Comprehensive Trails and Greenways Master Plan
City of Bristol, Tennessee
2017

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Acknowledgements

The development of the Comprehensive Trails and Greenways Master plan for the City of Bristol, Tennessee was a collaborative effort that involved numerous stakeholders, including the Community Development Department, Parks and Recreation Department, Bristol City Staff and McGill Associates Planners.

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“Beauty surrounds us, but usually we need to be walking in a garden to know it” - Rumi
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“When the spirits are low, when the day appears dark, when work becomes monotonous, when hope hardly seems worth having, just mount a bicycle and go out for a spin down the road, without thought on anything but the ride you are taking.”
- Arthur Conan Doyle
SECTION ONE: INTRODUCTION

1.1 Plan Purpose

The City of Bristol, Tennessee is committed to providing its citizens with a safe community in which to live, work, and play. A major component of providing a safe community includes the future improvement and/or construction of pedestrian-friendly trails and greenway corridors throughout the City. The City of Bristol has partnered with McGill Associates to develop its first Comprehensive Trails and Greenways Master Plan. This plan will work in conjunction with the City’s 2014 Comprehensive Park and Recreation Master Plan and 2008 Pedestrian Plan to determine possible locations for bicycle and pedestrian facilities throughout the City.

The 2014 Park and Recreation Master Plan recommended that a trails and greenways plan be undertaken by the City, largely due to public input and desire for pedestrian and bicycle connectivity. The purpose of the Comprehensive Trails and Greenways Master Plan is to meet the trails and greenways needs of the current residents, as well as guide implementation for future development.

This plan has been developed with the following objectives:

- Exploring links to external trail networks
- Improving access to trails
- Improving connectivity through out the city
- Encouraging alternative transportation
- Enhancing recreational and health benefits
- Promoting awareness and use of existing trails

City residents often prefer to walk to destinations. Residential areas and common destinations should connect with future trails and greenways via a network of safe and accessible pedestrian and bicycle friendly routes.
The goal of the Comprehensive Trails and Greenway Master Plan is to create a document that addresses route planning, trail standards, and the development of trails and greenways projects. The City of Bristol Tennessee has existing sidewalks, trails and greenways but lacks in connectivity between these facilities. Providing a trails network that will connect all parts of the municipality and link to the other regional trail systems, will increase potential for residents and visitors to become more physically active.

Bristol plays a significant role in the regional recreational activities and tourism market within the Tennessee Tri-Cities (Kingsport, Bristol, and Johnson City) area. The City has an expectation of continued growth and a projected need for an advanced system of trails and greenways.

By providing linkages from residential areas to downtown, the Speedway, parks, and other destinations, the City can ensure that it has sufficient pedestrian infrastructure to support future growth and meet the demand for walkable/bikeable routes.

1.2 History and Geographic Characteristics

The City of Bristol is located in the Southeastern part of the United States and straddles the Virginia and Tennessee state line. This has earned Bristol, Tennessee the name “Twin City” of Bristol, Virginia. State Street was designed to coincide with the state boundary in 1903. The state line runs between the common downtown areas marked with metal plates along the center line, to indicate the exact boundary between these two cities. Hereinafter in the report, the City of Bristol will refer only to the separate, distinct city government in Tennessee. Bristol is part of the Metropolitan Statistical Area (MSA) which includes Johnson City, and Kingsport, Tennessee – commonly referred to as the Tri-Cities. This area is populated by nearly half a million people.

Bristol’s location in the Northeastern region of Tennessee, and its excellent transportation connections make it easily accessible to a six (6) state area. These areas include Tennessee, Virginia, West Virginia, North Carolina, South Carolina, and Kentucky. Interstate 81 connects Bristol to important population centers such as Knoxville, Tennessee (118 miles west) and Roanoke, Virginia (143 miles east). Interstates 40 and 77 connect with Interstate 81 within 73 miles of Bristol. Non-interstate highways provide excellent
vehicular transportation corridors and some have signed bicycle routes for residents and tourists. Unfortunately, they typically lack regular maintenance and the safety perception expected by the average cyclist is low.

The City of Bristol was recognized as one of the most livable cities in the United States by American Demographics Magazine and as an All American City by the National Civic League; 1999. This City is nationally and internationally known, as the Birthplace of Country Music and home to NASCAR’s Bristol Motor Speedway.

The City of Bristol is located in Sullivan County, Tennessee and is one of the largest municipalities in the County with a population of 26,702 (2010 Census). Prior to 1852, Bristol was originally part of a vast plantation owned by the Reverend James King.

Rev. King had a son-in-law named Joseph R. Anderson, who was a merchant in nearby Blountville, Tennessee. When Mr. Anderson learned that the junction of two (2) railway lines were planned on the King property, he realized this location would be ideal for planning a city.
These events led to:

- July 10, 1852, Mr. Anderson purchases 100 acres of the King plantation (48 and 52 acres in Tennessee and Virginia, respectively).

- July 16, 1852, Mr. Anderson named his acreage “Bristol”.

- In the summer of 1853, Mr. Anderson built a combined residence/business on (what is now) the southeast corner of State Street and Martin Luther King Boulevard. He relocated his family there in September of the same year.

- In November of 1853 a post office opened in Bristol. Mr. Anderson’s general mercantile store and banking began in 1854. This location is considered the Birthplace of the City of Bristol.

One of the greatest facilitators to Bristol’s economic growth through the years has been its accessibility to well-organized transportation connections. Bristol is located within a day’s drive of more than seventy percent (70%) of the population of the entire United States. Bristol is served by more than fifty (50) freight carriers and two (2) railways. Bristol also has outstanding air service via the Tri-Cities Regional Airport offering service to more than 100 cities.

With more than thirty (30) Park and Recreational venues and the natural beauty of the area, Bristol offers many opportunities for both nature and sports enthusiasts. Bristol is home to ballet, theater, concerts, as well as a number of restaurants. These are a few of the reasons that visitors and others come to Bristol.

The City of Bristol is perhaps, best known for being the site of some of the first commercial recordings of country music in the United States. The Birthplace of Country Music (established in 1994) promotes the City of Bristol as a destination to learn about the history of country music and the City’s role in the creation and significance of this music genre. A major attraction during the third week in September, is the Bristol Rhythm & Roots Reunion. This festival and the crowds it attracts is one example of why good pedestrian facilities are essential in Bristol. The Country Music Association (CMA) recognizes Bristol
as the Birthplace of Country Music, which was affirmed by the U.S. Congress in 1998.

Each Spring and Summer 160,000 NASCAR race fans visit the Bristol Motor Speedway to enjoy weekend racing events. The speedway is the fourth largest sporting venue in the United States and the eighth largest in the world. Bristol Dragway hosts championship drag racing and other seasonal events. The racetrack also hosts a “Fantasy in Lights” to enjoy during the Christmas season. During any track events the pedestrian traffic around the Speedway is substantial.

A new popular destination is the Pinnacle. The Pinnacle is a 250-acre mixed use development designed for 1.3 million square feet of retail, restaurant, and office space and is expected to host in excess of one (1) million visitors annually. This complex has on-site sidewalks but should be considered as a node in the future trails and greenway system.

Bristol residents and visitors can enjoy spring, summer, winter, and fall seasons while also enjoying the national forests, clean lakes, beautiful parks, and mountains surrounding the City. Recreational activities include swimming, water skiing, boating, and fishing in the South Holston, Boone, Patrick Henry, and Watauga Lakes. Other nature based recreation destinations include the Bristol Caverns, Appalachian Caverns, and Appalachian Trail.

A variety of uniquely designed golf courses are available for residents and visitors. Major ski resorts within an hour’s drive to the City, attract additional tourists. Each of these types of destinations should be considered as possible pedestrian/bicycle generators that may benefit from increased connectivity. The City of Bristol also offers many local lodging options which should also be considered for connectivity to the future trails and greenway system.

**Topography**

The City of Bristol lies in the Ridge and Valley Province of northeastern Tennessee. The ridge and valley topography has had, and will continue to have a profound effect on land development, which has occurred primarily on the flat to moderately hilly portions of
the city. The City of Bristol has approximately thirty-two (32) square miles of land area. The area within the Urban Growth Boundary (UGB) for the City of Bristol includes approximately thirty-five (35) square miles of land in unincorporated Sullivan County however, previous studies by the City of Bristol have indicated that approximately 5,420 acres (thirteen percent of the total land area) in the Bristol area (mainly including the Beaver Creek Knobs and Whitetop Knobs) have extreme slopes and very limited opportunities for development.

Surrounded by the Holston Mountains, the City of Bristol offers residents and visitors inviting reasons to walk or bike to enjoy the natural surroundings.

Several factors have contributed to major demographic and economic changes to the City of Bristol in recent years. The mild temperatures of this location coupled with the tourist attractions including the cultural music center and motor speedway keep tourists/vacationers and sports enthusiasts' visiting throughout the year. The close proximity to a variety of transportation modes (thoroughfares, railways, freight carriers, airways) allow residents and visitors access to some of the largest population centers in the United States, as well as the tourist destinations included in them. Bristol is becoming a destination for all ages including retirees, and a growing population of families with children relocating to the City.

**Existing Trails and Greenways**

Two (2) greenways currently exist in the City of Bristol. The Mark Vance Memorial Greenway, which is made up of 7,385 linear feet of trail extending from Steele Creek Park to Volunteer Parkway. From Volunteer Parkway this path connects with the Wes Davis Greenway, which totals 2,800 linear feet. Steele Creek Park offers recreation trails to residents and visitors, on a variety of surfaces from asphalt, loose surface (gravel), and natural earthen trails. Popular trails include the Lakeside, Lake Ridge, Rock Cut, and the East Ridge Loop Trail.
1.3 Previous Planning Studies

Bristol Metropolitan planning organization (MPO)
Following the 1980 Census, the US Census Bureau designated Bristol, Tennessee/Virginia as an “Urbanized Area.” As a result, the area came under the provisions of the Federal Aid Highway Acts and the Urban Mass Transportation Acts, which require a continuing, comprehensive, and cooperative transportation planning process. Each successive Census redefines the urbanized area based on the changes in population characteristics. The Bristol MPO consists of an Executive Board and a Technical Committee. The MPO is controlled by the Executive Board, which is composed of the principal elected officials of the member governmental jurisdictions. The Board constitutes the forum for transportation decision making within the metropolitan area. The Technical Committee consists of administrative and technical personnel whose primary function is to formulate transportation plans and programs for the urbanized area. The Committee advises members of all transportation planning activities, and recommends specific actions for Executive Boards approval.

Bristol Urban Area Long-Range Transportation Plan Year 2035

In 2015, the Bristol Urban Area Long-Range Transportation Plan Year 2035 served as the initial step and framework in developing a regionally based network of transportation facilities and services that meet the travel needs of the region in the most efficient and effective manner possible. The intent was to create the best possible plan of action to help maintain a functional transportation system for the Bristol urban area. The document provided an overview of the existing transportation system, (roadways, public transportation services, bicycle/pedestrian facilities, and freight movements) and evaluated future transportation improvements for the urbanized area. Additionally, federal law requires the preparation of a long-range transportation plan that is realistic, both from an implementation and a financial standpoint. For transportation projects to be eligible for federal funding, they must first appear in the long-range transportation plan. As required by federal law, the plan is updated on a regular cycle and includes a planning horizon of at least 20 years.

Strategic Partnerships for Economic Growth and Sustainability (2013 UPDATE)

The purpose of this economic plan was to guide the City of Bristol Tennessee and its strategic partners in achieving long-term economic growth and sustainability through a multitude of identified objectives and key action steps. The Mission Statement of the plan was to “Secure the city’s economic future by strengthening our leadership position
in cultural tourism and arts, motor sports, medical arts and healthcare, and diversified manufacturing while becoming a destination retail center through strategic partnerships and a robust economic development program.” The plan included short term primary objectives and 3-5 year strategies deemed essential for strengthening key economic sectors, job creation, and tax base growth. The underlying premise of the plan focused on key community partnerships that are essential and move plan success from outside the walls of city hall to a collaborative process with other entities working hand-in-hand with the city to secure the city’s economic future.

**Bristol Transportation and Land Use Study**

Approved in 1998, Public Chapter 1101 provided a framework for municipalities and counties to work together to develop an Urban Growth Plan for each county in the state. The law stated that the purpose of the growth plan was “to direct the coordinated, efficient, and orderly development of the local government”. In 2002, the City of Bristol gained approval from the State of Tennessee to have its regional planning boundaries coincide with the designated Urban Growth Area.

In July 2002, the City of Bristol, Tennessee, and the Bristol Metropolitan Planning Organization (MPO) began the process of conducting a long-range transportation and land use study for the City of Bristol, Tennessee and the area within the Urban Growth Area (UGA) established under Tennessee Public Chapter 1101.

Subsequently, the Bristol Transportation and Land Use Study was designed to formulate a coordinated, long-term development program for the City of Bristol and its Urban Growth Area in Sullivan County. The preparation of the study required the collection and analysis of a wide array of information such as historic events, governmental structure, natural factors, and socioeconomic characteristics to determine how they have affected land uses and transportation facilities in the past and how they will affect them in the future. Information was used as a framework to guide municipal and county officials, community leaders, and others as they work together more effectively, and make decisions that affect the future growth and development of Bristol and its UGA.

**Bristol Bicycle and Pedestrian Plan 2008**

Part of the City’s goals and objectives is to protect health and safety and maintain basic service levels. The Bristol Bicycle and Pedestrian Plan was developed to identify a potential network of bicycle and pedestrian facilities that provide city-wide connectivity and recognizes the need for careful and flexible facility design to meet the needs of many
types of users. The intent of the plan was also to develop and maintain a system of safe and efficient bikeways and pedestrian facilities that contribute to mobility and connection of neighborhoods with activity centers, schools, parks, and other neighborhoods.

**Bristol Comprehensive Park and Recreation Plan 2014**

The Bristol Comprehensive Park & Recreation Plan marked an exciting milestone for the City of Bristol in the evolution of its park system. Though the City of Bristol had been investing in and providing stewardship of parks and greenways since its establishment as a City, this document was the first comprehensive plan for parks. The purpose of this long-range master plan was to meet the park and recreation needs of the citizens of Bristol for the present as well as the future.

The Parks & Recreation Department provides recreational needs not only for the citizens of Bristol, Tennessee, but also members of surrounding communities such as Sullivan County, Washington County, and Bristol, Virginia. The Comprehensive Park and Recreation Plan guides future improvements. It should be noted that the Comprehensive Trails and Greenways Master Plan required the use of information from the Park and Recreation Plan.

**Bristol Unified Planning Work (2016-17)**

The Fiscal Year (FY) 2016-2017 Unified Planning Work Program (UPWP) identifies and describes all transportation planning activities that will be administered by the Bristol Tennessee-Virginia Urban Area Metropolitan Planning Organization (MPO) and its member governmental agencies for the program period. The UPWP for FY 2016-2017 was developed in cooperation with the State of Tennessee, Commonwealth of Virginia, local agencies, and public transportation operators.

1.4 Existing Policy and Regulatory Requirements

**State of Tennessee**

Based on the Federal Highway Administration’s policy statement that calls for bicycle and pedestrian facilities on all new roadways, the Tennessee Department of Transportation has developed policies for integrating bicycle and pedestrian accommodations.

The state policy documents provide procedures for incorporating bicycle and pedestrian
accommodations in the construction, reconstruction, operation, and maintenance of the state's transportation network. An accommodation is defined as any facility, design feature, operations change, or maintenance activity that improves the environment in which bicyclists and pedestrians travel. Examples of such accommodations include the provisions for bike lanes, sidewalks, signage, and the addition of paved shoulders. Exceptions to the policies include facilities where bicyclists and pedestrians are prohibited by law, where cost for bicycle facilities is greater than 20% of the project costs, or where there is a demonstrated lack of need due to population density.

According to Tennessee Code Annotated, every person riding a bicycle upon a roadway is granted all the rights and is subject to all the duties applicable to the driver of a vehicle. Bicycles are required to travel on the right hand side of the road with other traffic. As far as pedestrian rules, Tennessee Code Annotated states where sidewalks are provided it is unlawful for any pedestrian to walk along and upon an adjacent roadway. Where sidewalks are not provided, any pedestrian walking along and upon a highway shall, when practicable, walk only on the left side of the roadway (or its shoulder) facing traffic that may approach from the opposite direction. Generally, pedestrians have the right of way at all intersections; however, pedestrians are subject to control by traffic signals.

The Tennessee Driver’s Handbook addresses the need to be aware of other roadway users and provides information on sharing the roadway with bicyclists and pedestrians. The handbook addresses the user’s role - whether they are a driver, pedestrian, or bicyclist.

**City of Bristol**

The Bristol Municipal Code provides similar provisions to Tennessee Code Annotated for pedestrians and bicyclists. In addition, the Bristol Transportation and Land Use Plan addresses several policy issues related to pedestrian and bicycle improvements, including the development of a pedestrian infrastructure within the Bristol Industrial Park, a bike and pedestrian facility to connect the King College campus with Downtown, and a pedestrian/bikeway connection from Rooster Front Park (on Vance Drive) to Volunteer Parkway and Bluff City Highway, connecting the park with the Tennessee High School complex and the Wes Davis Greenway.

The City of Bristol Tennessee Subdivision Regulations require sidewalks along all existing and proposed streets in commercial and industrial subdivisions unless granted a variance by the Planning Commission.

Sidewalks are not required in new residential subdivisions. The City does not allow bicycles
on sidewalks with the exception of those sidewalk corridors associated with designated bicycle routes, trails, or greenways.

1.5 Benefits of Pedestrian Facilities

Pedestrian environments are created either by being deliberately planned, or they can develop as a result of natural landscape characteristics with no particular forethought of the pedestrian. To better understand what makes a pedestrian-friendly environment, it is necessary to study and analyze the places where people travel most comfortably as pedestrians. For example, the addition of a random sidewalk may not encourage people to walk; unless it connects pedestrians to places they want to go.

A walkable community needs connecting pedestrian corridors that are conveniently located in close proximity to homes, schools, entertainment/shopping areas, and places of employment. A “walkable” community is defined by its ability to enhance the lives of all its citizens through a variety of measures, which include the following:

- Community Health
- Transportation Alternatives
- Environmental Benefits
- Safety
- Community Identity

Benefits of Trails and Greenways

Tennessee Department of Health Commissioner John Dreyzehner, MD, MPH says: “We applaud the Tennessee Department of Transportation and city governments across the state for their leadership in seeking ways to improve biking and walking for all Tennesseans,” Dreyzehner said. “Biking and walking are transportation. If we all walked and biked more we could reduce traffic congestion, pollution, heart attacks, cancer and diabetes. More of us would live longer, healthier lives and the burden of health care costs we all share could decrease.” - August 26, 2015

Support for Active Living

Having access to trails encourages an active lifestyle. Health benefits are afforded to a wide range of users benefit from including the physically active especially the elderly, children, and persons with disabilities.
Many urban residents are experiencing increasingly busy lives. They are more encouraged to seek fitness opportunities through access to unstructured recreation activities, such as walking, cycling and jogging, all of which are well suited to outdoor trails.

Thirty (30) minutes of brisk daily walking is all that is needed for improved fitness levels, and health benefits.

Social Benefits

The following is a list of many of the social benefits typically associated with trails and greenways:

- Trails can help build the social fabric of a community, physically connecting neighborhoods and outlying communities together, and encouraging casual interactions.
- By linking shopping, entertainment, workplaces and parks via trails and greenways, compact network can be built in neighborhoods which will support alternative transportation, and contribute to economically and environmentally sustainable creating livable communities.
- Trails offer low cost, unstructured recreational activities that can be enjoyed in solitude, by families, and as group activities. Trails are available to all ages and the associated activities (e.g., bird watching, walking/hiking, road/mountain biking) can be relatively inexpensive in comparison to other recreation activities that have user fees and/or require expensive equipment.
- With appropriate design, most urban trails can be made physically accessible to a wide range of skills and abilities.
- Many trails can be used in all seasons through a variety of activities.
- Trails offer leisurely opportunities to appreciate and enjoy nature, and the surrounding community.
- Volunteer-ism and collaboration strengthen community bonds and foster interaction and partnerships with business and community organizations.
Community Health

There are numerous benefits to be derived by walking and the most prevalent being the acquisition of healthier lifestyles. Unhealthy eating habits, which are primarily due to the increased consumption of fast food, continue to contribute to rising obesity rates in Americans of all ages. Walking is a preventive measure for heart disease, cancer, diabetes, and mental health diseases. Walkable communities encourage people to walk, whether consciously or subconsciously; thereby, increasing physical activity and decreasing television or computer time (which promulgate sedentary lifestyles).

By providing accessible, inviting pedestrian facilities, the City of Bristol can provide equal opportunities for everyone to improve health and prevent disease through routine or planned walking exercise(s). This in turn saves governments and local employers the money in health care costs and the loss of productivity due to sick days that would otherwise not have occurred.

Studies show that walking increases:

- Energy, stamina, and metabolism
- Wellness, fitness, and psychological well-being
- The reduction of risk factors, such as high blood pressure, anxiety and obesity which contribute to coronary artery disease, some cancers and other chronic diseases
- HDL – the ‘good’ cholesterol
- Muscle development and bone density

Additional information regarding aspects of walking/biking and health can be found in the 2008 Bristol Pedestrian Plan.
Childhood Obesity

In the 20th century, children represented the largest cycling population. But, thanks to a number of contributing factors which include sedentary lifestyles, busy or dangerous roadways, and electronic screen oriented activities, fewer American children now play outside frequently, which includes riding bicycles.

Needless to say, most sedentary youths that do not walk or ride a bike regularly will grow up with less inclination to do so as adults. Promoting and encouraging physical activity at a young age will add numerous health, economic, environmental, and social benefits for our communities. Today, 1 in 5 children is overweight or obese.

Childhood obesity is likely to persist into adult life and puts individuals at risk for a number of health complications including: stroke, hypertension, diabetes, and other chronic diseases. The magnitude of obesity is far-reaching:

- Overweight childhood and adolescence is associated with being overweight during adulthood.
- Parental obesity more than doubles the risk of adult obesity among both obese and non-obese children under 10 years of age.
- Since 1980, the childhood obesity rates (ages 2-19) have tripled with the rates of obese 6 to 11 year-olds more than doubling (from 7 percent to 17.5 percent) and rates of obese teen (ages 12-19) quadrupling from 5 percent to 20.5 percent. (NHANES, 2011-2014 data)

For physical education programs to contribute to the public health goal of lifelong activity, they should include activities of moderate intensity and should not focus exclusively on team-oriented sports activities.

Growing evidence reveals that the places in which we live and work affect our overall health. The built environment includes those aspects of our environment that are human-modified, such as households, places of employment, schools, parks, manufacturing areas, agricultural areas, and large transportation corridors. Availability and accessibility of bicycle and walking paths, exercise facilities, and overall safety and aesthetics of an environment play a major role in defining the type and amount of physical activity in which people engage.
Transportation Alternatives

Walking also creates an alternative to vehicular transportation. Nationally, traffic congestion in urban areas is getting worse and the cost of owning/operating an automobile is rising. Pedestrian facilities are necessary to provide a means whereby people may choose to walk instead of drive; thus, reducing the number of vehicles on the road.

Walking is a cost-effective means of transportation. There are no fees, taxes, or licenses required as compared to the average annual cost of operating an automobile, which can easily exceed $5,000 per year. Economically speaking, walking is by far the most affordable mode of transportation available to anyone.

For some segments of the population, walking is the only means of transportation available. Such a cross section of the community primarily includes people, whose income prohibits them from purchasing/maintaining automobiles, and senior citizens, who eventually become unable to drive. These members of our society rely heavily on walking in order to work, shop, exercise, and/or participate in other social activities.

Environmental Benefits

Walking is the most affordable mode of transportation, it also has the least negative impact on the environment. Choosing to walk to destinations as an alternative to using a vehicle will reduce air pollution. Improving air quality is a major concern across the United States. During the 1996 Olympics in Atlanta, Georgia, some Atlanta thoroughfares in the area were closed to vehicular traffic in order to relieve traffic congestion. During this period of time, the local, environmental air quality monitoring indicated a significant decrease in various air pollutants as when it was compared to periods of normal traffic flow. It is a well-known statistic that air pollutants will increase in direct proportion to the increased vehicular miles that are traveled each year in this country.
Walking, as opposed to driving vehicles, also positively impacts the availability and conservation of our natural resources. Reducing the consumption of petroleum (specifically in cars and asphalt) will be increasingly beneficial in the years to come. Although sensitive populations should decrease walking during ozone-active days, an overall increase in the amount of walking done on a regular basis could actually reduce mobile emissions/ozone. As more walking occurs, fewer emissions are produced; thus, creating a cyclic phenomenon, which is naturally and environmentally friendly.

Some pedestrian facilities (such as greenways) are often developed along rivers and streams. Often, these facilities create “buffers”, which help to mitigate drainage from new development; thereby improving the water quality for watersheds. As an added benefit, greenways help provide connectivity for wildlife habitats and natural ecosystems. Other environmental benefits include the following:

- Trails support both urban and rural recreational lifestyles and can support broader environmental and ecological objectives through the protection of greenspace corridors.
- By rationalizing and re-routing random and informal paths, trails can serve to keep users away from sensitive environmental areas.
- The use of trail maps and interpretive signage can help to enhance appreciation and awareness of ecology, and promote stewardship.

**Tourism Benefits**

As one of the most highly requested recreational amenities, trails and bike paths promote a high quality of life for communities and indicate a desirable place to both live and operate a business.

Trails can be used to connect key destinations such as natural parks, cultural heritage features, or other community amenities and in doing so can encourage visitation by both local residents and tourists.

One example of the economic benefits may be seen in the The “Trail Towns” initiative along the Great Allegheny Passage. This initiative...
promotes businesses aiming to capitalize off the 700,000 annual trips taken along the rural trail corridor between Cumberland, Md., and Pittsburgh, Pa. Direct annual spending by trail users exceeds $40 million.

**Economic Benefits**

Research has indicated that proximity to trails and greenways contributes to higher real estate values, and properties close to or adjacent to trails are often highly marketable with relatively more value stability than those without pedestrian or bicycle connectivity. Residential areas and businesses that are connected by trails and greenways benefit from dollars spent by trail users.

This economic infusion has enabled a resurgence of many towns that had declined with the loss of mining jobs and the original railroad. As a result of the Allegheny Passage initiative, trail-related businesses pay out $7.5 million in wages every year, and since 2007, 54 new or expanded businesses serving trail users have created 83 new jobs in eight surrounding small towns.

While larger US population centers have proven that trail and greenway development can spur the economies of disparate communities linked via pedestrian/bike-able trails, the benefits of trail user dollars spent on neighboring communities is a sound example for any sized municipality.

Trails can create both direct jobs through construction as well as indirect jobs, relating to tourism and visitation. Indirect jobs might include restaurants, lodging, food and beverage and other expenses.

Many trail users purchase local goods to support their trail activities, (e.g., mountain bikes, jogging gear, hiking shoes). These purchases contribute to the local economy through jobs and taxes.
Safety Benefits

Trails and Greenways benefit pedestrians and bicyclists by offering a safer option than walking or riding along busy roads.

According to the National Park Service, “Trails promote safe and livable communities. The recreation, health, transportation and environmental benefits collectively can contribute to an overall enhanced quality of life in communities.” (Benefits of Trails & Greenways US Department of the Interior Rivers, Trails & Conservation Assistance Program PWR - January 2008). It is also noted that greenways and trails can reduce crime by providing increased visibility to areas.

Greenways and trails are dedicated to pedestrian and bicycle users. This absence of vehicular traffic means less chance of vehicular/pedestrian accidents.

Community Identity

Pedestrian and bicycle facilities are an important component for maintaining and enhancing the public and social interaction of a community. The pedestrian experience should be aesthetically inviting and elicit feelings of pleasure and comfort. Open spaces, parks, the downtown area, convenient retail, and other similar destinations all enhance the pedestrian environment. In addition, the ideal pedestrian environment should possess amenities such as landscaping, benches, specialty paving, safety warning devices, and other elements that create a safe environment that pedestrians can enjoy.

The restoration or construction of new sidewalks should be an important aspect in the City of Bristol - as sidewalks often serve as catalysts for walking, outdoor dining, window shopping, social interaction, business engagements, and tourism. New sidewalks may serve to connect the overall trails and greenways system to area destinations.
1.6 Scope, Methodology, and Purpose of Plan

McGill Associates, P.A., was contracted by the City of Bristol to prepare a City-wide Comprehensive Trails and Greenways Master Plan as a guide for identifying and prioritizing safe pedestrian and cycling linkages; thereby, creating a viable trails and greenways network. Many areas within the City limits could benefit from improved pedestrian and bicycle facilities. The City recognizes the need to plan for the future by continuing to develop a pedestrian network, which provides connectivity for its users. Using a proactive approach is imperative in establishing priorities for future pedestrian facilities, reducing construction costs, and implementing facilities in a logical manner.

The study area consists of the Bristol City limits and the immediate surrounding Urban Growth Boundary Area. Although the research will be focused primarily within the City limits, it is important to understand the existing pedestrian patterns of the area and their destination points.

In order to comprehend the existing conditions, identify user needs, and recommend appropriate improvements in the pedestrian plan, the following processes were used:

- **Inventory of the existing trails & greenways system:** A trail and greenways inventory of the City's existing facilities was conducted.
- **Assessment of the needs of the pedestrian and cyclist:** The lack of connectivity to destination points were identified and evaluated through data collected via public meetings, surveys and direction provided by City staff.
- **Formulation of objectives and recommendations:** Guidelines for the development of future facilities, repair of existing facilities, and maintenance were created. Probable costs for all recommendations were provided.
- **Implementation of improvements by action-oriented method:** Key trail/greenway linkages were identified and prioritized. Possible funding sources for the City to pursue were identified.
- **Examination and possible revision of current policies/programs:** Guidelines and implementation of current policies and existing pedestrian programs were identified and addressed.

These five components provided justification for the proposed improvements. Also, any time recommendations for improvements or new construction are made, these recommendations must be prioritized. Implementing all of the proposed improvements at one time, or in a short time frame, would be overwhelming. It is important that the most immediate needs be recognized first, as the implementation of capital improvements...
begins. In addition to facility needs, the formation of an implementation plan is an important short-term goal in establishing long-term objectives.

Off street trails and paved greenway paths are the primary focus of this plan. In addition, sidewalks and bike routes were also examined. This plan references and in part serves as an extension of the City’s 2008 Pedestrian Plan which delineates the current and future location, implementation, and maintenance of existing and future pedestrian facility improvements. The two plans thereby, create a pedestrian/bicycling network that allows for connectivity within the City and with its neighboring communities.

The trails and greenways facility-related needs which are considered to be of the highest priority, are called “critical” needs. The critical facility needs for the City are all focused on improving safety conditions for pedestrians. In addition to sidewalk improvements, other emphasis should be placed on immediately addressing any unmarked crosswalks and inappropriate signage. The safety of pedestrians and cyclists is critical. It is the most important component of Trails and Greenways facilities.

Primary goals of the City’s first Comprehensive Trails and Greenways Master Plan are as follows:

- To provide connectivity from separate areas of the City including residential areas, downtown, parks, schools, commercial shopping areas, and other popular destinations.
- To provide accessible pedestrian/bicycle routes that encourage alternatives to driving.
- To improve opportunities for children, seniors and families to spend quality time together.
- To promote natural resource management strategies that ensure environmental preservation, and economic development.
- To promote safe and livable communities; and to improve the walk ability and quality of life for all Bristol residents.
The improvements recommended in the Comprehensive Trails and Greenways Master Plan are intended to be implemented over a period of time and will require creative funding mechanisms. Therefore, two (2) significant short-term goals will be identifying improvement costs and funding opportunities, as well as prioritizing the improvements and projects.

- END OF SECTION -
“The General Theory of Walkability explains how, to be favored, a walk has to satisfy four main conditions: it must be useful, safe, comfortable, and interesting.” - Jeff Speck
SECTION TWO: EVALUATING CURRENT CONDITIONS

2.1 OVERVIEW

Section 2 contains an inventory and evaluation of the existing trail and greenway conditions in the City of Bristol. To begin this process, information was gathered from a variety of sources, which included interviews, site analysis, a public questionnaire, community, and focus group meetings. Relevant planning documents were reviewed and City staff was consulted for direction and guidance. The information gathered from this initial research was used in the development of this document.

In general, a pedestrian-friendly environment indicates a strong and actively-involved community. The development of a network of trails and greenways between destinations within the City of Bristol will encourage walking or cycling as a safe and healthy alternative to driving and will enhance the vitality of the entire community.

