CITY OF WASHINGTON

Comprehensive Bicycle Plan

Division of Bicycle & Pedestrian Transportation
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

City of Washington NORTH CAROLINA

MID-EAST Commission

Washington NORTH CAROLINA
HEART of the INNER BANKS

CITY OF WASHINGTON - COMPREHENSIVE BICYCLE PLAN

NCDOT

City of Washington

Mid-East Commission

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ACKNOWLEDGEMENTS

CITY OF WASHINGTON COMPREHENSIVE BICYCLE PLAN – ADOPTED DECEMBER 8, 2014

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The City of Washington Comprehensive Bicycle Plan, a jointly funded effort between the North Carolina Department of Transportation Bicycle and Pedestrian Division and the City of Washington, is a locally adopted document recommending bicycle oriented policies, programs, and projects to improve bicycle transportation throughout the City.

Made possible through the Bicycle and Pedestrian Planning Grant Initiative from NCDOT, the City of Washington was awarded $28,000 of NCDOT Planning Funds to match local financial commitment to develop a Comprehensive Plan. Working with the Mid-East Commission to complete the plan, the City will use the Bicycle Plan as a guide for policy and program decisions as well as making budget decisions.

With the support of the public and numerous local organizations, both governmental and non-profit, this Plan will assist in ongoing local efforts to promote sustainable growth and development and healthy living habits, while attracting people to the area, be it to live, work, or play.

Developed in coordination with the City's existing Comprehensive Pedestrian Plan and the Beaufort County Comprehensive Transportation Plan, the document supports the development of a comprehensive bicycle transportation network that will be incorporated with other modes of transportation to allow cyclist of all ages and skill level the ability to safely ride and connect to all locations in Washington.

City of Washington Comprehensive Bicycle Plan Vision Statement:

> *Washington is a bicycle-friendly community where bicycling is a safe, viable, and popular transportation choice for citizens and visitors alike.*

Identified themes that came out of the Steering Committee, a major body in support of an improved bicycle plan, discussion include:

Improved Safety
Education
Connectivity and Accessibility
Bicycle Amenities
Enforcement

These themes led to the development of the plan's goals and objectives to achieve the vision. These are discussed in further in **Section 1**.

The current conditions within the City of Washington have been inventoried and evaluated as part of the development of the Comprehensive Bicycle Plan. **Section 2** includes an overview of the City, current usage/user demographics, an inventory and assessment of existing bicycle facilities and bike compatibility of the local transportation system. The information obtained regarding Washington's current conditions provides the framework for planning bicycle facilities, programs, and policies based on the community's wants and needs.

In addition to analyzing existing conditions, existing plans, programs, and policies at the Local, Regional, and State level were reviewed. Plans and policies determine the type of development that is encouraged and allowed in a community while programs offer methods to promote, encourage, and educate the public on bicycling. Therefore, these tools (plans, policies, and programs) are a key component to ensure an environment that is supportive of bicycling. Existing plans, programs, and policies are highlighted in **Section 3.**

During plan development, several potential projects were identified that would improve the existing bicycling network. These potential bicycle facilities projects have been broken down into three categories: On-Road Projects and Preferred Treatments; Off-Road Projects & Preferred Treatments, and Ancillary Facilities. **Section 4** describes the Strategic Bicycle Plan, which includes many potential project opportunities that were based upon:

- Steering Committee Meetings
- Public Survey & Open Houses

- Bicycle-Motor Vehicle Crash Data
- Field Inventory and Assessment
- Connectivity & Improved Safety

Section 5 provides guidance to the city on design standards and guidelines for new bicycle facilities. These standards and guidelines are a critical component of this Plan and for all facility construction and development. The design standards and guidelines mentioned in this section are derived from North Carolina Department of Transportation (NCDOT) *Bicycle Facilities Planning and Design Guidelines*, the American Association of State Highway and Transportation Officials (AASHTO) *Guidelines for the Development of Bicycle Facilities*, and the Federal Highway Association (FHWA) *Manual on Uniform Traffic Control Devices* (MUTCD), Part 9- Traffic Controls for Bicycle Facilities.

Section 6 outlines recommendations for ancillary facilities, programs, and policies aimed at making Washington a bicycle-friendly community. Addressing education, encouragement, and enforcement, these recommendations will encourage the transformation of Washington into a bicycle-friendly community. The implementation of programs discussed in the plan will not only encourage bicycling, but provide education, enforcement, and maintenance opportunities, ensuring Washington has a comprehensive bicycle network in which users feel comfortable biking in the community.

Section 7 contains the Recommended Projects. This list of potential project locations was developed based upon input from the Steering Committee, City Staff, and the Public (via Open Houses and the Public Survey). Projects were also developed through observations taken during field visits conducted by the consultant. All resurfacing, repaving and improvement projects should be evaluated to determine whether it is possible to provide the bicycle facility recommended in this Plan as part of those projects. Bicycle considerations should be included as part of all, local and NCDOT, scheduled road maintenance and improvement processes.

The following table outlines all recommended projects included in the plan.

Project Reference #	Road Classification	Type of Project	Project/Improvement Name	At/On	From	To
1	Local/NCDOT	Intersection Improvement	3rd and Market Intersection Improvement	3rd Street/Market Street	NA	NA
2	NCDOT	Intersection Improvement	5th and Harvey Intersection Improvement at Jack's Creek Greenway	5th/Harvey Street	NA	NA
3	NCDOT	Intersection Improvement	15th and Market Intersection Improvement	Market Street/15th Street	NA	NA
4	Local	Intersection Improvement	3rd and Brown Intersection Improvement	Brown Street/3rd Street	NA	NA
5	NCDOT	Intersection Improvement	John Small and Hudnell Intersection Improvement	John Small/ Hudnell Street	NA	NA
6	Local/NCDOT	Intersection Improvement	11th and 12th Intersection Improvement	12th Street/ 11th Street	NA	NA
7	Local/NCDOT	Paved Shoulder; Mid-Block Crossing	Whispering Pines Route	Whispering Pines/5th Street	Grimes Road	15th Street Extension
8	NCDOT	Sharrow	Market Street Bike Sharrow Project	Market Street	Water Street	5th Street/ US 264
9	NCDOT	Bike Lane	Market Street Bike Lane Project	Market Street	5th Street/ US 264	15th Street
10	Local	Bike Lane	Stewart Parkway Bike Lane Project	Stewart Parkway	Main Street	Water Street
11	NCDOT	Bike Lane	Bridge Street Complete Street Project	Bridge Street	Main Street	5th Street
12	NCDOT	Bike Lane	Carolina Avenue Complete Street Project	Carolina Avenue	5th Street	15th Street

