock River
Length: Approximately 2.6 miles, from the Quarry to Motts Run Reservoir Park
Description: Off-road bicycle/pedestrian route

Consistency with Performance Criteria

Connectivity – At its downstream end, this riverside trail will connect to the Quarry Trail, which provides access from Fall Hill Avenue. At its upper end, the trail will extend into the Motts Run Reservoir Park.

Accessibility – The travel route will follow existing topography. It will not be able to meet ADA standards.

Directness – The travel route courses the terrain between river bluffs and the Rappahannock River. Within those constraints, it will be as direct as possible.

Continuity – The trail will have a variety of characteristics, depending on the type of terrain involved. Part of the travel route is on a hard crushed-gravel surface, the remnants of a gravel road that provided access to a USGS gauge. In areas that remain naturally wet, trail construction will use a technique that ensures positive drainage without causing erosion or damage to the landscape.

Consistency – Trail construction follows national standards developed for natural surface trails that preclude erosion and environmental damage.

Route Attractiveness – – The travel route is through an intact natural landscape.

Low Conflict – There are no conflicts with vehicular traffic until the travel route reaches River Road. A crossing point will need to be established to allow access to Motts Run Reservoir Park.

Ease of Implementation – Much of the needed right-of-way is on City-owned riparian property. There are some sections that are privately owned, though, and right-of-way will need to be acquired, either in fee simple or through easement.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – The travel route extends into Spotsylvania County although much of it is still owned by the City of Fredericksburg. Coordinating a safe crossing of River Road will require coordination with the County and the Virginia Department of Transportation. Extending the trail into Motts Run Reservoir Park will entail coordination with the County's Waterworks Department.

Safety and Security – The trail will be made as safe as possible through appropriate construction techniques, but users will need to exercise caution in the natural setting.

Figure 5-41. Motts Run Connector.

Title: University of Mary Washington Connector

Type: Enhanced sidewalk
Location: William Street
Length: Approximately 950 feet, from College Avenue to Sunken Road
Description: Widen the concrete sidewalk, when reconstruction of the brick retaining wall is required.

Consistency with Performance Criteria

Connectivity – The William Street corridor is used extensively by University students to travel between their campus and downtown Fredericksburg.

Accessibility – The existing topography is too steep to meet ADA standards.

Directness – The travel route follows the roadway, which is as direct as possible.

Continuity – There is no gap to be overcome in the existing pedestrian route, but the sidewalk could be considerably enhanced.

Consistency – Sidewalks are standard urban features.

Route Attractiveness – The travel route is characterized by a brick wall, which is leaning, and numerous trees within the UMW campus. This project will not be feasible until the brick retaining wall must be replaced. At that time, the University should consider moving the wall farther into the campus, to allow a wider sidewalk that is more inviting to use.

Low Conflict – There will be no conflicts with vehicular traffic.

Ease of Implementation – Any widening of the sidewalk will be on University property.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – An enhanced sidewalk will become more inviting to use.

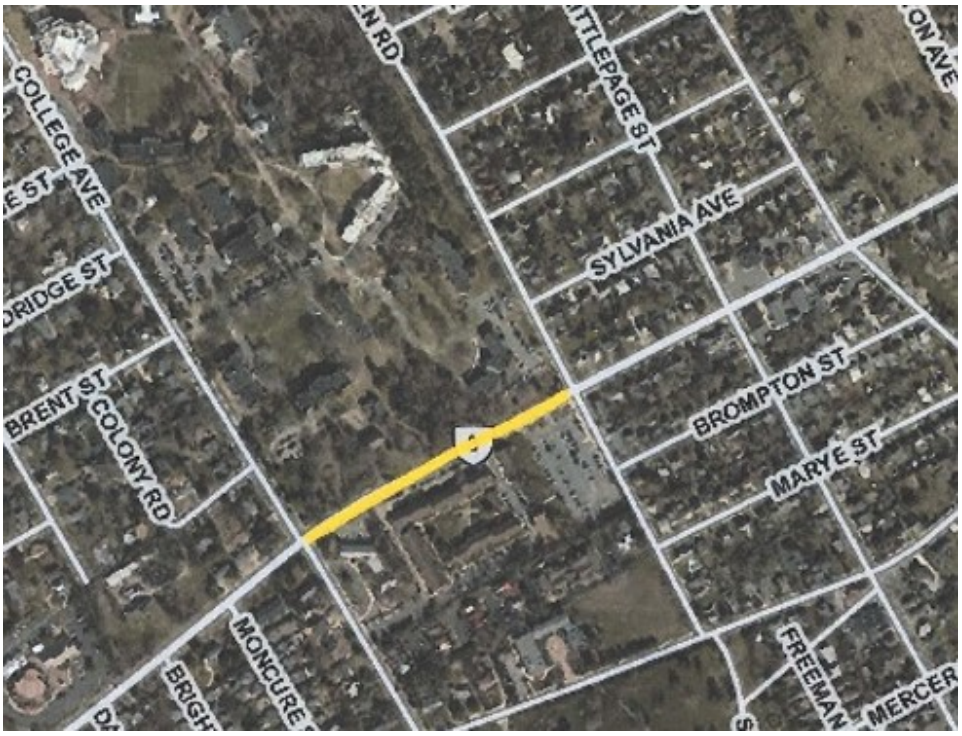


Figure 5-42. University of Mary Washington Connector.

Title: Normandy Village Bridge

Type: ADA compliant ramps from bridge deck to trail
Location: Normandy Village access to Canal Trail
Length: Ramps long enough to address 3 foot grade differential
Description: Modify west end of steel bridge to be ADA compliant

Consistency with Performance Criteria

Connectivity – The existing bicycle/pedestrian bridge links Normandy Village and several adjoining neighborhoods with the Rappahannock Canal Trail.

Accessibility – This project will modify the existing bridge to be consistent with ADA standards.

Directness – The existing bridge is as direct as possible.

Continuity – The Rappahannock Canal Trail and the Rappahannock River Heritage Trail comprise a continuous loop that is well used by the community. The Normandy Avenue bridge, however, does not meet ADA standards and thus constitutes a significant gap in accessibility to this popular resource.

Consistency – New ramps will be made consistent with ADA standards.

Route Attractiveness – The bridge is located within an intact natural setting.