A viable, pedestrian transportation network is essential to the economic and social welfare of the community. Functional pedestrian facilities foster the characteristics discussed in Section 1, which include:

- Healthy lifestyles
- Social benefits
- Community health
- Mitigation of childhood obesity
- Transportation alternatives
- Environmental benefits
- Economic benefits
- Safety benefits
- Community Identity

User Demographics

According to the United States Census Bureau, the estimated population for the City of Bristol was 26,705 people in 2014. This gave the City of Bristol a population density of approximately 906 individuals per square mile as compared to the state average of 153 per square mile. This is indicative of an area that is 95% urban and 5% rural.
The average growth rate between 2000 and 2014 was 5.49%. There are several possible contributing factors for the rapid increase in population. A few examples are as follows:

- The Hispanic population is expected to increase significantly in eastern Tennessee (A Profile of the Hispanic Population of the State of Tennessee - 2012)


The U.S. Census, 2014 American Community Survey, provides a breakdown of the population of the City of Bristol according to the following age groups and ethnicity, as shown in the following tables:

<table>
<thead>
<tr>
<th>AGE</th>
<th>NO. RESIDENTS</th>
<th>PERCENTAGE</th>
<th>STATE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 5 years</td>
<td>1,462</td>
<td>5.5%</td>
<td>6.2%</td>
</tr>
<tr>
<td>5 to 9</td>
<td>1,424</td>
<td>5.3%</td>
<td>6.4%</td>
</tr>
<tr>
<td>10 to 14</td>
<td>1,647</td>
<td>6.2%</td>
<td>6.6%</td>
</tr>
<tr>
<td>15 to 19</td>
<td>1,604</td>
<td>6.0%</td>
<td>6.6%</td>
</tr>
<tr>
<td>20 to 24</td>
<td>1,608</td>
<td>6.0%</td>
<td>7.0%</td>
</tr>
<tr>
<td>25 to 34</td>
<td>3,077</td>
<td>11.5%</td>
<td>13.0%</td>
</tr>
<tr>
<td>35 to 44</td>
<td>3,478</td>
<td>13.0%</td>
<td>13.2%</td>
</tr>
<tr>
<td>45 to 54</td>
<td>3,670</td>
<td>13.7%</td>
<td>14.0%</td>
</tr>
<tr>
<td>55 to 59</td>
<td>2,010</td>
<td>7.5%</td>
<td>6.7%</td>
</tr>
<tr>
<td>60 to 64</td>
<td>1,897</td>
<td>7.1%</td>
<td>6.0%</td>
</tr>
<tr>
<td>65 to 74</td>
<td>2,631</td>
<td>9.9%</td>
<td>8.3%</td>
</tr>
<tr>
<td>75 to 84</td>
<td>1,474</td>
<td>5.5%</td>
<td>4.3%</td>
</tr>
<tr>
<td>85 yrs. and over</td>
<td>723</td>
<td>2.7%</td>
<td>1.6%</td>
</tr>
</tbody>
</table>

The age breakdown of the City of Bristol’s population reflects the state of Tennessee. Note that the adult population (20 to 60 years) constitutes the majority of the population – 51.7% in the City of Bristol and 53.9% in Tennessee. There is a larger percentage of youth (less than 20 years) in the state percentages (25.8% to Bristol’s 23.0%); but a smaller percentage of the elderly in the state percentages (26.9% to Bristol’s 32.7%). The senior aged population represents a large demographic for the City with adults 60 years and older comprising almost one-third (1/3) of the population. “The proportion of senior citizens and elderly is expected to increase in Tennessee, due to both the aging of the baby boomer generation and increased life expectancy. According to the 2010 census, there were 99,917 individuals aged 85 and older in Tennessee. That number is expected to triple to more than 330,000 by 2040” (University of Tennessee - Knoxville,

Senior and millennial populations are known for supporting more walkable communities often using alternate forms of transportation other than a personal motor vehicle. Both of these groups support the need for additional walkable and bike-able routes within Bristol.

### Racial Distribution of Population of the City of Bristol, 2014

<table>
<thead>
<tr>
<th>AGE</th>
<th>NO. RESIDENTS</th>
<th>PERCENTAGE</th>
<th>STATE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>25,179</td>
<td>94.3%</td>
<td>78%</td>
</tr>
<tr>
<td>Black or African American</td>
<td>736</td>
<td>2.8%</td>
<td>16.8%</td>
</tr>
<tr>
<td>American Indian and Alaska Native</td>
<td>5</td>
<td>0.0%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Asian</td>
<td>127</td>
<td>0.5%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Native Hawaiian or Pacific Islander</td>
<td>0</td>
<td>0.0%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Some other race</td>
<td>441</td>
<td>1.7%</td>
<td>1.5%</td>
</tr>
<tr>
<td>Two or more races</td>
<td>217</td>
<td>0.8%</td>
<td>1.9%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>26,705</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Hispanic or Latino of any race</td>
<td>578</td>
<td>2.2%</td>
<td>4.8%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, 2010-2014 American Community Survey: [http://factfinder.census.gov](http://factfinder.census.gov)

The City of Bristol’s population does not precisely reflect that of the rest of the State. Bristol’s population is 94.3% White compared to the state average of 78%. The African American population is 2.8% of the City which is only one-sixth (1/6) of the state average percentage of 16.8%. The Hispanic population was less than one-half (1/2) of the state’s total percentage.

Other significant statistics revealed by Census Bureau information include:

- The daytime population change attributed to commuting is approximately + 5,070 (up 19% from 2000 census)
- The poverty rate is 18% (2013)
- 62.2% of residences in Bristol are considered “family households”
- There were eight (8) pedestrian fatalities between the years of 1993-2011
- 2% of the population reported walking as their main source of travel to work. (Average for the US is 3% and average for Bristol, VA is 3%)
• 2% of the population reported biking as the main source of travel to work. (Average for the US is 1% and average for Bristol, VA is 1%)

Physical Characteristics

With an approximate elevation of 1,675 feet, the City of Bristol has a total area of 32.3 square miles (32.3 of land; 0.1 of water). The Holston River system is the major drainage feature for this area with rivers and man made lakes that are a major recreation amenity for this region. Although not within the City limits, the city is surrounded by the North and South Forks of the Holston River.

Bristol is located in one (1) of the nine (9) physiographic regions of the state known as the Ridge-and-Valley Appalachians. This region forms a “belt’’ within the Appalachian Mountains, which extends (north-south) from southeastern New York to Alabama. This arc-shaped portion of land is located (55 miles east to west) between the Blue Ridge Mountains and the Appalachian Plateau. This mountainous area is characterized by long north-northeasterly trending ridges separated by continuous fertile valleys. The Ridge and Valley Province presents serious obstacles to the east and to the west for land travel; even with today’s technology. The mountains were nearly an insurmountable barrier to early railroads and walking/horse-riding migrants attempting to cross the range to settle in the Ohio Country, Northwest Territory, and Oregon Country prior to motorized transportation. This further demonstrates the profound effect that the junction of two (2) railways had in the subsequent establishment of the City of Bristol.

The soils in this region consist of heavy clay loams, making this an ideal areas for agriculture. On average Bristol receives 46 inches of rain per year compared to the US average of 39 inches per year, and approximately 201 sunny days each year. July’s high temperature is around 84 degrees and January’s low of 23 degrees.
The map above indicates some of the neighborhoods within the City of Bristol and surrounding areas. These general areas were used to study pedestrian movement across the city.

2.2 LOCAL TRANSPORTATION NETWORK ASSESSMENT

Public transportation is a vital part of enhancing productivity and quality of life in the United States. It promotes access to employment, community resources, medical care, and entertainment. In reducing congestion, air pollution, and travel times; public transportation provides benefits to the supporting community in many ways.

Transit typically ranks as the second most utilized means of travel in urban areas. Travel using a personal vehicle ranks first. Tennessee has one of the better Highway systems in the nation and in 2012 the system ranked in the top 20 (18th) according to the Reason Foundation’s 22nd Annual Report on the Performance of State Highway Systems (1984–2016). However, in urban areas, congestion and travel delays are occurring more frequently and even though Tennessee continues with its highway building program, it appears that the state will be unable to keep pace with the demands placed on its capacity.
Transit interface between pedestrian (walking/cycling) and public transit routes is critical to an alternative transportation system. When residents and visitors can walk or bike to a public bus stop via the greenway network, they can connect to a greater number of destinations. They may also increase the distance they can travel without the need for a car. Future transit interfaces may include bike rental and repair shops, park and ride areas, retail destinations and hospitality businesses. Fewer cars on the roads mean less congestion, pollution, and required parking spaces. Many modern public transit systems accommodate cyclists by adding bike racks on buses and bike corrals at busy, bus stops as part of “Bike and Ride” programs.

**Existing Non-Pedestrian Transportation Network**

**The Bristol Transit System**

The Bristol Tennessee Transit and Bristol Virginia Transit systems have provided transportation to the Greater Bristol area since 1980. Six buses operate Monday through Friday 6 AM to 6 PM. They typically cover 850 miles a day with both programs offering convenient, inexpensive transportation to key locations in the City. Bristol buses have convenient departing locations and destination points throughout both sides of the city including, Exit 7, Bristol Regional Medical Center, and Volunteer Parkway shopping areas. All Bristol Tennessee Transit and Bristol Virginia Transit buses arrive and depart from the Downtown Center in the 800 block of State Street next to the Farmers Market.

**Bristol Crash Data**

When pedestrian paths cross vehicular pathways, there is always the possibility of collision, injury, and/or death. There have been eight (8) fatalities involving pedestrians and vehicular incidents from 1993-2011, but, those have been on major roadways. The residential areas of Bristol do not have a history of fatal accidents involving pedestrians. This fact must be considered with the lack of pedestrian facilities available for jogging, running, walking or riding a bike, opportunities for pedestrian/vehicular conflict has been limited. However, with the continued development of these types of facilities, safety will become a growing significance and priority.

The need to provide safe paths for pedestrians will continue to grow as residents look to improve their health by walking and/or biking and seek alternative means of transportation.
Community Concerns, Needs, and Priorities

To ensure a successful study, it is vital for the citizens of Bristol who frequent the pedestrian facilities to express their concerns, needs, and priorities. This helps establish a Trails and Greenways Plan that is informed by citizen input.

To better understand the needs of facility users, three (3) different methods were used to identify specific concerns/demands of City residents. The different methods offer options to local citizens and present additional information that could not be assessed from a single method. These methods consisted of the following:

- Conducting discussions with City Staff members
- Completing pedestrian/bicycling surveys (online and handout)
- Community Workshops and Focus Group Meetings.

While surveys and map exercises were useful tools in recording participant responses to specific questions, open discussion with citizens was key in obtaining vital information regarding the public consensus.

Discussions with City Staff

City staff guided the initial planning process to establish a vision and identify the needs and priorities of Bristol pedestrians and cyclists. This Steering Committee was composed of members from the City staff including the City Community Development Director, Parks and Recreation Director, MPO Director and Planning staff. The names of Steering Committee members can be found in the Acknowledgments at the beginning of this document. The Steering Committee acted as the principle advisory board for the Trails and Greenways Plan project. Regular meetings were held to evaluate the planning process at various stages.

During an initial Steering Committee meeting members were asked to evaluate the initial base map, marking important destinations, existing routes, and possible future routes. The members were then asked to check the revised maps for inaccuracies and to mark desired pedestrian destinations and routes; areas where heavy pedestrian traffic currently occurred and to note gaps in the existing trail/greenway network. The results of this exercise led to the community workshop and focus group meeting maps.
Community Workshops

Public input was sought during advertised, informal and formal public workshops, designed to provide City residents with the opportunity to share their opinions and suggestions.

Input meetings were held at the Farmer’s Market, Steele Creek Park, City Annex building, and the Slater Center. The meeting types ranged from traditional workshops to focus groups and open drop-in forums. Most meetings included an informative presentation about the Trails and Greenways planning process and all public meetings consisted of mapping exercises and open discussions.

Community Workshop #1 - Farmer’s Market - Open Meeting

Over 30 people participated in the initial workshop held at the Bristol Farmer’s Market on Saturday May 14, 2016. Meeting participants could drop in anytime during the event. Participants were invited to fill out a pedestrian survey, participate in a mapping analysis exercise, and open discussion. Electronic access to the online survey was provided via tablets made available by the City. The map exercise was used to initiate discussions about existing pedestrian corridors, needed pedestrian facilities, and dangerous conditions for pedestrians in Bristol.

The consensus of opinion at this workshop is that the existing Bristol greenways should be expanded to connect with the Downtown and surrounding neighborhoods and common destinations. Other popular ideas included; having paved sidewalks and gaps in existing sidewalk routes completed within residential areas so that they may eventually tie to the future greenway system.

Community Workshop #2 - Steele Creek Park

The second community meeting took place on May 14th at Steele Creek Park. Approximately 18 participants visited the Trails and Greenways Plan booth and shared ideas and concerns for the Trails and Greenway system in Bristol. Participants were asked to review, comment, and share their ideas about the existing and proposed pedestrian facilities and conditions. Participants were also asked to complete a survey to collect more detailed information regarding their pedestrian experience in Bristol and their suggestions for improving the system.
Community Focus Group Meeting #3 - City Annex Building

The third community meeting was held at the City of Bristol's Annex Building on May 31st, 2016 at 3:30 p.m. Participants included the City Manager, City of Bristol Department heads, and other City Staff members. This meeting signified an opportunity for the City of Bristol department managers and staff to review the plan's base map and weigh in on potential routes for greenways and trails, and share their experiences with various areas within the City. Small group mapping exercises and discussions culminated with presentations from each group incorporating their thoughts and ideas. The results were positive and led to a greater collection of detailed information related to possible routes between destinations (known hazards and barriers) and thoughts concerning future maintenance of pedestrian facilities and their conditions. Some of the favorable ideas from the meeting included utilizing TVA power line easements as possible greenway path locations, and City sewer easements. Participants were asked to complete a survey to collect more detailed information regarding their pedestrian experience in Bristol.

A total of 14 people participated in the group mapping exercises. The final suggested routes are noted on the Community/Focus Group Map on page 35.

Community Focus Group Meeting #4 - City Annex Building

A meeting was conducted at the City of Bristol’s Annex Building on May 31st, 2016 at 6:00 p.m. Participants in attendance including avid cyclists, walkers and runners. The shared experience of these stakeholders was priceless. Common concerns that were noted included the maintenance of road based bike lanes. Many participants alleged that debris and lack of good signage posed a safety hazard to existing bike lanes. Also, participants stated a need for safe, multipurpose paths from the Fairmount neighborhood and near King University. An active running/walking population currently exists there but, has little in the way of safe paths to use. Other ideas included, connecting Downtown Bristol to area creeks and lakes for water access and possible future blue-way access. Participants were also encouraged to take the online survey.
Mapping exercises were conducted by small groups and then the results were presented in an open discussion. A total of 11 individuals participated in the group mapping exercises. The final suggested routes and comments are noted on the Focus Group Map. The final suggested routes are noted on the Community/Focus Group Map on page 35.

**Community Focus Group Meeting #5 - Slater Center**

The fifth public meeting was conducted at the Slater Center on June 16th, 2016 at 6:00 p.m. This meeting was open to all Boards and Commission members, as well as, City Staff and all residents. The shared knowledge provided by this group of individuals proved significant. Ideas that were generated included; connecting Downtown to all residential areas via sidewalks and greenways, as well as, forming additional trail-heads and connector trails from Steele Creek Park to possible greenway paths leading to the Bristol Speedway, Downtown and neighboring residential areas. Other areas highlighted by the group included the Avoca area, where Volunteer Parkway would serve as a barrier to ensure safe walking for children heading to Avoca Elementary School, and also to residents who would like to walk or bike to the nearby Walmart. A common request shared by participants was to connect the Avoca area to Whitetop Park via a greenway. Issues related to “how the Mark Vance Greenway is routed through neighborhood alleys” were also discussed. Many participants felt as though this path was perceived as dangerous and avoided by many walkers/runners. The group also commented on the lack of safe pedestrian paths along Virginia Avenue and Old Jonesboro Road.

Mapping exercises were conducted by small groups and the outcome was then presented for all to discuss. All participants were encouraged to take the online survey. A total of 17 people participated in the group mapping exercises. The final suggested routes are noted on the Community/Focus Group Map on page 35.

**Community Focus Group Meeting #6 - Slater Center**

The sixth public meeting was conducted at the Slater Center on June 23rd, 2016 at 6:00 p.m. This meeting was open to all residents and City Staff. Local participants came to share their ideas and concerns, and learn about the Trails and Greenways Plan. Ideas that were discussed include; connecting Downtown to all residential areas via sidewalks and greenways, as well as, linking all public schools to sidewalk and greenway paths.

Areas highlighted by the group included Avoca, Haynesfield, and King University. Participants supported sidewalk projects for East Cedar Street, King College Road, Bluff City Highway, and Pennsylvania Avenue.
Residents felt a need for more signalized pedestrian crossings along Volunteer Parkway and better park and ride options in the City. There was a consensus that a greenway along Tennessee Highway 394 to Virginia Avenue and into Downtown would be frequently used by residents.

Mapping exercises were conducted by small groups and then the results were presented for all to discuss. A total of 6 individuals participated in the group mapping exercises. The final suggested routes are noted on the Community/Focus Group Map on page 35.

**Trails and Greenway Survey**

To further solicit input from the public about the pedestrian system in Bristol, a public survey was conducted and made available to residents via community meetings by pick-up at the Parks and Recreation and Planning Departments, the internet from a web-link on the City’s main web page, and the City’s Facebook page. Survey marketing cards were handed out at all public meetings, and to residents/visitors in downtown, on at least three (3) separate occasions. The survey was advertised in the local newspaper, television, radio reports, and in conversations with City Staff members.

The Trails and Greenways survey was designed to solicit opinions on both general and specific pedestrian concerns in the City of Bristol. Approximately 500 people filled out the Bristol Pedestrian & Bicycle Plan Survey representing approximately (1,062) individuals. The survey questions and collected responses for each are as follows:

(Survey Response Graphs begin on the next page.)
Are you a resident of the City of Bristol?

- Yes: 75%
- No: 25%

If so, what neighborhood or area do you reside in?

- Center of City/Downtown: 24%
- Avoca/Blue Ridge: 12%
- Fairmount/Virginia Avenue: 8%
- Haynesfield/Edgemont: 12%
- Holston View/King College: 12%
- Anderson/Holston Drive: 12%
- Other: 6%
If not, what neighborhood or area do you reside in?

- Gunnings/Fairview: 55%
- Blountville: 11%
- Walnut Hill: 7%
- Holston Hills/Oak Hill: 2%
- Paperville/Ridgefield: 2%
- Weaver/Hickory Tree: 10%
- Holston Valley/Camp Tom Howard: 12%
- Deerfield Acres/Ruthton: 7%
- Other: 0%

List the number of persons in your household including yourself who are in the age brackets below:

- 0-6: 164
- 7-13: 136
- 14-18: 107
- 19-29: 114
- 30-49: 256
- 50-69: 194
- 69+: 61
The response to this question indicates that many City residents currently ride bicycles. This existing population can benefit from improved facilities and serve to attract new riders to an improved network by word-of-mouth endorsement.
The major factors reported by survey participants that would encourage them to ride more frequently included: “more clearly marked trails”, “wider roads for improved riding”, and “feeling safer when riding in traffic”. These deductions imply a need for more well developed, safe places to bike.
Note that while a majority of respondents claim to own a bike. The main reasons listed for not cycling more often included: “It’s not safe”, “No adequate facilities near me”, and “I don’t own a bicycle”. This means that more people in Bristol would ride their bikes if safer biking facilities existed. This would also encourage those who do not own a bike, to purchase a bike and ride more frequently as well.
Please select how often you typically bike for the following trip purposes:

- Leisure/Recreation
- Around your street or neighborhood
- To or within local parks
- Shopping errands, dining
- Commuting to school
- Worship, community events
- On local Trails/Greenways
- Commuting to work
- Visiting friends
- Library
- To area outside of Bristol

Please select how often you typically walk for the following trip purposes:

- Leisure/Recreation
- Around your street or neighborhood
- To or within local parks
- Shopping errands/dining
- Commuting to school
- Worship, community events
- On local Trails/Greenways
- Commuting to work
- Visiting friends
- Library
- To area outside of Bristol
Do you think there are enough signalized pedestrian crosswalks in Bristol?

- Yes: 31%
- No: 48%
- Don’t Know: 21%

Overall, how would you rate the condition of existing pedestrian crosswalks in the City of Bristol?

- Excellent: 14%
- Good: 37%
- Fair: 37%
- Poor/not safe: 4%
- Don’t know: 8%
A majority of surveyed participants claim that they would ride to destinations if they felt that safe pedestrian facilities were in place.
This survey table indicates what destinations respondents are more likely to walk or bike to if better or safer facilities were provided.

<table>
<thead>
<tr>
<th>If so, which destinations?</th>
<th>RESPONSES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parks</strong></td>
<td></td>
</tr>
<tr>
<td>Steele Creek</td>
<td>31</td>
</tr>
<tr>
<td>Rooster Front</td>
<td>10</td>
</tr>
<tr>
<td>Anderson</td>
<td>3</td>
</tr>
<tr>
<td>Cumberland</td>
<td>2</td>
</tr>
<tr>
<td>Whitetop Creek</td>
<td>2</td>
</tr>
<tr>
<td><strong>Greenways/Trails</strong></td>
<td></td>
</tr>
<tr>
<td>Wes Davis</td>
<td>4</td>
</tr>
<tr>
<td>Steele Creek</td>
<td>3</td>
</tr>
<tr>
<td>Mark Vance Trail</td>
<td>3</td>
</tr>
<tr>
<td>Near Weaver Pike Area</td>
<td>2</td>
</tr>
<tr>
<td><strong>Miscellaneous Locations</strong></td>
<td></td>
</tr>
<tr>
<td>Downtown</td>
<td>30</td>
</tr>
<tr>
<td>School</td>
<td>27</td>
</tr>
<tr>
<td>Stores</td>
<td>24</td>
</tr>
<tr>
<td>Neighborhoods</td>
<td>19</td>
</tr>
<tr>
<td>Library</td>
<td>16</td>
</tr>
<tr>
<td>Work</td>
<td>15</td>
</tr>
<tr>
<td><strong>Locations Mentioned Once</strong></td>
<td></td>
</tr>
<tr>
<td>Cedar Creek Campground</td>
<td>1</td>
</tr>
<tr>
<td>South Holston Dam</td>
<td>1</td>
</tr>
<tr>
<td>Sugar Hollow</td>
<td>1</td>
</tr>
</tbody>
</table>
### What routes for alternative transportation (bike lanes, trails, etc. including both on and off road), if any, are most needed in the City of Bristol? (Please list below or skip if you don’t know)

<table>
<thead>
<tr>
<th>ANSWER</th>
<th>RESPONSES</th>
</tr>
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<td>Walking Trails</td>
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<td>Signage</td>
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<tr>
<td>Trails at Steele Creek Park</td>
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</tr>
<tr>
<td>Old Jonesboro Road</td>
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<td>Volunteer Parkway Crossing</td>
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<td>Need Wider Roadways</td>
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<td>Access to Bristol Motor Speedway</td>
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<td>Improvement to Current Greenways</td>
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<td>Access to Steele Creek Park</td>
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<td>Convert old Railroad to Trail</td>
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<td>Weaver Pike</td>
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<td>Southside Ave</td>
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<td>Bluff City Highway</td>
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<td>Euclid Ave</td>
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<td>Trail Similar to Virginia Creeper Trail</td>
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</table>

The above table represents where the surveyed participants perceive alternate transportation facilities should be located.
A majority of the surveyed participants understand the value of trails and Greenways as 75% of respondents support tax dollar funded expansion of these facilities. These results indicate that they would support improvements to the Trails and Greenways system.
The majority of participants in the survey indicated that Steele Creek Park has been the best investment in alternative transportation made by the City.
Poor sidewalk conditions ranked 1st as an issue preventing individuals to engage in the use of existing Greenways in the City of Bristol.

<table>
<thead>
<tr>
<th>ANSWER</th>
<th>RESPONSES</th>
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<tbody>
<tr>
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<td>Debris on Greenways/Walkways/Sidewalks</td>
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<td>No Ramps off Sidewalks</td>
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<td>Sidewalks in Fairmount</td>
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<td>Roadway Crossings</td>
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<td>Greenway is too short</td>
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<tr>
<td>Sidewalks End</td>
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<tr>
<td>Vehicle Traffic</td>
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<tr>
<td>Lack of Bike Racks</td>
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<td>Speeding Vehicles</td>
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<tr>
<td>Lack of Sidewalk in King College</td>
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<td>State Street Sidewalk in Poor Condition</td>
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<td>Lack of Lighting</td>
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<td>Tree Root Intrusions</td>
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<td>Vehicles Parked Adjacent to Roadway</td>
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<td>Lack of Signage</td>
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<td>Curvy roads</td>
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<td>Pennsylvania Avenue Sidewalk in Poor Condition</td>
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</tr>
<tr>
<td>Greenway in Poor Condition</td>
<td>2</td>
</tr>
</tbody>
</table>

Please list any physical barriers (gaps in sidewalks, lack of curb cut/ramp, utilities in path, etc.) that you feel may prevent the safe use of existing greenways and trails within the City of Bristol. If you don’t know of any, leave blank.
This table indicates the general comments made by surveyed participants. Safe, designated bike lanes, and more sidewalk appear to be among the top preferences of the participants.

**Analysis**

The survey indicates that the majority of survey respondents were residents of Bristol. Single adults and families with children made up the majority of survey participants. The
responses indicate that residents are using the existing pedestrian facilities and feel that those facilities are in moderate to fair condition. Many feel there is a lack of connectivity to schools and parks from nearby residential areas and other destinations within the City. The study shows that support for expanding the pedestrian/bicycle system exists, and there is a willingness to accept a tax increase to fund pedestrian projects by survey participants. This survey has established both, the need for improvements to the existing pedestrian/bike system in Bristol, and the need to expand these systems in the future.

Most survey participants agree that there is an existing need for new trails and greenways, and improvements to existing facilities within Bristol. Respondents suggest that the growing trend towards healthy living and fitness as they relate to improving “quality of life” are factors supporting trail and greenway improvements. Limited access to pedestrian facilities was a common topic; many comments were made related to the need for expanding both, pedestrian, and bicycling facilities (see individual comments from the survey in the Appendix).

2.3 ASSESSMENT OF THE EXISTING PEDESTRIAN TRANSPORTATION SYSTEM

Peer Cities Review

A review of pedestrian and bicycle planning and facilities in other selected cities (Chattanooga, Clarkesville, Elizabethton, Johnson City, Kingsport, Maryville, Morristown, Murfreesboro, and Oak Ridge TN, Asheville NC, Abingdon VA) provide a useful context for Bristol’s own initiatives. Comparisons were made with cities predominantly in Tennessee, with the exception of the City of Asheville, North Carolina and the Town of Abingdon, Virginia.

All cities reviewed, varied in population. Abingdon is the smallest at 8,206 (2013) and Chattanooga was the largest with a population of 173,336 (2013). Although Chattanooga is significantly larger than Bristol, it was chosen as a comparison for two specific reasons. First, a large city such as Chattanooga has urban densities that typically can support alternative forms of transportation, and secondly, because of its initiatives on bikeway expansion. The cities included in the analysis most comparable to Bristol are Maryville, Morristown, and Oak Ridge. Of the cities reviewed, most had or were finalizing their own bike and pedestrian plans. Those with existing bike/pedestrian plans used similar, recommended design standards. Standards included recommendations from the Association of State Highway and Transportation Officials (AASHTO), American Disability Association (ADA), or state highway design standards (TDOT, VDOT, NCDOT). Design standards support consistency among bike/ped facilities.
Asheville, North Carolina, and Chattanooga, Tennessee, were noted as having extensive development of bicyclist accommodations with very strong support from the transit networks. Bus stops and buses are equipped with bike racks. This type of amenity expands travel choices for those who choose biking as an alternative to traveling by car. Bristol, Tennessee Transit and the Bristol Virginia Transit, should consider a similar means of programming for bicyclists.

An interesting finding was that about half of the cities in the comparison had added or planned on including a bicycle/pedestrian coordinator position to their organization. This position’s aim is to manage the coordination of bicycle/pedestrian programs, review development policies, and make recommendations related to how, and where proposed components of the pedestrian/cycling transportation system may occur. This position also manages the municipality’s bicycling and pedestrian public education initiatives. Example programs noted in the review included:

- Bike mentoring programs
- Advertisements
- Bicycle rodeos
- Bike to work programs
- Safety courses

To enhance the safety of the cyclists using the bicycle facilities, many municipalities have established bicycle facility maintenance programs. Often, these involve spot maintenance crews that respond to cyclists who submit spot maintenance forms. Many cities also guaranteed that street sweeping would be executed on streets with bicycle facilities to remove debris and improve cyclist safety. Most of the cities/towns reviewed had several types of recreational trails and bicycle friendly roadways to provide alternative transportation opportunities.

**Bristol Pedestrian System Access**

The pedestrian system in the City of Bristol, consists mainly of aged sidewalks on busy downtown streets and established residential areas. Greenway trails traversing the north end of the City and downtown have been added in recent years.

At the time of this study, it was apparent that age, climate and little maintenance contributed to most of the downtown sidewalks being in moderate condition as well as the sidewalks within the surrounding residential areas. Both areas are in need of a detailed maintenance assessment for necessary repairs to make the sidewalks safe for all pedestrians. There is a limited network of sidewalks from residential areas to popular retail
destinations. Many of these adjoining paths are not ADA compliant therefore restricting the use of pedestrians capable of using these sidewalks. Sidewalks consisting of narrow, broken, segments of sidewalk, and incomplete portions of popular pedestrian routes can be unsafe to all pedestrians. (e.g. pedestrian gap between the existing sidewalk along SR34/US421 at East Cedar Street and Food City).

Currently, there is poor to no connectivity to downtown from most of the surrounding residential and business areas adjacent to the historic downtown area. Hotels and restaurants that cater to the area, are not connected through a planned, pedestrian network. A planned, pedestrian network, linking various tourist attractions, resorts, government facilities, hotels, restaurants, residential areas, the hospital, etc., will significantly increase profit and popularity for city businesses.

Many pedestrian destinations in Bristol are not equipped with well-connected sidewalks. Examples include King University, the Bristol Motor Speedway, and Whitetop Creek Park. Other areas such as Fairmount, Haynesfield/Edgemont, and Steele Creek Park, do provide walking paths and sidewalks. Some of these routes are only partially used by residents because they either lack ADA accessibility, are perceived as dangerous, or they don’t lead to where the pedestrian desires. Steele Creek Park offers many walking opportunities within the park and it connects to Downtown via the Mark Vance Greenway. However, the last half of this route towards Downtown is less desirable to many pedestrians because it travels through alley ways and onto city streets. There are almost no pedestrian paths from City residential neighborhoods into the more popular shopping/retail areas (example: The Pinnacle shopping mall). The lack of access is due to topography and difficulty in crossing highways.

Other pedestrian paths include trails at Whitetop Creek Park and other smaller City parks, as well as the Wes Davis Greenway. A new pedestrian bridge, near 8th Street, was opened on the Wes Davis Greenway in 2016.

**Walking Trip Characteristics**

Walking trips are typically broken down into two (2) main categories; walking for recreation and walking to reach a destination.

Many residential areas within the City are without sidewalks. Pedestrian travel is often along the edge of, or within a roadway. A number of residents voiced frustration during community meetings about the necessity of driving their car to a separate location in order to gain access to popular destinations, such as the Mark Vance Greenway or Steele
Creek Park. Community meeting participants shared the idea that all residential areas within the City, should have access to at least one major sidewalk within their immediate neighborhood which connects to the future greenway network. Areas within Bristol’s Downtown have sidewalks that link with either the Mark Vance or Wes Davis greenway paths/bike routes, but the lack of adequate pedestrian wayfinding signage, poor safety perceptions, and lack of public awareness are cause for a limited number of people that currently use these routes.

Steele Creek Park offers dedicated, picturesque recreational paths and is accessible from multiple parking areas. The Mark Vance Greenway serves both recreational and transportation needs of pedestrians. This trail currently offers approximately 1.4 miles of well-maintained walking pathway and is beginning to serve as a vital connecting facilitator for alternative transportation throughout the City. Other popular, loose surface recreational trails include: The East Ridge Loop, Rock Cut Trail, Lakeside Trail, and Lake Ridge Trail, as well as numerous other unnamed, single path trails.