Project Reference #	Road Classification	Type of Project	Project/Improvement Name	At/On	From	To
13	NCDOT	Bike Lane	Hudnell Street Bike Lane Project	Hudnell Street	Park Dr/ Main Street	John Small Avenue
14	NCDOT	Bike Lane	6th and Bonner Bike Lane Project	6th and Bonner Streets	Jacks Creek Greenway	Market Street
15	Local/NCDOT	Sharrow	3rd Street Route	Grimes Rd/ Plant St/ 3rd Street	Whispering Pines	Hudnell Street
16	NCDOT	Sharrow; Signage	9th Street Bicycle Boulevard Project	9th Street	John Small Avenue	Van Norden Street
17	NCDOT	Sharrow; Signage	11th Street Bicycle Boulevard Project	11th Street	Highland Drive	Market Street
18	NCDOT	Sharrow; Signage	13th Street Bicycle Boulevard Project	13th Street	15th Street	Carolina Avenue
19	Local	Sharow; Signage	Brown Street Bicycle Boulevard Project	Brown Street	Main Street	3rd Street/ Jack's Creek
20	Local	Sharrow; Signage	Water Street Bicycle Boulevard Project	Water Street	Stewart Parkway	Main Street
21	Local	Sharrow; Signage	McNair Street Bicycle Boulevard Project	McNair Street	Water Street	3rd Street
22	NCDOT	Sharrow; Signage	Van Norden Bicycle Boulevard Project	Van Norden Street	Main Street	15th Street
23	NCDOT	Side Use Path	Market Street Extension Side use Path	Market Street Extension	15th Street	Airport Road
24	NA	Greenway	Washington/ Greenville Greenway	New Location	3rd Street	Tranter Creek Rd
25	NCDOT	Signed Bike Route	Highland Street Route	Highland Drive	12 Street	11th Street
26	NCDOT	Signed Bike Route	Main Street Route	Main Street	Bridge Street	Hudnell Street
27	NCDOT	Signed Bike Route	Trade Street Route	Trade Street	13th Street	Carolina Avenue
28	NCDOT	Share the Road Signage	15th Street Route	15th Street	12th Street	Carolina Avenue
29	NCDOT	Share the Road Signage	15th Street Extension Route	15th Street Extension	Carolina Avenue	5th Street
30	NCDOT	Share the Road Signage	Carolina Avenue Route	Carolina Avenue	5th Street	HWY 17

31	NCDOT	Share the Road Signage	5th Street Route	5th Street	Flanders Filters Road	Asbury Church Road
32	NCDOT	Share the Road Signage	Market Street Extension	Market Street	15th Street	Airport Rd

Section 8 describes how the recommendations for improving Washington's bicycling conditions will be implemented. This section outlines priorities for projects, programs, and policies as well as potential partners and funding sources. Implementation of this Plan will be a collaborative effort between a variety of City departments and external agencies. The City's various departments should be aware of the Plan's recommendations and seek to implement them as part of their regular work. The NCDOT Division of Bicycle and Pedestrian Transportation may provide technical expertise on issues related to bicycling and financial assistance to ensure that implementation of the Plan moves forward. Progress on improving the Plan should be monitored on no less than an annual basis. Almost every transportation project offers an opportunity to implement a piece of this Plan.

Washington Waterfront

The City of Washington Comprehensive Bicycle Plan was largely funded by a Bicycle and Pedestrian Planning Grant from the North Carolina Department of Transportation Bicycle and Pedestrian Division. This is the second Bicycle Plan for the City that has been funded by NCDOT, with the other being drafted in 1984. The development of a Comprehensive Bicycle Plan will support the City's ongoing efforts to promote sustainable growth and development as well as healthy living habits, and attract individuals, both tourists and potential residents, to the area, all while making it more convenient and safer for people who bicycle. The City of Washington desires to improve transportation throughout the City in order to link residential neighborhoods to parks & recreation facilities, schools, health care facilities and shopping/retail areas.

The City of Washington submitted an application for the Bicycle and Pedestrian Planning Grant Funds for the 2010 grant year. The City, putting up a $7,000 match, was awarded $28,000 of NCDOT Planning Funds to develop a Comprehensive Bicycle Plan. Upon receipt of the grant, the City of Washington acquired the services of the Mid-East Commission to assist with the development of a Comprehensive Bicycle Plan. The City will use the Bicycle Plan as a guide for developing a bicycle-friendly community and will assist when making budget decisions and applying for grant funds from regional, state, federal, and private funding sources.

The City of Washington local government, Beaufort County Health Department, Beaufort County Board of Education, the Washington – Beaufort County Chamber of Commerce, North Carolina Rail-Trails Organization, and many other organizations throughout the City and County support improving Washington's bicycle transportation to provide a multi-modal transportation-system.

The City's existing Comprehensive Pedestrian Plan and the Beaufort County Comprehensive Transportation Plan all support the vision of developing a comprehensive bicycle transportation planning document that will provide direction in achieving safe transportation and connectivity in Washington.

PUBLIC INVOLVEMENT

Public input was a driving force behind the development of Washington's Comprehensive Bicycle Plan. The public involvement strategy involved several components including six Steering Committee meetings, two Public Open Houses, and public hearings at the City's Planning Board and City Council. Media outreach was utilized with press releases, public notices, and invitations to all meetings and open houses to announce the project.

A 14 Member Steering Committee, comprised of citizens, City staff, and Mid-East Commission staff met six times throughout the planning process to discuss goals and objectives, priorities, existing conditions, identify potential bicycle corridors and destinations, identify recommendations for projects and programs, and to identify project prioritization. See Appendix A for further information regarding Steering Committee meetings.