Low Conflict – There are no conflicts with vehicular traffic.

Ease of Implementation – The property is publicly owned.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – Proper ramps to and from the bridge will enhance user safety considerably.

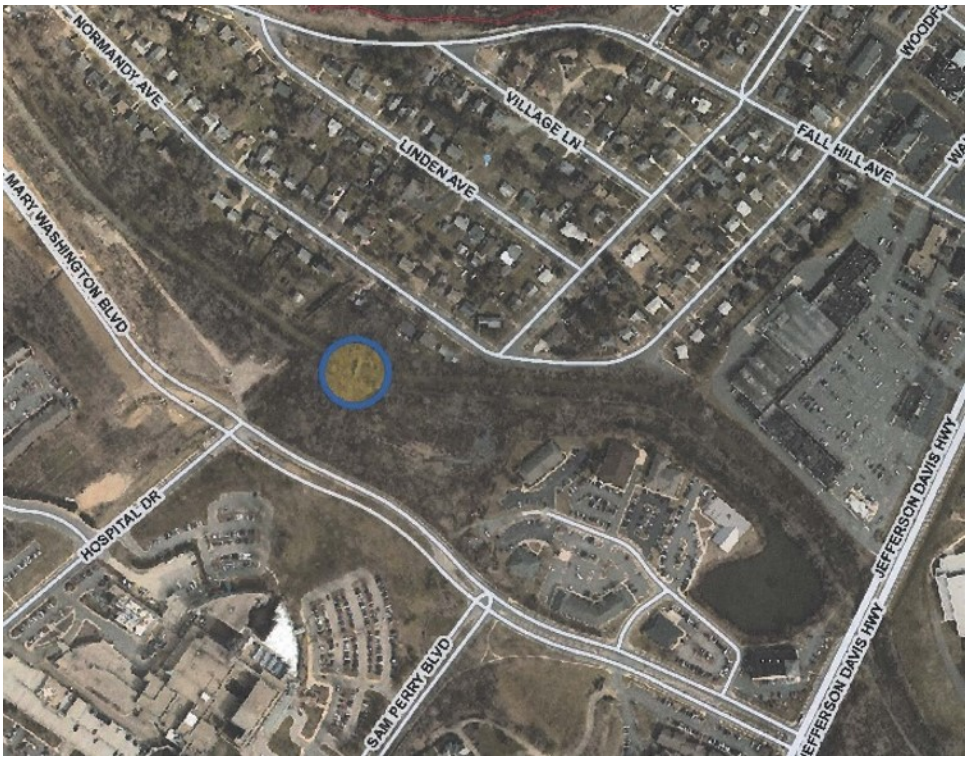


Figure 5-43. Normandy Village Bridge.

Title: Battlefield Park Connector

Type: Safe road crossing
Location: Lafayette Boulevard
Length: Approximately 40 feet
Description: Crosswalk

Consistency with Performance Criteria

Connectivity – The crosswalk will connect several residential neighborhoods on the north side of Lafayette Boulevard with the VCR Trail on the south side of that roadway. In addition, the VCR Trail route is a historic resource associated with both the first and second battle of Fredericksburg and a designated crossing will provide a way for visitors to the Fredericksburg Battlefield Park to examine that area.

Accessibility – A crossing can be made fully compliant with ADA standards.

Directness – The crossing will occur at Willis Street, which connects directly to the VCR Trail.

Continuity – A crossing at Willis Street will eliminate a gap in the City's bicycle/pedestrian network.

Consistency – Street markings and associated signs are standardized crossing features.

Route Attractiveness – The setting is surrounded by the Battlefield Park and quiet residential neighborhoods.

Low Conflict – The formal crossing will reduce pedestrian/vehicle conflicts as much as possible.

Ease of Implementation – The site is public right-of-way.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – Lafayette Boulevard is a minor arterial roadway that can be heavily travelled at certain times of the day. There are sight distance limitations along the curve to the west, so the crossing at Willis Street is considered the safest place to establish a formal crossing.

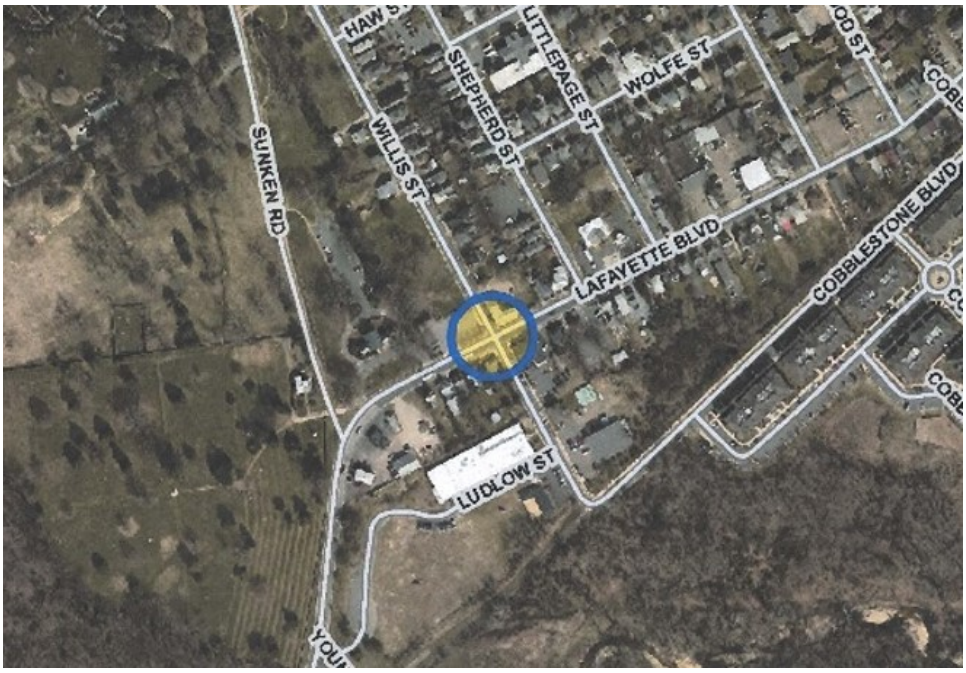


Figure 5-44. Battlefield Park Connector.