The expansion of the Mark Vance and Wes Davis Greenways to other areas of the City would serve as an important public asset and a critical unifying component linking neighborhoods with shopping areas, job generators, schools, parks, clinics, Wellmont Bristol Regional Medical Center and other nearby communities. (See Inventory Map at the end of this section).

Destinations generating pedestrian traffic include:

- Residential neighborhoods - The Holston Avenue neighborhood and the neighborhood along Windsor/Broad/Anderson Streets have the most, extensive network of sidewalks. The condition of these paths range from fair to poor. There have been recent additions of tactile warning pads, curb ramps and pavement improvements along a few street routes (Kentucky, Maple, Pine and Georgia, Spruce, Carolina). With all the existing sidewalks, there are a number of the pre-existing sidewalks that are not continuous or lead to dead ends.

- The City of Bristol Public School District considers the following as maximum safe distances for students to walk from their home to school:
Section 2.3 Evaluating Current Conditions
Comprehensive Trails and Greenways Master Plan

- Maximum One Mile Walk - (Elementary School students)
- Maximum one and a half mile walk - (Middle School Students)
- Maximum two mile walk - (High School Students)

However, not all streets in Bristol have accessible sidewalks within these distances from City schools.

- King University - Pedestrians have limited accessibility from the University to surrounding destinations such as Downtown. At the time of this plan, sidewalks were planned for construction along East Cedar Street.

- Bristol Motor Speedway - Paved sidewalk and gravel trails from surrounding parking areas lead to the pedestrian entrance/shuttle stops at Speedway Boulevard.

- The Birthplace of Country Music Museum - This destination is served by the downtown network of sidewalks.

- Steele Creek Park – There is no sidewalk that leads into the park from the main entrance on Steele Creek Drive. However, the Mark Vance Greenway enters the park via the side-path along Shelby Street. Bollards at the end of Shelby Street prevent vehicular access to the Greenway as it continues on towards Harkleroad Lane and eventually crosses Broad Street as it enters into Steele Creek Park. Additional pedestrian entrances to the park include the Quarry Cave trail located at the parking area on Broad Street, the East Ridge Loop accessible via Three Oaks Road trail head and from Rooster Front Park via a paved path from the parking area that links to the Lakeside Trail (loose gravel path).

- Other City Parks - Most City parks have a walking path/sidewalk, either within the boundary of the park or leading to the park from the surrounding neighborhoods. Defriece Park does not have accessible pedestrian paths.

Shopping centers are scattered throughout the City but, the main areas that generate pedestrian traffic are:

- The Pinnacle – This shopping destination opened in the fall of 2014 with the grand opening of the region’s only Bass Pro Shops. Since that time, The Pinnacle has firmly positioned itself as a regional retail hub with the region’s largest Belk’s, and only Marshall’s along with other national retail and local businesses.
Downtown - Bristol’s Historic Downtown District has been certified as a Main Street Community. This area is centered along State Street and it features specialty gift shops, art galleries, cafes, restaurants, antique shops, and a variety of theatre, street festivals, and live music. Downtown Bristol has become a pedestrian friendly shopping environment that serves an ever-growing number of residents and visitors each year.

2.4 INVENTORY AND ASSESSMENT OF EXISTING REGIONAL PEDESTRIAN FACILITIES

Bristol

Wes Davis Greenway

The Wes Davis Greenway follows a portion of abandoned; rail-line that once ran from Bluff City, Tennessee, to Mendota, Virginia. The greenway is routed from Anderson Street to Melrose Street and crosses Beaver Creek at two points. This linear park features the partially restored “Pullman Bristol” car which was acquired by the City of Bristol and a caboose which was donated by Norfolk Southern. The trail head sign is a laser-cut silhouette of an EMD F7 locomotive in the colors of “The Tennessean”— a locomotive that once connected the Southern Railway and the Norfolk & Western. It offered rail service from Memphis to Washington, D.C. There have been efforts to garner public support to link the rail-trail with another that would run from the Tennessee/Virginia border in Bristol, to Mendota, Virginia. Parking and Trail Access is available at the Bristol Municipal Center on the north side of Anderson Street across from trail head. The Bristol Virginia City Council conveyed fourteen (14) miles of this trail, under their ownership since 2000, to a nonprofit group in 2016. The nonprofit, Mountain Heritage, Inc. intends to establish a hiking and biking trail.

Mark Vance Memorial Greenway

Originally built as the Cross Town Trail, the Greenway was renamed in honor of Officer Mark Vance who was killed in the line of duty. This 1.4-mile asphalt paved trail, begins at the Mill Creek area of Steele Creek Park and takes pedestrians to Volunteer Parkway where it then connects with the Wes Davis Greenway. This trail was completed in November.
2003 with funding assistance from the Tennessee Department of Transportation.

The path consists of paved greenway from Mill Creek to 24th St. and is separated from the roadway via a grass strip. There is overhead lighting from Mill Creek to Shelby St. The 24th St. to Volunteer Parkway segments of the greenway consist of traditional concrete sidewalk, paved shared use alley-ways behind residences and on-street bike lanes.

**Kingsport**

**Kingsport Greenbelt (Reedy Creek Trail)**

The Kingsport Greenbelt runs 8 miles along the Holston River and Reedy Creek through the City of Kingsport. It is touted as both a historic and fitness trail, passing by Civil War sites, historic homes, landmarks, and bridges and other sites of interest amid river and mountain scenery. Each of the four sections along the greenbelt offer unique things to see and do. Users have parking and trail access from numerous places along its route. However, a popular segment of the trail begins at Preston Presbyterian Church, the trail starts out as gravel but within less than a mile is asphalt the rest of the way. It mostly follows the river noted for having great views, a few overpasses, and a covered shelter.

**Bays Mountain Trail**

Located in Bays Mountain Park, Bays Mountain Trail is a 5.2 mile heavily trafficked loop trail located in Kingsport, Tennessee that features a lake and is rated for moderately experienced riders. The trail offers a number of activity options and is accessible from April until October. Dogs are also permitted to use this trail but must be kept on leash. This area displays evidence of early settlements, signs of beaver activity and seasonal wildflowers.

**Sinking Waters Trail**

Located in Warriors’ Path State Park, Sinking Waters Trail is a 1.8 mile lightly trafficked loop trail located in Kingsport, Tennessee that features beautiful wildflowers and is rated for moderately experienced riders. The trail offers a number of activity options and is
accessible from March until October. Dogs are also permitted to use this trail but must be kept on leash.

Interesting features include a board walk through a natural bog ecosystem, sink holes, small streams, and the Ridge-line loop which offers educational signage explaining the area history.

**Johnson City**

**Buffalo Mountain-White Rock Trail**

Buffalo Mountain-White Rock Trail is a 2.9 mile lightly trafficked out and back trail located in Johnson City, Tennessee that is rated for moderately experienced riders. The trail is primarily used for hiking and off road driving and is accessible from March until November. Dogs are also permitted to use this trail.

**Tweetsie Trail**

Completed in September of 2014, the Tweetsie Trail in eastern Tennessee follows the former ET&WNC (“Tweetsie”) Railroad right-of-way for 9.5 miles. It begins at Alabama Street in Johnson City and continues east through Sycamore Shoals State Park in Elizabethton and the City's downtown. It ends on Stateline Road near the Betsytowne Shopping Center. The trail has a compacted stone surface, a relatively flat grade, and crosses seven (7) bridges. Along the way, travelers can rest and enjoy its beautiful, natural surroundings on several benches.

Parking and trail access is available at the Memorial Park Community Center, Cardinal Park, and the Municipal and Safety Building (City Hall). In Elizabethton, parking is available at Elizabethton High School.

**Hampton, TN**

**Laurel Falls Trail**

Laurel Falls Trail is a 5.8 mile heavily trafficked out and back trail located near Hampton,
Tennessee that features a waterfall and is rated for moderately experienced riders. The trail is primarily used for hiking.

**Abingdon, Virginia**

**Virginia Creeper National Recreation Trail**

The Virginia Creeper National Recreation Trail offers cyclists and equestrian riders, joggers and walkers with well maintained trails and an opportunity to experience one of the US’s most well known rail-trails. The trail officially begins at the Virginia-North Carolina border and ends in Abingdon, Virginia. The total length of the trail is 33.4 miles.

**Mount Rogers National Recreation Area**

The Mount Rogers National Recreation Area (NRA) manages approximately 200,000 acres of National Forest land near Mount Rogers. The area features four (4) Congressionally designated wilderness areas; the Virginia Creeper Trail, and the Mount Rogers Scenic Byway which traverses over 50 miles offering views of the National Recreation Area and open rural countryside.

The Mount Rogers NRA was officially established and designated a National Recreational Area by the Secretary of Agriculture in 1966. Many activities are available in the area including camping, picnicking, sight-seeing, bird watching, trout fishing, hunting, hiking, bicycling, horseback riding, cross-country skiing, and swimming.

**Overmountain Victory Trail**

The Overmountain Victory National Historic Trail honors the military campaign leading to the Battle of Kings Mountain by following the historic route of the Patriot Militia Men of the Revolutionary War from Abingdon, Virginia, to the Battle of Kings Mountain, South Carolina. Currently, the National Park Service has installed signs along major roads, denoting the Commemorative Motor Route of the Overmountain Victory National Historic Trail. The pedestrian trail may one day extend through Washington County, VA, into Sullivan County, TN, south of the City of Bristol at Highway 421.
2.5 PEDESTRIAN CONNECTIVITY

The City of Bristol is committed to improving the opportunities for pedestrian and bicycle transportation. This plan focuses on trails and greenways but acknowledges that proposed trail and greenway facilities will depend on existing and future sidewalks to help users connect with the Bristol trails and greenways network via the places they live and work. It for this reason that sidewalks are also discussed.

Along with McGill Associates, P.A., the City of Bristol Staff assisted with the existing City trails and greenways inventory. This inventory outlines the existing trails and greenway paths and their locations which are shown on the Inventory map, found at the end of this section.

This inventory displays the current location of sidewalks, trails, and greenways. The inventory was developed to identify needed linkages that would improve connectivity between popular destinations.

In addition to the visual survey, interviews were conducted with appropriate staff and agencies within the City government. These interviews were designed to solicit information from knowledgeable staff about departmental issues and concerns with the existing pedestrian network and how it currently serves the needs of the citizens of Bristol.

Visual Assessment of Existing Facilities

Sidewalks

Sidewalks are often the only way for pedestrians to traverse the City as an alternate to driving on the roadways. Sidewalk conditions affect the accessibility and safety perception of pedestrian corridors. Bristol's sidewalk network will be designed to support future trails and greenways by offering accessibility to the network where people live, work, and enjoy the greenways and trails. The locations of existing sidewalks are shown on the Inventory map at the end of this Section. A complete sidewalk inventory should evaluate existing sidewalks every two years. Suggested condition ratings should at a minimum
following the below scale:

- **Good** – overall good, usable condition. Sidewalks must be at least four feet wide. A few minor cracks, small amount of spalling, and/or discoloration is acceptable.

- **Fair** – usable condition. Any sidewalk less than four feet in width, moderate number of cracks, minor settling or uplifting, spalling, and/or intrusive vegetation.

- **Poor** – dangerous or unusable sidewalks. Major cracks and breakage, major uplifting or settling, crushed concrete, missing segments, and/or excessive vegetation intrusion.

Overall, the majority of existing sidewalks in Bristol are in **fair** condition. At the time of this plan, a system-wide sidewalk inventory and assessment had not been completed. However, the City had taken steps to identify many needed improvements and are in the process of making sidewalk repairs. The major issues for the overall pedestrian system at the time of this plan include:

- **ADA accessibility**: Many sidewalks are narrow (<4’) and many lack accessible curb ramps, tactile detection pads that would help to serve a broader pedestrian user group.

- **Lack of sidewalks**: While many of the residential areas in or near Downtown have access to pedestrian pathways, a number of residential areas within the City limits do not have pedestrian paths of any kind or have only portions of sidewalk not connect to any other portions of sidewalk on the same street.

- **Lack of Connectors**: A number of neighborhoods and popular destinations in the City lacked a connecting sidewalk to the next destination, adjacent residential area, or to shopping areas.

- **Obstructions**: Some sidewalks were obstructed by cars parked improperly (Parked at the end of a driveway where a path was located). This is a parking enforcement issue. Other sidewalks had trash cans or vegetative overgrowth blocking the safe accessibility of these paths.

- **Poor condition**: Some of the existing sidewalks in the City needed repairs to correct for erosion, root intrusion, lifting, etc. A number of intersections within residential areas needed curb ramp improvements (to meet ADA requirements).
However, some of the sidewalks did show evidence of ongoing improvements and recent repairs taking place.

Pedestrian Intersections

There are several busy intersections serving both vehicular and pedestrian traffic within the City. Some intersections offer safe pedestrian facilities such as those in the Downtown (State Street) area; however, there are many other intersections within the City that will require safety upgrades. Those upgrades include pedestrian signals, marked crosswalks, areas of refuge, tactile warning devices, curb ramps, paved paths, or a combination of these needs in order to protect pedestrians as they navigate near vehicular traffic. Additional information on pedestrian crossing treatments can be found in Section 4.

Barriers

In addition to the lack of safe and complete sidewalks, curb ramps, and pedestrian crossings shown on Sidewalk Inventory/Existing Conditions Map, other obstacles and barriers may prevent safe walking trips. Barriers consist of objects located on sidewalks which prevent a safe lateral clearance. Typical sidewalk obstacles and barriers include utility poles, traffic signs, fire hydrants, and intrusive vegetation.

The biggest barrier within the pedestrian system is the absence of sidewalks and pedestrian crossings within neighborhoods. Busy roadways pose a major problem for pedestrians trying to walk from one point to another.

There have been efforts within the City to add tactile warning devices for visually-challenged pedestrians at existing intersections within the City of Bristol. This type of improvement should apply to all locations where the sidewalk intersects roadways.

Path surfacing may also be considered a barrier if the surface is not firm and stable. Bicycles, strollers and wheelchairs may have difficulty traveling on sand covered or other natural surfaced paths.

Typical Traffic Counts

According to TDOT, the roadways with the highest 2015 Annual Average Daily Traffic counts (AADT) in the City of Bristol include:

- Volunteer Parkway (Downtown) – 25,069 AADT
- Volunteer Parkway (Near Speedway) – 17,332 AADT
• State Street – 8,790 AADT
• Old Bluff City Highway – 8,224 AADT
• Windsor Avenue – 7,865 AADT
• Weaver Pike – 7,610 AADT
• King College Road – 7,249 AADT
• Virginia Avenue/Carl Moore Parkway – 6,923 AADT
• Blountville Highway – 6,825 AADT
• Edgemont Avenue – 6,740 AADT
• Raytheon Road – 4,527 AADT
• Old Jonesboro Road – 4,036 AADT
• Broad Street – 2,262 AADT
• Highway 394 – 1,363 AADT

According to comments made at public meetings, there are a number of intersections along typically busy corridors that have a reputation of being unsafe. The reasons often given included a high volume and/or speed of vehicular traffic that pedestrians must travel alongside (Example: bike lanes along Volunteer Parkway). Also, comments mentioned the lack of pedestrian signals or crosswalks at intersections.

To create a pedestrian-friendly transportation system in the City of Bristol, existing pedestrian corridors will have to be strengthened by filling in gaps, repairing existing pedestrian facilities and providing safe and efficient crossings across busy roadways. Connecting sidewalks should be provided to connect major portions of the trails and greenways system to neighborhoods and areas where people work. Improved connectivity provides a way for City residents and visitors to reach important destinations, such as schools, parks, businesses, popular shopping, dining and entertainment venues.

**Downtown Bristol Inventory Map**

A visual assessment and inventory was conducted of existing trails, greenways, and designated bike paths in Bristol. See the 11”x17” fold out Inventory map on page 67.
City of Bristol
Tennessee
Trails and Greenways
Master Plan
2017

INVENTORY

- Existing City Owned Park Facility
- Other City Owned Property
- Existing Water Body
- Existing School
- Existing Greenway Trail
- Existing Sidewalk
- Existing Off-road Trails
- Existing Bike Routes
- Urban Growth Area
- Significant Destination
- City Limits

* Enlarged view of Downtown
“Keep close to Nature's heart... and break clear away, once in a while, and climb a mountain or spend a week in the woods. Wash your spirit clean.”

- John Muir
SECTION THREE: EXISTING PLANS, PROGRAMS, AND POLICIES

A number of planning documents and recommendations have previously been prepared relating to issues addressing current and future pedestrian facilities for the City of Bristol. Such reports and documents represent important efforts that should be addressed and incorporated into this Trails and Greenways Plan. Many of these planning documents - which address greenways, transportation, public transportation, capital improvements, and land-use planning - provide valuable insight and background toward the future decision making process for the City. This section outlines the key documents and studies which already exist and have been reviewed in their entirety.

3.1 LOCAL, REGIONAL, AND STATE PLANS AND GUIDELINES

Transportation and Other Related Plans

Bristol Tennessee Transit System

The Bristol Tennessee Transit System (BTTS) offers fixed route service to several areas within the City. Fixed Route fare rates have been established, as well as daily rates for adults, senior citizens, disabled citizens, transfers (Bristol, Virginia) and children. All Bristol Tennessee Transit and Bristol Virginia Transit buses meet at the Downtown Center located at 804 State Street adjacent to the Farmers Market. Bristol transit buses will deviate from the bus route within 3/4 mile of the fixed-route service. ADA (Americans with Disabilities Act) services are available for persons unable to use the regular bus services. Drivers must be certified as specified by ADA requirements.

Bristol Comprehensive Parks and Recreation Plan

The Comprehensive Parks & Recreation Plan was completed in 2014 and serves as a planning guide for the continued development and maintenance of the City's Parks System. Though the City of Bristol has been investing in and providing stewardship of parks and greenways since its establishment as a City, this document is the first-ever
comprehensive plan for parks.

The purpose of this long range, master plan is to properly meet the park and recreation needs of the citizens of Bristol; not only for the future but, also for the present. The City of Bristol will advance the community’s vision of the park system by:

- Keeping an up-to-dated inventory of existing Parks and Recreation facilities
- Presenting a Park System Concept that implements the vision and builds on Bristol’s past efforts
- Identifying future park and facility needs as Bristol grows and evolves
- Maintaining existing park and major facility recommendations
- Analyzing approaches to operating and sustaining the system.
- Prioritizing recommendations and criteria for recommendations and projects in the coming years
- Developing an implementation plan

The Bristol Parks and Recreation Master Plan serves as:

- A guide to the orderly development of existing recreation areas;
- A guide to the selection and development of new recreation areas and park facilities to meet existing and future needs;
- A comprehensive program to serve all ages and interests all hours of the day and all seasons of the year;
- A guide to assure the maximum, functional use of all Bristol’s recreation facilities; and
- A practical plan for immediate and long range action with respect to programs, park areas, open space, facilities and finances.

Looking to the future, residents voiced the desire for a park system that is better distributed and more diverse. Improvements were noted for many existing parks, and plans were explored for new parks and facilities necessary to fulfill system-wide goals.

Opportunities for youth of all ages - places and programs that promote healthy and
active living will be an important part of this future vision.

The Comprehensive Park and Recreation Plan was written as a resource and guide and a source of inspiration for developers, potential supporters, City staff and decision makers. One of the main recommendations is for the City to develop new partnerships and build stronger relationships among park supporters in hopes that will help bridge the gap between need and implementation.

**Bristol Bicycle and Pedestrian Master Plan**

As part of the City’s goals and objectives to protect health, safety and maintain basic service levels, the Bristol Bicycle and Pedestrian Plan was developed to identify a potential network of bicycle/pedestrian facilities that will provide city-wide connectivity, identify the need for thoughtful and safe facility design to meet the needs of City residents. The intent of the Bristol Bicycle and Pedestrian Plan was to develop and maintain a system of safe bikeways and pedestrian facilities that contribute to enhanced mobility, neighborhood connectivity with various activity centers, education facilities, parks, and separate residential areas.

**Purposes of the Plan:**

- To increase bicycle and pedestrian use
- To identify a potential network of bicycle and pedestrian facilities

The Bristol Bicycle and Pedestrian Plan, consists of the following components:

- Existing Policy, Goals and Objectives - Policy and requirements related to bicycle and pedestrian issues are outlined via the goals and objectives for this study;
- Characteristics of Users - This component of the study discusses the needs of cyclists and pedestrians to accommodate all potential types of users;
- Existing Conditions - An examination of existing cycling and pedestrian facilities, summarizes roadway conditions, and identifies constraints and opportunities for bicycle and pedestrian improvements;
- Recommended Bicycle and Pedestrian Network - Recommendations for future bicycle (pedestrian) corridors, as well as, cost estimates for new facilities are
provided;
• Education and Safety: Addresses education and public awareness for teaching pedestrians, cyclists, and motorists to practice safe behavior;
• Funding Resources and Implementation Strategies: Funding resources for future improvements, priorities for implementation, and recommendations for maintenance are listed.

State of Tennessee Bicycle Transportation Guides

Sidewalks, bikeways, and paths play an important role in providing transportation choices for people across Tennessee, especially those without access to an automobile, children, older adults, tourists, people with disabilities, and low-income individuals. With over 40% of all trips in the United States averaging two (2) miles or less, good walking and bicycling facilities are essential to the continued growth and success of towns and cities.

Walking and bicycling also provide an opportunity for communities to achieve larger goals such as attracting new businesses, increasing neighborhood safety, reducing traffic congestion and improving air quality. Moreover, there is growing interest in the role walking and bicycling play in public health. Improving walking and bicycling conditions helps everyone lead safe, active, and healthy lives. Tennessee can be a great place for walking and bicycling. In addition to a mild climate, Tennessee has many of the ingredients that make walking and bicycling attractive for people of all ages and for all types of trips commuting, shopping and recreation as follows:

• Small towns and urban neighborhoods
• Quiet, rural roads for bicycle touring and recreational riding
• Beautiful state parks, natural areas and landscapes
• Historic trails and greenways

The State of Tennessee offers a number of guides (see list below) related to pedestrian and bicycle transportation. TN Traffic Laws Relating to Bicycles: A Handbook for Motorists and Bicyclists (pdf)

• TDOT Multi-modal Access Policy (pdf)
• Tennessee Bicycle Laws
• Tennessee Pedestrian Laws
• Bicycle Routes in Tennessee
• Traffic Safety
State Transportation Improvement Program (STIP)

TDOT officials have developed a strategic plan for transportation decision-making that focuses on achieving the department’s goals of safety, mobility and infrastructure health. At the discretion of the State of Tennessee, a portion of the State’s Federal Surface Transportation Program (STP) funds are made available to small urban areas between 5,000 - 50,000 in population based on the latest, available census figures. The majority of these funds are utilized within minor types of improvements and projects such as resurfacing, signalization, lighting, intersection improvements, bridge replacements, signage and pavement marking, sidewalks, bikeways, grade crossings, etc.

Also, a portion of the state’s federal Surface Transportation Program (STP) funds are allocated to urban areas with populations between 50,000 and 200,000. Those funds are included in the transportation improvement programs of the Bristol MPO, and others throughout the state.

It is important to evaluate existing initiatives in order to appropriately incorporate current proposed improvements into the Trails and Greenways Plan. The State Transportation Improvement Program (STIP) is important in establishing long range goals for improving pedestrian transportation.

Tennessee Department of Environment and Conservation: Recreation Educational Services Division - Greenways and Trails Program

The Greenways and Trails program guides Tennessee communities in the preservation of green spaces and conservation of natural and cultural resources in the State. Guidance related to the administration of grant programs, management of local resources and encouragement of citizen involvement is available to interested municipalities.

ADA Accessibility Guidelines

What exactly is a trail according to ADA regulations?

A trail is “a route that is designed, designated, or constructed for recreational pedestrian use or provided as a pedestrian alternative to vehicular routes within a transportation system.”
What kinds of trails are subject to the ADA regulations?

The accessibility guidelines apply to those trails that are designed and constructed for pedestrian use. These guidelines are not applicable to trails primarily designed and constructed for recreational use by equestrians, mountain bicyclists, snowmobile users, or off-highway vehicle users, even if pedestrians may occasionally use the same trails. However, a multi-use trail specifically designed and designated for hiking and bicycling would be considered a pedestrian trail.

What if building a trail to an accessible standard is not logical, desirable, or possible?

The following four (4) areas highlight potential conditional departures from the ADA guidelines that are permitted for any portion of the trail where compliance would:

1. Cause substantial harm to cultural, historic, religious, or significant, natural features or characteristics;
2. Substantially alter the nature of the setting or the purpose;
3. Require construction methods or materials that are prohibited by Federal, State, or local regulations or statutes;
4. Not be feasible due to terrain (excessive slope or cross slope) or the prevailing construction practices.

Is an urban bikeway a “pedestrian trail”?

Accessibility guidelines apply to the trails used as non-motorized transportation facilities for bicyclists and skaters as well as pedestrians.

Will existing trails have to be brought up to ADA standards?

No. The proposed accessibility guidelines require newly constructed and altered portions of existing trails connected to accessible trails or designated trail heads to comply.

Must accessibility be improved when trail maintenance is done?

Routine or periodic maintenance or repair of existing trails or trail segments is exempt. Maintenance and repair are defined as work that is not an alternation: it does not change the original propose, intent or design of the trail.

Must vehicles be allowed on non-motorized trails to accommodate accessibility?
No. While a variety of electric powered mobility enhancing equipment can be used on pedestrian or multi-use trails, the necessity of protecting the environment and maintaining the appropriateness of the setting would exclude gas-powered ATV’s or other off-highway vehicles.

Does an accessible trail have to be paved?

Not as long as the surface is “firm and stable”. Packed crushed stone, gravel fines compacted with a roller, packed soil, and other natural materials bonded with synthetic materials can provide the required degree of stability and firmness comparable to asphalt or concrete.

All pedestrian trail (greenway) projects are required to be planned/designed to comply with the “American Standard Specifications” for making buildings and facilities accessible and usable by, the physically handicapped. The Final Report of the Regulatory Negotiation Committee on Accessibility Guidelines for Outdoor Developed Areas (1999) proposes ADA Accessibility Guidelines (ADAAG) for trails, outdoor recreational access routes, beach access routes, and picnic and camping facilities.

3.2 PROGRAMS AND INITIATIVES

Safety, Education, and Resource Programs

Parks and Recreation Department

The City of Bristol, Tennessee Parks and Recreation Department provides recreational needs not only for the citizens of Bristol, Tennessee; but also services members of surrounding communities (such as Sullivan County, which has no department of recreation, Washington County Virginia, and Bristol, Virginia.) A comprehensive recreation plan was recently adopted for the Bristol community to ensure that the community is well-served now and is prepared for future recreation and open space needs.

The City has over twenty-six (26) parks that offer residents a variety of recreational opportunities. Steele Creek Park offers picnicking, hiking, biking, or train rides and paddle boats. Also, offered at Steele Creek Park is the he Nature Center. This educational amenity is a unique recreation experience that includes educational nature exhibits and informative hikes, a photography program and outdoor classroom. Whitetop Creek Park is a Multi-Sport Complex featuring four (4) softball/baseball fields and four (4) soccer fields.
The recreation department offers organized activities for children and young adults in the form of NFL flag football, basketball, girls softball, and NJTL tennis. Adults compete in softball and attend evening classes (yoga, fitness, etc.). Steele Creek Park, Whitetop Creek Park, Rooster Front Park, and Charlie Robinette Park all offer shelter rentals.

Senior recreation programs and activities are lead by the Parks and Recreation Senior Programs Staff. The physical, social, emotional, and educational needs of Bristol’s senior adults are carefully integrated into innovative programming. They organize activities including exercise classes, line dancing, water color or oil and acrylic painting classes, trips, and more for persons (50 years of age and older) at the Slater Community Center.

Community Development Department

Bristol’s Community Development Department is located at the Bristol Municipal Annex building (104 8th Street). The Planning Division is responsible for framing and implementing planning policies that aim to provide the City with a safe and pleasant working environment for residents. The Planning Division is responsible for developing rules and procedures related to the applications necessary for site plans, subdivisions, variances, rezoning, sign permits, annexations, special use permits, and home occupations. By crafting ordinances that require new development to include basic pedestrian facilities such as sidewalks and curb ramps, the Planning Division helps to create future opportunities to link places where people work and play with the trails and greenways system. Efforts such as these are crucial to the growth of safe alternative transportation in Bristol.

The Community Development Block Grant and HOME Consortium Division directs grant funds to help residents gain home ownership or repair their homes.

The Code Enforcement Division evaluates building plans, manages building & campground permits along with conducting inspections throughout the City.
Along with the City’s efforts to improve the living environments of residents, new and improved trails and greenways can help to add connectivity to these areas and stabilize property values.

**Private Wellness/Fitness Programs**

Numerous facilities/programs are located in the City of Bristol as means of promoting health, achieving physical fitness, and maintaining wellness. These include the following programs:

- Public and Private Fitness Facilities
- Golf Courses in Bristol
- Public Parks

**Health Related Initiatives**

**Sullivan County Regional Health Department**

The Sullivan County Regional Health Department operates via two (2) physical locations serving residents of Bristol Tennessee and the surrounding communities. Their goals are to improve health education and awareness.

The Department’s “Road to Good Public Health” serves as a road map to navigate its services and relevant public health information to its residents. Public Health also works to prevent chronic disease, such as heart disease, cancer, diabetes and their risk factors: poor nutrition, inadequate activity, and tobacco use. Improved public access to an expanded trails and greenways system may support the Health Department’s efforts.

**Sullivan County Health Council**

The Sullivan County Health Council (SCHC) is an assembly of community partners and organizations that are dedicated to improving the health and quality of life of residents. The responsibility of the SCHC is to determine some of Sullivan County’s most pressing health problems with the aid of various community assessments as well as substantial input from community members. The work consists of formulating action plans and encouraging implementation of these plans through community partners. The result of everyone’s collaboration is improvements to some of the most urgent health issues facing the County’s population with the aspiration of improving health and quality of life within Sullivan County. Many of the SCHC’s goals could be supported by a comprehensive trails and greenways system in the City.
The Health Council’s vision – “a safe, healthy, and educated Sullivan County” – is focused on these objectives in their value statements:

- Community health education
- Access to community resources
- Partnerships and collaborative efforts
- Safe communities
- Various cultures (and the diversity they bring to the community)
- Commitment from both individuals and the community to take ownership of a healthier County

**Tennessee Area Agencies on Aging and Disability (AAAD)**

The state of Tennessee is divided into nine (9) districts that define the Area Agencies on Aging and Disability or the AAADs. These agencies plan and provide programs and services for older Tennesseans, as well as those with disabilities. The City of Bristol, Tennessee is located in District 1 – which includes all of Sullivan County and is called First Tennessee AAAD.

The mission of First Tennessee AAAD is “...to improve the quality of life for older adults and adults with disabilities who live in the eight counties of Northeast Tennessee by advocating, setting policy, identifying local needs, providing services, coordinating resources, and providing information to promote senior independence, and healthy choices.” The goal of keeping Bristol’s senior population healthy and active can be supported by providing a safe and well maintained trails and greenways system for use by these individuals. The City should seek to partner with the AAAD on projects related to greenway promotion and getting seniors out and moving more for improved physical and mental health.

**Economic Development Programs Related to Trails and Greenways Development**

**Bristol Economic Development Incentive Program**

A thoughtful and well developed trails and greenways system is an attractive resource to new residents and prospective new businesses looking to relocate to Bristol. Working with those responsible for developing economic investment initiatives and programs is
vital to ensuring that the City’s efforts at creating this valuable public asset will be noticed and will help the City grow in a healthy manner.

The City’s Industrial Development Board has authority to authorize industrial development bonds under state and federal statute. As new development in Bristol is planned for, new job centers and other new businesses should be integrated with the proposed trails and greenways system. Early involvement and planning coordination with the Planning and Parks and Recreation Departments will help to link future pedestrian and bicycle riders with new City facilities.

**NETWORKS Sullivan Partnership**

NETWORKS Sullivan Partnership is the economic development organization for Sullivan County, Tennessee, and its communities of Bluff City, Bristol, and Kingsport. It is recommended that the City coordinate with NETWORKS when promoting new Greenway resources and for marketing of the Trails and Greenways System to prospective businesses as the future system will be an asset that may attract new businesses to Bristol.

The Planning Department’s efforts to reach out for support and sharing of information with (NETWORKS Sullivan) partnerships should include pedestrian and bicycle projects that can connect Bristol to other municipalities within the County.
"In every walk with nature one receives far more than he seeks." - John Muir
SECTION FOUR: STRATEGIC TRAILS AND GREENWAYS PLAN

4.1 SYSTEM OVERVIEW

Section 4 includes recommendations and/or proposals, which would expand the pedestrian and bicycling facilities into a safe and cohesive network.