In addition to the Steering Committee, pubic input was solicited through online and hard copy surveys. The survey was made available through the City's website, the Beaufort County Health Department Website, and the Washington-Beaufort Chamber of Commerce website. Hard copies of the survey were made available at numerous locations throughout Washington, including City Hall, Washington Parks and Recreation Department, Washington Visitors Center/Chamber of Commerce, Brown and BHM Libraries, and numerous other local businesses. Citizens in Washington were notified of the survey through local media outlets, area expo's, the City's website, and a display at a local bicycle shop.

Two Public Open Houses were held during the development of the Comprehensive Bicycle Plan. The first Public Open House was held on November 5th, 2012 at the Grace Martin Harwell Senior Center. During the first Public Open House, participants were provided the opportunity to express needs and concerns and to identify potential corridors, dangerous corridors, and overall hazards. The second Public Open House was held on April 22, 2013, at Backwater Jack's/Inner Banks Outfitters. During the second Public Open House, participants were presented the proposed projects and initiatives recommended in the Comprehensive Bicycle Plan and were provided the opportunity to ask questions and provide any further input. Additional information regarding these Public Open Houses can be found in Appendix A.

During the first Steering Committee Meeting, members discussed their vision for the Bicycle Plan. That discussion, along with additional fine tuning at the next Steering Committee Meeting, formulated the final vision for the plan:

Washington is a bicycle-friendly community where bicycling is a safe, viable, and popular transportation choice for citizens and visitors alike.

THEMES, GOALS, & OBJECTIVES

There were several overall themes that the plan needed to address that were identified through discussions by the Steering Committee at the May 24, 2012 meeting. The following themes were derived from the meeting:

- *Improved Safety*
- *Education*
- *Connectivity and Accessibility*
- *Bicycle Amenities*
- *Enforcement*
- *Health Promotion*

Based off of these themes, goals and objectives were developed for the City of Washington Comprehensive Bicycle Plan.

Goals and Objectives

Goal 1 : Improving the safety of bicyclist
- Objective 1.1: Bicycle Rodeo Program
- Objective 1.2 : Smart Cycling Program
- Objective 1.3 : Bicycle Helmet Give Away Program
- Objective 1.4 : Speed Limit/Traffic Calming

Goal 2 : Educating cyclist and motorist
- Objective 2.1: Bicycle and Pedestrian Advisory Committee
- Objective 2.2: Education Programs
- Objective 2.3 : Public Relations & Awareness Program

Goal 3 : Improving connectivity and accessibility by bicycle
- Objective 3.1: Mapping/Signage Program

Goal 4 : Improving existing and establishing new bicycle amenities
- Objective 4.1: SPOT Improvement Program
- Objective 4.2: Infrastructure Maintenance Program
- Objective 4.4: Bicycle Parking Installation Program

Goal 5 : Creation/Enforcement of bicycle laws and policies
- Objective 5.1: Bicycle Registration Program
- Objective 5.2 : Zoning Ordinance and Subdivision Regulations

- Objective 5.3 : Complete Streets Ordinance
- Objective 5.4 : Maintenance Policy
- Objective 5.5 : City Funding Policy
- Objective 5.6: Bicycle Parking Ordinance
- Objective 5.7 : New Bridge Projects Policy
- Objective 5.8: Streets Improvements Ordinance
- Objective 5.9: Commercial Development Policy
- Objective 5.10: Bikeways and Bike Facilities Ordinance

Goal 6 : Promotion of cycling as a healthy alternative transportation mode

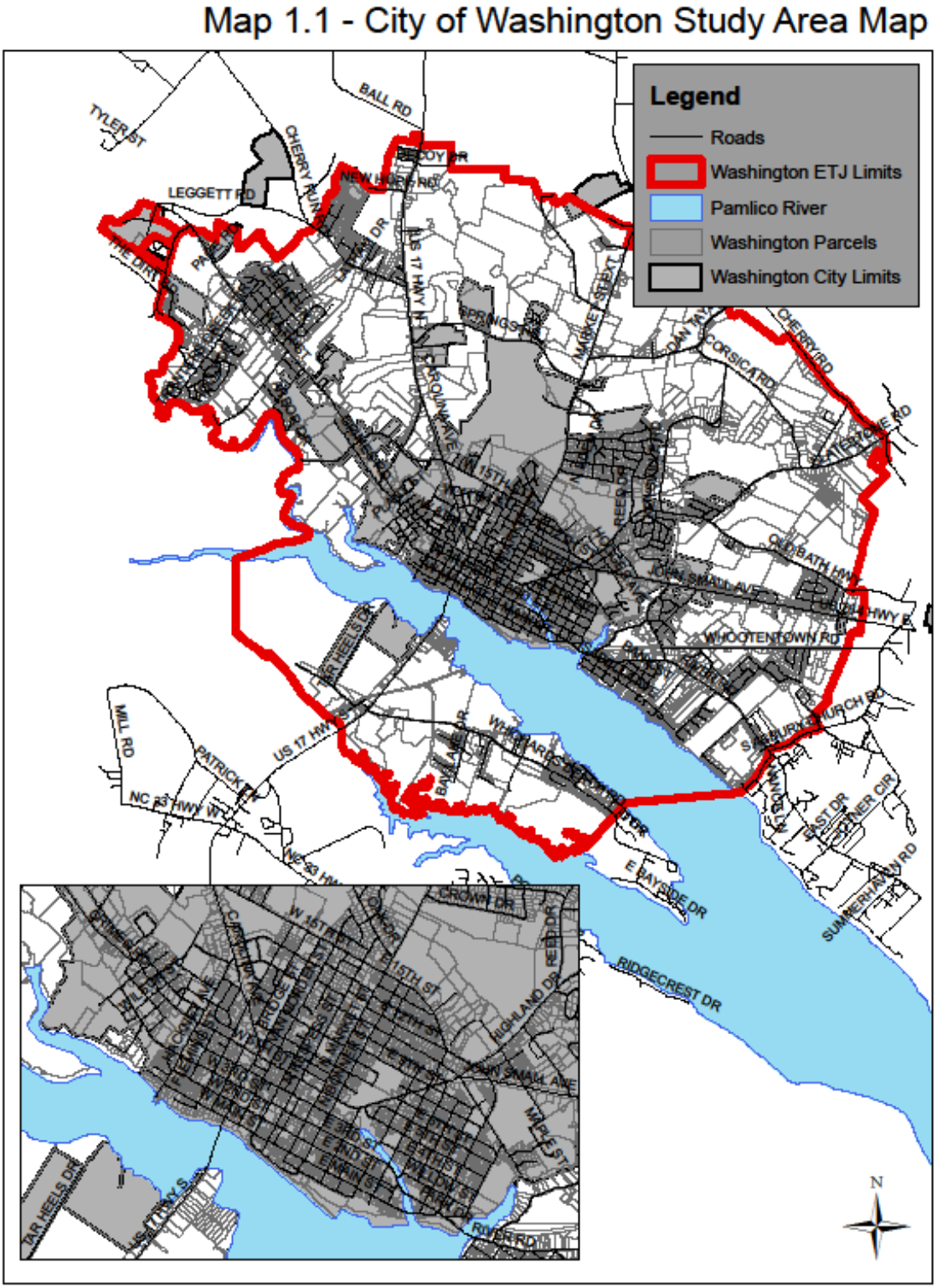
- Objective 6.1: Local, Regional, and National Rides