Title: VCR Trail Bridge over Blue & Gray Parkway

Type: Bridge
Location: Across the Blue & Gray Parkway, at Lafayette Boulevard
Length: TBD. Will include ramps in addition to the bridge
Description: Steel frame structure

Consistency with Performance Criteria

Connectivity – There are numerous residential neighborhoods south of the Blue & Gray Parkway that require safe access to downtown Fredericksburg and the VRE station.

Accessibility – The bridge will need to be made fully ADA accessible.

Directness – The VCR Trail south of Lafayette Boulevard will be re-routed slightly, to provide a direct connection to the bridge crossing, which will have a direct route through a proposed new development.

Continuity – There is an existing at-grade crossing for the VCR Trail, but as the neighborhoods along Lafayette Boulevard gain better access to the trails system, a grade separated crossing will provide safer connectivity across the Blue & Gray Parkway.

Consistency – The bridge will be built as a multi-use facility to accommodate both cyclists/pedestrians.

Route Attractiveness – The bridge will be designed to fit within its setting.

Low Conflict – The bridge will eliminate cyclist/pedestrian conflicts with vehicular traffic.

Ease of Implementation – Existing public right-of-way exists on the north side of the Blue & Gray Parkway, but access will be required at the south end of the bridge.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – A grade-separated crossing will considerably enhance the safety of those who use the VCR Trail.

Figure 5-45. VCR Trail Bridge over Blue & Gray Parkway.

Title: VCR Trail Bridge over U.S. Route 1 Bypass

Type: Bridge
Location: Across the U.S. Route 1 Bypass
Length: The trail route is angled, which makes the pavement to be spanned approximately 110 feet
Description: Steel frame structure

Consistency with Performance Criteria

Connectivity – The existing travel route provides a critical link for cyclists/pedestrians across the busy highway.

Accessibility – The bridge will need to be made fully ADA accessible.

Directness – The bridge will not impact the directness of the existing trail. Ramps at either end can be extended along existing trail right-of-way.

Continuity – There is an existing at-grade crossing, but as traffic and trail users increase, it will become expedient to provide a grade separation.

Consistency – The bridge will be built as a multi-use facility to accommodate both cyclists/pedestrians.

Route Attractiveness – The travel route is through a protected natural area, which will not be compromised.

Low Conflict – The bridge will eliminate cyclist/pedestrian conflicts with vehicular traffic

Ease of Implementation – The new bridge will be located on existing public right-of-way.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – A grade-separated crossing will considerably enhance the safety of those who use the VCR Trail.

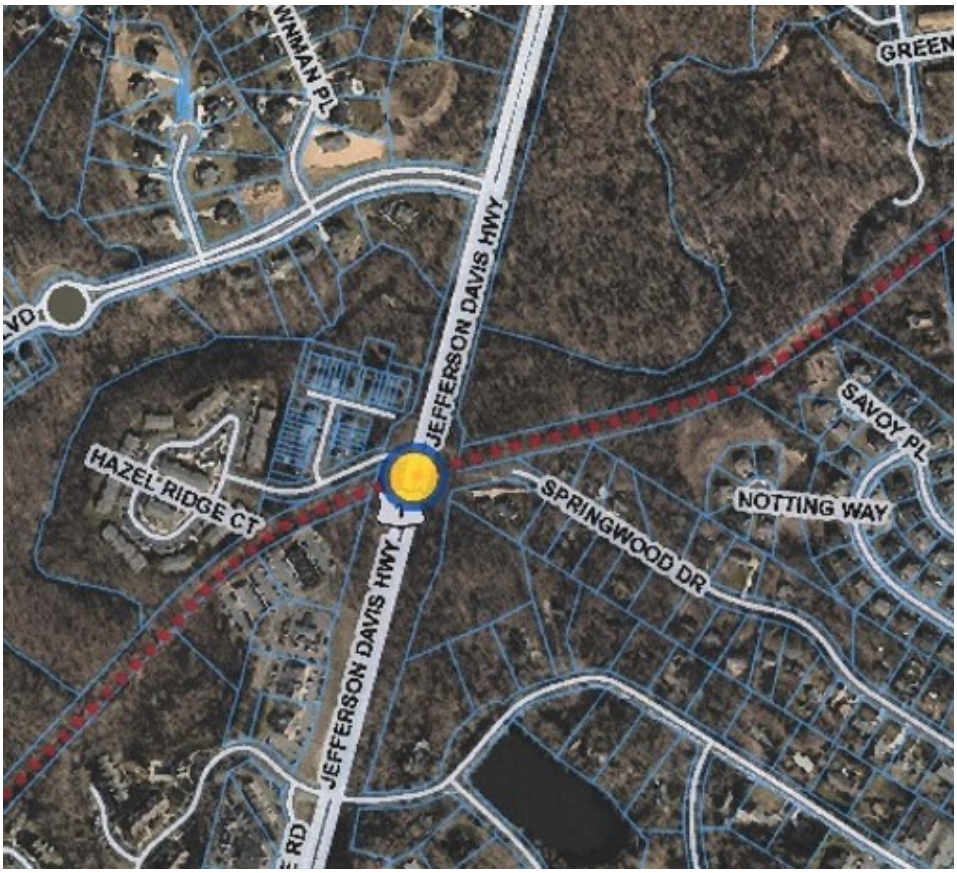


Figure 5-46. VCR Trail Bridge over U.S. Route 1 Bypass.

Title: Fredericksburg Cemetery Sidewalks

Type: Sidewalk and protective barriers
Location: West side of Washington Avenue
Length: Approximately 775 feet
Description: Concrete sidewalk to be removed; brick sidewalk to be established closer to cemetery wall; tree planting in enhanced utility strip; wooden barriers installed to protect cemetery wall

Consistency with Performance Criteria

Connectivity – The existing sidewalk is located within a comprehensive street grid.

Accessibility – The sidewalk will be kept fully ADA accessible.

Directness – The travel route is as direct as possible.

Continuity – The sidewalk is within an extensive sidewalk grid.

Consistency – The brick sidewalk will be installed consistent with adopted City standards.

Route Attractiveness – The relocated sidewalk will allow street trees to be planted, to enhance the cemetery setting.

Low Conflict – The sidewalk has only one vehicular crossing, at the cemetery gate.