This section is separated into several components, which include the types of recommended facilities, specific recommendations, and users of the pedestrian and bicycling facilities. (The methodology utilized in the development of these pedestrian recommendations is located in Section 1.5)

The Comprehensive Trails and Greenways Plan serves as a guide for identifying and prioritizing safe pedestrian and bicycling facilities within the City; thereby, creating a viable alternative transportation network. This guide is based on input from the public, and City of Bristol staff. While enhancing and prioritizing capital improvements and maintenance projects for the City, the plan will consider critical areas for pedestrian transportation safety, and will address the Americans with Disabilities Act (ADA) compliance issues.

Section 4 and Section 7 will include recommendations, the establishment of priorities, and implementation guidelines for proposed pedestrian and bicycling facilities. Section 4 provides information about the existing trails and greenways system, outlines the proposed trails and greenways network and identifies areas of need and areas of opportunity.

Gaps in Existing System

There is limited connectivity within the existing pedestrian/bicycle network in the City of Bristol. There are some established connections to Downtown destinations from the...
surrounding residential areas of Fairmount, Haynesfield/Edgemont, Windsor Avenue, Holston Avenue, and Downtown areas; however, these few existing networks are often in need of accessibility improvements, maintenance, or have large gaps in connection.

Many of the intersections along Bristol’s main vehicular corridors (Volunteer Parkway King College Road, US 11E, Blountville Highway, Bluff City Highway, US 421/Virginia Avenue, and SR 394) lack clearly marked pedestrian crosswalks and pedestrian signals.

The largest outstanding issue is perhaps the lack of pedestrian/bicycle facilities leading from City neighborhoods to other destinations within a one mile walking radius.

Lack of Safe Connectivity

One of the greatest barriers to safe pedestrian/bicycle travel in the City of Bristol is the lack of continuous sidewalks, multi-use paths and crosswalks along potential pedestrian/bicycle corridors. A more detailed sidewalk inventory should be undertaken by the City to locate and map ADA accessibility and maintenance issues. Paved pedestrian/bicycle paths (sidewalk, multipurpose trails, etc.) and safe pedestrian crossings should be considered for any areas that generate consistently high volumes of walking and/or bicycling traffic now and in the future as new development occurs.

Significant pedestrian/bicycle corridors through the City of Bristol have been identified as:

- Volunteer Parkway
- State Street (Downtown)
- King College Road
- Virginia Avenue
- McDowell Street
- Pennsylvania Avenue
- Taylor Street
- East Cedar Street
- Edgemont Avenue
- Martin Luther King Junior Boulevard
- Bluff City Highway
- SR 394
- Old Jonesboro Road
- Carden Hollow Road
- Mark Vance Greenway
- Wes Davis Greenway
These busy corridors support a steady amount of vehicular traffic; only a few of these corridors have complete, ADA accessible pedestrian facilities in place or are designated as bike routes. These corridors link many pedestrian generators but few pedestrian/bicycle facilities currently exist to serve the non-vehicular population.

A bicycle route is designated along the Volunteer Parkway between the Bristol Motor Speedway and Downtown area and extends for approximately 6.5 miles. There is a crucial need for pedestrian/bicycle signage, pedestrian refuge locations, vertical separation of the pedestrian/bicycle and vehicular zones and sidewalk connectors in this large corridor to nearby secondary roads.

The lack of connecting sidewalks, crossing locations and other pedestrian facilities leading to the pedestrian/bicycle lane on Volunteer Parkway, limit many people from being able to safely utilize this potentially significant pedestrian/bicycle corridor.

4.2 EXISTING CORRIDOR IDENTIFICATION

Existing Pedestrian & Cycling Corridors

Mark Vance Greenway

Many recreational users of this multi-purpose greenway begin at Steele Creek Park. Walkers and cyclists enter this trail from adjacent streets mainly in the Walnut Hill and Downtown neighborhoods. This greenway connects Steele Creek Park with these adjoining neighborhoods and terminates at 9th Street where it connects to a sidewalk that leads to Windsor Avenue. The sidewalk on Windsor Avenue leads pedestrians and cyclists to a poorly marked crossing at Volunteer Parkway where it connects to the Wes Davis Greenway. A good portion of this corridor follows an existing alleyway.

Wes Davis Greenway

Once pedestrians and cyclists access the Greenway from Volunteer Parkway they can proceed north towards a sidewalk on Anderson Street or continue on towards State Street and the Virginia-Tennessee state line, which leads to Downtown shopping and dining. Users may also choose to go south from Volunteer Parkway and cross the newly installed pedestrian bridge in front of Applebee’s restaurant. The greenway then leads to Melrose Street where the trail ends but a well marked sidewalk on Melrose leads cyclists along the road based portion of the Wes Davis Greenway as a designated bike route.
Along this bike route users encounter an original Pullman passenger train car named for Bristol on display. There is also a Norfolk-Southern caboose displayed as part of the City’s historic culture. These aesthetic elements add character to this popular trail.

The signage for the Greenway consists of a 15’9” x 3’9” metal reproduction of the train engine that pulled the Bristol car. The identification sign for the Greenway is a wooden 16’ x 2’ sign which is located in a block flower bed illuminated by 2 spotlights and 2 single globe old style, cast aluminum pole lights. There is a small sitting area paying tribute to Wes Davis, with 2 benches and a plaque.

This section of the Greenway and its amenities are in good condition. There are several sections of split rail fencing that is in need of replacement and exhibit erosion issues behind the train cars.

The City of Bristol officials and staff should be commended on their efforts and encouraged to maintain and expand the Wes Davis Greenway as possibilities arise. This important pedestrian corridor could possibly serve as the main “pedestrian highway” linking the main parts of Downtown with areas along Volunteer Parkway, adjacent neighborhoods and businesses.

**Lakeside Trail - Steele Creek Park**

Steele Creek Park offers rural wilderness within an arm’s reach of Downtown Bristol for City residents and visitors alike. The park’s iconic ridges shelter nature and park patrons from the surrounding bustle of the city. Centrally located within Steele Creek Park is a 2.1-mile gravel trail that hugs the shore of Steele Creek Park Lake. This trail serves the exercise, and leisure needs of the people that call Bristol home.

As a pedestrian corridor, the Lakeside Trail also provides a North/South connection to the Avoca, Holston Hills/Oak Hill area and to areas between I-81 and the park. This popular off-road trail is well maintained and serves its users safely.
Whitetop Creek Trail - Whitetop Creek Park

This multi-purpose walking/biking path with interpretive signage is a paved trail that provides access around the perimeter of the park to the softball and soccer fields, basketball court, playground and pavilion.

Alleyway Paths

There are a variety of footpaths in urban settings, including paths along streams and rivers, through parks that are adjacent to roadways. Bristol employs some alleyways as paths. Alleys typically provide access to the rear of properties or connecting roads not easily accessible by vehicles. These alleys are narrow, paved pedestrian paths between the walls of buildings or fence lines or adjacent private properties, in towns and cities. Usually alleys are short and straight. A number of alleys in Bristol were initially created as lanes at the rear of houses or businesses to allow for deliveries and garbage collection. These alleyways have been utilized in routing pedestrian traffic off busy streets.

Below are locations where existing pedestrian oriented alleyways are found along portions of the Mark Vance Greenway and within Downtown blocks. These include:

- Crumley Alley
- Alley between 6th and 7th Street (Bank Street)
- Alley between Moore Street and Lee Street
- Alley between Birthplace of Country Music Way and Winston’s Alley

Alleys have become popular as pedestrian destinations in other cities such as Los Angeles, Chicago, and New York. One recent such transformation of a traditional alley into a pedestrian path is the Nation’s Alley located in Nashville, Tennessee.
The Nations, converted an alley that pedestrians frequently used and “greened” it up by replacing portions of the impervious concrete with permeable concrete, added planters, art and decorative lighting.

These changes not only beautified the alley, but also helped to mitigate storm water runoff by adding trees and plants to this hard urban space and created a sense of place that was truly appreciated by the surrounding community. Such projects require cooperation between property owners and the local municipality and serve as a good example of how future improvements to Bristol’s alleys could find funding and community support.

Physical Improvements, Revitalization and Redevelopment of Alleys

Spot improvement projects of existing alleys can provide economic opportunity for property owners with real estate adjacent to these public corridors. Alleys can be great locations for cafes, outdoor dining and other public spaces. The City of Bristol has a number of different locations where businesses are utilizing alleys. An example of this is O’Mainnin’s Pub and Grill located at 712 State Street. The back patio is on private property but adjacent to a public alley. Another opportunity can be found at Bank Street Bristol, a special events and catering business that attracts a number of visitors.

Alleys offer pedestrians a way of getting around the City with less vehicular traffic to compete with and have the potential of becoming inviting public spaces like “woonerfs” which are streets converted into large pedestrian oriented alleys sharing space with other modes of transportation. Vehicles may be permitted but must navigate very slowly.

Issues that must be resolved include:

- Rights of way determination
- Safety (i.e. lighting, storm water management)
- Vehicular vs. Pedestrian priorities

Existing Bike Routes

Designated bicycle routes within Bristol include both the Tennessee Department of Transportation (TDOT) and City of Bristol signed routes. The cycling experience along these routes is largely dependent on the rider’s experience level, favoring those more advanced road riders accustomed to riding along side of busy highway traffic. The bike routes are usually striped bike lanes parallel to the flow of vehicular traffic. Many of the City routes are simply signed and may include routes through less busy neighborhoods.
The TDOT routes include US 11W and Far West Bike Routes in western Bristol and along US 11E in southwestern Bristol; both of these routes are signed as bicycle routes by TDOT and connect at the outskirts of Bristol’s City limits. There is also the Southeast Bike Route which heads up SR 394 from the Hwy 11E/19 interchange all the way to Hwy. 421 where it heads north on Virginia Avenue and connects the residential areas behind Food City, including Georgia Avenue (via Oakwood Street). Fairmount Elementary is connected via Pine Street and the Southeast Bike Route which also connects to the King University via Taylor Street.

Other bike routes include the Wes Davis Greenway located along the former Virginia and Southwestern Railway “right-of-way” from Anderson Street to Melrose Street parallel to Volunteer Parkway, and Mark Vance Greenway. This route connects Downtown Bristol and the Wes Davis Greenway to Steele Creek Park, the Lakeside Bike Route through Steele Creek Park to Rooster Front Park on Vance Drive, to the short Quarry Cave hiking trail, and the Whitetop Creek Park Bike Route.

Another notable bicycling route is the Beaver Creek Bike Route which transports bicyclists from Volunteer Parkway/US19 (South of the Speedway) to residential areas via Holston Drive, crossing the Vance Drive Bike Route which is the connection to Steele Creek and Rooster Front parks. After it crosses Vance Drive, the Beaver Creek Bike Route, links with Anderson Elementary School via Holston Drive to West Cedar Street connecting to Indian Hills Drive/9th Street. Once on 9th Street this route links with the Mark Vance Greenway. Please see the Inventory map in Section 2 for more information.

**Pedestrian Generators**

Popular destinations can attract pedestrians and cyclists but may not currently be served by pedestrian/bicycle facilities and may not be attracting as many pedestrians and bikers as possible because of this deficiency.

**Parks/Recreation**

- Steele Creek Park
- Rooster Front Park
- Bark Park
- Haynesfield Park
- Patterson Park
- Morning Rotary Centennial Park
- Rotary Park
- DeFriese Park
• Skate Park
• Fairmount Park
• Anderson Park
• Whitetop Creek Park
• YMCA and YWCA of Bristol

Shopping
• The Pinnacle
• Other shopping centers
• Retail Corridors (Volunteer Parkway, West State Street and Virginia Avenue)
• Downtown
• Area Dining Establishments
• Area Lodging

Schools
• King University
• Bristol Tennessee High School
• Vance Middle School
• Avoca Elementary School
• Haynesfield Elementary School
• Holston View Elementary School
• Fairmount Elementary School
• Anderson Elementary School

Civic/Cultural Attractions
• Bristol City Hall
• Slater Center
• Paramount Center for the Arts
• Public Libraries
• Stone Castle
• Viking Hall
• Historic Train Station
• Historic Bristol Sign
High Pedestrian/Bicycle Use Areas

Corridors with the highest pedestrian usage in the City of Bristol are located at:

- Bristol Motor Speedway
- Downtown
- Parks and Greenways
- Residential Neighborhoods
- Grocery Stores and Restaurants
- General Retail Areas (ex. The Pinnacle)

4.3 POTENTIAL PROJECTS AND INFRASTRUCTURE IMPROVEMENTS

Pedestrian Network Methodology

Section 4 identifies both general and specific areas that need to be addressed. ‘Connectivity’ is a recurring theme within this portion of the Comprehensive Trails and Greenways Plan. Connecting existing and future facilities to form a network of bike routes, sidewalks, off road trails, and paved multi-use trails/greenways is a long-range project that requires extensive time and funding.

To create and develop a practical and feasible pedestrian transportation system for the City of Bristol, a network of pedestrian/cycling-friendly facilities should be implemented. The system should be part of the urban fabric of the City, with the essential element being ‘connectivity’ that will allow pedestrians to reach their destinations. The pedestrian system must also be safe for users. If pedestrians have to risk their lives in order to walk to a destination, they will choose to travel by a different mode of transportation. The pedestrian network needs to be safe and accessible for all users.

In addition to connectivity, repairing existing dangerous pedestrian areas is also a major concern within the system. Hazardous areas are priorities that need to be addressed immediately. The safety of pedestrians and bicyclists is one of the main concerns of the City of Bristol. As new projects are developed, connectivity and safety should be among the primary goals and objectives.

A number of factors were used to develop the pedestrian recommendations. The previous sections describe topics such as community input and planning documents that were used as information sources. In addition, City of Bristol staff, and on-site field work were also integral parts of plan development.
Based on input from the community and City staff; goals and objectives criteria were established as guidelines for making recommendations. The following were used in the development of the proposals:

- Increase connectivity from residential to destination areas
- Improve existing conditions and expand the pedestrian system in the Downtown areas
- Improve and repair existing non-compliant ADA pedestrian facilities
- Implement safe conditions for pedestrians where dangerous conditions exist
- Consider “future” development with regard to pedestrian facilities
- Connect pedestrian facilities where gaps and barriers exist
- Educate the public on fitness opportunities and benefits related to walking and cycling

Recommended Pedestrian/Bicycle Facilities

Numerous methods were involved in developing recommendations and proposals for the Bristol Trails and Greenways Plan. These basic tasks consist of:

- Demographics and Population Trends
- Existing Facilities
- Needs Inventory
- Goals and Recommendations
- Implementation

Contained in each of these tasks is detailed information used to help develop and justify the proposals within the document. Meetings and site visits were conducted to ensure a better understanding of the needs and issues regarding pedestrian improvements.

The proposals for ADA compliance are characteristic of typical trail and greenway plans. This plan identifies and makes proposals regarding issues that impede a number of existing pedestrian paths. Many of the general proposals recommend connectivity, repair of existing facilities, and enhancement of future improvements, but some of the future projects may not be facilities such as Greenways, multi-use trails, or bike lanes. Future proposals may be goal-oriented in establishing creative partnerships, instituting safety programs, and/or coordinating special events to encourage public awareness. Programs such as these will promote pedestrian/bicycle use within the City, but are not project-based recommendations.

The Trails and Greenways Plan proposes a basic network of non-vehicular paths and cor-
ridors. These paths and corridors will allow pedestrians the use of alternative transportation methods. The network will consist of both existing corridors and new corridors. Some of the existing pedestrian and bicycle facilities within the City of Bristol are in need of repair or improvement. The City has made a number of recent improvements such as new gravel on the Lakeside Trail in Steele Creek Park, the 8th Street Pedestrian Bridge, curb ramps at intersections within the Fairmount neighborhood and plans for sidewalks along East Cedar Street. The City of Bristol should continue to maintain the existing pedestrian and bicycling facilities while expanding the system to include new facilities.

**Pedestrian Crossing Improvements**

All pedestrian road crossings within the Bristol pedestrian/bicycle network should include high visibility striping at crosswalks and installation of pedestrian signals at high-volume traffic intersections. One example of a Bristol crosswalk in need of improvements is where the Mark Vance Greenway crosses Volunteer Parkway. A long term safer solution should be explored.

The crosswalk striping has worn away obscuring the route for those trying to cross and potentially leading to an occurrence where a motorist is unaware that a pedestrian or cyclist may be trying to cross. The City may want to consider installing a pedestrian

![Mark Vance/Volunteer Parkway Crossing](image-url)
bridge for this busy intersection. While this is a large intersection and inherently more
difficult to cross than many others in the City, this crossing would benefit in the short
term from additional pedestrian warning signage, and high contrast striping.
In extreme cases, intersection curb radii may be reduced to shorten crossing distances.
Correcting potentially dangerous intersections will not only encourage pedestrians to
use the facilities, but will also reduce potential injures.

The use of pedestrian signals should be restricted to areas where danger to pedestrians
from vehicular traffic has been noted by the public. Locations for pedestrian crossing
improvements should include any existing crosswalk or crossing of a trail/bike lane and
a vehicular roadway. Refer to the Bristol Pedestrian Plan for additional information
regarding where painted crosswalks, and/or pedestrian
signalization for existing sidewalks should be located.

Regular evaluation of pedestrian traffic patterns should
occur by the City of Bristol to identify new or additional
pedestrian crossing needs. Pedestrian crossings at any
uncontrolled intersection should include Tennessee
Department of Transportation (TDOT) and Manual of
Uniform Traffic Control Devices (MUTCD) approved
signage (Section 5.1) to warn approaching vehicles of the
crossing ahead. All pedestrian crossing locations should
include ADA compliant curb ramps and tactile warning
devices.

With all pedestrian crossing projects there are potential
constraints and barriers that must be identified and
overcome prior to proceeding with design and construction.
Constraints and barriers may include financial/economic
deficiencies, politics, physical/mechanical obstacles, or
other occurrences that may prevent action on pedestrian
projects. Ensuring that all stakeholders engaged with the
project are involved and have an opportunity to take part in
the planning and design process will help to avoid or plan to
deal with most barriers encountered.
ADA Curb Ramps

Curb ramps that meet the Americans with Disabilities Act (ADA) standards are a vital part of a good pedestrian system, ensuring equal access to the system for all impaired and able-bodied individuals. Several existing paths and/or intersections in Bristol do not currently have adequate curb ramps; thus, the sidewalk system is not accessible for those in wheelchairs or strollers.

All existing curb ramps in the City of Bristol should be regularly inspected for needed repairs and accessibility issues. This plan recommends reference of the existing Bristol Pedestrian Plan and city and state transportation improvement plans for specific locations of pedestrian paths and intersections associated with these paths. All sidewalks, greenways, bike paths and crossings should be brought into compliance with current ADA requirements. All new sidewalks that are installed must have ADA compliant curb ramps at intersections and driveways.

Sidewalk Projects

The 2008 Bristol Pedestrian Plan was created to identify and prioritize sidewalk projects within the City of Bristol and should be referred to for such details. Sidewalk projects typically range from the replacement of unsuitable facilities to the implementation of new sidewalks for connectivity to destinations or existing sidewalks. By implementing the recommendations within the existing Bristol Pedestrian Plan, Bristol can provide a more safe, accessible and usable pedestrian network. Improvements should connect to areas of high pedestrian volumes such as parks, commercial/retail centers, government/service centers, cultural amenities, and the existing sidewalk network. All sidewalks, whether existing or proposed, should have marked crosswalks and curb ramps at intersections and driveways as a minimum requirement. Intersections identified as having a high volume of vehicular traffic should possess pedestrian crossing signals. These facility improvements should also be evaluated as future widening and roadway projects are constructed. Sidewalk projects should include the following pedestrian-related amenities:

- Minimum of 5’ in width
- ADA compliant curb cuts and ramps at all driveways and intersections
- Marked crosswalks at all intersections

Bristol’s downtown sidewalks offer many different pedestrian amenities
• Pedestrian crossing signals at high-volume traffic intersections
• Sidewalks on one or both sides of the roadway

Currently, sidewalks in Bristol cover a majority of the historic neighborhoods and the Downtown area with some sidewalks extending out to adjacent residential areas and new commercial developments. Any proposed improvements should enhance the connectivity of pedestrian corridors by filling gaps to extend the pedestrian network into new areas to help create a more cohesive, and pedestrian friendly walking environment in the City. The plan calls for both the expansion of the existing network and the renovation of portions of sidewalk needing repair and upgrades. This plan recommends referencing the 2008 Bristol Pedestrian Plan for proposed sidewalk locations and additional recommendations.

**Recommended Sidewalk Connectors**

• Avoca Greenway to Walmart (on Volunteer Parkway), and Century Boulevard;
• Between George Spinks Field and Volunteer Parkway along West Cedar Street;
• Weaver Pike between Vance Middle School and proposed Cedar Creek Greenway;
• East Cedar Street between proposed King College Greenway and proposed Weaver Pike sidewalk;
• Windsor Avenue / Holston Avenue to Downtown;
• Fairmont neighborhood streets to Downtown.

**Proposed Greenway Projects**

The following list describes proposed greenway trails for the City. Approximate lengths and destinations associated with the route are provided. Maps graphically representing the proposed routes are provided as 11”x17” pullouts which begin on page 99.

**King College Greenway** (6.2 miles) - This important greenway will connect the northeastern residential areas with King University, Downtown, Bristol Country Club, schools and other proposed greenway routes. This route would significantly improve the connectivity of the north-east side of Bristol.

**Beaver Creek Greenway** (5.8 miles) - This route primarily follows Beaver Creek near the Bristol Motor Speedway north to Downtown. The path provides an alternative route for pedestrians and cyclists looking to stay off of Volunteer Parkway. Schools, parks, and residential areas would gain a pedestrian friendly route to area retail shops and job providers.
S.R. 394 Greenway (11.6 miles) - As the southernmost greenway in Bristol, this corridor would connect the Tri-Cities Golf Club, Bristol Motor Speedway, and Whitetop Creek Park. The route would also provide nearby residential areas with access to the Bristol Greenway System via the proposed Cedar Creek and Raytheon Road Greenways.

Cedar Creek Greenway (9.0 miles) - This route links the Bristol Motor Speedway to the north end of the City through a natural setting, often set back from roads and development. However, as the south side of Bristol develops, this corridor will serve as a significant draw to new businesses looking to provide non-vehicular access to other parts of the City.

Blountville Highway Greenway (4.7 miles) - The main east-west greenway route north of Steele Creek Park provides a safer alternative to walking along Blountville Highway.

Avoca Greenway (3.6 miles) - This proposed route was very popular with participants of the public meetings. The greenway would connect Friendship Park and Avoca Elementary School to Steele Creek and Rooster Front parks. The surrounding residential areas see a number of recreational walkers attempting to use Volunteer Parkway and other busy roads.

South Holston Dam Greenway (3.4 miles) - An already popular route with City cyclists, this greenway would connect the rural areas south of the City with the greenway system.

Pinnacle Greenway (2.8 miles) - The existing transportation network isolates the Pinnacle shopping area via heavily trafficked roads. This greenway does have sidewalks available on the property to which the future Bristol Greenway System will be able to connect to. This plan proposes a greenway that will connect to the overall system via the proposed Blountville Highway Greenway which would also connect with the proposed Wellmont Greenway, Wellmont Bristol Regional Medical Center and the Pinnacle. This being an important crossing project, it will require careful design consideration in regard to crossing US 81. One possible solution would be to go under US 81 on Walnut Hill Road. Where this road goes under US 81 there is a narrow space that could provide space for a sidewalk under the overpass. Reconfiguring this access should be studied closer as it may provide a wide enough path for pedestrians.

Mark Vance Greenway Expansion (1.9 miles) - By adding a multipurpose greenway path in the wide rights-of-way that exist along Windsor Avenue it would improve the safety perception of this path while creating a more inviting way to go from Steele Creek Park to Downtown. This expansion would also connect the Bristol Tennessee trail system to the future trails offered by Bristol, Virginia.
Virginia Avenue Greenway (1.6 miles) - This route provides a much needed north-south pedestrian connection to link downtown with the South Holston Dam area (via proposed South Holston Dam Greenway). This path is already popular with many local residents that now traverse portions of broken sidewalk, paved parking areas and "pig paths" created from regular walking where no pavement exists. This greenway will provide a very visual improvement to the surrounding businesses and residential areas adjacent to it.

Sinking Creek Greenway (4.6 miles) - The sinking creek greenway is a potentially scenic portion of greenway trail connecting the southern portion of Downtown from the Virginia Avenue greenway, past Holston View Park and Holston View Elementary School. From these locations it continues to cross over the proposed Old Jonesboro Greenway and finally the proposed South Holston Dam Greenway.

Wellmont Greenway (4 miles) - This stretch of pedestrian/bike corridor is adjacent to the Wellmont Bristol Regional Medical Center. Starting at the Pinnacle Greenway at Walnut Hill Road the Wellmont Greenway heads northeast towards Highway 11W before heading south to connect with Steele Creek Park and the Mark Vance Greenway.

Old Jonesboro Road Greenway (4 miles) - Connect the south end of Downtown via the proposed Virginia Avenue Greenway and the proposed Sinking Creek Greenway. The trail continues northwest to connect surrounding residential areas with the proposed King College Greenway before terminating at the state line.

Vance Tank Road Greenway (3.6 miles) - The Vance Tank Road Greenway would connect the proposed Raytheon Road Greenway to Whitetop Creek Park mainly by railroad rights-of-way and gravity sewer easement.

Carden Hollow Greenway (3.2 miles) - The Carden Hollow Greenway is an essential greenway and will serve as a crucial north-south connector between the southern portion of the city near the Bristol Motor Speedway and the northern areas of the City lying on the other side of Steele Creek Park.

Raytheon Road Greenway (2.9 miles) - The Raytheon Road Greenway will link residential areas on the south side...
of Volunteer Parkway with the proposed Cedar Creek and Vance Tank Road Greenways providing access to Whitetop Creek Park, the Bristol Motor Speedway and the South Holston Dam.

**Wes Davis Greenway Expansion** (2 miles) - This proposed expansion of the existing Wes Davis Greenway adds approximately two (2) additional miles of path. The new portion of this corridor connects Jersey and Haynesfield parks south of Downtown to Haynesfield Elementary, Tennessee High School, and the north end of Beaver Creek Greenway, Downtown.

**Fourth Street Greenway** (0.9 miles) - Fourth Street Greenway is an important center city greenway that provides safe walking and cycling for those residents living in Downtown or coming from either the Mark Vance Greenway or proposed King College Greenway and heading towards DeFriece Park.

The preceding trails and greenway projects are proposed to include installation of a minimum 10’ wide asphalt paved multi-purpose trail. These projects would include curb ramps where they crossed streets and tactile warning devices at all intersections and meet all established ADA accessibility requirements. See Additional Information Map on page 103 for recommended pedestrian/bike crossing locations.

Greenway corridor projects include multi-purpose or off-road pedestrian facilities, which typically take advantage of the use of existing linear stream corridors, utility easements, and other open space areas. Trails and greenways are quite popular among residents and visitors. Visitors appreciate and often return to communities that provide places for bicycling and walking when they are safely removed from busy roads and streets. Some of the recommended multipurpose trails/greenways overlay existing on-road bike lanes. It should be noted that community comments indicated that many existing on-road bike lanes seem unsafe for general use by children, mothers with strollers, elderly, and less experienced cyclists. The intent of trail overlays is to take a good route and improve it to accommodate the greatest number and types of users as is possible. Multipurpose trails offer scenic recreation opportunities suitable for a wide range of ages and abilities. These trails can have a tremendous impact on the economy, potentially providing additional tourist dollars. Where popular trails exist, lodging providers can encourage extended stays among their guests, thereby increasing occupancy. For residents, investment in trails and greenways can increase property values and improve the overall connectivity and livability of their community.
Recommended Separated Bicycle Routes

The safety and utilization rate of area bike lanes could be improved through the construction of separated bike lanes. The City should consider a detailed analysis of existing designated, on-road bike lanes for possible opportunities for improvement. A separated bike lane may include segments of existing bike lane improved to be physically separated from the parallel lane of vehicular traffic using bollards, raised curbing, a landscape strip, etc. This is typically done where limited right of way or lane widths require that cyclists ride uncomfortably close to vehicular traffic. Separating the bike lane in tight areas may lead to an improved safety perception by cyclists and lead to higher cycling rates for those improved corridors. During the existing bike and pedestrian corridors analysis of this plan, the following corridors stood out as possible opportunities to install separated bike lanes:

- Beaver Creek Bike Route (along Volunteer Parkway only)
- Mark Vance Greenway (On-road portions: Shelby Street, 22nd Street, Bay Street, Morning Street, Anderson Street, and 17th Streets)
- Southeast Bike Route (from SR 394 to Lakeview Street)

Recommended Off-Road Trails

The City is blessed with an abundance of well-maintained off-road trails for running, hiking, walking, and cycling at Steele Creek Park. However, as the City develops new residential/business areas, off road trails can provide relatively inexpensive connections between more formal greenway trails and other destinations. This plan recommends the following to be considered for installation:

Avoca Greenway/Steele Creek Park off-road connector trail to link to Slagle Hollow and South Ridge Trails

Future Planning Efforts

Existing and future utility easements should be assessed to determine if they can be used for possible pedestrian connections. The City of Bristol’s utility lines can create a network of connectivity to neighborhoods. The associated public easements should include recreation and alternative transportation as uses for the public right-of-way, allowing trails to be constructed in the future. Some popular pedestrian/bicycle routes mentioned in the community surveys and by public meeting participants, did not fall within Bristol City limits. One of those routes includes Carden Hollow Road.
4.4 SPECIAL POPULATION SECTORS

Many different user groups will make use of the increased pedestrian facilities in Bristol. A segment of this population will be visitors while the vast majority will be residents - many with special needs. It will be imperative that new and existing facilities provide safe, pedestrian-friendly corridors for all users to navigate within the City, particularly for senior adults and children.

**Senior Citizens**

The Senior adult population needs particular consideration in pedestrian projects. Currently, there are independent living and assisted living residences for seniors in The City of Bristol. The US Census reported that there were 40.3 million people at an age of 65 and older in the US on April 1, 2010, an increase of 5.3 million since the 2000 Census when this population numbered at 35.0 million. The percentage of the population 65 and older also increased during the previous decade. In 2010, the older population represented 13.0 percent of the total population, an increase from 12.4 percent in 2000. The senior population now represents the fastest growing and largest group in the Country and will continue to grow in the foreseeable future.

As a general trend, seniors have the time and desire to participate in pedestrian activities. Seniors may rely on alternate means of transportation rather than personal vehicles.

With the promotion of healthy lifestyles and a need for alternate transportation, this population will need safe pedestrian facilities to be offered by the City of Bristol.

Special attention should be made to acknowledge this community segment and identify where this population can safely traverse the streets.

**Children**

Children also require special safety procedures with regard to public safety. An equally important component in this equation is safety education. Education programs such as Safe Routes to School, Walking School Buses, etc., should be promoted to assist children.
in learning how to cross a street and to walk in safe areas.

Promoting healthy lifestyles for children will encourage physical activity and the use of sidewalks for exercise.

**Disadvantaged Residents**

As in every City, there are areas in Bristol that may be at an economic disadvantage. Since privately-owned automobiles are the primary means of transportation in Bristol, the lack of an automobile can lead to significant difficulties in accessing jobs, medical facilities, schools, and other destinations. It is important to provide safe, equitable, pedestrian opportunities for disadvantaged residents.

Public comments indicate that in certain pockets of the City, pedestrian facilities are crucial as the primary mode of transportation. Due to a number of circumstances, the only accessible means of transportation for many pedestrians from these disadvantaged areas is to walk or ride a bike. This fact emphasizes the need for safe pedestrian facilities along all major corridors. A strong pedestrian network will allow access to needed services, cultural/recreational amenities, jobs, and retail centers for those who choose to walk. Increased pedestrian activity may help in building a strong sense of communal identity for all system users.
Note: "This map is to be used as a planning tool and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the City of Bristol, TN to ascertain the usability of the information. The proposed greenway routes shown hereon are general in nature and may not reflect their ultimate location. Further study and design prior to construction of a proposed route may be necessary."
Note: “This map is to be used as a planning tool and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the City of Bristol, TN to ascertain the usability of the information. The proposed greenway routes shown hereon are general in nature and may not reflect their ultimate location. Further study and design prior to construction of a proposed route may be necessary.”
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“It is the unknown around the corner that turns my wheels.” – Heinz Stucke
SECTION FIVE:  
FACILITY GUIDELINES

5.1 PEDESTRIAN DESIGN CONSIDERATIONS AND GUIDELINES

The guidelines in the Trails and Greenways Plan were developed through assessment and documentation of practices (observed or informed) documented by site observation, community input, and Steering Committee comments. National and state design standards as defined by the Tennessee Department of Transportation (TDOT), the Manual of Uniform Traffic Control Devices (MUTCD), the American Association of State Highway Transportation Officials (AASHTO), the Americans with Disabilities Act (A.D.A), and the Federal Highway Administration (FHA) directly influenced the formation of these guidelines. Furthermore, cost estimates provided for proposed improvements are relevant only for the date in which this document was prepared. Current cost estimates should be obtained for any proposed work from a qualified landscape architect and/or engineer before submitting the work for bid.