PURPOSE OF THE COMPREHENSIVE BICYCLE PLAN

The Comprehensive Bicycle Plan provides a comprehensive approach to bicycle planning that maximizes Washington's existing infrastructure, identifies new opportunities, and creates an opportunity to develop and foster a more bicycle-friendly community through planning, design, and regulations, while also addressing bicycle safety and encouragement.

The Comprehensive Bike Plan Study Area includes Washington's city limits and extra-territorial jurisdiction (ETJ). Map 1.1 illustrates the project study area:

Map 1.1 – Study Area Map



PLANNING PROCESS

The process used for plan development involved four phases: 1) Data Collection, Research and Inventory; 2) Preliminary Recommendation Development; 3) Development and Review of Draft Bicycle Plan; and 4) Final Plan Development and Approval.

PHASE I - DATA COLLECTION, RESEARCH AND INVENTORY

This phase involved data collection, research, and inventory of existing infrastructure and data. Phase 1 contained the following tasks or steps:

- Developed a Public Involvement Strategy
- Surveyed citizens by way of an on-line survey available on the City, County Health Department, and Washington-Beaufort Chamber of Commerce websites and hardcopies of the survey available at City Hall, Washington Parks and Recreation Department, Washington Visitors Center/Chamber of Commerce, Brown and BHM Libraries, and numerous other local businesses
- Analyzed survey results
- Compiled existing data (relevant plans and ordinances, Census Data, and crash data)
- Conducted interviews with stakeholders to discuss issues, plans and goals as they related to stakeholder groups and to identify existing plans for infrastructure improvement
- Analyzed demographics within the City
- Conducted on-site assessments of current conditions and constraints
- Summarized existing ordinances, programs, and initiatives
- Held two Steering Committee Meetings
- Held the first Pubic Open House to provide public with information regarding the Plan, its purpose, schedule, identification of additional potential corridors, public needs, and concerns were also discussed.

PHASE 2 - PRELIMINARY RECOMMENDATION DEVELOPMENT

Based on Phase 1, preliminary recommendations were developed. Phase 2 contained the following tasks or steps:

- Held the first Pubic Open House to provide background and direction as well as to identify potential corridors, needs and concerns

- Developed preliminary recommendations for bicycle projects, programs, and policies
- Conducted an inventory for the roadways where bike facilities are recommended
- Met with NCDOT representatives to discuss preliminary recommendations
- Held Steering Committee meeting to present preliminary improvement recommendations and to discuss project prioritization

PHASE 3 - DEVELOPMENT AND REVIEW OF DRAFT BICYCLE PLAN

Based upon Phase 1 and Phase 2, a draft plan was developed. Phase 3 contained the following tasks or steps:

- Developed a draft Comprehensive Bicycle Plan based upon the findings of the previous tasks according to the NCDOT's expanded template
- Presented the draft Comprehensive Bicycle Plan to the Steering Committee for committee feedback and to discuss implementation
- Held a second Public Open House to present the draft Comprehensive Bicycle Plan containing project priorities
- Submitted a draft Comprehensive Bicycle Plan to the City and NCDOT for review

PHASE 4 – FINAL PLAN DEVELOPMENT AND APPROVAL

Based upon comments from the NCDOT and Washington Planning Board review, the Plan was revised and resubmitted to the NCDOT for approval and to the City Council for review and approval. Phase 4 contained the following tasks or steps:

- Developed a revised draft Comprehensive Bicycle Plan based upon the feedback from the NCDOT and Washington Planning Board
- Resubmitted revised plan to the City for resubmission to the NCDOT for review and approval
- Final plan with NCDOT and Planning Board revisions submitted to City for Planning Board and City Council's review
- Developed a revised final Comprehensive Bicycle Plan based upon feedback from the City's Planning Board and City Council
- Submitted final plan to City for approval and adoption by the City Council

BENEFITS 0F BICYCLING

Bicycling provides numerous benefits capable of promoting a healthy, livable, and thriving community. These benefits include, but are not limited to, health, transportation, environmental and economic, all of which contribute to a high quality of life.