Ease of Implementation – The existing sidewalk area has sufficient room to allow the brick sidewalk to be established closer to the cemetery wall, in order to be able to plant healthy street trees and erect attractive wooden barriers to protect the cemetery wall.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – Getting protective barriers into place will protect the cemetery wall as well as enhance pedestrian safety.

Figure 5-47. Fredericksburg Cemetery Sidewalks**.**

Title: Idlewild Boulevard Bicycle Lanes

Type: Shared roadway
Location: Idlewild Boulevard
Length: Approximately 1.36 miles
Description: On-street bicycle route

Consistency with Performance Criteria

Connectivity – The travel route will serve hundreds of households in the Idlewild development.

Accessibility – The on-road facilities will be established on an existing roadway, which will not meet ADA standards.

Directness – The travel route is as direct as possible.

Continuity – The travel route will extend from the Idlewild community center to the U.S. Route 1 Bypass. The VCR Trail is 1,000 feet south of the Idlewild Boulevard intersection, which will require a safe connecting link.

Consistency – The travel route will be an on-street facility for its entire length.

Route Attractiveness – The route is through the Idlewild community.

Low Conflict – The travel route will be within existing public right-of-way, but another link will be needed at U.S. Route 1 to connect to the VCR Trail.

Ease of Implementation – The travel route is within existing right-of-way.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – An enhanced bicycle/pedestrian travelway will considerably enhance user safety.

Figure 5-48. Idlewild Boulevard Bicycle Lanes.

Title: Gateway Boulevard Bicycle Lanes

Type: Shared roadway
Location: Gateway Boulevard
Length: Approximately 0.89 miles
Description: On-street bicycle route

Consistency with Performance Criteria

Connectivity – The travel route will serve hundreds of households in the Idlewild development.

Accessibility – The on-road facilities will be established on an existing roadway, which has slopes that will not meet ADA standards.

Directness – The travel route is as direct as possible.

Continuity – The travel route will extend from the Idlewild community center to State Route 3. This facility will connect with proposed bicycle facilities on Idlewild Boulevard.

Consistency – The travel route will be an on-street facility for its entire length.

Route Attractiveness – The route is through the Idlewild community.

Low Conflict – The travel route will be within existing public right-of-way.

Ease of Implementation – The travel route is within existing right-of-way.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Not applicable.

Safety and Security – An enhanced bicycle/pedestrian travelway will considerably enhance user safety.

Figure 5-49. Gateway Boulevard Bicycle Lanes.

Title: Idlewild - VCR Connector

Type: Multi-use trail on its own alignment
Location: West side of U.S. Route 1 Bypass
Length: Approximately 1,000 feet (0.19 miles)
Description: Ten-foot wide pathway with an asphalt surface

Consistency with Performance Criteria

Connectivity – The travel route will connect the Idlewild bicycle lanes to the VCR Trail.

Accessibility – The travel route follows an existing roadway (U.S. Route 1 Bypass) and will not meet ADA standards.

Directness – The travel route is as direct as possible.

Continuity – The travel route will provide a critical link that will allow hundreds of households in the Idlewild community to gain access to the City trails network.

Consistency – A 10- or an 8-foot wide multi-use path has a consistent design within the City.

Route Attractiveness – The travel route follows a busy highway, but will connect two attractive routes – VCR Trail and Idlewild Boulevard.

Low Conflict – The travel route will require a crossing at Idlewild Boulevard and at Kings Mill Drive. There is an existing pedestrian light to cross U.S. Route 1 where the new facility will connect with the VCR Trail.

Ease of Implementation – The travel route is within existing public right-of-way.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – There is an existing bus stop at the Kings Mill Drive.

Safety and Security – A formal bicycle/pedestrian route will considerably enhance user safety in the U.S. Route 1 corridor.

Figure 5-50. Idlewild - VCR Connector**.**

Title: Chatham Bridge Connector

Type: Bicycle/pedestrian travelway adjacent to the vehicular travel lanes
Location: The existing bridge that spans the Rappahannock River
Length: Approximately 0.2 miles (1,076 feet)
Description: Separate shared-use path, with a physical barrier separating the bicycle/pedestrian facility from vehicle travel lanes

Consistency with Performance Criteria

Connectivity – There are four bridges across the Rappahannock River (I-95, Falmouth, Chatham, and Mayfield) and only two of them can be used by cyclists/pedestrians. This bicycle/pedestrian travelway will link to a comprehensive sidewalk network in Fredericksburg and to the Belmont/Ferry Farm Trail in Stafford County. The Chatham Bridge is already the designated route of the Bike 1 Route as well as the East Coast Greenway.

Accessibility – The bicycle/pedestrian component of the overall bridge rehabilitation project can be made fully compliant with ADA standards.

Directness – The travel route is a direct link between the two jurisdictions.

Continuity – The Rappahannock River is a major barrier to cyclists/pedestrians and the facilities for those users on the existing bridge are inadequate. The new travelway will provide an important interjurisdictional link.

Consistency – The bicycle/pedestrian travelway on the rehabilitated bridge will be ten feet wide, which is consistent with multi-use trails already in place.

Route Attractiveness – The river crossing provides several scenic vistas and the City of Fredericksburg seeks incorporation of an overlook into the design.

Low Conflict – The new bicycle/pedestrian travelway will reduce conflicts with vehicular traffic.

Ease of Implementation – The Virginia Department of Transportation is working through the many issues associated with this project.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – Both the City of Fredericksburg and Stafford County have been working with VDOT to move this much-desired project along.

Safety and Security – The enhanced bicycle/pedestrian travelway will be designed to ensure user safety. The City of Fredericksburg has also asked for lighting to be incorporated into the design, with the understanding it will become responsible for the lighting fixtures as well as utility costs.

Figure 5-51. Chatham Bridge Connector.

Title: Falmouth Bridge Connector

Type: Bicycle/pedestrian travelway adjacent to the vehicular travel lanes
Location: The bridge spanning the Rappahannock River
Length: Approximately 0.27 miles (1,445 feet)
Description: Separate shared-use path, with a physical barrier separating the bicycle/pedestrian facility from vehicle travel lanes

Consistency with Performance Criteria

Connectivity - There are four bridges across the Rappahannock River (I-95, Falmouth, Chatham, and Mayfield) and only two of them can be used by cyclists/pedestrians. This bicycle/pedestrian travelway will link to a comprehensive sidewalk network in Fredericksburg and to the Belmont/Ferry Farm Trail in Stafford County.