The following descriptions and typical details are intended to be used as design guidelines and alternative treatments for pedestrian and bicycle facilities. All trails in the City should be designed and constructed to meet the minimum standards for implementing safe pedestrian/biking and vehicular facilities. Since many of the local streets are TDOT roadways, the proper approvals and permits should be obtained prior to implementing projects on such roads.

5.2 Trail Types

The elements that make up ideal bicycle and pedestrian facilities include but are not limited to, different types of routes, trail user groups, surface types and wayfinding signage. Other design elements include amenities such as shade stations, benches, trash cans, bike racks, lighting, and safety call boxes.

This plan looks mainly at trail types as they relate to setting suitability and intended function. For example, some trails are recreational, while others are specifically for alternative modes of transportation. The City of Bristol Comprehensive Parks and Recreation Master Plan offers clarification with regards to different trail types (the following pages provide descriptions of trail and bicycle route types and development parameters taken directly from the Bristol Parks and Recreation Plan. Refer to the Park and Recreation Plan for additional information).
Park Trails: Types (I, II, and III)

Park trails are multipurpose trails located within greenways, parks, and natural resource areas. Other similar trail and greenway networks have taken advantage of abandoned railroad beds, run-down waterfronts, utility rights-of-way and scenic/historic routes as they provide some of the greatest opportunities for park trails.

Park trails are desirable because they:

- Give emphasis on harmony with the natural environment.
- Allow for relatively uninterrupted pedestrian movement to and through the City’s park system and development areas, and where possible, through commercial and industrial parks.
- Effectively tie the various parks and recreation areas together to form a comprehensive parks and trails system.
- Protect users from urban development and associated vehicular traffic.

Development Parameters - Important steps in developing park trails are:

- Preparing a comprehensive parks and trails system plan that clearly identifies the routing of park trails, especially those within greenways.
- Acquiring the desired land or establishing trail easements at an early stage of the land development process.
- Establishing appropriate development policies (backed by city ordinance or other land development regulations) requiring land developers to incorporate greenways and park trail corridors into their development plans in accordance with the trail system plan.
- Establishing design standards that define how park trails are to be built. Trail design should coincide with standards adopted by local and state departments of transportation and AASHTO (American Association of State Highway Transportation Organizations), as appropriate. All trails should comply with A.D.A (Americans with Disabilities Act) design criteria.

Trail Types - There are three types of trails under the park trail classification:

- Type I - Trails are used in situations where use patterns dictate separate paths for pedestrians and bicyclists. An example would be a trail around an inter-city lake or along a creek or riverfront.
- Type II - Trails are more suited to lighter use patterns, such as from a housing subdivision to a natural resource area.
- Type III - Trails suited for areas requiring minimum impact, such as nature pre-
Commuter Linkages:

Park trails can certainly be used for bicycle commuting purposes. The type of trail used and its design should reflect the anticipated magnitude of commuter use. On the high end, Type I trails as shown, may not be adequate to safely accommodate a “bicycle freeway” type of use. In such a case, wider trials may be appropriate.

Connector Trails (Types I, and II)

The significant difference between connector and park trails lies largely in their location. Park trails emphasize a strong relationship with the natural environment within a park-like setting, while connector trails or recreation connectors emphasize safe travel for pedestrians and bicyclists to and from parks and around the community. In general, connector trails are located within existing road rights-of-way and utility easements or along artificial drainage-ways. The two classes of connector trails illustrated are intended to accommodate walkers, horseback riders, bicyclists, and in-line skaters.

Development Parameters - Important steps in developing connector trails include:

- Preparing a comprehensive park and trail system plan that clearly defines the routing of connector trails.
- Establishing trail rights-of-way and easements at an early stage of the land development process.
- Establishing design standards that define how connector trails are to be built. Trail design should coincide with standards adopted by local and state departments of transportation and AASHTO, as appropriate.
- Type I trails are used in situations where use patterns dictate separate paths for pedestrians, bicyclists and, if necessary, in-line skaters. An example would be a trail within the shoulder of the right-of-way of a collector street or parkway.
- Type II trails are suited to lighter use patterns, such as a link between a parkway or thoroughfare and a nearby housing development.

Commuter Linkages:

Connector trails can be used for bicycle commuting purposes. The type of trail used and its design should reflect the anticipated magnitude of commuter use. As with Type I park trails, Type I connector trails may not be adequate to safely accommodate a “bicycle
freeway” type of use. In such a case, wider or directional trails may be appropriate.

**Bikeways (Bike Routes and Lanes)**

Bikeways are paved segments of roadways that serve to safely separate bicyclists from traffic. They come in the form of bike routes and bike lanes. The distinction between the two is a matter of exclusivity. While bike routes are essentially paved shoulders or segments of the roadway that serve to separate bicyclists from traffic, bike lanes are designed portions of the roadway for the preferential or exclusive use of bicyclists.

It is important to recognize that bikeways serve distinct user groups, including:

- Commuters – those who use their bicycle as a means to get from point A to B as expeditiously as possible. Their trips can be viewed as substitutes for vehicle trips when planning light transportation ways.
- Fitness enthusiasts – those who cycle for fitness as well as recreation.
- Competitive athletes – those who bicycle competitively.

The needs of these user groups are distinctly different from those using park or connector trails for recreational purposes. The distinction is that of speed. At speeds in excess of 10 to 15 mph, the safety of a typical trail user (and bicyclist) becomes important. Although some commuter type trails are specifically designed to accommodate higher speeds, the vast majority of recreation-type trails are not. Given this, it is important that the inherent differences in user groups be recognized and that trails not used as direct substitutes for bikeways (or vice-versa). Bikeways should be planned as stand-alone systems that connect to the off-street trail system.

**Development Parameters - Important steps in developing bikeways are:**

- Preparing a comprehensive parks and trails system plan that clearly defines the routing of bikeways.
- Establishing design standards that define how bikeways are to be built. Design should coincide with standards adopted by local and state departments of transportation and AASHTO, as appropriate.

As stated, there are two types of bikeways: bike routes and bike lanes. Whether a bike route or bike lane is used depends on application and opportunity. Bike lanes should be used in situations where traffic volumes are heavy enough to warrant clear separation between bicycles and vehicles. Although an adequate right-of-way may not always be available in existing transportation systems, proper planning in evolving systems will
preclude this from happening in the future. Bike routes (paved shoulders) should be used in all other situations.

Commuter Linkages:

Bikeways play a large role in bicycle commuter networks and should be designed with this type of use in mind. The bikeway system should be extensive enough to allow for reasonable movement within the city and connection to routes outside the city. Bikeways should be considered along all collectors, minor arterial, and (on a limited basis) major arterial roads. Naturally, their development should coincide with new road construction and upgrades to existing infrastructure. Signage along these bikeways is also important to help users identify where the route turns or changes, and for safety purposes at street intersections.

**Separated Bike Lanes**

This plan recommends that the City of Bristol Planning Department refer to and follow the 2015 US Department of Transportation/Federal Highway Administration (FHWA), Bicycle and Pedestrian Program Guide on Separated Bike Lane Planning and Design (*Publication Number: FHWA-HEP-15-025*). This document provides design solutions for many different types of pedestrian/cyclist scenarios. According to text found in chapter three (3) *Why Choose Separated Bike Lanes*, the case for this treatment was made: “…Separated bike lanes, can complement or connect to other facilities such as on-street bike lanes and shared use paths. Separated bike lanes can appeal to a broad range of people and in doing so will contribute to increases in bicycling volumes and ridership rates.”

A June 2014 National Institute for Transportation and Communities report entitled “Lessons from the Green Lanes: Evaluating Protected Bike Lanes in the U.S.” noted that ridership on all facilities improved after the installation of separated cycling lanes. Survey data showed that 10% of current riders switched from other modes and that over a quarter of riders are bicycling more in general because of the separated bike lanes.
Separated bike lanes put cyclists behind the curb, isolated from the lane of vehicular traffic. The FHWA report also added that, “Separated bike lanes have great potential to fill needs in creating low-stress bicycle networks,” the FHWA document says, citing a previous study completed by the National Institute for Transportation and Communities. “Many potential cyclists (including children and the elderly) may avoid on-street cycling if no physical separation from vehicular traffic is provided.”

As part of a connected bicycle network, separated bike lanes can:

- Provide a more comfortable experience for less-skilled riders;
- Improve access to destinations such as schools, jobs, health care facilities, and essential services;
- Enhance access to public transportation, for example by helping to solve the first/last mile challenge;
- Improve access to employment opportunities, especially for those without access to a private automobile; and
- Provide a connectivity between local and regional trail systems.

All-Terrain Bike, Cross Country Ski and Equestrian Trails

All-terrain bike, cross country ski, and equestrian trails are similar to park trails in that they emphasize a strong relationship with the natural environment; although for somewhat different reasons. They are most often located within natural resource areas, greenways, community parks and special use facilities. Since regional and state parks often develop and maintain these types of trails, the need for them at the local level is often limited. The following defines some of the considerations with respect to each trail type.

All-Terrain (Mountain) Bike Trails

Many of the existing trails in Steele Creek Park serve the typical needs of average mountain bikers. Future expansions of existing trails or ideas for new all-terrain mountain biking trails should include the participation and consultation of local mountain biking clubs and
The following graphics and accompanying descriptions are from the 2015 FHWA guide on separated bike lanes. This clearly explains the different types of bike lanes and provides example solutions for how to best separate the lanes from vehicular traffic.

**Signed Routes (No Pavement Markings)**
A roadway designated as a preferred route for bicycles.

**Shared Lane Markings**
A shared roadway with pavement markings providing wayfinding guidance to bicyclists and alerting driver that bicyclists are likely to be operating in mixed traffic.

**On-Street Bike Lanes**
An on road bicycle facility designated by striping, signing, and pavement markings.

**On-Street Buffered Bike Lanes**
Bike lanes with a painted buffer increase lateral separation between bicyclists and motor vehicles.

**Separated Bike Lanes**
A separated bike lane is an exclusive facility for bicycles that is located within or directly adjacent to the roadway and that is physically separated from motor vehicle traffic with a vertical element.

**Off-Street Trails and Side paths**
Bicycle facilities physically separated from traffic, but intended for shared use by a variety of groups, including pedestrians, bicyclist and joggers.
associations. Many mountain bike associations will host trail build days to help in siting trail alignments and construction of trails. These efforts help to build a good relationship with the user group which can lead to a better-managed trail. Many mountain bike associations have long lists of riders willing to assist with regular trail maintenance.

Local mountain bike clubs, bike shops, and local riders are an important resource that can leverage the City’s efforts. The International Mountain Biking Association (IMBA) is a good resource to start with since they have several books dedicated to useful trail building strategies. These books offer trail design ideas and solutions to many typical problems associated with all-terrain trail construction.

**Equestrian Trails**

Equestrian trails are usually made of natural earth (grass or wood chip). Trail lengths vary considerably. There is no specific standard for how many miles of trail should be developed within a given community. Often lengths are limited by natural topography and the available acreage for trail development. Trail designs should follow standards adopted by the City. Equestrian trail designs should minimize user conflicts with other forms of transportation as much as is possible.

Equestrian riders typically place a high value on riding in wildland settings. These areas are generally minimally developed or dispersed multiple-use areas, such as forests, swamps, deserts, or mountain areas. While many trail users in Bristol will opt for private property or nearby National Forest lands, Steele Creek Park may offer suitable wildland settings to serve equestrian rider’s needs.

Wildland settings and their associated topography often present the most challenge to the designer. Other challenges include how to mitigate hazards and plan for emergency services. When trails are not accessible by motor vehicles, tools and materials may need to be packed in by other means which is a significant challenge to most municipal recreation providers. Well-developed partnerships and coordination efforts between area riding clubs and organizations can help to mitigate safety and liability concerns.

**Cross-country skiing**

Cross-country skiing is adapted to a range of terrain which spans unimproved, sometimes mountainous terrain to groomed courses that are specifically designed for the sport.
Sidewalks and Walkways

Sidewalks make up the majority of Bristol’s existing pedestrian facilities. They are the most important pedestrian network component. Sidewalks are the primary connectors for residential areas, shopping centers and businesses. Future sidewalks will also serve to bring users to future trails and greenways.

In general, sidewalks in the City of Bristol should be a minimum of five feet in width, and meet requirements of the Americans with Disabilities Act (ADA). Sidewalks should provide an ample pathway for pedestrians to walk to their destinations. Where adequate right-of-way is available, a buffer can be used to separate the sidewalk from the roadway. Typical 5’ buffers allow for vertical elements such as landscaping, signage, and utilities. Where possible the use of buffers between sidewalks and roadways increase the space between pedestrians and vehicular traffic possibly increasing the perceived safety of the path. Sidewalk areas within and leading to busier areas in Bristol should be wider to allow for a denser population, street furniture, street trees and other amenities.

Sidewalks should be constructed within the street right-of-way in accordance with TDOT and City standards. In Instances where the sidewalk is not located within the dedicated street right-of-way, the City should obtain a sidewalk easement dedicated to the City of Bristol. Sidewalks should be installed at the time of roadway construction or widening unless otherwise approved by the City. Sidewalks should be provided along streets within new and expanding developments.

The roadway cross-section sketch (pictured on the previous page) exemplifies the different...
standards that should be applied for various applications. Sidewalks and planting strips (buffers) should be a minimum of 5’ in width, however circumstances may require buffers to be smaller in width depending on the amount of right-of-way available and other limiting factors such as topography and safety. It should be noted that The Tennessee Department of Transportation (TDOT) Complete Street Program requires varying buffers depending on roadway type.

All sidewalks should be constructed in accordance with the standard detail found in the TDOT Construction Manual, and or the TDOT Complete Streets Guidelines. These resources will provide enhanced guidance including varying sidewalk and buffer widths. Other general guideline areas are as follows:

**Recommended Standards for Sidewalk Design/Construction:**

- The minimum thickness of a sidewalk should be 4 inches. At locations where driveway crosses a sidewalk, a 6-inch depth should be required.
- All paved sidewalks should be constructed of concrete unless intended for the historic areas where they may be brick to match existing material and colors used in these areas, or unless otherwise approved by the City. Sidewalks should typically be a minimum distance of five (5) feet off the back of curb with a minimum width of five (5) feet. This requirement may vary upon the approval of the City depending on site constraints.
- The design of the sidewalk should be such that pedestrian safety is provided and the user’s ability of the sidewalk is not affected.
- Sidewalks should have a uniform slope toward the roadway of 1/4 inch per foot.
- If a 5-foot wide buffer or planting strip is provided between the sidewalk and back of curb, the slope should not be less than 1/4 inch per foot nor greater than 18 inches toward the roadway unless approved by the City. In some instances there may not be sufficient width to provide the planting strip.
- Where no curb and gutter exists on a road that requires sidewalks, the City may require curb and gutter installation in addition to the installation of the sidewalk.
- Where sidewalks and/or greenways intersect any section of curb/gutter or street section, wheelchair ramps should be installed per ADA and City standards.
- The sidewalk design and construction should conform to ADA standards.
- All pipes, drains, and/or other such concentrated storm water devices should not discharge across a sidewalk, but be piped or or drained by flume under the sidewalk.

**Typical Sidewalk/Walkway Costs:**

- In 2016, the cost of a 5-foot wide concrete sidewalk is approximately $25/linear foot. The cost of curb and gutter is approximately $22/linear foot. Asphalt walkways
are much less expensive in terms of construction costs but are more difficult to traverse and more expensive to maintain.

Greenway Trails

As sidewalks have different standards for various applications, greenways vary due to factors such as space, existing conditions and usage. The pedestrian facilities, which have been proposed for the City of Bristol differ in variety and purpose. A greenway can be a multi-use facility that is located off-street and offers multiple opportunities for different users - such as walking, in-line skating, and biking. Special considerations of safety should be made when these facilities are located near a roadway. Adequate separation or barriers should be implemented between the roadway and the multi-use path. The cross-section shown here identifies standards that should be implemented for each application.

A greenway is defined simply as a trail corridor on primarily undeveloped land, as along a river or between urban centers, that is reserved for recreational use or environmental preservation. The greenway movement has experienced positive popularity. These types of trails have been traditionally developed on abandoned railroad beds, stream/creek easements, utility corridors, and through residential communities. Most multi-use trails such as greenways are wider than sidewalks. The typical, minimum width for a two-directional trail is 10'; however, 12'-14' widths are preferred where heavy pedestrian traffic is anticipated. Due to many greenway facilities being off-road, the larger width provides access for maintenance and emergency vehicles. A majority of greenways are constructed using asphalt as the surface. This application is used primarily due to the lower cost as compared to concrete, which is used for sidewalks.

Design techniques should be considered in order to create an aesthetically pleasing greenway, clearing of vegetation should be limited to clearing for construction, clearing underbrush to increase sight lines, and clearing for the safety of the trail user. Winding the greenway can help create opportunities for landscaping areas and improve sight lines especially along long, straight sections.
Typical Greenway/Multi-Use Trails Costs:

- As of the time of this study, the cost of a 10-foot wide asphalt trail is approximately $800,000/mile. This consists of a 6” stone base and 2” of asphalt.

Typical pavement design for a paved, off-road, greenway trail should be based upon the specific loading and soil conditions for each project. These asphalt or concrete trails should be designed to meet loading requirements including maintenance and emergency vehicles.

Concrete trails should be used in flood prone areas because of this material’s durability as compared with asphalt, which can be washed away or swell, heave and eventually crack up. In addition, concrete trails can stand up to sub-grade failure and root intrusion better than asphalt surfacing.

Asphalt is predominately used on greenway trails primarily due to cost. It requires more maintenance than concrete due to its flexibility, which can cause movement of the trail. It is also important to construct a 2’ stone shoulder on both sides of the asphalt edge to help prevent failure and erosion of the edges.

**Side-paths**

A side-path is essentially a greenway or multi-use path that is oriented parallel to a road but is separate from the road. The AASHTO Guide to the Development of Bicycle Facilities and Tennessee Bicycle Facilities Planning and Design Guidelines caution those contemplating a side-path (or widened sidewalk) facility to review all the various elements of the roadway corridor environment and the right-of-way before making a decision.
An important point about when this type of path is appropriate is that they should only be constructed along corridors that have relatively few intersections and driveways, reducing possible conflict points.

There are certain roadways with high traffic volume and vehicle speeds where side-paths are the only bicycle facility that can be considered without radical changes to the existing roadway design. In these cases, a side-path could be a possible treatment to accommodate bicycle traffic. The possibility of intersecting driveways and roadway conflicts should be carefully considered. Side-paths should be provided on both sides of the roadway if possible to encourage bicyclists to ride in the same direction as parallel traffic. Proposed future solutions should include widening the roadway or providing narrower travel lanes to accommodate bicycle lanes.

5.3 PEDESTRIAN & BICYCLE FACILITY ELEMENTS

Marked Crosswalks

Trails and greenways, like sidewalks are part of an alternative transportation system. Where this system intersects with the traditional vehicular road system, safe and clearly marked crossings must be formed. Pedestrians and cyclists need to have the ability to traverse the local transportation system as easily and safely as people in vehicles. Providing marked crosswalks is one of many ways to facilitate the safe crossing of streets and parking lots.

A marked crosswalk is any crosswalk, which is delineated by white markings placed on the pavement. The white markings may be made from a bright paving material or of paint. Crosswalks consisting of textured, colored, or otherwise contrasting materials are considered ‘unmarked’ crosswalks unless white markings are also present.

- Crosswalks should consist of two (2) twelve-inch white lines with a separation of six (6) feet.
- Pedestrian & Bicycle crossing zones should have a width of at least six (6) to eight (8) feet.
- All marked pedestrian traffic crossings should be approved by the City or TDOT Traffic Engineer prior to installation.
- All mid-block pedestrian traffic crossings should be designated as a crosswalk with pavement markings and signage in accordance with MUTCD and should be approved by the City or TDOT Traffic Engineer prior to installation.

Alternative materials to paint include: thermoplastic materials, plastic tape, or other TDOT approved materials.
The Tennessee Department of Transportation (TDOT) follows the national guidelines outlined in the federal Manual of Uniform Traffic Control Devices (MUTCD), the Traffic Control Devices Handbook, and other references. These references cover all aspects of the placement, construction, and maintenance of all approved traffic control devices.

In order to ensure the public understanding of traffic control devices, the devices need to be consistent. All traffic devices - including crosswalk markings and signs - must conform to all state and federal standards and regulations for dimensions, color, working, and graphics. Legal crosswalks usually exist at all public street intersections, whether marked or unmarked. However, the only way a crosswalk can exist at a mid-block location is if it is marked. It is recommended that mid-block crossings be no less than 200 feet from an adjacent signalized intersection.

Crosswalks are not a guarantee of pedestrian safety. State laws require motorists to yield to pedestrians in a marked crosswalk. However, on roads with moderate to higher speeds and traffic volumes, drivers seldom comply. More vehicle/pedestrian collisions occur at marked crosswalks on multi-lane streets with a high volume of vehicular traffic than at unmarked crosswalks. This may be explained in part by the observation that older adults tend to cross at marked crosswalks, rather than at unmarked areas. The addition of warning signs and lights for drivers greatly decreases the risk to pedestrians.

There are definitely safety concerns on multi-lane roads, that have crosswalks. (See the figure shown here.) If the driver nearest the curb stops for a pedestrian, but the driver in the next lane cannot see them and continues through the crosswalk, then the driver in the adjacent lane strikes the pedestrian.

Pedestrians should not be totally dependent on crosswalks, but they should consider...
crosswalks as means of assistance and direction along the safest route, rather than a way to stop traffic.

Crosswalks should be marked at intersections where there is substantial conflict among the vehicles and the pedestrian activity, where there are concentrations of pedestrians (otherwise pedestrians could not find the proper place to cross), and where traffic movements are controlled. Examples of such locations are:

- Approved school crossings
- Signalized intersections
- Four-way stop intersections

**Mid-block Crossings**

A mid-block crossing is any crosswalk that is not located within an intersection. Tennessee Department of Transportation (TDOT) standard practice is to install mid-block crosswalks based on an engineering study. Mid-block crossings should be signed and marked in compliance with the Manual on Uniform Traffic Control Devices (MUTCD), the Tennessee Supplement to the MUTCD, and the current TDOT Roadway Standard Drawings.

- Crosswalks at mid-block should not be installed within 200 feet of another signalized crossing point. Therefore, if a signalized crossing is in place at an intersection, another crossing at the mid-block must be farther than 200 feet from the intersection crossing location.
- Advanced warning signs are needed when mid-block crossings are present.
- Raised crosswalks are typically used on two-lane streets with less than 35 MPH speed limit.

Additional Guidelines for Crosswalks:


- Crosswalks should not be installed where speeds exceed 40 miles per hour.
- As noted above, in some areas, crosswalks should be used together with other traffic control devices to increase pedestrian safety. This is especially important on roads where the average daily traffic exceeds 10,000 vehicles.
- When placing crosswalks TDOT typically recommends pedestrian facilities
(sidewalks) on both sides of the roadway.

- The MUTCD requires that the width of crosswalks be at least six (6) feet wide. In areas of high vehicle and pedestrian traffic, the crosswalks should be at least ten (10) feet wide.
- The TDOT recommends widths of 6’ or greater.
- Pedestrian access to the crosswalks via curb ramps and other sloped areas should be fully contained within the crosswalk markings.
- Markings for the crosswalk should extend across the entire width of roadway.
- The MUTCD recommends all crosswalk markings be white. The continental and ladder patterns for crosswalk markings are more easily seen and comprehended by motorists.
- Therefore, it is recommended that one of these patterns should be chosen for crosswalks in the City of Bristol.
- All lines should be 12 inches to 24 inches wide and spaced one foot to five feet apart, depending upon the location and width of the roadway.
- Additional devices such as traffic signals and beacons should be added where vehicle speeds and traffic are higher.

Many factors must be analyzed before deciding on the location and type of crosswalk(s) to be installed. Some of them are:

- The number of pedestrians that will be served
- The function of the highway
- The volume and speed of vehicles
- The width of the road
- Both current and future predicted conditions
- The typical abilities of the pedestrians that would use the crosswalk

Other common intersection crosswalk markings are shown in the illustration here.
• How they will be initially funded and maintained

Typical Crosswalk Costs (based on 2016 calculations):

• Regular striped: $150
• Ladder or continental crosswalks: $350
• Stamped Concrete: $3,500

Maintenance costs vary according to the region and the pattern of striping used.

School Crosswalks

With the elevated concern for the safety of children walking to school, criteria for placing marked crosswalks along the route are generally a bit different. Crosswalks should be marked at all intersections along the suggested route to school where the volume of children reaches about 40 in a two-hour period.

Multipurpose (bike/pedestrian) Path/Roadway Interface

The following two pages offer solutions to how best to design transportation interfaces of trails and greenways with roads and other paths:
Neighborhood greenway trail crossing multiple lanes of vehicular traffic makes use of tactile warning devices on approach ramp.

Pathway interface with sidewalk includes pavement change to help users become aware of potential crossing traffic.

Street name of crossing roadway identified for greenway users.
Section 5.3 Design Guidelines
Comprehensive Trails and Greenways Master Plan

Greenway path with signalized pedestrian crosswalk.

Trail crossing with serpentine design to slow pathway users approaching signal flashers.

Pathway interface with street at transitions from off-street greenway to bike lane.
Regulatory Signs and Warning Signs for Crosswalks

Regulatory signs give notice of traffic laws or regulations that pedestrians, cyclists, and motorists are required to follow. Warning signs call attention to unexpected conditions on, or adjacent to, a roadway, bike, or pedestrian facility that can be potentially hazardous to users.

Pedestrian-related signage serves primarily to alert motorists to the presence of pedestrians. The intended effect is to cause motorists to drive more cautiously and reduce their speeds, thereby improving safety for pedestrians in the given area.

Signs can be used in a variety of places, including crosswalks, intersections, in-street, and near schools. National standards for sign placement and use can be found in the Manual for Uniform Traffic Control Devices (MUTCD). The MUTCD provides guidance for warning signs which can be used at crosswalks or along the roadway.

The following signs have been recommended to municipalities for installation. For more signs and more detailed guidelines for sign installation and use, the municipality should consult the MUTCD.

The first sign (Yield) is usually installed in-street to warn motorists to yield to pedestrians in a crosswalk.

The school sign (shown here) can be added to the in-street sign for placement near a school.

These signs are commonly used as pedestrian warning signs. These indicators, in particular, notify motorists to watch for pedestrians in specific instances.

Turning signs are usually placed at intersections to warn motorists (that are turning right or left) to yield to pedestrians in crosswalks.

The last sign is an example of typical way-finding signage that is used to help cyclists at major decision points along designated bicycle routes. Way-finding signs are specific to their locations.
Additional pedestrian-related signage includes the STOP for pedestrians, as shown on the left side; as well as the signs displaying “stop” and “yield” signs as state laws.

**Other Common MUTCD Regulatory Signs**

Regulatory signs are designed to warn motorists and pedestrians of a legal requirement such as STOP or YIELD. These signs require certain actions and are enforceable by law. Many motorist signs, including stop signs, yield signs, turn restrictions, and speed limits - have a direct or indirect impact on pedestrians. Some examples of signs which affect pedestrians include pedestrian warning signs, motorists warning signs, NO TURN ON RED signs, and guide signs.

The NO TURN ON RED sign may be used in some instances to facilitate pedestrian movements. The Manual on Uniform Traffic Control Devices lists six (6) conditions when “no turn on red” may be considered, three (3) of which are directly related to pedestrians or signal timing for pedestrians.

The use of NO TURN ON RED signs at an intersection should be evaluated on a case-by-case basis. Less restrictive alternatives should be considered in lieu of NO TURN ON RED. Also, supplementary signs, such as WHEN PEDESTRIANS ARE PRESENT or WHEN CHILDREN ARE PRESENT may be placed below the NO TURN ON RED sign.

There are occasions when NO-TURN-ON-RED restrictions are beneficial. Part-time restrictions should be discouraged; however, they are preferable to full-time prohibitions when the need only occurs for a short period of time.

Universal prohibitions at school crossings should not be made, but rather restrictions should be sensitive to special problems of pedestrian conflicts, such as the unpredictable behavior of children and problems of the elderly and/or persons with disabilities. Pedestrian volume should not be the only criterion for prohibiting right turns on red.
There are a number of regulatory signs, which are posted specifically for pedestrians, which include:

- **PEDESTRIANS PROHIBITED** is a sign used to prohibit pedestrian entry at highway ramps.

- Pedestrian crossing signs are used to restrict crossings at less safe locations and to divert them to optimal crossing locations. Various alternatives include the **USE CROSSWALK** (with supplemental arrow) sign, which may be used at intersections with traffic signals that have high-conflicting turning movements or at mid-block locations directing pedestrians to use an adjacent signal or crosswalk. These signs are critical at schools or other buildings that generate significant pedestrian volumes.

- Traffic signal signs include the pedestrian push-button signs or other signs at signals directing pedestrians to cross only on the green light or WALK signal. Pedestrian push-button signs should be used at all pedestrian-actuated signals. It is helpful to provide guidance to indicate for which street the button is intended (either with arrows or street names). The signs should be located adjacent to the push button and the push buttons should be accessible to pedestrians with disabilities.

**Warning Signs**

Warning signs are used to inform motorists/pedestrians, who are unfamiliar with any unusual or unexpected conditions. Warning signs predominantly fall under the permissive category (“may” condition) and when used, should be placed to provide adequate response times. Warning signs are generally diamond-shaped with black letters or drawings on a yellow background and should be made of reflective or illuminated material. The overuse of warning signs breeds disrespect and should be avoided. The **Advance Pedestrian Crossing** sign is predominantly used to warn motorists of possible pedestrian conflicts.
This sign should be installed in advance of mid-block crosswalks or other locations where pedestrians may not be expected to cross busy streets. Their use is significantly minimized at most urban intersections since pedestrian crossings are an expected occurrence. However, in some cases, this sign may be selectively used in advance of high-volume pedestrian crossing locations to add emphasis to upcoming crosswalks.

Where there are multiple crossing locations, a supplemental distance plate may be used (NEXT XXX FEET). The advance pedestrian crossing signs should not be linked to other warning signs (except for a supplemental distance sign or an advisory speed plate) or regulatory signs (except for NO PARKING signs) to avoid information overload and to allow for an improved driver response. Care should be taken in sign placement in relation to other signs to avoid sign clutter and to allow adequate motorist response.

The Pedestrian Crossing Sign is similar to the Advance Pedestrian Crossing sign, but has the crosswalk lines shown on it. This sign is intended to be used at the crosswalk. It should be preceded by the advance warning sign and should be located immediately adjacent to the crossing point. To help alleviate motorist confusion, a black-and-yellow diagonally downward pointing arrow sign may be used to supplement the pedestrian crossing sign.

The Playground sign may be used in advance of a designated children’s play area to warn motorists of a potentially high concentration of young children. This sign should generally not be needed on local or residential streets where children are expected. Furthermore, play areas should not be located adjacent to high-speed major or arterial streets; or if so, should be fenced off to prevent children from darting into the street.
According to the *Traffic Control Devices Handbook*, CAUTION-CHILDREN AT PLAY or SLOW CHILDREN signs should not be used since they may encourage children to play in the street and may encourage parents to be less vigilant. Such signs also provide no guidance to motorists in terms of a safe speed, and the sign has no legal basis for determining what a motorist should do. Furthermore, motorists should expect children to be “at play” in all residential areas, and the lack of signage on some streets may indicate otherwise. The signs are unenforceable and act as another roadside obstacle to pedestrians and errant motorists. Use of these non-standard signs may also imply that the involved jurisdiction approves of streets as playgrounds, which may result in the jurisdiction being vulnerable to liability.

School Warning signs include the advance school crossing signs, the school crossing sign, SCHOOL BUS STOP AHEAD sign, and others.

School-related traffic control devices are discussed in detail in Part VII (Traffic Controls for School Areas) of the MUTCD. A reduced speed limit sign with flashing lights can be installed ahead of the actual crossing. The lights are set to flash during school hours, alerting drivers that a lower speed limit is in effect when the flashers are operating. Another sign and light combination is SCHOOL SPEED LIMIT 20, where the speed limit is illuminated during school hours.