HEALTH BENEFITS

While some people bicycle as a means of transportation and others for recreational enjoyment, either way there is no denying that bicycling has numerous benefits for one's community as well as one's health. Bicycling is one of the easiest ways to exercise, allowing those of different skill levels to take part, unlike some other forms of physical activity. When one is bicycling, every part of the body is involved. Bicycling helps build strength, increase muscle tone, build stamina, improve cardio-vascular fitness, improve heart health, and reduce stress. All of these benefits are especially important to note when looking at the overall health in the area. In 2011, Beaufort County's top three causes of death were heart disease, cancer, and chronic lower respiratory diseases. Of the 523 deaths in 2011, 126 were due to heart disease, 125 were due to cancer, and 36 were due to chronic lower respiratory disease. These three causes of death were closely followed in number of deaths by cerebrovascular disease and diabetes mellitus. During the 2011 Beaufort County Community Health Assessment the following question was asked, "In your opinion, which health behaviors do people in your own community need more information about?". 24.9% said exercising/fitness, 22.6% said managing weight, and 17.0% said stress management, all three of which bicycling can impact. Bicycling is a fun and easy way to exercise and Beaufort County residents need physical activity. The following question was asked in the Beaufort County CHA. "During a normal week, other than in your regular job, do you engage in any physical activity or exercise that lasts at least half an hour?". 33.5% answered no. Of those who reported not exercising, 15% said they didn't have access to a facility that has the things they need, 14.7% said it costs too much to exercise, and 3.5% said there is no safe place to exercise

Studies have shown that cycling will increase one's cardiovascular fitness by 3%-7%. This happens because when one rides a bicycle they are using the largest muscle groups in the leg, causing one's heart rate to rise. The British medical Association says that cycling just 20 miles a week can reduce one's risk of coronary heart disease by fifty percent. Another study conducted of approximately 10,000 individuals showed that those who cycle at least 20 miles a week were half as likely to suffer from heart disease as non-cycling individuals. Cycling on a regular basis can help reduce one's stress and depression, while

improving one's well-being and self-esteem. Maintaining and relieving stress helps keep your heart healthy.

TRANSPORTATION BENEFITS

Given many of the scenic settings along the Pamlico River, there are several areas in Washington that are not only attractive to bicyclists, but are also suitable for bike travel due to roadway conditions and relatively low traffic volumes. At the same time, however, there are many locations in Washington that experience high traffic volume, dangerous roadway conditions, and are in no way bicycle-friendly. Of particular concern is the number of prominent destinations in the community (shopping center, restaurants, grocery stores, medical facilities) that are located in these areas of concern.

The development of a bicycle-friendly community may alleviate roadway congestion and reduce the number of accidents, both vehicular related and bicycle/motorist. With most of Washington's goods and services located along busy roadway stretches, and its newest recreational facilities and schools located in areas where cyclists must navigate through dangerous cycling zones to get there, it is the goal of the bicycle plan will assist in providing bicycle infrastructure to provide linkages to the city's destination points as well as increase bicycling trips.

ENVIRONMENTAL BENEFITS

Bicycling is an easy way to reduce energy needs and pollution emissions. With traffic volumes likely to continue to grow, the overall air quality in communities will deteriorate from the additional motor vehicles polluting the air. Providing a safe, alternative method of transportation will increase the number of bicycles on the road; therefore, reducing the number of motor vehicles leading to a decrease in emissions.

ECONOMIC BENEFITS

Bicycling is an affordable mode of transportation. Implementation of the plan will lead to increased opportunities for further economic development within the City, including local, regional, and national scale rides. Promotion of a more bikeable Washington will also attract tourists to see the historic downtown area, as well as promote boaters who dock at the waterfront to explore downtown by bike. Providing bicycling facilities in Washington may increase visits to local businesses and recreation facilities. Other economic benefits of bicycling include reduced health care costs and reduced dependency on auto ownership.

CITY OF WASHINGTON OVERVIEW

The current conditions of the City of Washington have been inventoried and evaluated as part of the development of the Comprehensive Bicycle Plan. This section includes an overview of the City, current usage/user demographics, an inventory & assessment of existing bicycle facilities and the bike compatibility of the local transportation system. The information obtained about the City's current conditions provides the framework for planning bicycle facilities and programs based on the community's wants and needs.

America's first city to be named for General George Washington, the City of Washington's rich history adds to the character of the community. Laid out in 1775 on the northern bank of the Pamlico/Tar River by Colonel James Bonner, Washington was named in honor of his commander-in-chief. The City was incorporated by an act of the North Carolina General Assembly in 1782. It became the county seat of Beaufort County in 1785, an honor previously held by the Town of Bath, North Carolina's oldest town, located 15 miles east. Today, Washington is home to 9,744 people (2010 Census). The City of Washington is one of seven incorporated municipalities within Beaufort County. Beaufort County is located in the mid-eastern portion of North Carolina and was recently upgraded from an economically distressed Tier 1 community to Tier 2. The location, geography, and natural features of Beaufort County have shaped the development of the County's municipalities and economy. Beaufort County's business industry includes PotashCorp-Aurora, Flanders Filters, Vidant Hospital in Washington, Beaufort County Community College, and both City of Washington and Beaufort County Governments. Washington is the retail and medical center for Beaufort County. The rural community embraces its historical significance

with numerous festivals and events in its historic downtown district, including the annual "Smoke on the Water" festival each fall.

BIKING IN WASHINGTON

EXISTING/PLANNED FACILITIES

Currently, there is very little in the way of existing or planned bicycle facilities in Washington. Today, there is only one dedicated off-road bicycle facility in Washington, Jack's Creek Greenway. This short stretch, located in the southern portion of Washington, is surrounded by residential neighborhoods, a pair of local parks, and is just a few short blocks from the city's historic downtown. While is does provide users a safe alternative to using the roadways in the area, which includes the heavily traveled 5th Street/US 264, its short length many times limits its users to mostly those looking only for recreational rides. Strategies and recommendations in this plan look to further utilize Jack's Creek by making it a part of a larger system of routes that can get users around the community.

In an effort to supplement Jack's Creek, the City as well as local advocates banned together to create the Washington-Greenville Greenway Committee, focusing its efforts to identify and aid in establishing this multi-use trail. The greenway trail is to serve as an Active Transportation Corridor connecting downtown Greenville, East Carolina University's North Campus Crossing, Pactolus, the Washington waterfront, neighborhoods and communities along the way. Phase 1 of this trail would be located in Washington with its proposed location along the abandoned Atlantic Coastline Railroad. Phase 1 has been included as a recommendation in this plan. The plan also looks to further utilize the Washington-Greenville Greenway by making it a part of the larger system of routes within the city. This trail would also serve as an avenue to economic development, with the potential to attract the numerous riders to the city who currently use the existing greenway network in Greenville.