Accessibility – The bicycle/pedestrian component of an overall bridge rehabilitation project can be made fully compliant with ADA standards.

Directness – The travel route is as direct as possible.

Continuity – The Rappahannock River is a major barrier to cyclists/pedestrians and the facilities for those users on the existing bridge are inadequate. A new travelway will provide an important interjurisdictional link.

Consistency – The bicycle/pedestrian travelway on a rehabilitated bridge will be ten feet wide, which is consistent with multi-use trails already in place.

Route Attractiveness – The river crossing is at the falls of the Rappahannock River. Provision of overlooks should be incorporated into the design.

Low Conflict – The new bicycle/pedestrian travelway will significantly reduce conflicts with vehicular traffic.

Ease of Implementation – The existing bridge is a substantial structure that will require attention to its physical condition as well as many utilities. In addition, the U.S. Route 1 Bypass is a heavily travelled route that may need related improvements to the north and south of the bridge itself.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – The City of Fredericksburg and Stafford County have included this project in local and regional transportation plans.

Safety and Security – An enhanced bicycle/pedestrian travelway will considerably enhance user safety.

Figure 5-52. Falmouth Bridge Connector.

Title: Banks' Ford Footbridge

Type: Pedestrian bridge
Location: Banks' Ford area, Rappahannock River
Length: Approximately 900 feet
Description: Suspension bridge

Consistency with Performance Criteria

Connectivity – There are numerous historic resources on both sides of the Rappahannock River in the area known as Banks' Ford. Civil War resources are closely interconnected and connecting the two sides of the river will allow provide for clearer interpretation for visitors.

Accessibility – The natural surface trails, both existing and planned, will have only limited opportunities for ADA access, although several areas have the potential to be made ADA compliant

Directness – The travel route is as direct as possible.

Continuity – The Rappahannock River is a major barrier to understanding the historic significance of the Banks' Ford area. A connecting pedestrian bridge will open significant new opportunities.

Consistency – A suspension bridge will be a unique feature within the City's overall trails network.

Route Attractiveness – The new bridge will be located at the first crossing upstream from Fredericksburg, which is an extremely picturesque section of the Rappahannock River.

Low Conflict – The new bridge will not interfere with recreational river traffic, but will also need to be located above flood levels.

Ease of Implementation – A suspension bridge 900 feet long will be a challenge to construct in the sensitive riverine eco-system.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – The City of Fredericksburg and Stafford County have a mutual desire to provide a compelling experience at Banks' Ford for local residents as well as visitors.

Safety and Security – A pedestrian bridge in a somewhat remote location will require careful administration.

Figure 5-53. Banks' Ford Footbridge Area.

Title: VCR Trail – Spotsylvania County Connector Tunnel

Type: Bicycle/pedestrian tunnel
Location: Interstate 95
Length: Approximately 470 feet
Description: Tunnel bored through interstate embankment

Consistency with Performance Criteria

Connectivity – The Virginia Central Railway connected Fredericksburg and the Town of Orange, a distance of approximately 30 miles. When the railway ceased operations, its tracks and ties were removed, which left a solid roadbed. Portions of that route have been converted to multi-use trails and a tunnel through the interstate embankment will provide a connection between the City of Fredericksburg and Spotsylvania County.

Accessibility – The gentle grades necessary for a railway to be able to function readily allows the VCR Trail to be made fully compliant with ADA standards.

Directness – The travel route follows the old railroad, which is as direct as possible.

Continuity – Interstate-95 is a major barrier to east-west travel. Construction of a bicycle/pedestrian tunnel will open significant new opportunities for recreation and general east-west travel by non-motorized means.

Consistency – A tunnel will be a unique feature within the developing City/Spotsylvania trails network.

Route Attractiveness – The new tunnel will be located in the picturesque Hazel Run valley, a protected natural area in the City. When it was built, the VCR coursed through the City as well as the Counties of Spotsylvania and Orange. An intact trail along that route will provide recreational opportunities for local residents and visitors and commercial opportunities for restaurants and other destinations in communities along its route.

Low Conflict – The new tunnel will enhance an existing bicycle/pedestrian travelway by avoiding vehicular traffic entirely.

Ease of Implementation – Boring a tunnel approximately 470 feet long will be a challenge to construct in the sensitive riverine eco-system. To assist in this process, the City of Fredericksburg owns property adjacent to the interstate that can be used as a staging area.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – The tunnel will cross jurisdictional boundaries, so coordination will be necessary between the City of Fredericksburg and Spotsylvania County.

Safety and Security – A pedestrian tunnel will be constructed in a somewhat remote location, but opening that recreational opportunity will draw large numbers of users, which will help to ensure overall user safety.

Figure 5-54. VCR Trail – Spotsylvania County Connector Tunnel.

Title: East Coast Greenway

Type: Bicycle/pedestrian route
Location: Chatham Bridge to South City Limit
Length: Approximately 1.7 miles
Description: Connecting route on a dedicated bicycle/pedestrian facility on the Chatham Bridge, shared roadway along Sophia Street to Lafayette Boulevard, dedicated bicycle/pedestrian route on Lafayette Boulevard and Charles Street, and a ten-foot wide pathway along Dixon Street to Spotsylvania County.

Consistency with Performance Criteria

Connectivity – The East Coast Greenway in the City of Fredericksburg will connect to the planned alignments in both Stafford and Spotsylvania Counties.

Accessibility – The ECG route follows existing roadway grades, some of which will allow compliance with ADA standards, but some of which will not.

Directness – The travel route provides as direct a connection as possible. Potential parallel routes, which could temporary or made permanent, include Airport Avenue and the Mayfield – Downtown Connector.

Continuity – The ECG is a multi-jurisdictional, multi-state effort and its continuity in the Fredericksburg region has been carefully coordinated through the Fredericksburg Area Metropolitan Planning Organization.

Consistency – The standard ECG route is a ten-foot wide multi-use path. It can be as wide as 12 feet, where feasible, and as narrow as eight feet, where necessary.