The MUTCD allows for the development of other specialty warning signs based on engineering judgment for unique conditions. These signs can be designed to alert unfamiliar motorists or pedestrians of unexpected conditions and should follow the criteria for the design of warning signs. Their use should be minimized to retain effectiveness and should be based on well-informed judgment.
Signs and Way-finding

Signage is governed by the Manual on Uniform Traffic Control Devices (MUTCD), which provides specifications on the design and placement of traffic and pedestrian signs installed within public rights-of-way. Signs are designed to provide important information that improves pedestrian and vehicular safety. By letting people know what to expect, there is a greater chance that they will react and behave appropriately. For example, giving motorists advanced warnings of upcoming pedestrian crossings or that they are entering a traffic calming area will enable them to modify their speeds. The amount and types of signage should be carefully considered as the overuse of signs can result in noncompliance, confusion, and disrespect.

The City of Bristol should develop clear standards and guidelines for the use of vehicular and pedestrian signs. Care should be taken to avoid an over-reliance on signs and paint to control motorist behavior. This may mean altering and/or relocating existing signs and markings that have proven to be ineffective for pedestrian safety.

The MUTCD has developed guidelines for signs and pavement markings that leave sufficient room for creative regulatory design. Thus, there is leeway in A.D.A adopting guidelines to policy needs for specific signing/marking. Colors for signs and markings should conform to the color schedule recommended by the MUTCD. For instance, the orange signs to the right indicate construction. Such uniformity allows for recognition across jurisdictions.

Pedestrian Signs

Pedestrian signs are designed to give information and direction to improve safety and relieve conflict between motorists and pedestrians. Signs are used to direct pedestrians to crosswalks or to limit pedestrian crossings at specific locations. Signs can also warn pedestrians of unexpected driver maneuvers. All signs should be periodically checked to make sure they are in good condition, free from graffiti, and that they continue to serve a purpose.

Other and/or additional signs may be used for pedestrians at traffic signals to define the meaning of the WALK, DON’T WALK, and flashing DON’T WALK signal indications. The decision to use these signs (or alternatively, stickers mounted directly on the signal pole) is strictly a judgment call and is primarily for educational purposes. As such, their use may be more helpful near schools and areas with concentrations of elderly pedestrians –
both of which are high-risk areas. This information may also be effectively converted into brochures for distribution and ongoing educational purposes.

**Directional Signs**

Directional signs for pedestrians are intended to assist people (who are new to the area) or to assist residents who may not know the most direct route to a destination by foot (or by vehicle, for that matter). Distances, which are meaningful to pedestrians (such as the number of blocks, miles, and/or the average walking time), should be used to assist them when possible and/or practical. When installed by TDOT, directional signs are green in color, consistent with the color chart discussed earlier.

**School Zone Treatments and School Route Plan Map**

Section 7 of the MUTCD is entirely devoted to “Traffic Controls for School Areas” and is the primary guidance available to municipalities for installing signs and markings in school zones. The section provides valuable additional guidance for school crossing treatments that can be utilized for the planning and design of schools that should be considered when making safety improvements.

School crossing signs should clearly mark all school crosswalks on the suggested route, as well as be placed at crosswalks within the school zone. Busy intersections crossed by children should include traffic control devices such as signals and signs.

**Advance Stop Bars**

In order to increase vehicle and pedestrian visibility, the vehicle stop bar should be applied to the street 15 to 30 feet back from the pedestrian crosswalk at signalized crossings and mid-block crossings. Stop bars are one to two feet wide and extend across all approach lanes at intersections. By moving the bar further away from the crossing, motorists are influenced to stop further back from the crosswalk when yielding right-of-way to pedestrians.
pedestrians. This helps to reduce conflicts (near collisions) between motor vehicles and pedestrians.

Advance Stop Bar Cost:

- Signage: $50 - $150 plus installation
  No additional cost if new line is installed in new paving.

**Curb Ramps**

Curb ramps are vital in providing access between the sidewalk and the street for people who use wheelchairs and other motorized mobility devices. Curb ramps are most commonly found at intersections, but they may also be used at other locations such as on-street parking, loading zones, bus stops and mid-block crossings. The implementation regulations under Title II of the A.D.A specifically identify curb ramps as requirements for existing facilities and all new construction. Curb ramps for existing facilities must be included in Transition Plans.

According to the Title II implementation regulations, priorities for the installation of curb ramps in existing facilities should include access to government facilities, transportation, public accommodations, and for employees at their place of employment (U.S. Department of Justice, 1991a).

For many people with mobility impairments, curb ramps actually make it more difficult to navigate the pedestrian corridor. Crutches and canes are sized to fit the individual user so that the energy required for walking is minimized on a hard, level surface. Use of these types of walking aids is more difficult on sloped surfaces such as curb ramps. Widening the crosswalk to allow people to use either the curb or the curb ramp will ease access for cane and crutch users, who are not comfortable traveling on a sloped surface.

People with vision impairments rely on the “curb” to identify the transition between the sidewalk and the street. The installation of curb ramps removes this cue and replaces it with a ramp which is much more difficult to detect. Therefore, it is important that as curb ramps are A.D.A required.
ramps are installed to create access for people who use wheelchairs, they are installed in such a way as to maximize detectability for people with vision impairments. The A.D.A requires the addition of a detectable warning on all curb ramps. This consists of truncated domes extending across the entire width of the ramp and they must be in a contrasting color to the surrounding paving - either dark to light or light to dark.

Guidelines for Curb Ramps:

• Provide a level maneuvering area or landing at the top of the curb ramp.
• Clearly identify the boundary between the bottom of the curb ramp and the street with a detectable warning.
• Design ramp grades that are perpendicular to the curb.
• Place the curb ramp completely within the marked crosswalk area.
• Avoid changes of grade that exceed 11 percent over a 610 mm (24 in) interval.
• Design the ramp that does not require maneuvering on the ramp surface.
• Provide a curb ramp grade that can be easily distinguished from surrounding terrain; otherwise, use detectable warnings.
• Design the ramp with grades of 7.1 ± 1.2%. [Do not exceed 8.33 percent (1:12)].
• Design the ramp and gutter with a cross slope of 2.0 percent.
• Provide adequate drainage to prevent the accumulation of water or debris on or at the bottom of the ramp.
• Transitions from ramps to gutter and streets should be flush and free of level changes.
• Align the curb ramp with the crosswalk, so there is a straight path of travel from the top of the ramp to the center of the road to the curb ramp on the other side.
• Provide clearly defined and easily identified edges or transitions on both sides of the ramp to contrast with sidewalk.

Curb Ramp Costs:

• The cost is approximately $1,500 to $2,000 per curb ramp (new or retrofitted).

Raised Medians

Medians (also known as refuge islands) are the portion of a divided roadway that separates traffic flows, which head in opposite directions. At roundabouts, these are called splitter islands. Medians help pedestrians cross intersections by reducing the crossing distance from the curb to a protected area. This allows pedestrians or cyclists to cross during smaller gaps in traffic. For this reason, medians are especially helpful for pedestrians who are unable to judge distances accurately. In addition, medians also help people with slow
Medians are also useful at irregularly-shaped intersections, such as sites where two roads converge into one. In commercial districts, medians provide pedestrians with valuable protection from oncoming traffic. In residential areas, they serve as traffic calming devices and green space.

- Median crossings should be at least 6 feet in width to accommodate more than one pedestrian.
- Median crossings should include a level landing that is at least four feet square, providing a balanced resting space.
- Where streets are in excess of 60 feet in width, push-buttons for signalized crossing should be installed.
- Crossings in excess of 60 feet in width should be provided with medians or crossing islands and curb extensions.

Whenever possible, medians should be raised to separate bicyclists, pedestrians and motorists. Raised medians make the pedestrian more visible to motorists and they are easier for people with vision impairments to detect. Raised medians should be designed with a cut-through at street level or a ramp. This provides pedestrian access to individuals who cannot travel over a curb.

Detectable warning surfaces should be placed at the edge of both ends of the median in order for the streets to be recognized by pedestrians who are visually impaired. If the corner includes a pedestrian actuated control device, one should also be located at the median.

- Raised Median Costs: The cost is approximately $15,000 to $30,000 per 100 ft.
Curb Extensions (Bulb-outs)

Curb extensions improve visibility between pedestrians and motorists and make it easier to install perpendicular curb ramps with level landings. They also reduce the crossing distance for pedestrians. Low landscaping or grass can be added to the curb extension to clarify the appropriate path of travel for individuals with vision impairments. In addition, the following steps should be considered:

- Trim the vegetation, relocate signs and utilities, and eliminate clutter.
- Prohibit parking near the corner of the intersection.
- Provide for raised medians /crosswalks. Provide an advance stop line before a marked crosswalk on a multi-lane road.

Curb extensions are appropriate at certain mid-block crossings. The presence of turning truck traffic must also be taken into consideration/acknowledged when considering the installation of any curb extensions. While larger curb radii may accommodate truck turning, smaller radii help to shorten pedestrian crossing distance.

Curb Extension/Bulb-out Costs:

- The cost is approximately $2,000 to $20,000. The cost can increase depending on the amount of relocated infrastructure.

Traffic Calming

The term “traffic calming” may be described as the physical features and methods used to help negate the effects of vehicular traffic on pedestrian travel. Often the objectives of traffic calming are to reduce vehicular speeds, provide for a safer and more pleasing travel experience for both pedestrians and drivers and to improve the livability of neighborhood streets. Traffic calming often discourages the use of residential streets as cutoffs to main arterial routes. There are a number of different traffic calming engineering techniques such as median islands, speed tables, raised crosswalks, traffic circles, chicanes, curb extensions and speed limit reductions.

Recommendations for traffic calming along specific roadways are discussed further in
Section 6, Program and Policy Recommendations. Good planning and study of how particular traffic calming options may impact the local community including nearby parallel roadways, on-street parking availability, and emergency vehicles should be conducted before installing any selected treatment.

Pedestrian Railroad Crossings

Railroad crossings pose unique hazards for pedestrians. The rails, ties, and bedding surface(s) are potential tripping hazards; especially if the material used to pave the crossing is subject to buckling, expanding, or heaving (such as asphalt). Also, if there are inadequate lines of sight and/or poor night lighting, the approach of trains can be hidden from pedestrians.

These hazards are magnified if the pedestrian has special visual needs and/or mobility challenges.

One solution has been to fill the areas between the rail(s) with walking grade material. But in order for a train to pass, there must be at least a 2” gap between the material and the track or flange. This gap poses a hazard for wheelchairs and mobility scooters; when the small, narrow front wheels hit the unevenness of the gap, they will often turn sideways and can become lodged in the flangeway gap. The gaps are also large enough for a small child’s foot or the tip of a cane walker to become stuck in the flangeway. Where pedestrians must cross light rail train tracks or the tracks of slowly, moving trains, there is a rubber insert that can fill the flangeway gap and not interfere with the operation of the train.

Guidelines for Pedestrian Railroad Crossings:

- Raise the approach to the track to meet the top level of the rail. The approach should be flat for five feet on either side of the track.
- Use flangeway fillers wherever railroad traffic will allow.
- Use surface material that will not buckle, expand, or contract adjacent to the tracks to prevent tripping hazards.
• Pedestrian paths should always approach the tracks at a 90 degree angle.
• Install detectable, truncated warning domes in the sidewalk to warn pedestrians.
• Install railroad crossing warnings along sidewalk in the form of signs, flashing lights, and audible sounds.
• Signals and/or gates should be considered to prevent the passage of pedestrians when a train is approaching.

Pedestrian Railroad Crossing Costs:

• Level paving at track: $400 per linear foot (lengthwise along track)

**Pedestrian/Countdown Signals**

Pedestrian signal heads should be used at all traffic signals where pedestrians are permitted to cross, unless pedestrian volumes are extremely low.

The use of WALK/DON’T WALK pedestrian signal indicators at signal locations is important for safe timing of crossing by cars and pedestrians. Indications that a signal is needed include:

• When vehicle signals are not visible to pedestrians
• When signal timing is complex as when there is a dedicated left turn signal for motorists
• At established school zone crossings
• When an exclusive pedestrian interval is provided
• When streets are extra wide and where pedestrian clearance information is considered helpful.

In addition, countdown signals offer an additional safety measure by informing pedestrians of the amount of time remaining for safe crossing.

The use of international symbols on pedestrian signal heads is preferable and is recommended in the MUTCD; the “WALK” and “DON’T WALK” word messages are also accepted as allowable alternatives in the MUTCD. TDOT policy is to use signals with hand symbols. Pedestrian signal heads should be clearly visible to the pedestrian at all times whether pedestrians are in the crosswalk or simply waiting on the far side of the street. Larger pedestrian signal heads can be beneficial in some circumstances where more activity is prevalent or greater distances are involved. Signals may be supplemented with audible messages to assist trained visually impaired pedestrians; however, these audible messages should not be used randomly, because they can become an environmental (noise) issue thus, inhibiting pedestrian safety.
Leading Pedestrian Interval

The Leading Pedestrian Interval (LPI), also known as a “pedestrian head start,” allows the ‘walk’ signal for pedestrians to appear three or more seconds before the green signal for drivers.

According to Ron Van Houten, Ph.D., Center for Education and Research in Safety, Dartmouth, Nova Scotia:

- At signalized intersections, right and left-turning vehicles present a danger to pedestrians crossing during the WALK interval, and crash statistics show that pedestrians are especially vulnerable to left-turning vehicles (left-turning vehicles are overrepresented in pedestrian crashes).

- One practical solution to this problem is to program the traffic signals to allow the pedestrian to begin crossing before the vehicle traffic on the parallel street is given the green light. One of the most effective ways to decrease crashes that involve motor vehicles and pedestrians is to separate them in time.

- Pedestrians and motor vehicles can be separated in time by providing a leading pedestrian interval, which permits pedestrians to gain a head start before turning vehicles are released.

- Research has shown that this treatment is associated with a decrease in pedestrian/motor vehicle conflicts and an increase in the percentage of motorists that yield the right-of-way to pedestrians. This study examined the influence of a three-second LPI on pedestrian behavior and conflicts with turning vehicles.

Guidelines for Pedestrian and Countdown Signals:

- Pedestrian signals should be placed in locations that are clearly visible.
- Larger pedestrian signals should be utilized on wider roadways to ensure ADA accessibility.
- Pedestrian signal push buttons should be well-signed and visible.
• Pedestrian signal push buttons should clearly indicate which crossing direction they control.
• Pedestrian signal push buttons should be reached from a float surface at a maximum height of 3.5 feet - and be located on a level landing to ensure ease of operation by pedestrians in wheelchairs.
• Walk intervals should be provided during every cycle, especially in high pedestrian traffic areas.

Pedestrian Signal/Countdown and Audible Cue Costs:

• Signal cost is $5,000/ $500 to $800 per head; audible cue is approximately $300 per signal.

The following description is an excerpt taken from the Manual on Uniform Directional Control Devices (MUTCD):

“The majority of pedestrian crashes occur at mid-block crossings. Any alternative traffic control device that is not a traffic signal has historically had minimal effect on motorist-yielding behavior on multilane roads. Because of the high cost of traffic signals their installation is restricted to intersections with high motor vehicle and pedestrian usage. The traffic signal warrant also limits the application of such devices to high pedestrian volume areas.

One alternative to a traffic signal is the use of the “High Intensity Activated Crosswalk” (HAWK) signal to assist pedestrians in crossing major streets. The HAWK beacon signal consists of two RED signal indications above a YELLOW signal indication forming a beacon signal that remains dark until activated by a pedestrian. Once activated the signal initiates a flashing yellow indication to warn approaching drivers, followed by a solid yellow identical to a normal signal to warn of impending requirement to stop. The solid yellow is followed by a brief solid red indication, which is followed by a wig wag flashing red signal requiring drivers to stop before proceeding.”

• Typical costs range from $35,000 – $60,000.

It should be noted that pedestrian/vehicular conflicts can be further mitigated by adding
painted warning stripes in advance to an approaching crosswalk in both lanes. The addition of stop bars and signage indicating where vehicles are to stop during a crossing event should also be included in this type of “mid-block” crossing. Other alternatives to the above described signalization are suggested in the M.U.T.C.D. as follows:

“One inexpensive device to increase yielding rates on multilane roads is the use of pairs of rectangular yellow LED beacons (RRFB) that employ a stutter flash pattern similar to that used on emergency vehicles.”

One important study on the LED Beacon was performed by The Center for Education and Research in Safety. The study affirmed that, “At several multilane pedestrians crossings the device produced yielding levels that are equivalent to a traffic signal. No other device without a red indication has produced similar yielding data.” (An Analysis of the Efficacy of Rectangular-shaped Rapid-Flash LED Beacons to Increase Yielding to Pedestrians Using Crosswalks on Multilane Roadways in the City of St. Petersburg, FL. Dr. Ron Van Houten & Dr. J.E. Louis Malenfant,).

A Rectangular-shaped Rapid-Flash Beacon (RRFB) pair costs approximately $10,000 to $15,000 for the purchase and installation of two units (one on either side of a street). This includes solar panels for powering the units, pad lighting, indication units (for both sides of street) with RRFBs in the back and front of each unit, signage on both approaches, all posts, and either passive infrared detection or push buttons with audio instructions. Costs would be proportionately higher for additional units placed on a median island, etc.

Traffic Signals

Traffic signals create gaps in traffic flow allowing pedestrians to cross the street. Traffic signals should allow adequate crossing time for pedestrians and an adequate clearance interval based upon a maximum walking speed of four feet per second. A lower speed of less than four ft./sec. should be used in determining pedestrian clearance time for areas where there is a heavy concentration of the elderly or children. Signals are particularly important at high use, mid-block crossings on higher-speed roads, on multi-lane roads, and around more highly-congested intersections. National warrants from the “Manual on Uniform Traffic Control Devices” (based on the numbers of pedestrians and vehicles crossing an intersection) are usually used in the selection of traffic signal sites. However, judgment must also be used on a case-by-case basis. For example: a requirement for installing a traffic signal is that there are a certain number of pedestrians present. If a
new facility is being built (such as a park or recreational path) there will be a new demand and the signal should be installed in conjunction with the new facility, based on projected crossing demand. There may also be latent demand if a destination is not currently accessible but could become so with new facilities or redesign.

In downtown areas, signals are often closely spaced, sometimes located at every block. They are usually spaced further apart in suburban or outlying areas. When high pedestrian traffic exists during a majority of the day, fixed-time signals should be used to consistently allow crossing opportunities. Pedestrian actuation should only be used when pedestrian crossings are intermittent.

Traffic Signal Guidelines:

- Traffic signals should be used where pedestrian traffic is regular and frequent. The signal should be timed to a consistent interval. Pedestrian actuation should only be used when pedestrian crossings are intermittent.
- Signal cycles should be kept short (ideally 90 seconds maximum) to reduce pedestrian delay. Pedestrians are very sensitive to delays and a 30-second maximum wait time is ideal.
- Marked crosswalks at signals can encourage pedestrians to cross at the signal and help dissuade motorists from encroaching into the crossing area.

Traffic Signal Cost:

- The cost ranges from $20,000 to $140,000.

Greenway Continuity

Greenways and multi-purpose trails should continue beyond the end of their natural features (rail-trail, creek-side, etc.) to reach popular destinations within the City. All too often, greenways terminate in a parking lot or at a street curb (South end of Wes Davis Greenway). The ideal Greenway would reach between two important destinations and have opportunities to connect with other trails and paths. Ideally, the traffic-free path should be well separated from the road by a wide-planted area, constructed along a new alignment further from the main vehicular traffic lanes.

Any substantial distance running adjacent to a main road destroys the quality of a greenway and therefore considerable efforts should be made to avoid this. Many well used greenways and multi-purpose trails fall short of the ideal and yet they continue to offer usefulness to the public.
Greenways must be continuous over their entire length. Any gaps in the route, especially when due to heavily trafficked roads will reduce the usefulness and practicality by users. An effective Greenway must provide a solution to how to avoid conflicts like busy roadways. Any possibility of deviating from the Greenway to pass under an existing creek bridge or over an overpass with wide shoulders should be pursued. Urban Greenways have a similar range of options as do more rural routes with added opportunities coming from traffic light signalization, and lower traffic speeds in residential and downtown areas.

**Landscaping/Enhancement**

A network of safe, comfortable, aesthetically pleasing pedestrian corridors with connectivity to desirable destinations creates and promotes a livable community.

Without each of these elements present, the walking community is incomplete. Safety, beauty, and connectivity all play important roles in forming a comprehensive pedestrian plan and each basic fundamental should be considered throughout the entire planning process.

Landscaping can provide aesthetic improvement into a place that is otherwise hardened by buildings, concrete and streets. It can also be used to provide a buffer and separation from pedestrians and motorists, reduce the width of the roadway, calm traffic, and help to develop a desired aesthetic appearance.

Street trees can visually impact areas by breaking up the hard-scape often found in urban areas. Also, trees and planting improve the environment by shading the street; thus, providing cleaner and better air quality.

The local municipality is typically responsible for the landscaping requirement. There are some instances where community groups assist with the funding and installation of landscaping and maintenance. Native plants are often preferable as they more easily adapt to the local environment. Growth characteristics of the plant material should be carefully considered when choosing plants for a particular location. For example, when choosing street trees - their height, spread, and root systems should all be considered - thereby avoiding overhead wires and the buckling of sidewalks and streets in the future.
Guidelines for Landscaping:

- Buffer zone planting should be maintained at no higher than three feet in areas where it is important to keep good sight distance for motorists and pedestrians.
- Plants and trees should be chosen to correspond to seasonal blooming and they should complement the culture and natural resources of the area but not pose an allergy hazard for trails and greenway users.
- Trees with large canopies planted between paths and roadways should be trimmed to keep branches at least seven feet above the path.

Landscaping Costs:

Landscaping costs can vary greatly but should be appropriate to the location. Landscaping of trails is typically done at trail heads and associated parking facilities.

Lighting Improvements

Proper lighting quality, placement, and sufficiency can greatly enhance a nighttime user experience and create a safer pedestrian facility. Two-thirds of all pedestrian/vehicle fatalities occur during low-light conditions. Particular attention should be addressed at crosswalk locations so there is adequate lighting for motorists to see pedestrians or cyclists.

Many times, street lighting is implemented along roadways to light the roadway and the sidewalk which allows adequate lighting for motorists and pedestrians. In urban areas, low-level lighting can be implemented through decorative streetlights which offer pedestrian-scale lighting. This type of lighting should be placed where there are high pedestrian volumes to offer improved aesthetics such as at popular greenway nodes.

A variety of streetlight choices include mercury vapor, incandescent, or high-pressure sodium. High pressure sodium is more cost effective but does not have the best light quality. Roadway streetlights can range from 20-40 feet in height while pedestrian-scale lighting is typically 10-15 feet.

When planning for lighting, it is not only important to have sufficient lighting; but also, prevent light pollution and glare. A qualified lighting expert should be consulted in order to property plan for the wattage and placement with regard to area lighting.
Guidelines for Lighting Improvements:

- Ensure pedestrian walkways and crosswalks are sufficiently lit.
- Consider adding pedestrian-level lighting in areas of higher pedestrian volumes, downtown, and at major intersections.
- Install lighting on both sides of the street in commercial areas.
- Use uniform lighting levels.

Roadway Lighting Improvements Costs:

The cost of roadway lighting varies depending upon the type of fixtures and the service agreement with the local utility company. The cost can range from $10,000-$20,000 per pole.

Street Furniture and the Walking Environment

The Bristol Trails and Greenways system should be continuous and be part of a network that provides access to businesses, public transit, and residential areas. Well-designed walking environments can be enhanced by street furniture such as benches, bus shelters, trash cans and drinking fountains. However, they should be kept clear of poles, sign posts, trash cans, and other obstacles that could block the path of pedestrians or cyclists. Benches, water fountains, bicycle parking racks, and other amenities should be carefully placed to create an unobstructed path for users. Such areas must also be properly maintained and kept clear of debris, overgrown landscaping, tripping hazards, or areas in which water accumulates and causes problems for pedestrians.

Trails, greenways and sidewalks should be interesting for pedestrians and provide a secure environment. Through the use of shade structures and well placed seating and lighting, the user will be able to rest during exercise and hot days.

Street Furniture Guidelines:

- Good quality street furniture will show that the community values its public spaces; good furniture is more cost effective in the long run.
- Ensure proper placement of furniture and fixtures. Do not block pedestrian walkways or curb ramps.
Street Furniture Costs:

- Benches: $600 - $1200
- Drinking Fountains: $1,000 - $4,000
- Trash Receptacles: $500 - $1000
- Bollards: $300 - $1000

Transit Stop Treatments

Good public transportation is as important to the quality of a community as good roads. Well-designed transit routes and stops are essential to a usable system.

Bus stops should be located at convenient intervals for passengers and where they can be accessed by walking (with road crossings). The stops should be designed to provide safe, convenient access in comfortable places. Adequate bus stop signing, lighting, shelter, seating, trash receptacles, and high visibility are all desirable features.

The proper placement of bus stops is a key factor in user safety. For example, placing the bus stops on the near side of intersections or crosswalks may block pedestrians’ views of approaching traffic and the approaching drivers’ views of pedestrians. Approaching motorists may be unable to stop in time when a pedestrian steps into traffic from the front of the bus. Relocating the bus stop to the far side of the intersection can improve pedestrian safety since it eliminates the sight distance restriction caused by the bus. Placing bus stops at the far side of intersections can improve motor vehicle operation but should always be placed where pedestrians can cross the roadway safely.

The bus stop location should be fully accessible to pedestrians in wheelchairs and should have paved connections to sidewalks where landscape buffers exist. Adequate room should exist to operate wheelchair lifts.
Guidelines for Transit Stop Facilities:

- Provide access to/from stops when transit stops are created.
- Ensure adequate room to load wheelchairs.
- Ensure a clear and comfortable walking path for passing pedestrians when placing transit shelters.
- Locate transit stops on the far side of marked crosswalks.

Transit Stop Facility Costs:

- The cost ranges from $2,000 to $10,000, depending on the type of facility or facility improvement.

Pavement Word and Symbol Markings

Pavement warning messages may be useful for busy greenways and multi-use paths. Advanced warning for walkers, runners, and cyclists approaching a high-volume crossing may improve situational awareness and safety at the crossing. Markings should be white and placed to provide an adequate response. Their use should be kept to a minimum to retain effectiveness.

Pavement Marking Costs:

Costs will vary depending on message size and number of crossings being marked.

- END OF SECTION -
“I don’t ride a bike to add days to my life. I ride a bike to add life to my days.”
– Unknown
SECTION SIX: PROGRAM AND POLICY RECOMMENDATIONS

A variety of programs and facilities designed to increase walking and promote pedestrian safety in the City of Bristol are outlined in this section. Policies are included, that recommend that the City should help with the development and maintenance of the pedestrian network outlined in Section 4.

The following sections describe policies, programs, and action steps toward these goals. These elements were developed based on the use and evaluation of existing planning documents mentioned in Section 3. City Staff also assisted in developing the plan’s overall goals which include the following:

- Increase walkability in the City of Bristol
- Create a pedestrian network that is an important part of the urban structure
- Promote walking as a healthy exercise
- Create a pedestrian environment that is friendly to all users including seniors, the disabled, and children
- Improve connections between disparate parts in the City of Bristol
- Promote pedestrian safety

6.1 ANCILLARY FACILITIES AND PROGRAMS

Maintenance

Safety should be the utmost priority with existing and new facilities. Continual maintenance will be required to have a functional pedestrian network. Pedestrians typically aspire to use a facility that is well maintained and in a safe condition; otherwise, it will not be used efficiently. Sidewalks, crosswalks at traffic intersections and mid-block crossings need to conform to the Manual of Uniform Traffic Control Devices (MUTCD). As crosswalks are installed, it will be important to place crosswalk warning signs to caution motorists where required.
With an aging population, it is imperative that accessibility and user needs be addressed at all street crossings. In order to effectively address these issues, it is recommended that the City staff conduct an inspection of existing pedestrian facilities within the City on a quarterly basis. This is important, not only to address previously identified maintenance issues but also, to inventory any additional areas where issues have arisen.

**Signage and Way-finding**

A map of existing facilities in the City of Bristol can be found at the end of Section 2. Not only does the map outline the conditions of existing pedestrian facilities, but they also address crosswalk needs and the lack of curb ramps. A number of areas, such as schools and parks, are shown in order to better understand the relationship of existing pedestrian facilities and their uses.

Proper signage is an important part of any transportation system; whether it is pedestrian or vehicular in nature. Signs in school zones, parking lots, and other areas alert drivers to the possible presence of pedestrians in the area. Signage for pedestrian facilities is as equally important as signage for roadways. Often, pedestrian facilities lack signage directing pedestrians along a designated route. It is hard to imagine having to walk to a specific destination without knowing the exact route to use, but this is often the case with pedestrians, especially for visitors to the area.

There are a number of different way-finding signage options available that pedestrians may regard as helpful, depending on the reason for the pedestrian’s trip. At a minimum, most pedestrian facilities should have a clear and concise system of signage to direct various users to desired destinations such as:

- Downtown
- The local library
- Local YMCA/YWCA/Recreation Center
- Area parks/trails
- All other pedestrian generators

It is recommended that the City of Bristol further evaluate the existing system of way-finding signage and make efforts to increase its use, and ensure that signage style is consistent. This will assist pedestrians in walking to particular destinations and make locating pedestrian signs easy and efficient for users. This will also encourage/promote walking in the community. Various types of way-finding signage are illustrated above.
Spot Improvement Programs

The City of Bristol will be responsible for “spot improvements” within the City property and right-of-way. Spot improvements are small projects such as the maintenance of curb ramps, the repair of damaged sidewalks, the removal of debris and upgrading existing facilities to meet Americans Disabilities Act (ADA) requirements. These improvements should be performed on a case-by-case basis. Special attention should be used in hazardous areas. The City should (annually) inventory and inspect areas requiring spot improvements, prioritize these locations, and proceed with the proper implementations.

Traffic Calming

There are many areas within the City where vehicular and pedestrian traffic could potentially interfere with one another. Areas where traffic speed may conflict with pedestrian routes include Downtown along State Street, and between Winston Alley and Shelby Street. Other areas of conflict could arise around schools, such as Tennessee High School. Another area of potential conflict exists where the Wes Davis Greenway crosses Melrose Street and becomes a bike path.

The Mark Vance Greenway utilizes a mix of dedicated pedestrian/bike path, streets, sidewalks, and alleys; therefore it has a variety of locations where pedestrian and cyclists share the route with vehicular traffic. Participants of the public meetings mentioned that they felt unsafe where the path exits at 9th Street and pedestrians cross Volunteer Parkway.

Looking at how traffic calming techniques could improve the specific locations noted above, a comprehensive assessment of possible pedestrian/vehicular conflicts should be conducted for those areas near schools, parks, greenways, shopping, eating establishments residential areas, and where areas of future development are known to be sited within the City of Bristol.
These areas may meet standard roadway criteria however, they are considered to be dangerous locations from the perspective of the pedestrian creating unsafe situations. High pedestrian traffic areas need safe traffic speeds in order to reduce the possibility of vehicle/pedestrian accidents. Pedestrians will feel much safer, protected, and secure in areas where vehicular traffic is controlled.

While a number of the proposed pedestrian/bike routes made in this plan avoid sharing the roads with vehicular traffic, pedestrian/bicycle traffic will need to cross streets and rail lines. Each crossing location should be evaluated on a case by case basis as new projects are designed for construction.

There are many simple, effective methods used to achieve traffic calming. These techniques can be as simple as lane striping or on-street parking. Subconsciously, a driver feels the need to travel slower in areas where the traffic lane is visually narrower. Methods such as street trees, bulb-outs, and crossing islands may not narrow the actual traffic lane; but will create a constricted visual corridor of the roadway, causing most drivers to decrease speed. Other techniques such as speed tables, raised crosswalks, and specialty pavement all attract the driver’s attention causing an immediate slowdown. Although many speed tables and similar measures have been used successfully throughout the state, it is imperative that proper planning, evaluation, and engineering transpire before these devices are implemented. The City should consider “street narrowing” techniques as a way of creating more pedestrian-oriented corridors.