OBSTACLES, BARRIERS, & CONSTRAINTS

Currently, cyclists in Washington face numerous obstacles, barriers, and constraints as they try to navigate a community that has long stood as automobile dependent. As the City looks to become more bicycle friendly, they must address the following:

- Motorist Behavior
    - Given the overwhelming majority of motorists in the city, often bicyclists can feel intimidated when they hit the road. In order to

become a bicycle friendly community, citizens need to feel comfortable enough to ride, even if just for personal enjoyment. Strict enforcement of all bicycle related traffic laws by the Washington Police Department will aid in changing the behavior of drivers. Additionally, both motorist and bicyclist safety courses should be developed to assist in educating citizens to the rules of the road.

- Development Patterns

    - As Washington continues to grow, both residentially and commercially, the city must meet this growth with development regulations that either included bicycle and pedestrian facility development, or require fee in lieu of. This will allow the city to continue to develop its network, while improving existing conditions.

- Funding

    - In order to become the type of bicycle friendly community the city aspires to be, the city must look at ways to fund bicycle transportation. Be it through Budgeting, Increased Tax, or inclusion in a Capital Improvement Plan, funding must be in place in order to see the recommendations in this plan come to life. Cooperation with other agencies, such as the North Carolina Department of Transportation, Mid-East Rural Planning Organization, and others with grant funding resources will be essential in finding the funds to potentially develop bicycle infrastructure.

- Public/Stakeholder Investment

    - Bicycling as a means of transportation will only grow if there is by in from the public. Currently, bicycling is seen by many as a means if only a vehicle is not available. Getting citizens involved through events, programs, and promotions is essential to the promotion of bicycling.

ORIGINS AND DESTINATIONS

Most bicycle trips in Washington originate in residential areas of the city, but with most destinations being retail or employment, riders find themselves traversing through dangerous conditions to reach their destinations. Whether riders are originating from lower income neighborhoods in and around the city's

downtown areas or from the more moderate to high income areas along the city's edge, cyclists will face dangerous conditions near the city's retail and business centers.

In addition to the desire to reach business and retail, local parks and recreation facilities are also major draws for those on bicycles. From the numerous recreation events at the McConnell Sport Complex in the northern portion of the city, to the weekly entertainment and events along the historic waterfront on the city's southern edge, cyclists, often kids, are trying to reach these activities.

With higher traffic rates and multi-lane facilities along US 17, 15th Street, and US 264, this plan focused on how to improve bicycling conditions in and around the areas that most often attract cyclist.

CURRENT ROADWAY CONDITION INVENTORY

Upon conducting an inventory of current conditions within the City of Washington, Mid-East Staff was able to determine the most suitable treatment for each thoroughfare included in the plan. Results of the condition inventory show that the majority of roadways examined in the plan are 2-lane facilities, feature curb and gutter, and have a speed limit of 35 MPH or less. Roadways that featured more than 2 travel lanes also featured speeds that were 45 to 50 MPH, making them less suitable for improvements outside of "Share the Road" signage. In these cases, staff looked at the possibility of Bicycle Boulevards or other bike friendly tools on adjacent roadways. There were also intersections that were found to be dangerous to cyclists upon field visits. These intersections were included in this roadway inventory and have been included among the recommendations in the document. For a full report on current roadway conditions, please see the Roadway Conditions Inventory in the Appendix.

CURRENT USAGE / USER DEMOGRAPHICS

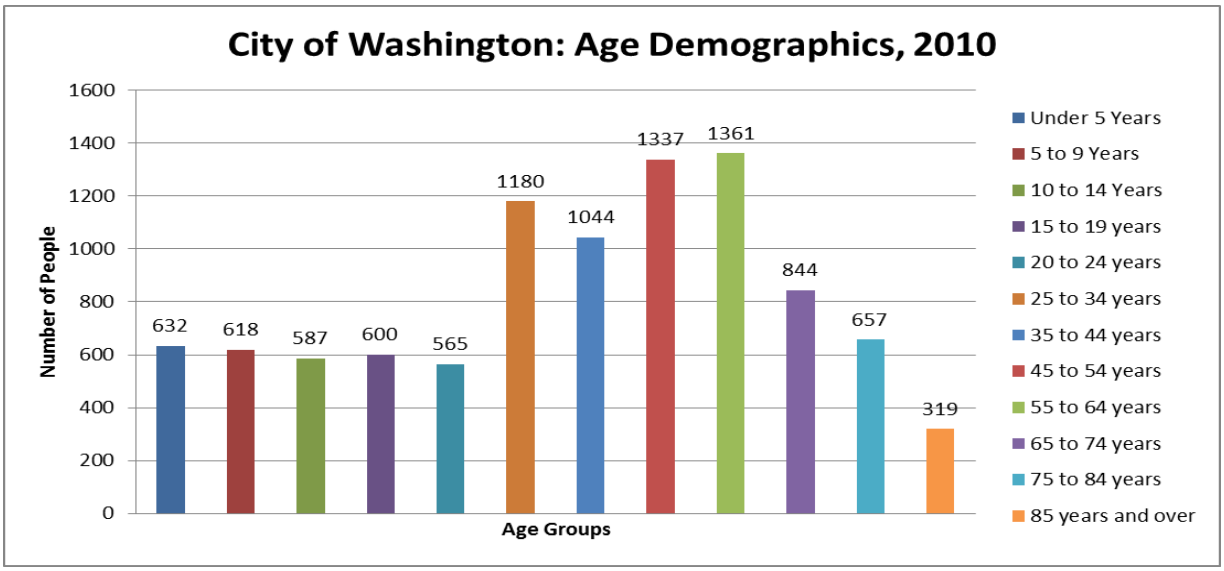
When developing a bicycle network, knowing the demographic makeup of a community is essential in determining the preferences and travel behaviors of residents. Information regarding the current usage and user demographics was obtained from the US Census Bureau, the NCDOT Bicycle and Pedestrian Division, and from a public bicycling survey. Analysis of the data received is described in this sub-section.