Route Attractiveness – The travel route will course through downtown Fredericksburg, past the Riverfront Park, with information on dining, lodging, and bicycle repair facilities. The route will be somewhat constrained within the City, but open up into the gentle terrain of the Virginia Tidewater region when it extends into Spotsylvania County.

Low Conflict – The bicycle/pedestrian route through Fredericksburg will not be able to avoid vehicular conflicts, but careful attention to safety will ensure an attractive route.

Ease of Implementation – Establishing the ECG route in the City will occur in several stages, depending on funding and opportunity.

Multi-modal Coordination – Not applicable.

Multi-jurisdictional Coordination – The ECG route through the City will connect at its north end with Stafford County across the Chatham Bridge, whose bridge deck will be rebuilt with a

dedicated bicycle/pedestrian travelway. The connection with Spotsylvania County will occur along the Dixon Street/Route 2/17 corridor.

Safety and Security – The East Coast Greenway is expected to attract large numbers of users, and overall user safety will be accomplished through the full range of design options and safety devices.

Figure 5-55. East Coast Greenway.

Part 6: Appendices

A. Safe Routes to School
B. Traffic Calming
C. Trails Maintenance Plan
D. Trail Bridges Maintenance Plan
E. Safe Transportation for Every Pedestrian
F. Access to Recreational Areas
G. Wayfinding Plan

Appendix A: Safe Routes to School

Safe Routes to School began as a federal program authorized in the 2005 federal transportation bill. The intent of this legislation was to address the following goals:

- Encourage and enable children to walk and bike to school
- Ensure biking and walking to school was made safe, and thus more appealing
- Facilitate improvements in the vicinity of schools that improve safety, traffic reduction, air quality, and fuel consumption

The Virginia Department of Transportation administers the Virginia Safe Routes to School Program and is able to provide funding to help localities establish a program of their own. They can provide technical assistance as well as modest grants to help assess existing conditions and to develop an appropriate school travel plan.

The Safe Routes to School program seeks to increase the number of students who walk and bike to school, through improved route safety and encouragement. The benefits include better safety awareness, better health, and the potential for reduced traffic congestion at arrival and departure times.

A generation ago, 90 percent of students lived within a mile of school and routinely walked or cycled to get to class. Today, only 10 percent of students can walk or bike to school. The Safe Routes to School program recognizes that student safety is a very real concern to school administrators and to the public. As a consequence, implementation strategies include attention to both traffic safety as well as personal security.

The overall program is built on five Es, as follows:

Education – Develop safety skills and ensure safety awareness

Encourage – Increase the popularity of walking and biking; emphasize fun

Enforcement – Help children to learn and follow traffic safety rules; increase bicycle/pedestrian awareness

Engineering – Improve the physical infrastructure that comprises the routes to school

Evaluation – Constantly assess the routes and improve them

The Virginia Department of Transportation has expressed its commitment to get more kids walking and biking along safe routes. The Safe Routes to School Program has resources available to localities that would like to develop similar goals and realize their implementation.

This assistance is available for both education and planning, to develop the basis for actual improvements to the infrastructure.

Appendix B: Traffic Calming

The Concept of Traffic Calming

Traffic calming consists of a variety of measures to reduce vehicle speeds and traffic volumes on a single street or a street network. This result is achieved through horizontal and vertical features that cause drivers to drive more carefully and thus at lower speeds. The added benefit inherent in the physical nature of traffic calming features is that drivers self-enforce, rather than the community having to rely on the presence of law enforcement resources.

Traffic calming has evolved to include both neighborhood-specific treatments as well as to be integral to the concept of complete streets in urban settings. In neighborhoods, traffic calming has two functions. First, it seeks to reduce vehicle speeds to be more consistent with residential activity. Second, it also makes travel through a neighborhood less efficient for traffic passing to and from destinations outside the neighborhood. That traffic, ideally, will seek more efficient travel routes outside the residential area. Complete streets, on the other hand, does not seek to divert traffic, but rather to ensure and enable safe travel by all users. In urban settings, automobile speed reduction is important, but so are the related features that enhance those routes for cyclists, pedestrians, and transit users.

Integrating Traffic Calming into the Travel Network

Traffic calming devices are simple street design features that cause motorists to drive with increased care. These physical features should be made context sensitive, because they are expected to be effective in a whole variety of situations. Traffic calming thus involves an effort to find the balance between the need for an efficient transportation network, with the related goal of ensuring a livable and safe environment that is attractive to residents, shoppers, visitors, and even investors. Implementation must also recognize the needs of emergency vehicles (some of them quite large), school buses, snow removal equipment, waste collection, and delivery of freight.

Drivers respond to road design. On wide boulevards with generous travel lanes, drivers invariably drive faster, regardless of posted speed limits. On narrower streets with physical obstacles such as parked cars, drivers will travel more slowly, to avoid damaging their vehicles or having to stop suddenly for unexpected conflicts. As a consequence, the great majority of traffic calming devices make slight modifications to a street's geometry, inserting carefully designed obstacles that achieve the desired reduction in speed. The intent is to reduce the travel route's real or perceived width, or cause a driver to negotiate obstacles that are attractive, but still constitute physical constraints to unimpeded travel. While making some roadways, such as neighborhood streets, less efficient, it is important to ensure that other travel routes are made correspondingly more attractive for travel. This balance between slow and fast ensures a necessary balance between community livability and economic viability.

Traffic calming measures can be characterized by their basic design principles. They include narrowing the street, deflecting the travel route, as well as sharing the pavement. **It is important that traffic calming features be professionally designed to address all engineering issues and to include installation of appropriate plantings and other visual elements.**

Narrowing the Street reduces the speeds that most drivers find reasonable and comfortable. Narrowing is accomplished through reduction of the pavement width and adding a median. At intersections, tight corners causes traffic to slow down. The perception of narrowing can be as effective as actual narrowing and can be gained through street trees along the curb, an overhead tree canopy, and buildings located close to the street.

Examples of features that narrow the street:

- Corner extensions/bulb-outs
- Mid-block extensions/bulb-outs
- Striped bicycle lanes

Deflecting the Vehicle Path causes drivers to slow down and devote attention to the task of driving. Deflections seek to reduce the design speed of a road by modifying long, straight road sections that otherwise invite speeding.