**Identify Countermeasures**

The City of Bristol should continue to stay aware of what measures may be used to mitigate pedestrian accidents. National statistics indicate that nearly one-third of all pedestrian/vehicular related accidents occur within 50 feet of a street intersection. Even though crosswalks at intersections may be properly marked with appropriate signage, accidents can still occur. Most often at times when the pedestrian does not take the proper precautions when crossing intersections. Sometimes the driver is at fault by failing to yield to pedestrians. Drivers and pedestrians should both take a defensive attitude toward pedestrian/vehicular safety when approaching intersections.
Statistically, less than ten percent (10%) of pedestrian fatalities in the US involve a pedestrian walking along a road, not on a sidewalk. Most of these incidents involved the pedestrian walking “with” the traffic and being struck from behind. Safety guidelines suggest that pedestrians “face” the traffic when walking. More than one-fourth (1/4) of all pedestrian accidents occur at mid-blocks. This type of accident is typically associated with a pedestrian darting across the road. Prior to establishing a marked, mid-block crossing, proper evaluation should be done to ensure the safety of the public.

These two noted types of pedestrian accidents represent over sixty-five (65%) of pedestrian fatalities in the nation. Over the past several years, counter-measures have been developed to mitigate pedestrian accidents. Counter-measures are generally “site-specific” improvements, which hopefully provide immediate solutions.

The most effective counter-measures include roadway design, intersection design, traffic calming, traffic management, signals, signage, and pedestrian facility design. These planning and engineering methods are instrumental in reducing pedestrian accidents. Education and enforcement are also counter-measures that must be implemented in the prevention of pedestrian accidents. The following are examples of counter-measures that are related to pedestrian safety in the City:

Roadway Design
- Roadway Narrowing
- Lane Reduction
- Driveway Improvements
- Raised Medians
- Curb Radius Reduction
- Improved Right-Turn
- Slip-Lane Design

Chicanes are a set of 2 or 3 bulb-outs or curves that alternate from one side of the street to the other. They are designed to help mitigate pedestrian/vehicular conflicts by narrowing the road and slowing the speed of drivers.
Intersection Design
- Intersection Median Barriers
- Traffic Calming
- Curb Extensions
- Chokers
- Crossing Islands
- Chicanes
- Mini-Circles
- Speed Tables
- Raised Intersections
- Raised Pedestrian Crossings
- Gateways

Landscaping
- Specific Paving Treatments
- Serpentine Design

Traffic Management
- Diverters
- Partial Street Closures
- Pedestrian Street/Malls

Signals and Signage
- Traffic Signals
- Pedestrian Signals
- Pedestrian Signal Timing

Traffic Signal Enhancements
- Right-Turn-on-Red Restrictions
- Advanced Stop Lines
- Signing

Pedestrian Facility Design
- Trails, Greenways and Sidewalks
- Curb Ramps
- Marked Crosswalks and Accessibility Enhancements
- Roadway Lighting Improvements
- Street Furniture/Walking Environment
- Pedestrian Railroad Crossings

Typical raised median with pedestrian signage and crosswalk.

Speed Monitoring Trailer

Advanced stop bars improve visibility of pedestrians to motorists.
Education and Enforcement

- Neighborhood Identity
- Speed-Monitoring Trailer
- On-Street Parking Enhancements
- Pedestrian/Driver Education
- Police Enforcement

Tennessee Department of Transportation (TDOT) has published the handbook, Tennessee Laws related to Bicycle Transportation - A handbook for motorists and Bicyclists. This document serves as an educational tool for bicyclists, drivers, and the general public.

Transit Interface

The Bristol Tennessee Transit System (BTTS) offers subscription service, demand response service, and general public service by utilizing conversion and lift-equipped vehicles. For a small fee, they also provide transportation for the public. The system runs regular routes with transit stops. The Bristol Tennessee Transit System also provides transportation services on an advanced reservation basis. Services for senior citizens, persons with disabilities, limited general public individuals and human service agencies are provided on a county-wide basis. BTTS will pick anyone up that they see that needs a ride on the bus and transit busses will deviate from the bus route within 3/4 mile of the fixed-route service. Limited out-of-county services are provided for specialized care (for example: a trip to a specialized medical provider in the Tri-Cities region).

The City of Bristol should consider including facilities for future (BTTS) stops in and around parks, schools, and medical areas. These should include bus stop shelters, benches, and other street furniture to reduce the discomfort of standing by a busy street while waiting for a bus. It is important to place these stops where they can be easily accessed by pedestrians.

The provision of crosswalks and signals for safely crossing the street, sidewalks, or paving (which is wide enough to accommodate a group of people), and clearly marked signage leading to identifiable bus stops will be critical as well. By making a conscious effort to include the BTTS routes in its pedestrian transportation planning, a more integrated system will be achieved.
6.2 POLICY RECOMMENDATIONS

The design and planning of pedestrian facilities are important components of roadway design. Essentially, both primary modes of transportation (pedestrian and vehicular) should acknowledge each other in matters of safety, accommodation, and relationship. Pedestrian movement has become an important focus for the City of Bristol. The public needs connectivity, safer routes, and more walking opportunities. Although public meetings do not capture a complete synopsis of the City’s pedestrian needs, they do identify concerns and issues. Based on information from the public, there is an apparent need for an expanded pedestrian network in the City of Bristol.

Bristol’s City staff also recognizes other important issues, such as connectivity and safety. Many areas within the City were acknowledged as safety concerns that need to be addressed in regards to reducing potential pedestrian accidents. Please refer to the Bristol Tennessee 2008 Bicycle and Pedestrian Plan for additional information.

Increasing public safety (with devices such as pedestrian signals, signage, and the removal of existing barriers) will create a user-friendly pedestrian network and thereby, increase the level of pedestrian involvement. The City of Bristol also recognizes the importance of providing equal pedestrian system access to those that are physically or economically challenged. Special attention in this area is required to bring the network up to ADA standards for better, more proficient, physical access. Developing the network into economically-challenged areas will ensure equitable access for all citizens.

Land Use

Land-use policies and regulations have a strong influence on promoting walkable communities. Sidewalk connections from residential, retail and other destinations are crucial links in a City-wide pedestrian/cycling network. If pedestrian facilities are not required, developers may be discouraged from incorporating these facilities in future projects, thus leading to gaps in the network. The City of Bristol should study its zoning and subdivision ordinances regularly to ensure that developers adhere to policies and regulations which...
create more pedestrian-friendly environments.

Along with this Trails and Greenways Master Plan recommendations from the 2008 Pedestrian and Bicycle Plan and 2014 Parks and Recreation Master Plan should be consulted when deciding how to develop future pedestrian and bicycle transportation improvements. This is especially true as new developments (both residential and commercial) are proposed. Accessible sidewalks should always be required for new streets, improved streets, or street extensions. Although developers may argue that this requirement increases development costs, this requirement will continually enhance and promote the pedestrian network established by the City.

This plan and the existing pedestrian plan recommend regulations that require sidewalk facilities for any renovations and/or additions to existing structures. Providing safe use of Bristol’s trails, greenways and sidewalks begins when the user leaves the places they live, work, etc.

As urban commercial in-fill properties redevelop, sidewalks should be constructed within these projects. In some instances, these sidewalks may still be disconnected, but as these developmental projects continue, they will enhance pedestrian connectivity and reduce costs for the City.

This allows the City to have control over current and future construction and maintenance of the pedestrian facilities. It also allows the City to develop facilities in a continuous and efficient way; preventing the pedestrian facilities from being removed by the developer. The requirement of sidewalk construction “fee in lieu of construction” should be included in the zoning ordinances and the subdivision regulations.

Although the City of Bristol should be flexible with development opportunities, the City must require the developer to provide rights-of-way or easements for pedestrian facilities, including proposed greenway trails. All development approved by the City, should include the accommodation of pedestrians by the developer(s). These steps are critical links in a future, well-designed alternative transportation network for Bristol’s residents and visitors.
6.3 FACILITY RECOMMENDATIONS AND ACTION ITEMS

The following recommendations are intended to help the City of Bristol create and maintain a pedestrian route network that strengthens the local communities of the City by connecting to existing and future parks, shopping centers, government offices and businesses.

Health Related Recommendations

1. Work with local organizations and the City Administration Department to educate and encourage citizens to include walking as a part of a healthy living plan. (See resources in Section 6.4)

2. Encourage schools to develop walking programs to promote healthy exercise among their students.

Safety Related Recommendations

3. The City should work with the Bristol City Schools and the Sullivan County School System to ensure that future schools in and adjacent to the City have a strong emphasis on non-vehicular transportation, such as walking, bicycling, skating, etc. In choosing locations for future schools, emphasis should be placed on positioning the main entrance toward residential neighborhoods rather than major thoroughfares. School programs should promote a "non-motorized" means for transportation for all students, when applicable.

4. Continue to partner with the Bristol City School System in the initiation and implementation of school safety programs for school children.

5. Install marked crosswalks at all major intersections.

6. Evaluate traffic intersections for possible design elements such as extended curbs and refuge islands for pedestrian safety.

7. Consider a City-wide speed limit that requires drivers to lower their speed near residential, pedestrian and bicycle facilities. Make sure that all speed reductions are clearly marked and enforced. It is recommended that residential areas in the City be studied further for traffic calming and speed reductions.
8. Ensure that traffic intersections with pedestrian and bicycling facilities are equipped with efficient lighting.

9. Evaluate pedestrian and bicycle facilities annually for safety issues and implement solutions.

10. Install pedestrian signals at all major intersections.

11. Review the signal timing to ensure that pedestrians have adequate crossing times at intersections.

12. Consider audible pedestrian signals near senior centers and other high volume pedestrian locations.

13. Consider using “countdown” pedestrian signals near high pedestrian volume locations such as those along Volunteer Parkway, State Street, and near the Pinnacle shopping area.

14. Provide a planting strip between sidewalks and roadways for street trees and low planting, where possible.

**Connectivity Related Recommendations**

15. Provide pedestrian connectivity along existing thoroughfares such as Volunteer Parkway, Pennsylvania Avenue, Virginia Avenue, King College Road, Edgemont Avenue, Bluff City Highway, and Old Jonesboro Road.

16. New commercial and residential development should connect to the Bristol Trails and Greenways system. This includes internal pedestrian walk-ways connecting the development to the external sidewalk network in the public rights-of-way as well as future development. If a residential or commercial development is located where there is a planned pedestrian project, an easement must be dedicated for the future shared-use.

17. Coordinate planning efforts with County and nearby jurisdictions to provide regional pedestrian facility connectivity.

18. Require developers to provide pedestrian connectivity to adjacent developments and destination areas.
19. Prioritize Trail and Greenway implementation where gaps in the existing pedestrian and bicycling routes are located such as along the Mark Vance Greenway, and where there is a high volume of pedestrian activity.

20. Connect local businesses to the Bristol Trails and Greenways system.

**Regulations Related Recommendations**

21. Bristol should adopt language in the City’s Zoning Ordinance and Subdivision Regulations that requires sidewalks. Exceptions may be considered on a case-by-case basis due to such considerations as difficult terrain, inadequate width, or exponential costs.

22. City ordinances and plans should be updated to reflect pedestrian plan recommendations and proposals.

23. Update local traffic intersection guidelines to meet current state and federal requirements.

24. Develop design standards for the placement of utilities (power poles, telephone poles, sewer inlets, etc.) so that they do not impede pedestrian/bicycle traffic. This should be a part of the City’s Code of Ordinances.

**Trail Development Related Recommendations**

25. Develop a system of way-finding signage for pedestrian facilities and greenways that is consistent with City standards.

26. Construct pedestrian facilities as identified on the Proposed Corridors Maps (Maps A, B, C and D) and according to the prescribed guidelines found in section five of this document. Alignment for facilities may require adjustment in order to meet necessary requirements.

27. Work closely with the local Metropolitan Planning Organization (MPO) to ensure sidewalk projects are included in all TDOT roadway projects.

28. Establish regular reviews for the annual budget for sidewalk repair and expansion to obtain connectivity goals.
29. Provide pedestrian scale lighting at regular intervals where there is pedestrian activity at remote areas and traffic intersections.

30. Ensure that all new construction projects are installed and meet all design requirements adjoining the Trails and Greenway system.

31. Seek funding opportunities which help with design assistance and implementation of traffic and pedestrian signals where trails, sidewalks and greenways intersect with roads.

32. Continue to implement sidewalk and greenway facilities that include ADA accessibility, marked crossings and pedestrian & bicycle safety signage.

33. Develop environmental, historical, cultural and artistic education and interpretive facilities, particularly along greenway corridors.

34. The City should coordinate the placement of all traffic and pedestrian signs with Sullivan County and TDOT as necessary. Such coordination should include the replacement and/or repair of damaged or aged signs.

**Maintenance of Existing Facilities Related Recommendations**

35. Maintain and repair existing sidewalks to current standards ensuring that facilities are safe and free of obstacles and debris.

36. Repair all non-compliant pedestrian facilities and ensure that all new facilities provide ADA accessibility to meet current ADA standards.

37. All maintenance should follow TDOT standards, including the removal of unused or non-conforming driveway cuts.

38. Create a maintenance program which monitors existing sidewalks for damage and fills in gaps in the pedestrian system that meets current standards.

39. All existing and proposed bike routes should periodically be assessed for regular maintenance including removal of road debris, rocks, fallen branches, trash and other hazardous conditions.
6.4 PROGRAM RECOMMENDATIONS

The City of Bristol should encourage local schools to educate and enforce education programs that promote safety to ensure the success of the City’s pedestrian network for the future. The recommended programs will be successful in serving the City’s need to support pedestrian activity.

Safety Education Programs

School-based programs that stress safety should be implemented regularly, particularly for young children. The promotion of ‘walking to school initiatives’ will raise public awareness of child safety and instruct children in the proper usage of sidewalk and other pedestrian facilities, whether walking to school or to the bus stop. Local police departments typically are willing to provide such safety programs. Police officials go to the schools and educate children on the proper use of sidewalks and street crossings. Most importantly, young pedestrians need instruction on how to cross streets safely and how to interact properly with vehicle traffic.

Traffic Safety

The National Highway Traffic Safety Administration (NHTSA) has a web resource for promoting traffic safety, including pedestrian safety. The site provides research and information on the following related topics:

- Preventing pedestrian casualties
- Walkability checklist
- Child safety
- Walking to school

Other topics that are beneficial in developing a safety education program.

Pedestrian Safety Action Plan

The Pedestrian and Bicycle Information Center (PBIC) has materials to help communities and organizations develop Pedestrian Safety Action Plans (PSAP). There are several safety training courses available on their website. These courses are designed to help communities develop and implement safe pedestrian networks.
Safe Routes to School

Safe Routes to School (SRTS) is a program meant to encourage students to walk or bike to school safely. Information can be found at TDOT’s website.

The program is designed to improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools. The TDOT Grant Program provides federal funding for the construction and infrastructure of sidewalks and bike lanes sited within a two (2) mile radius of a nearby school facility. This program also provides for the education and encouragement of communities in the planning and construction of pedestrian facilities for their neighborhoods.

Safe Kids Walk this Way

A program sponsored by Safe Kids USA; “Safe Kids Walk this Way” strives to teach safe behavior to both motorists and children; and to promote safe, walkable communities to all walks of life. The program promotes safe walking events for children, provides research, participates in the International Walk to School Day (IWSD) in October each year and promotes school-based pedestrian safety committees. For additional information, please visit the Safe Kids Walk this Way website.

Other Education Resources:

- Turner-Fairbank Highway Research Center – Pedestrian and Bicycle Safety: Articles, facts, issues, publications, research, resources, and links to other sites.

- Federal Highway Administration (FHWA) Pedestrian and Bicycle Safety; materials, research, facts, and information on a variety of topics dealing with pedestrian safety.

- PedNet: Pedestrian advocacy group in Missouri. Their website is a useful tool for creating other like-minded groups.

- The National Center for Bicycling and Walking (NCBW): Offers publications for promoting walking as a healthy lifestyle.

- The Active Living Resource Center has a website to encourage the development of active neighborhoods by increasing the walkability of the community.
Encouragement and Promotion

There are many initiatives that should be considered and implemented by the City of Bristol to promote pedestrian activity. Likewise, health-based organizations, employers, and civic organizations should offer incentive programs to encourage walking, bicycling and physical fitness in general. Programs such as ‘walk or bike to school days’ and ‘visiting area walking facilities’ can encourage walking, and also encourage residents to use areas they may not know are available.

Other means to encourage and promote the City as a walkable community include:

- Publish and distribute a City walking guide brochure that covers the area’s highlights, safety tips, suggested walking routes, and pedestrian rights and responsibilities.
- Promote neighborhood walks and nature walks.
- Promote walk-for-health programs with local churches, businesses, and recreation centers.
- Organize walk or bike-to-work or school days/weeks.
- Promote walking tours in the City by providing historical/directional maps.
Walk to School Initiative

The National Center for Safe Routes to School and the Tennessee Department of Transportation Safe Routes to School encourages “walk to school” events every October. These events are seen as a preliminary step in changing the attitude of people towards increased pedestrian activity. The *International I Walk to School in the USA* website has suggestions for events and classroom lesson plans for promoting the walk to school initiative.

Mature Adults - Be Healthy, Walk Safely

A resource for mature adults by the National Highway Traffic Safety Administration (NHTSA), this web brochure provides tips for developing a personal walking exercise program and safety guidelines for dealing with traffic.

Enforcement Programs

A prominent issue that was echoed at public meetings was the concern of vehicular traffic verses pedestrian traffic in regards to law enforcement. For decades, the law has stated that pedestrians have the right-of-way; however, many drivers ignore this law. To ensure safety it is recommended that this law be enforced. It is also recommended that local law enforcement organizations ensure that all officers are fully knowledgeable on pedestrian laws.

Vehicular speed limits must also be enforced. Studies have proven that motorists’ speeds are directly related to the number of pedestrian deaths that occur each year. Reduced speeds give pedestrians more time to react in a timely manner. When pedestrians feel “unsafe”, they tend to avoid areas where traffic laws are not enforced.
Expanding Bicycle-Based Public Safety

The Bristol Police Department utilizes two bicycle-based public safety officers at some annual special events. For trails and recreation areas at Steele Creek Park, the Police Department employs ATV based patrols. The City should consider expanding the use of non-traditional, bike-based patrols as the Greenway and Trails network continues to develop. The environmental benefits of visible public safety officers on bikes include: improved community relations, cost savings, and faster officer response times on trails not located near and roadways. Bike-based patrols also allow police officers to develop a better relationships with neighborhood residents.

Police officers on bicycles can become a major factor in ensuring safe pedestrian practices on the streets of Downtown, during community and school events, and as a part of a possible future greenway system. As the pedestrian network expands to include schools within the City, it will be necessary to ensure safety oversight at school crossings in addition to other areas within school zones. Crossing guards should be present at all official school crossings, along with approved school crossing signage and signals. The crossing guards should be trained using TDOT’s Crossing Guard Training Program.

The police department should provide a regular schedule of oversight concerning traffic during school hours in all school zones. Any infractions within the school zone must be penalized to discourage future infractions and to help ensure the safety of the children as well as the adults.

Developing a Hard Surfaced Trail

Part of safe pedestrian and bicycle program includes developing a standard type of greenway trail that users clearly can identify. A typical greenway trail is between 8’-12’ in width and paved with asphalt. However, trails may also be constructed from gravel fines using an ADA approved binder material. This plan proposes that where possible, the City should consider constructing all new greenway trails using a standard cross-section.
Three different examples of a standard cross-section detail for a typical paved greenway trail are provided below. The first image is a trail adjacent to a paved driveway. The second image shows a generic section of greenway that could apply to many different locations, and the last image shows a greenway trail adjacent to a gravel roadway.
“Give me odorous at sunrise a garden of beautiful flowers where I can walk undisturbed.”
- Walt Whitman
SECTION SEVEN: PROJECT DEVELOPMENT

Previous sections of the Bristol Trails and Greenways Plan provided a vision for a comprehensive trails and greenways system for the City of Bristol. Section 7 of the Plan provides a blueprint to assist in implementing that vision. Section 7 identifies specific opportunities/strategies and provides a series of action steps to guide the City as it begins to execute the Plan. The projects proposed in Section 4 are prioritized in this section in order to present the City with a project schedule that is manageable. This section concludes with ideas and sources for funding the projects.

7.1 OPPORTUNITIES AND STRATEGIES

The most apparent opportunities in Bristol are: 1) Bristol currently has an existing network of pedestrian facilities already in use. 2) The existing facilities consist of a well maintained network of pedestrian pathways, sidewalks and trails with numerous potential destination points which are currently attracting pedestrian traffic. 3) People in the community continuously in use of the existing facilities making it easier to promote the expansion of the network into a safer and more comprehensive connected trails and greenways system.

A strongly committed group of individuals interested in the development of a pedestrian and bicyclist friendly trails network for the City of Bristol could lend strong support to this plan. City staff and users of the existing pedestrian network provide the City of Bristol with a dedicated core group of advocates who can promote the plan and recruit needed volunteers and supporters.

Previous initiatives such as those undertaken by the Bristol Parks and Recreation Department, have provided Bristol with a network of trails that can be connected by an expansion of existing greenways, new greenways, and bicycle and sidewalk projects.

By embracing past initiatives and working with other regional organizations, the City of
Bristol can connect to regional pedestrian trail and greenway systems of neighboring communities, such as Kingsport and Johnson City. This type of future expansion increases walkability and quality of life for everyone in the region.

A major opportunity recognized by City staff for this plan is to use the existing utility (gravity sewer) and other easements to help locate the easiest routes for new greenway trails. Other possible locations were also considered such as abandoned rail line corridors, Tennessee Valley Authority (TVA) power line easements and roadway rights-of-way. These efforts help to minimize the need for acquiring easements through private property owners, which mitigates planning complications and costs.

### 7.2 ACTION STEPS

In order to implement the Bristol Comprehensive Trails and Greenways Master Plan, the following steps should be followed:

**Adopt the Plan** - Adoption of the plan will allow the City of Bristol to effectively influence regional decisions allowing the City and region to come into agreement with the goals set forth in the plan. Adopting the plan will also provide the City with greater authority to shape local land-use decisions.

**Create an Oversight Committee** - An Oversight Committee consisting of City staff and representatives from various other staffs such as the Bristol Metropolitan Planning Organization (MPO) which can help to oversee the implementation of the plan.

**Develop a Funding Strategy** - The Funding Strategy should allow the community to incrementally complete each of the suggested pedestrian facility improvements over a ten-year (10-year) period. Opportunities are listed below:

- The Capital Improvement Plan (CIP) needs to include yearly appropriations for sidewalk, crosswalk and greenway development.
- The annual operating budget needs to include monies for minor construction and maintenance of pedestrian facilities.
- The City should consider issuing a local municipal bond with funding allocated towards the pedestrian system.
- Actively pursue the addition of roads within the City via Tennessee Department of Transportation’s (TDOT) Transportation Improvement Program (TIP) program for sidewalk and greenway development and improvement.
- Community Development Block Grants (CDBG) can provide funding for capital improvements such as sidewalks and greenways in low-income neighborhoods.

- Pursue funding from the sources listed in Section 7.6 Funding Opportunities.

- Begin improvements and/or new construction. The work on the project(s) should begin with those listed as High Priority in Section 7.6

- Develop education and awareness programs. These programs will help to inform the public about the proposed projects and increase public support for them while strengthening enforcement and encouragement programs (See section 6 and 7.4).

- Acquire property and/or easements. Develop a plan for acquiring the land and easements necessary for future portions of the Bristol Greenway System.

- Work with other government agencies such as with Bristol MPO, Bristol Tennessee and the State of Tennessee to integrate the City of Bristol's Trails and Greenways Plan with other transportation, land use, economic development, parks and recreation, environmental, and community planning efforts.

- Update the City of Bristol's Zoning Ordinance to contain strong, carefully considered regulations that will promote the development of pedestrian facilities as part of any new development or redevelopment.

- Connect to adjacent facilities. Schedule road or utility work to include improvements and additions to the adjacent pedestrian network, where possible.

- Identify supporting policies and guidelines.

  - The TDOT Multi-modal Transportation Resources Division (TDOT-MTRD) has published a guidebook called Tennessee Traffic Laws Relating to Bicycles. This guidebook was created for motorists and bicyclists, with regard to bicycle/pedestrian laws. This informative resource pertains to responsibilities for bicyclists and motorists. This guide should be incorporated into the standards for the City of Bristol and incorporated into the school system as a valuable tool for teaching public safety to school children.
The TDOT-MTRD published a multi-modal access policy in 2015 which highlights the expectations for pedestrian/bicycle integration of multi-modal facilities into the transportation system as a means to improve the mobility, access and safety of all users. The intent of this policy is to promote the inclusion of multi-modal accommodations in all transportation planning and project development activities at the local, regional and statewide levels to develop a comprehensive, integrated and connected multi-modal transportation network.

TDOT will collaborate with local government and regional planning agencies through established transportation planning processes. This ensures that multi-modal accommodations are addressed throughout the planning, design, construction, maintenance, and operation of new construction, reconstruction and retrofit transportation facilities as outlined in TDOT’s Multi-modal Access Policy Implementation Plan.

The street design guidelines need to conform to TDOT standards. In addition to TDOT standards, the Manual on Uniform Traffic Control Devices (MUTCD) should also be a reference for projects, particularly existing roadways that have not conformed to these standards. Areas such as traffic intersections will need to incorporate these guidelines for future improvements.

The American Association of State Highway and Transportation Officials (AASHTO) has published the “Guide for the Planning, Design, and Operation of Pedestrian Facilities”. Specifically, the guide focuses on identifying effective measures for accommodating pedestrians on public rights-of-way.

Develop an evaluation/monitoring process. Each year the City should evaluate the progress made in implementing proposed improvements suggested in this Trails and Greenways Plan. This evaluation should not only include new facilities, but repair of existing facilities, and an evaluation of program and policy recommendations. At the beginning of the budget process for the next fiscal year, the City should determine the projects to be implemented for that year. In some cases, there may be large projects that will limit the number of tasks the City can feasibly commit to when executing.

The listed action steps should be considered for annual tasks and projects, stemming from these recommendations and should be scheduled for annual review. The City of Bristol staff should work closely with the TDOT, and Sullivan County.
7.3 PRIORITIZATION OF THE PROPOSED PEDESTRIAN NETWORK

Proposed projects, and recommended facilities maps are located in Section 4. The recommended facilities maps graphically provides the locations of the proposed projects listed in the corridor priority calculator found in this section. The proposed projects are listed by priority, and location. The Corridor Priority Calculator helps to analyze and compare important factors of each project which lead to each project’s ranking from high to low. Opinions of probable costs are provided in section 7.4.

The City of Bristol and TDOT are the primary agencies that will be involved with these pedestrian improvements. Many of these facilities are located on TDOT public rights-of-way and are eligible to receive funding for TDOT improvements. As new development or redevelopment occurs, it will be important for the City of Bristol to require the owners to implement the appropriate pedestrian facilities, as necessary.

The priorities of the Trails and Greenways Plan are divided into three (3) categories of priorities: high, medium, and low. The corridor priority calculator was used in determining the priority ranking of each project. The corridor priority calculator was based on three (3) overarching factors: safety and connectivity. An optional weighted variable is provided within the calculator. The weighted variable is intended to accommodate unknown information, however was not used in the prioritization calculations.

Pedestrian & bicycle corridors were given a numeric value in each category. The total number of points provided a ranking to each corridor. The corridors were then grouped by approximate thirds to determine high, medium, or low ranking. The proposed routes mapping is divided into four maps for each quadrant of the City. Please refer to these maps in section 4.

Please see the Corridor Priority Calculator on the next page.
### City of Bristol, Tennessee

#### Bristol Comprehensive Trails and Greenways Master Plan

**Corridor Priority Calculator**

<table>
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<tr>
<th>Point Range</th>
<th>Existing Corridor Condition</th>
<th>Accessible Facilities</th>
<th>Bicycle Pedestrian Signage</th>
<th>Traffic Volume</th>
<th>Traffic Speed</th>
<th>Pedestrian Crashes</th>
<th>Safety Score</th>
<th>Weighted Variable</th>
<th>Schools</th>
<th>Medical Facilities</th>
<th>Recreation/Leisure</th>
<th>Retail Centers</th>
<th>Downtown</th>
<th>Connectivity Score</th>
<th>Total Score</th>
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#### Proposed Greenways

**High Priority**

- King College Greenway: 1 1 1 2 2 1 0 0 10 2 3 1 2 24 32.0
- Rooster Creek Greenway: 1 1 1 1 0 0 0 0 11 2 2 3 2 22 28.0

**Medium Priority**

- S.R. 341 Greenway: 1 1 1 3 4 4 2 14.0 0 1 1 2 2 1 6 20.0
- Mountain Trail Greenway: 1 2 2 4 4 1 2 14.0 0 2 1 2 1 6 20.0
- Cedar Creek Greenway: 1 1 1 1 1 1 1 6.0 0 2 3 3 1 13 19.0
- Martville Greenway Extension: 1 1 1 1 2 2 1 8.0 0 1 1 3 1 2 11 19.0
- Virginia Avenue Greenway: 1 1 1 2 2 3 1 10.0 0 4 1 1 1 2 0 19.0
- Aprea Greenway: 1 1 1 1 1 1 1 6.0 0 4 1 1 1 1 10 18.0
- South Holston Dam Greenway: 1 1 1 1 1 1 1 6.0 0 4 1 1 1 1 10 18.0
- Pinnacle Greenway: 1 1 1 1 1 1 1 6.0 0 4 1 1 1 1 10 18.0
- West Drive Greenway Extension: 1 1 1 1 1 1 1 6.0 0 4 1 1 1 1 10 18.0
- Linking Creek Greenway: 1 1 1 1 1 1 1 6.0 0 4 1 1 1 1 10 18.0
- Post Road Greenway: 1 1 1 1 1 1 1 6.0 0 4 1 1 1 1 10 18.0
- Old Johnsons Road Greenway: 1 1 1 1 1 1 1 6.0 0 4 1 1 1 1 10 18.0
- Vance Trail Road Greenway: 1 1 1 1 1 4 1 8.0 0 1 1 2 1 1 5 14.0

**Low Priority**

- Carbon Hollow Greenway: 1 1 1 3 1 4 1 6.0 0 1 1 1 1 1 5 13.0
- Fairview Road Greenway: 1 1 1 1 1 3 1 6.0 0 1 1 1 1 1 5 13.0
- South Camden Greenway: 1 1 1 1 1 1 1 6.0 0 1 1 1 1 1 5 13.0

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**Safety**

- **Existing Ped/Bike Corridor Condition**: 1=Home/Poor, 2=Fair/Incomplete, 3=Good
- **Accessible Facilities**: 1=Home, 2=Exits
- **Bicycle/Pedestrian Signage**: 0= None, 1=Arrows
- **Traffic Volume**: 0=12,000 or less, 1=12,001-19,999, 2=20,000-29,999, 3=30,000-39,999, 4=40,000-49,999, 5=50,000-59,999, 6=60,000-79,999, 7=80,000 or more
- **Traffic Speed**: 0=35 mph, 1=35-45 mph, 2=45-54 mph, 3=55-64 mph, 4=65-74 mph, 5=75-84 mph, 6=85-94 mph, 7=95-104 mph, 8=105 or more
- **Pedestrian Crashes**: 1=10 crashes, 2=11-29 crashes, 3=30 or more crashes

**Weighted Variable**

- **Schools**: The number of schools located along the corridor (1-4)
- **Medical Facilities**: 1=Home, 2=Exits, 3=Private, 4=Public, 5=Hospital or IMS station
- **Recreation/Leisure**: 1=Home, 2=Park/Recreation facility, 3=2 or more park/recreation facilities
- **Retail Centers**: 1=Home, 2=1-4 retail locations, 3=5-9 retail locations, 4=10 or more retail locations
- **Near Downtown**: 1=Not in downtown, 2=Within downtown

The higher the overall score the higher the priority for bicycle/pedestrian facilities, thus higher the priority rating.
Priority Calculator Results

High Priority Projects

Corridors receiving the highest priority ranking typically have:

- A high number of pedestrian generators along the proposed corridor
- A lack of existing sidewalk connections or bike lanes forcing pedestrians and less-experienced cyclists onto open roads with medium to high volumes of traffic
- Proposed greenways near highly traveled roadways
- Lack of existing safety and accessibility amenities at existing intersections

The High priority projects include:

- King College Greenway (6.2 miles)
- Beaver Creek Greenway (5.8 miles)

Moderate Priority Projects

Moderate priority projects support a cohesive pedestrian network by serving to connect common destinations with areas where people live, work and play.