DEMOGRAPHIC ANALYSIS

A demographic analysis was completed based on data obtained from the US Census Bureau. As of the year 2010, the total population for the City of Washington was 9,744, of which 4,327 were males and 5,417 were females with a median age of 41.6 years. In the same census year, the estimated North Carolina population was 9,535,483 and the US population was 308,745,538. The median age was 37.4 years for North Carolina and 37.2 for the United States.

In the year 2010, the town's population was distributed with 81.2% over the age of 15 of which 18.6% were 65 years of age or older. In 2010, the population 65 years of age or older in North Carolina was 12.9% and in the US was 13%. In comparison, Washington's population is older than the state and national averages. Figure 2.0 reflects the age demographics for the City of Washington in the year 2010.

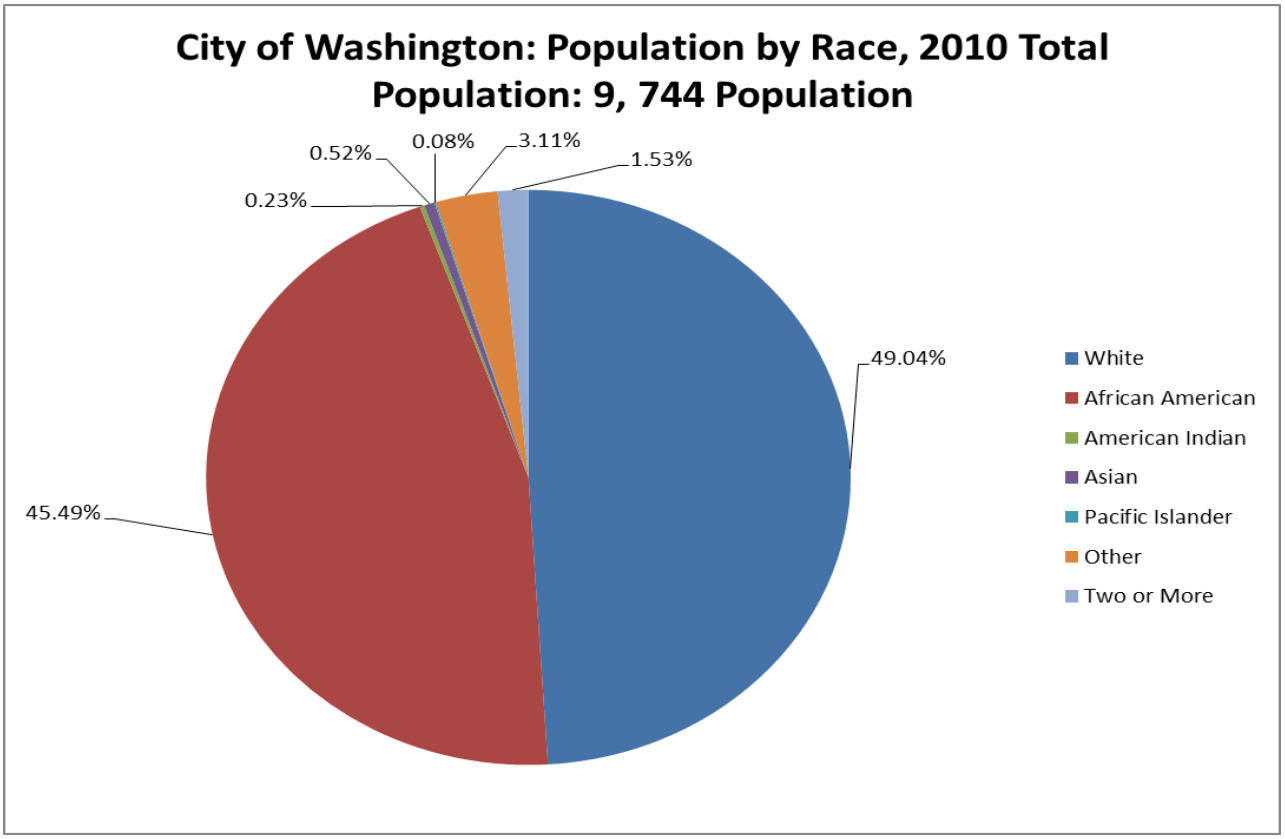
Figure 2.1: City of Washington Age Demographics



Source: U.S. Census Data

The racial breakdown of the population of the City of Washington in 2010 was as follows: 45.5% African American, 49% Caucasian, 0.2% American Indian, 0.5% Asian, 0.1% Pacific Islander, and 3.1% from other races and 1.5% from two or more races. The racial breakdown of North Carolina's population in 2010 included 21.5% African American and 68.5% Caucasian. The racial breakdown of the US population in 2010 included 12.6% African American and 72.4% Caucasian, which indicates that the City of Washington has a greater minority population than the state and national average. Figure 2.2 reflects the racial breakdown of the population of the City of Washington.