Examples of vertical deflection features:

- Speed humps
- Raised crosswalks

Examples of horizontal deflections:

- Realigned intersection
- Intersection island/traffic circle
- Roundabout
- Mini-roundabout

Sharing the Pavement with other vehicles and other modes of transportation is a traditional way to slow traffic, especially in urban settings. Where the concept of narrowing the street entails a physical constriction of the travel route, sharing the pavement involves the accommodations to other travelers.

Examples of sharing the pavement:

- On-street parking
- Pavement markings for shared roadways – bicycle lanes, cycle tracks, sharrows, etc.

Appendix C: Trails Maintenance Plan

Trail	Length	Specifications	Construction/Maintenance Activity
Canal Path	1.6 miles		Built 1983; Repaved/widened 2006
Cowan Blvd. Trail	1.75 miles		Built 2003
Rappahannock River Heritage Trail	1.7 miles	6” base; 6” asphalt	Built 2013
Virginia Central Railway Trail	2.7 miles	4” base; 4” asphalt	Built 2015
Fall Hill Avenue Trail	1.5 miles	4 “ base; 1.5” asphalt	Built 2017

Appendix D: Trail Bridges Maintenance Plan

Trail/Bridge Location	Specifications	Year of Construction	Maintenance Activity
Canal Path/Fall Hill Avenue -South bridge	Steel frame, TREX decking, 80 x 8 ft	1983	Bridge frame repaired 2018
Canal Path/Fall Hill Avenue -North bridge	Steel frame, TREX decking, 91x10 ft	2015	
Canal Path/ Normandy Village	Steel frame, TREX decking, 66x13 ft	1983	
Canal Path/Virginia Avenue	Steel frame, TREX decking, 70x8 ft	1983	
Canal Path/Canal Street	Steel frame, TREX decking, 80x8 ft	1983	
RRHT/Stream near FOR	Steel frame, TREX decking, 38x10 ft	2013	
Old Mill Park	Steel frame, TREX decking, 40x8 ft	2013	
RRHT/Boardwalk	Wood frame, TREX decking, 138x10 ft	2013	
VCR/west of Rt. 1	Wood frame boardwalk, TREX decking, 195x12 ft	2015	
VCR/near Idlewild	Steel frame bridge, TREX deck; 100x12 ft; Wood frame boardwalk, TREX decking, 125x12 ft	2015	
Alum Springs Park	Steel frame, TREX decking, 96x6 ft	2001	

Appendix E: Safe Transportation for Every Pedestrian

Safe Transportation for Every Pedestrian (STEP) is a Federal Highway Administration initiative to enhance pedestrian safety as well as accessibility to transportation options. In the United States, pedestrian fatalities have increases substantially (by 27 percent between 2007 and 2016) while all other traffic deaths have decreased. Pedestrians are legitimate users of the transportation network and increased attention is being placed on pedestrian safety at the national and state levels of government. The new policy direction is that all road should be designed with the premise that there will be pedestrians and that they must be able to cross streets safely.

The majority of pedestrian deaths occur at uncontrolled crossing locations, such as mid-block or at un-signalized intersections. These statistics indicate that pedestrian crossing facilities are too often inadequate, insufficient, and inconvenient. Expecting pedestrians to travel significant distances out of their way to cross a roadway in order to reach their destination is unrealistic and counterproductive to encouraging multiple transportation options. The STEP program seeks to address this significant national safety issue by encouraging transportation officials to focus attention on uncontrolled locations that have pedestrian activity.

There are five basic countermeasures in STEP to enhance pedestrian safety at existing uncontrolled crossings. These items are as follows:

- Crosswalk Visibility Enhancements
- Raised Crosswalks
- Pedestrian Refuge Islands
- Pedestrian Hybrid Beacons
- Road Diets

Each of these are briefly discussed below. It should be emphasized that these pedestrian safety features can be used not only at intersections, but mid-block. The mid-block option is attractive when block lengths exceed downtown standards of less than 300 feet, such that pedestrian travel to intersection crossings becomes very inconvenient.

Crosswalk Visibility Enhancements – Crosswalks need to be visible to motorists in both daylight as well as at night. They must be clearly marked, following Manual of Uniform Traffic Control Devices (MUTCD) standards. Additional enhancements can include street lighting, pedestrian signals, and curb extensions to reduce pedestrian travel distances within the roadway.

Raised Crosswalks – In addition to the visual aspect of a marked crosswalk, a raised crosswalk provides a physical component to the pedestrian crossing that improves the propensity of drivers to yield.

Pedestrian Refuge Islands – A physical pedestrian island in a lengthy crosswalk can break up a complex wide street crossing into two simpler crossings. A six-foot wide island is optimum for pedestrians and an eight-foot island is even better to accommodate bicycles. These islands can be enhanced with landscaping, to make them more attractive as well as to increase visibility.

Pedestrian Hybrid Beacons – Pedestrian crossing locations on busy routes can be evaluated for the potential to install flashing pedestrian beacons that dramatically let motorists know that there are pedestrians present. They are most effective on multi-lane roads where crosswalk markings may not be considered sufficient and where the location does not meet signal warrants.

Road Diets – A road diet is a term used when street space is reclaimed for uses other than those related to automobiles. Rights-of-way can vary, depending on when a street was constructed and it is sometimes feasible to reducing wide travel lanes in order to reclaim sections of the road for additional uses. Portions of a wide road could be used for on-street parking, for instance, or installation of a bicycle lane. Additional options could be to reconfigure intersections, installation of traffic calming features, and so on.

While the overall goal is to enhance pedestrian safety to the greatest extent feasible, it is important to approach the issue systematically, to ensure that the appropriate measures are implemented. The basic process to consider and select pedestrian safety countermeasures includes the following steps:

- Collect data and engage the public
- Inventory conditions
- Analyze crash/injuries/fatalities data
- Select countermeasures
    - Using roadway features (traffic volumes, speed limits, number of lanes, medians)
    - Reviewing conflicts, visibility issues, actual traffic speeds)
- Consult appropriate design and installation resources
    - MUTCD, AASHTO, local standards
- Identify opportunities for funding
- Monitor outcomes and adjust as needed

Appendix F: Access to Recreational Areas

The City has a wealth of properties for active and passive recreational use. Places with active recreational amenities include Memorial (Kenmore) Park, Dixon Park, and Old Mill Park. The City also has a substantial amount of City-owned property that constitute natural/historic areas, where passive uses are available. The largest collection of properties maintained in their natural state are the more than 4,000 acres of riparian property along the Rappahannock and Rapidan Rivers. That acreage is within five upriver jurisdictions and well-protected by easements and strategically located public boat ramps. Within the City limits are many additional acres of City-owned natural/historic properties. These attractive places include Alum Spring Park, Fall Hill (to be developed as Butler-Brayne Park), and Smith Run (to be developed as Smith Run Civil War Park).