Moderate priority projects include:

- S.R. 394 Greenway (11.6 miles)
- Cedar Creek Greenway (9.0 miles)
- Blountville Highway Greenway (4.7 miles)
- Avoca Greenway (3.6 miles)
- South Holston Dam Greenway (3.4 miles)
- Pinnacle Greenway (2.8 miles)
- Mark Vance Greenway Expansion (1.9 miles)
- Virginia Avenue Greenway (1.6 miles)

Low Priority Projects

The final category contains the low priority corridors. These projects are important to the City’s trails and greenways system, but due to the economic realities of managing the high and moderate level projects, it may not be feasible to implement these facilities within the typical 10-year time frame for a Trails and Greenways Plan. These facilities are located primarily in residential neighborhoods and connect to other existing/proposed...
sidewalks, trails, greenways, or destinations that are of high or moderate priority. A long range time period will be allowed for the implementation of pedestrian facilities in the low priority areas. As different areas in and around the City of Bristol develop, priorities may change in the coming years.

- Sinking Creek Greenway (4.6 miles)
- Wellmont Greenway (4 miles)
- Old Jonesboro Road Greenway (4 miles)
- Vance Tank Road Greenway (3.6 miles)
- Carden Hollow Greenway (3.2 miles)
- Raytheon Road Greenway (2.9 miles)
- Wes Davis Greenway Expansion (2 miles)
- Fourth Street Greenway (0.9 miles)

The proposed improvements combine planning initiatives from other agencies (TDOT) that affect the City of Bristol. It will be essential to continue cooperation with TDOT and other entities that can enhance the pedestrian network within the City of Bristol and the surrounding communities. As additional needs are identified, communication with these agencies will help with the coordination of future projects. The Bristol Trails and Greenways Plan proposes numerous pedestrian/bike corridor projects composed mainly of paved greenways. In order to develop an action plan that is manageable, the recommendations should be separated into projects that will be implemented on an annual basis. Each fiscal year, the City of Bristol should identify specific projects and allocate funding for them. There are numerous funding mechanisms to assist with costs. The acquisition of funds will be an important component in the completion of the identified projects.

The priority list identifying specific greenway corridors can be found in the previous pages of this section. While all the proposed corridors are “greenways”, other treatments such as gravel trails, and separated bike/multipurpose paths may also be considered. The City of Bristol should periodically evaluate area residents’ inclinations and budgetary realities when preparing to begin any of the greenway projects recommended within this document. Guidelines for the construction of greenways, separated bike lanes/multipurpose paths, and sidewalks, can be found in Section 5: Design Guidelines. Due to the fact that many of the proposed facilities are located on TDOT roadways, the City of Bristol will need to receive an approval for all permitting and construction documents for this work prior to construction. Opinions of probable cost for each proposed greenway trail can be found in the opinions of probable costs found in section 7.4.
The Bristol Trails and Greenways Network

The trails and greenways proposed in the Bristol Trails and Greenways Plan are designated mainly as off-road construction projects. These trails are typically paved 8 to 10 feet wide and allow biking, which is not permitted on downtown sidewalks. “Off-road” means that the trail is not part of the shared roadway pavement, although some proposed trails may closely parallel the roadway.

This Trails and Greenways Plan proposes expanding the existing greenway corridor, creating a network that can connect into similar projects, initiated by immediate neighboring communities. The completion of these projects would prove to be an important asset to both the City of Bristol and neighboring communities. By providing clear and safe routes between area towns, planning jurisdictions, and the City of Bristol, thus creating a possible attraction that could increase the number of visitors to the area. In order to proceed with such projects, the City should collaborate and cooperate with local land owners and explore possible routes along utility easements or other available land before further developing these kinds of multi-purpose pathways. To help understand the possible costs associated with these projects, the opinions of probable costs table provides a list of proposed greenway corridors and the probable construction costs for each.

Many of the longer greenway trails have been divided into logical segments to help with future decision making regarding how to phase construction and manage costs. The costs used were typical as of the time this document was written. This table is meant to supplement careful study and due diligence by the appropriate City departments handling each project. Construction and material costs change thus adjustments to opinions of costs will need to be updated. Per City Staff recommendations, this plan treats each proposed pedestrian/bike corridor as a “greenway”. However, other trail/path treatments may be considered which may vary final project costs. It is recommended that the each individual project be evaluated for which trail type would be most appropriate. Final construction cost estimates should be based on final trail design and construction documents as prepared by licensed site designers.

7.4 ANCILLARY FACILITIES AND PROGRAMS

There are many ancillary facilities and programs that Bristol can initiate or participate in. Many of these initiatives are relatively inexpensive. Signing, mapping projects and safety/enforcement programs can be performed through in-house services. Partnering with other organizations such as the Sullivan County Regional Health Department and Bristol City Transit (Bristol Public Services Division - Bristol City Transit) as well as the
Bristol Tennessee School System, Bristol Regional Medical Hospital, other civic groups and health-based companies will allow promotional programming and transit interface programs.

**Expanded Transportation Options**

Collaborative efforts to expand existing transportation services like bike and ride options, the addition of bike racks, service stations, park and ride lots located at or near an already popular transit stops would increase ease of use of greenways and bike paths for bicycling commuters. An expansion in the transit system should correspond with the needs of residents. The needs of residents should be accessed annually in order to keep up with the growth and popularity of trails, greenways, and bike paths.

**Education Programs**

Several state and national program guidelines are available for educating the public about pedestrian safety (see Section 6). These programs focus on law enforcement, pedestrians and drivers. The City of Bristol should continue to work with the Bristol City Schools and the Bristol Police Department to provide safe walking programs specifically designed for the children and senior adults of Bristol. Some of the available resources are the National Center for Safe Routes to School which offers a number of additional resources and information on starting a Safe Routes to School program.

Another popular program under the auspices of the National Center for Safe Routes to School is the Walking School Bus. This program combines safety, community awareness, healthy exercise and fun to help educate children and adults on pedestrian safety.

**Greenways 101**

The publication release of Greenways 101 is a collaboration of the Tennessee Department of Environment and Conservation (TDEC) in partnership with the Commissioner’s Council on Greenways and Trails Development Committee and the Tennessee Division Office of the Federal Highway Administration.

This document provides an overview of the process of developing a hard surfaced trail with examples of greenway crossing methods and typical greenway cross-sections.
## Comprehensive Trails and Greenways Master Plan 2017
### Preliminary Opinions of Probable Costs

#### High Priority Greenway/Trail Projects

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### Subtotal Greenway/Trail Improvements

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Healthy Communities Program

The City of Bristol, the Sullivan County Regional Health Department and Bristol Regional Medical Center should consider a joint effort in promoting and expanding the Health Department’s wellness goals and programs. A Healthy Communities program encourages walking as healthy exercise. This program should recruit churches, civic organizations and neighborhood associations to organize and promote walking for better health. The program should also include pedestrian education efforts designed to include under-represented groups like minorities and the poor.

Way-finding

As pedestrian facilities are completed, they need to be incorporated into the way-finding system for the City. Updated walking maps that highlight pedestrian routes should be developed as needed to educate pedestrians as to the various routes available. Maps of primary pedestrian corridors can be made available at local government and retail centers. A uniform system of signage should be installed to direct pedestrians to destination points. Traffic signs should be installed that alert motorists to the pedestrian network (see Section 5: Design Guidelines.)

Spot Improvement and Maintenance Program

A Spot Improvement and Maintenance Program is recommended and would most likely be the responsibility of the Parks and Recreation Department with cooperation from the City of Bristol Public Works. The City needs to develop a regular schedule of inspection and repair to the various elements of the pedestrian network including sidewalks, crosswalks, signage, and street furniture. In addition, the department alone can direct several of the spot improvements on the proposed project list.

Some of the tasks that can be undertaken by the Parks and Recreation Department include:

Greenway trails are “off road” construction projects.
• Repair retaining walls
• Install, repair, or replace signage
• Remove (or supervise removal) of litter and debris
• Maintain landscaping
• Inspect/repair pedestrian amenities (benches, trash receptacles, etc.)
• Repair/install small areas of sidewalk or multi-purpose trails

7.5 STAFFING

Sidewalks are “on road” construction projects

The City Manager, Park and Recreation, Public Works and Planning Departments will serve as the major catalysts for the development of Bristol’s pedestrian system. These departments will guide the City in the planning, design, construction, and funding of pedestrian facilities. They will also facilitate cooperation between the various agencies.

The City Public Works Department will be a vital component in the implementation of projects and in the maintenance of those facilities that are the City’s responsibility. The Planning Commission, Parks and Recreation Commission, and City Council will need to be advocates of Trails and Greenways Planning. Each fiscal year, the City should implement pedestrian improvements as part of the City’s general budget.

The Trails and Greenways Plan was guided by City Staff who were an essential component in developing recommendations for the Comprehensive Trails and Greenways Master Plan. It is recommended that an ongoing Oversight Committee be formed to evaluate the pedestrian facilities and programs on an annual basis. An evaluation program is too comprehensive for just one individual to perform; such a program will require a group working together to conduct the evaluation. The Oversight Committee should also be responsible for recruiting volunteers and civic groups to assist with programming and simple maintenance tasks. Maintenance issues and problems can often be addressed through the Oversight Committee and in turn, can inform the City of complaints from local residents and visitors.

The Bristol Police Department will continue to assume tasks related to pedestrian safety. This includes total enforcement of traffic and pedestrian laws, along with education, and
crime prevention.

The Department should also continue to maintain a record of all accidents involving pedestrians in order to address necessary improvements to the pedestrian network that might develop after the adoption of this plan.

7.6 FUNDING OPPORTUNITIES

Funding for the implementation of proposed projects can be overwhelming particularly with increasing construction costs, therefore, prioritization will aid in the completion of the proposed tasks. The projected construction cost estimates for all the proposed sidewalk projects is summarized in the table below.

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<td>Low</td>
<td>$5,143,640</td>
</tr>
<tr>
<td>TOTAL</td>
<td>$55,199,500</td>
</tr>
</tbody>
</table>

A more detailed listing of the greenway projects, their priority status and approximate costs can be found in section 7.4.

The function of the corridor priority calculator is to help determine what pedestrian projects may be most essential or have the largest positive impact on existing pedestrian circulation. The projects with the highest priority ranking should be considered as the initial improvements made by the City. Economic, environmental and political changes will unavoidably occur in the future, therefore the calculator results should only serve to guide the City in deciding what projects to pursue. Spot improvements such as clearing for trails, installation of gravel paths, crossing signage and lane painting, construction of ADA compliant curb ramps, repair to exiting damaged sidewalks and other small trail and sidewalk projects can be accomplished by City staff, which will dramatically decrease the costs of these projects.
The cost of the trails, greenways, sidewalks, and bike paths will vary depending upon the choice of contractors, the scope of each different project, and the cost of materials. The probable costs associated for implementing just the high priority projects is $8,931,820 which is a major investment in the quality and quantity of Bristol’s trails and greenway system.

Funding will be a large component in the process of developing Bristol’s pedestrian and bicycle facilities. The City will need to be aggressive in applying for funding every year for individual projects. Monies can be a combination of grants, contributions, bonds and other methods. The cost of asphalt paving, curbs, ADA ramps, crosswalks, pedestrian signals and traffic signals can occasionally be shared with TDOT. In addition, proposed improvements that cross into or may be part of a larger TDOT project can be funded as an “incidental” project by TDOT. The City needs to work with TDOT to have them install the proposed intersection improvements such as curb ramps, crosswalks and signalization as approved by the City.

Grants in particular, will be an important mechanism for funding. The projects, which are to be submitted for grants, need to reflect the objectives specified with each individual grant. Grants are typically oriented toward connectivity to a specific arena such as education, recreation, or safety.

A variety of funding opportunities are available to Bristol as the City prepares for future improvement/development of its pedestrian system. Among these opportunities include, the City of Bristol’s Capital Improvement Program, Bristol MPO, Blue Cross Blue Shield of TN Foundation and the Robert Wood Johnson Foundation. The list on the following page shows funding sources that have been utilized by other communities for pedestrian and bicycle projects.

- Bonds
- Grants
- User Fees
- Contributions
- Foundations
- Taxation

**Bonds**

Many communities issue bonds, which are typically approved by the shareholders, to finance site development and land acquisition costs. Total bond capacities for local governments (for pedestrian facilities) are limited to a maximum percentage of
assessed property valuation. Since the issuance of bonds relies on the support of the voting population, the implementation of awareness programs are essential prior to a referendum vote. This method can be used for specific projects such as the creation of multi-purpose trails within a greenway.

**General Obligation Bonds**

General Obligation Bonds are the preferred financing approach by the Tennessee Local Government Commission and the general securities market because these instruments are backed by the full faith and credit of the issuer. This simply means that the bonds are representative of an encumbrance against the property tax based on the issuing jurisdiction and therefore, offers the best available security to the bond holder. The State of Tennessee gives the issuance of bonds that are not to exceed the total cost of improvements, including land acquisition. In view of the recommended capital improvements suggested in this plan, the borrowing of funds to develop new facilities may be necessary. Total bonding capacities for local governments is limited for parks and recreation to a maximum percentage of assessed property valuation.

The following are key factors to consider when evaluating the use of General Obligation Bonds for financing:

- The issuance of General Obligation Bonds may require a referendum of the voters within the issuing jurisdiction.

- The term of the debt can usually be extended to 20-30 years.

- The debt is typically publicly sold. Therefore, there are costs associated with the sale that commonly total 3% to 5% of the total bond principal. The issuance costs offset the lower interest rate so this instrument becomes more attractive as the size of the issuance increases and the issuance costs are spread over the larger debt. It has been found that this financing option becomes financially superior as the debt principal exceeds $10 - $12 million.
• Pre-payment of the debt usually cannot be accomplished until reaching a call date, which is normally around 75% of debt retirement.

Failure of the General Obligation Bond to be ratified by referendum typically means that the municipality could not go forward with an alternative approach to financing without substantially changing the scope of the project.

**Special Assessment Bonds**

Special Assessment Bonds are municipal bonds used to fund a project that benefits a specific neighborhood or community. The neighborhood or community then repays the bond through the levy of additional taxes or fees on the property owners who have benefited from the improvements.

**Grants**

State and federal agencies offer funding opportunities to assist municipalities in the financing of their pedestrian projects which includes greenway trails. These sources of funding should unquestionably be investigated and pursued by the City of Bristol when planning for present and future improvements.

**State Agencies**

**Community Development Block Grant**

The Community Development Grant Division is responsible for administering the Community Development Block Grant (CDBG) in the city limits of Bristol, Tennessee. The City of Bristol is classified by the U. S. Department of Housing and Urban Development as an “entitlement” city. Based upon this classification, the city receives an annual allocation of funds to meet one of the following national objectives:

- Provide benefit to low and moderate-income families.
- Aid in the prevention of slums and blight.
- Address other community development needs with a sense of urgency; particularly Connectivity to parks can be funded by grants.
when there is a risk of posing serious or immediate threat to the health or welfare of the community where there are no other financial resources available.

**Tennessee Department of Transportation Grants**

**Bicycle and Pedestrian Independent Projects Funded Through the State Transportation Improvement Program (STIP)**

The Tennessee Department of Transportation has a Multimodal Access policy, adopted on July 31, 2015, designed to encourage safe access and mobility for roadway users of all ages and abilities. TDOT is committed to the development of a transportation system that improves conditions for bicycling and walking through the following actions:

- Provisions for multimodal transportation shall be given full consideration in new construction, reconstruction, and retrofit roadway projects through design features appropriate for the context and function of the transportation facility.

- The planning, design, and construction of new facilities should consider expected future demand for multimodal facilities and not prohibit the provision of future improvements. If all feasible roadway alternatives have been explored and suitable multimodal facilities cannot be provided within the existing or proposed rights-of-way due to economic or environmental constraints, an alternate route that provides continuity and enhances the safety and accessibility of multimodal travel should be considered.

- Existing multimodal provisions along roadways shall not be made more difficult or impossible by roadway improvements or routine maintenance projects.

- Intersections and interchanges should be designed (where appropriate, based on context) to accommodate the mobility of bicyclists and pedestrians when crossing corridors and traveling along them in a manner that is safe, accessible, and convenient.

- While it is not the intent of resurfacing projects to expand existing facilities, opportunities to provide or improve bicycle and pedestrian facilities should be given full consideration during the program development stage of resurfacing projects.

- Pedestrian facilities should be designed to accommodate individuals with disabilities in accordance with the access standards required by the Americans with Disabilities Act (ADA). Sidewalks, shared paths, street crossings (including
over and under crossings) and other infrastructure shall be constructed, so all pedestrians including those with disabilities can travel independently.

- Provisions for transit riders, pedestrians, and bicyclists should be considered when closing roads, bridges or sidewalks for construction projects where pedestrian, bicycle, or transit traffic is predictable, or expected.

There are conditions where it is commonly unacceptable to provide multimodal facilities. These conditions include, but are not limited to:

- Facilities where non-motorized users are prohibited from using the roadway. In this instance, a greater effort may be necessary to accommodate these users elsewhere within the same transportation corridor.

- The cost of accommodations would be excessively disproportionate to the need and probable use. Excessively disproportionate is defined as exceeding twenty percent (20%) of the cost of the project. The twenty percent figure should be used in an advisory rather than an absolute sense, especially in instances where the cost may be difficult to quantify. Compliance with ADA requirements may require greater than 20% of project cost to accommodate multi-modal access. Costs associated with ADA requirements are NOT an exception.

- Areas in which the population and employment densities or level of transit service around the facility do not justify the incorporation for multi-modal alternatives.

- Failure to negotiate and enter into an agreement with local government to assume the operational and maintenance responsibility of the facility.

- Factors where there is a demonstrated absence of need or prudence, or as requested by the Commissioner of the Department of Transportation. Exceptions for non-accommodation of bicyclists and pedestrians in accordance with this policy will be documented, describing the basis for the exception. For exceptions on Federal-aid highway projects, concurrence from FHWA must be obtained.
Pedestrian, bicycle, and shared use path design standards have been developed by TDOT and approved by the Federal Highway Administration (FHWA). These design standards should be followed by local, regional and state agencies when considering the inclusion of bicycle and pedestrian features on an existing facility or new construction.

**Funding Programs Used in the Statewide Transportation Improvement Program**

At the discretion of the State, a portion of the State’s Federal Surface Transportation Block Grant Program (STBG) funds are made available to small urban areas between 5,000 and 50,000 in population based on the latest available census figures.

The majority of these funds are utilized on minor improvements such as, resurfacing, signalization, lighting, intersection improvements, bridge replacements, signing and pavement marking, sidewalks, bikeways and grade crossings. A portion of the state’s federal STBG funds are allocated to urban areas with a population between 50,000 and 200,000. Those funds are included in the Transportation Improvement Programs (TIP) of the Bristol, Clarksville, Cleveland, Jackson, Johnson City, Kingsport, and Lakeway MPOs.

Transportation Alternatives (TA) is new funding that consolidates three formerly separate programs under SAFETEA-LU: Transportation Enhancements (TE), Safe Routes to School (SR2S), and the Recreational Trails Program (RTP). These funds may be used for a variety of pedestrian, bicycle and streetscape projects including sidewalks, bikeways, multi-use paths and rail trails. TA funds may also be used for selected education and encouragement programming such as Safe Routes to School, despite the fact that TA does not provide a guaranteed set-aside for this activity. Unless the Governor of a given state chooses to opt out of Recreational Trails Program funds, dedicated funds for recreational trails continue to be provided as a subset of TA.

**Transportation Alternatives Program (TAP)**

The FAST Act eliminated the MAP-21 Transportation Alternatives Program (TAP) and replaced it with a set-aside of Surface Transportation Block Grant (STBG) program funding for transportation alternatives. These set-aside funds include all projects and activities that were previously eligible under TAP, encompassing a variety of smaller scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, community historic preservation, vegetation management and environmental mitigation related to storm water and habitat connectivity.
Surface Transportation Block Grant (STBG) Program

The purpose of the Surface Transportation Block Grant (STBG) program is to promote flexibility in State and local transportation decisions and provides funding to best address State and local transportation needs. This program funding may be used by States and localities for projects to preserve and improve the conditions and performance on any Federal-aid highway and certain local roads, pedestrian and bicycle infrastructure, transit capital, planning projects, and intercity passenger projects.

Local, state, and regional government entities are eligible to apply. The goal of the TMPO’s STBG program funding is to support the implementation of the Regional Transportation Plan/Sustainable Communities Strategy (Mobility 2035) by enhancing the transportation system to provide mobility, social, and environmental improvements.

Funding

Local, state, and regional government entities are eligible to apply. The goal of the TMPO’s STBG program funding is to support the implementation of the Regional Transportation Plan/Sustainable Communities Strategy (Mobility 2035) by enhancing the transportation system to provide mobility, social, and environmental improvements.

The FAST Act allows an urbanized area with a population of more than 200,000 to use up to 50% of its sub-allocated TA funds for any STBG eligible purpose (but still subject to the TA-wide requirement for competitive selection of projects). Additionally, it eliminated TAP’s “Flexibility of Excess Reserved Funding” provision, which allowed the use of excess TAP funds for any TAP-eligible activity or for projects eligible under the CMAQ Program.

New Freedom Program

The New Freedom formula grant program provides capital and operating costs to provide transportation services and facility improvements that exceed those required by the Americans with Disabilities Act. Examples of pedestrian/accessibility projects funded in other communities through the New Freedom Initiative include installing Accessible Pedestrian Signals (APS), enhancing transit stops to improve accessibility, and establishing a mobility coordinator position. Likely eligible improvements include mid-block and high-visibility crossing improvements. Applications for FTA funds are administered by the FTA, and pass through TDOT.
Tennessee Department of Environment and Natural Resources

Land and Water Conservation Fund – Tennessee (LWCF)

In 1965 a federally-funded program, LWCF was established for local and state governments as a funding source for outdoor recreation development and land acquisition. LWCF monies are derived from the sale or lease of non-renewable resources, primarily offshore oil/gas leases and surplus federal land sales. Acquisition and development grants may be used for a wide variety of outdoor projects such as bike trails, city parks, tennis courts, outdoor swimming pools and support facilities (roads, water supply, etc.). Facility design must be basic in nature and must remain accessible to the general public. No more than 50% of the project cost may be federally funded by LWCF, although all or part of the project sponsor’s matching share may be obtained from certain other federal assistance programs.

Tennessee Division of State Parks and related associations

Tennessee Trails Association

The Tennessee Trails Association is a non-profit (501c3) organization, founded in 1968, whose mission is to promote the development of a state wide system of hiking trails.

In February 1999, to honor Mr. Evan Means, one of the founders of TTA, established a Grants Program in his memory. This program funds trail related projects across the state and is open to TTA chapters and other non-profit, volunteer based organizations.

Tennessee Department of Agriculture - Urban Forestry Program

The Urban & Community Forestry Program goal is to improve urban environments through planting and management of trees. It promotes the establishment of urban forestry programs in cities and towns, assists them in developing self-sustaining urban and community forestry programs and provides technical assistance. In addition to technical assistance, the urban forestry staff administers grants that help communities initiate or expand their local urban and forestry programs. They also administer grants that help communities and non-profits plant trees on public land.
Miscellaneous State Funding Organizations

Heritage Conservation Trust Fund Board

Monies from the National Housing Trust Fund (NHTF) must be accessed through state agencies such as Department of Environment and Natural Resources (DENR), the Tennessee Wildlife Resources Agency, and the Department of Social and Cultural Resources. Funds are meant for the acquisition and protection of land with significant habitat value and/or cultural heritage value.

Federal Agencies

Rivers, Trails, and Conservation Assistance Program (RTCA)

The National Park Service (NPS) provides this program of advisory services and counseling. The NPS works with community groups and local and state governments to conserve rivers, preserve open space, and develop trails/greenways. No fixed amount is established for these services. Candidates must demonstrate a commitment for cost-sharing, which may include donations of time, cash, and services. RTCA has played a major role in community conservation/recreation through citizen-led partnership approaches to river protection, trail development and land conservation.

Public Works and Economic Development Program

This program is administered by the Economic Development Administration for the US Department of Commerce. Public Works and Economic Development investments help support the construction or rehabilitation of essential public infrastructure and facilities. This is necessary to generate or retain private sector jobs and investments, attract private sector capital and promote regional competitiveness.

This includes investments that expand and upgrade infrastructure to attract new industry, support technology-led development, redevelop brown-field sites, and provide eco-industrial development.

Contributions

The solicitation of contributions is an acceptable method of fund raising for bicycle and pedestrian improvements. These donations are typically in the form of land, cash, labor and materials and can be solicited to assist the City of Bristol with the enhancement of its pedestrian system. Corporations, civic organizations, individuals, and other groups
generally donate to a specific pedestrian project; however, donations may also be solicited for multiple project improvements or additions. Private, nonprofit, tax-exempt foundations are often used as a means of accepting and administering private gifts to a public entity.

Foundations

Foundations are another source of financing that allows direct contributions to be made within communities, states, or the nation. These types of funds are usually described as special program foundations, general-purpose foundations, or corporate foundations. Foundations generally have few restrictions or limitations and are typically received form local entities.

Taxation

Traditionally, ad valorem tax revenue has been the primary source of funding for the pedestrian facilities of properties/facilities owned by municipalities and counties. ‘Pedestrian opportunities’ are considered a public service and often are standard line items on general fund budgets. Creative financial opportunities are possible however; ad valorem taxes will continue to be the major revenue source to support the system. As such, communities often vote to raise their local tax rate temporarily in support of their pedestrian systems. Some possible tax funding strategies are:

- **Sales Tax** - Local county governments are authorized to implement a local sales tax. These taxes are typically used for a variety of projects within the county. The increase in local sales tax must be approved by the state government. The sales tax may be implemented for a fixed period and then expire.

- **Property Tax** - Because of the concern by local homeowners, increases in property taxes should be addressed with care. Property tax increase must have wide public support for the resulting project. Such funds are often used to pay debt service on general obligation bonds that were issued for land acquisition(s).

- **Excise Taxes** - Excise taxes are levied on specific goods and services and are to be used for specified purposes. In general, these taxes are levied to achieve funds for the promotion of tourism or transportation, which include pedestrian facilities.

- **Occupancy Tax** - Occupancy taxes are levied by local governments on hotel and motel rooms. The funds are typically used for the promotion of tourism and related activities.
Land Trust for Tennessee - Tax Benefits

The Land Trust for Tennessee (LTTN) uses conservation easements as the primary tool to protect land. A conservation easement is a legal agreement by which landowners voluntarily place restrictions on the future use or development of their property. LTTN is responsible for ensuring that your wishes and the land’s conservation values are protected forever. Land protected by a conservation easement remains in private ownership and may be sold or left to heirs. Depending on your situation you may also receive significant income tax deductions, a reduction in estate taxes, or an adjustment of property taxes by participating in this conservation effort.

A landowner who conveys a conservation easement retains all rights to use the land in ways that do not interfere with the conservation goals stated by terms of the easement. Each easement is tailor-made to the property and landowner interests.

Tennessee Parks & Greenways (TennGreen) Foundation Small Corridors Grant

Tennessee Parks and Greenways Foundation is a statewide 501(c)(3) nonprofit organization founded in 1998. Their mission is to protect Tennessee’s natural treasures. Their vision is to create a network of parks, greenways, and wildlife areas across Tennessee from the mighty Mississippi River to the Great Smoky Mountains and beyond. The foundation strives to accomplish this vision through three strategies: (1) by conserving Tennessee treasures; (2) creating corridor connections; and (3) fostering initiatives by others through conservation, education, and advocacy.

TennGreen works to conserve greenways that link existing protected areas with parks & natural areas to create larger contiguous natural areas. These greenways are vital to the health of wildlife species and humans especially near urban areas. The TennGreen Parks and Greenways Foundation relies on the generous contributions of individuals, foundations and corporations. All contributions are tax deductible as provided by law.

Robert Wood Johnson Foundation

As the world’s largest philanthropic organization devoted to public health, the Robert Wood Johnson Foundation works to improve the health and health care of all Americans. The foundation is dedicated to building a culture of health that enables this diverse society to lead healthier lives – now and for generations to come. It focuses on:

- Child and Family Well-Being
- Childhood Obesity
Partnerships

To implement the recommendations contained in the Bristol Trails and Greenways Plan, The City will most certainly have to expand their partnership agreements with other public agencies and private-sector organizations. There are several different types of partnerships that can be formed to achieve the goals established by the City. In fact, many local governments throughout the nation are utilizing partnerships with public and private-sector interests to accomplish community goals.

Listed below are the various types of partnerships that the City should consider in its efforts for the improvement of pedestrian facilities:

- Transportation museums.
- Programming partnerships to co-sponsor events and facilities or to allow qualified outside agencies to conduct activities on properties, which are municipally-owned.
- Operational partnerships to share the responsibility for providing public access and use of facilities.
- Development partnerships to purchase land and/or build facilities.
- Management partnerships to maintain properties and/or facilities.

The City of Bristol is currently “partnered” with several entities in other City related endeavors/functions and should evaluate forming additional partnerships, which address the needs of the pedestrian system.

TDOT will be a critical partner as more facilities are developed in the area. Proposed improvements often involve TDOT. It is imperative that this partnership has strong communication and coordination for the efficient implementation of projects.

Direct requests should be made to potential partners. Ask formally to meet and evaluate the possible benefits of partnering. This process needs to be accomplished in order to generate interest and agreement prior to solidifying any responsibilities for each participating party.
Land Acquisition and Development

There are many different types of land acquisition available to the City of Bristol for the pedestrian system expansion and/or future development. Due to the land costs and availability, it is recommended that the City prioritize the property to be acquired for facilities regarding multi-purpose trails, which are typically off-street facilities. Listed below are several methods for acquiring/developing these trails:

Local Gifts

Donations of land, money, labor, or construction can have a significant impact on the acquisition and development of pedestrian facilities. The solicitation of local gifts is highly recommended and should be organized thoroughly, with the utilization of specific strategic methods. Often untapped, this source of obtaining funds requires the contacting of potential donors. Donors may consist of individuals, institutions, foundations, and/or service clubs.

Life Estate

A life estate is a gift whereby a donor retains the land during his/her lifetime and relinquishes title of the property after his/her death. In return, the owner (or family) is relieved of property tax for the given land.

Easement

An easement is the most common type of “less-than-fee” interest in land. Generally, the land owner may still use the land and therefore continues to generate property tax revenue for the municipality.

Fee Simple Purchase

Fee simple purchase is the most common method used to acquire municipal property for pedestrian facilities. Although it has the advantage of simplifying justification to the general public, fee simple purchase is the most difficult method to pursue, due to limited monetary resources.

Fee simple with lease back or resale

This method allows municipalities to acquire land by fee simple purchase, yet allows them to sell or lease the property to prospective users with restrictions that will preserve
the land from future development. The fee simple with lease back or resale method of development commonly results from situations in which land owners who have lost considerable monetary amounts in property value, determine that it is more economical to sell the land to the municipality (with a lease back option) than to keep it.

Long-Term Option

Long-term options allow municipalities to purchase property over a long period of time. This method is particularly useful because it enables the municipality to consider particular pieces of land that may have future value, though it is not currently desired or affordable at the time. There are several advantages to this method of property acquisition. The City could protect the future of the land without purchasing it up front; and meanwhile, the purchase price of the land will not increase, with the City having the right to exercise its option. The disadvantage to the City is that all privileges relinquished by the land owner require compensation in the form of securing the option.

Identify Special Funding Opportunities for High Priority Projects

The funding sources listed above can be used for numerous projects proposed in this plan as well as future projects. Many of these projects can be funded as enhancement projects of Transportation Improvement Programs (TIP). The improvements along the major corridors that have substantial construction cost should be strongly considered. Funding for mapping and signage can be allocated through the Governor’s Highway Safety Program.

It will be important to incorporate the future facilities with incidental highway projects. This document will be used by TDOT to determine areas where pedestrian improvements should be incorporated into the proposed roadway improvements.

Major construction projects may require more than grants. Although grant funding is a great resource, the amount of money available can limit the size of the project. A bond referendum could help in determining whether the City’s residents are willing to accept the cost for the construction of major facilities.

The grants available for funding bicycle and pedestrian facilities will evolve in the future. The funding amount for many grants may not be as much as others, some may be very competitive because of the monies available. Partnering with other organizations typically
lends more project significance when applying to funding agencies. Having multiple organizations applying for a grant shows unity within a community. This in turn, supports the grant application. In addition, having multiple contributing partners will allow more monies to be used for matching funds.

7.7 THE COMPREHENSIVE TRAILS AND GREENWAYS MASTER PLAN

The Comprehensive Trails and Greenways Plan is merely a guide for the future. As new development and growth occurs in Bristol, new priorities may develop. The City should continually evaluate and update this plan in order to meet the primary needs of the community. As the projects are implemented, the City should take steps to update all involved parties in the progress being made. Additions to the plan should be formalized in order to ensure continuity as stakeholder’s change.