The ingress/egress facilities at many City parks were constructed many years ago and do not meet current standards for accessibility or environmental protection. Access to the following parks is either non-existent or in need of substantial improvement.

Old Mill Park – The main entrance to this riverside park is excessively steep and without related bicycle/pedestrian facilities. Bicycle/pedestrian access has been provided into this park through a branch trail off the Rappahannock River Heritage Trail, but additional attention to pedestrians is warranted at this main entry point. This project is described on page 76 of this Plan and also notes that retrofitting this entry will need to include attention to the culvert, which was installed poorly and has caused runoff to overflow the drainage ditch, resulting in severe erosion in areas of the Park that include playground equipment for young children.

Alum Spring Park – Entry to this park is across a ford at Hazel Run. This feature has been hardened with concrete, but its limitations and environmental impacts will eventually require a bridge to be built. The overall scope will need to include construction of the bridge, with bicycle/pedestrian facilities, as well as improvements to the parking area. Provision of ADA-compliant access from the VCR Trail into Alum Spring Park has been referenced on page 56 of this Plan.

Butler-Brayne (Fall Hill) Park – Several parcels of land, comprising more than 100 acres, have been donated to the City for use as a recreational natural area. These acres are under conservation easement, which allows for specific amenities that will make the property accessible to the public. The property is primarily a wooded upland, atop bluffs overlooking the Rappahannock River. Steep slopes drop toward Sunshine Park. As a consequence of this severe topography, both vehicular and bicycle/pedestrian access will need to be gained from an entry on Fall Hill Avenue. In addition to an entry road, the easement allows a parking area, restrooms, and visitor shelters.

Smith Run Civil War Park – In 2001, the City of Fredericksburg partnered with the Central Virginia Battlefields Trust and the Virginia Department of Conservation and Recreation to acquire a representative parcel of land related to a battle fought on May 4, 1863. This 11-acre parcel complimented an adjoining 15 acres of land kept as open-space under zoning proffers and another 4.5 acres set aside as a battlefield conservation area on the Police Department property. A foot trail has been established on this historic property, but vehicular access, with related bicycle/pedestrian facilities must wait until Gateway Boulevard is extended into this undeveloped part of the City.

Motts Run Reservoir Recreation Area – This property consists of 877 acres, 160 of which is a man-made lake. The existing access road off of River Road is steep and heavily eroded. The access road needs to be reconfigured to allow safe ingress/egress while also minimizing its environmental impacts. Two parking lots need to be improved through proper grading and identification of spaces. The upper lot, near the road, is needed for those who use the park trails when the gates are closed, but it needs to be properly lit, to preclude its use for unauthorized activities after dark.

Appendix G: Wayfinding

Introduction

Wayfinding makes a place understandable and attractive to both residents and visitors. It is a comprehensive system of information that includes marketing and promotion, a hierarchy of related signs, attention to all aspects of travel connectivity, and careful monitoring to ensure that provided information is kept up to date.

Goals and Objectives

Wayfinding has two primary goals:

- Provide clear guidance that helps people find their way around the community with confidence.
- Help users to anticipate and enjoy a good experience.

The goals defined above are accomplished through the following objectives:

Identify – Orient users to where they are and what kinds of opportunities are nearby.

Inform – Let users know the location of parks, trails, restaurants, historic sites, and other destinations. Provide clear directions on how to get there.

Encourage – Highlight opportunities to users. Let them know how far it is to destinations – both in terms of distance as well as time.

Reassure – Note the availability of public restrooms and ADA routes.

Celebrate – Provide information on the community's history and heritage. Highlight public art.

Benefits

A well-designed wayfinding system, with a consistent City image and complete navigational information, provides the following benefits:

Aesthetic

- Reduces visual clutter and allow the authentic City to reveal itself
- Replaces multiple sign efforts with a comprehensive, coordinated sign system

Environment and Safety

- Directs vehicles to garages as efficiently as possible, to eliminate traffic looking for parking or a destination
- Promotes walking, cycling, and mass transit
- Reduces driver confusion

Economic Development

- Improves vehicular and pedestrian wayfinding to shops, hotels, restaurants
- Reduces parking issues by directing vehicles quickly to parking garages/lots and getting people oriented to enjoy the City
- Incorporates regional/local trails and historic sites
- Provides for a comfortable and informative visitor experience, and encourages a desire to return

Signs

A wayfinding system must be designed in response to the physical characteristics of the City. It must also be planned in response to the way people travel, to what is available to see and do, and in recognition that the signs must be carefully integrated into the community so as to provide information without being intrusive. There is a hierarchy of signs of various sizes that accommodates travel speeds, decision points, and the variety of destinations.

- Highway signs
- City gateways
- Vehicle directions
- Parking
- Pedestrian kiosks and directions
- Shared-use pathway signs
- Interpretive panels
- Destination identifiers
- Banners

Principles

A successful wayfinding system requires constant attention to the following principles:

Consistency – Use the same hierarchy of names and provide non-conflicting information.

Accessibility – Identify any barriers to travel and show alternative routes.

Connectivity – Encourage integration of travel, with information on buses and bicycle/pedestrian trails to more distant destinations.

Simplicity – Avoid non-essential information.

Placement – Balance the need for information with reduction of clutter.

Integrate – Ensure signs are appropriate to their setting. As an example, visitor wayside panels can impart historic information in a manner that is visually attractive, but too many panels can become intrusive. As a consequence, visitor panels for urban streets must be developed more judiciously than is the case for more open settings such as multi-use trails. In the urban core and along natural surface trails, information can be provided more discretely through printed materials as well as through virtual media.

Sustainability – Adopt a sign standard that can be readily refreshed and updated.