Figure 2.2 : City of Washington Population Breakdown – By Race

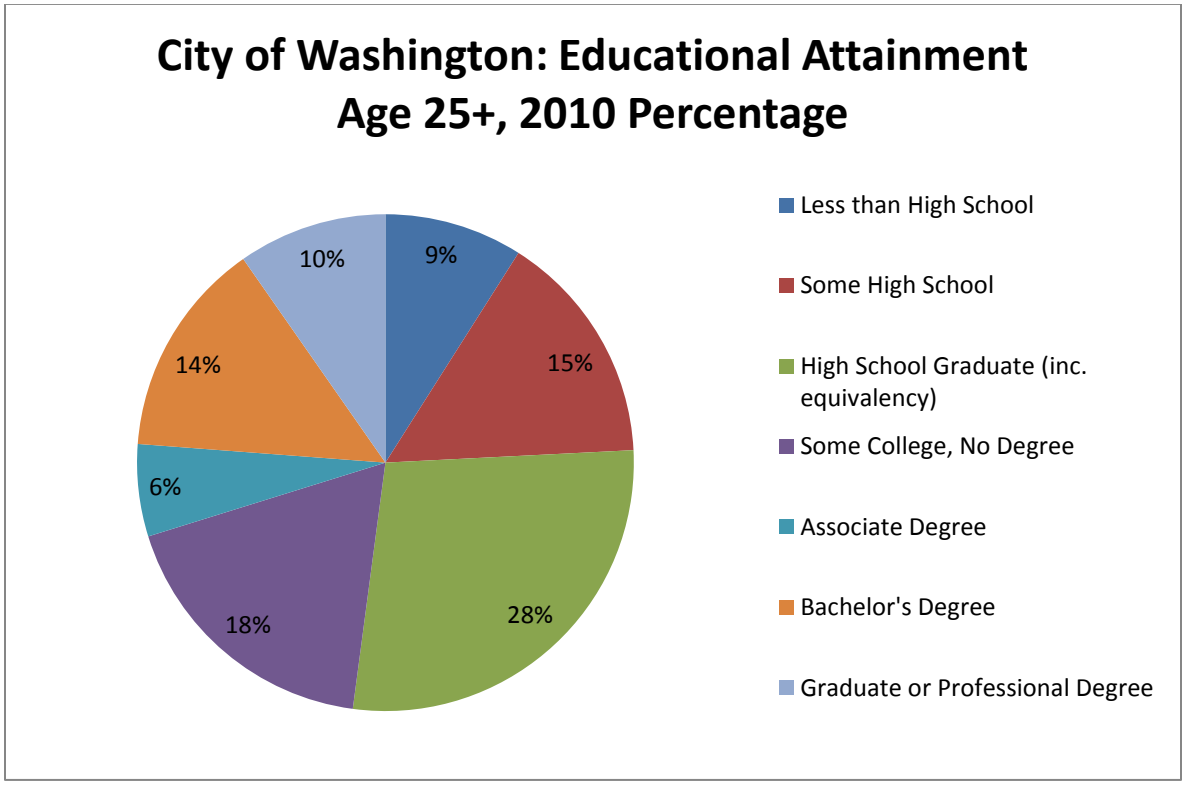


Source: U.S. Census Data

EDUCATION

The educational attainment for residents 25 years and over in 2010 was as follows: 9% with less than 9th grade; 15.2% with some high school; 27.9% were high school graduates (includes equivalency); 18.1% with some college, no degree; 6% with an associate degree; 14.1% with a bachelor's degree; and 9.7% with a graduate or professional degree. Therefore, 75.8% of the 2010 population earned an education of high school graduate or higher. Figure 2.2 reflects the educational attainment for Washington's residents 25 years and over in the year 2010.

Figure 2.3: City of Washington Educational Attainment



Source: U.S. Census Data

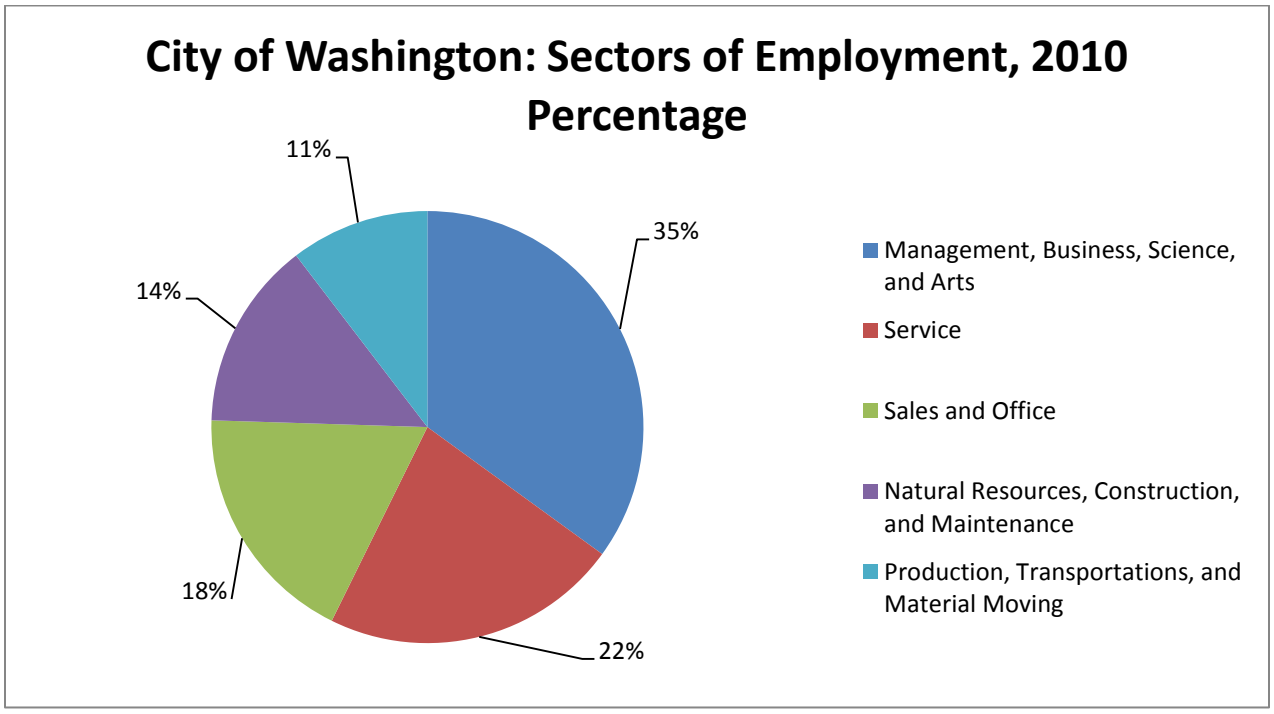
The educational attainment of Washington's population is less than the state and national levels. In 2010, 27.7% of North Carolina's population 25 years and over were high school graduates (including equivalency) and 84.1% of the State's population attained high school graduation or higher. The US population included 28.6% high school graduates (including equivalency) and 85.4% attained high school graduation or higher.

EMPLOYMENT

Washington's labor force (population 16 years and over) in 2010 was 7,705 people. The civilian labor force is comprised of 4,186 people (54.3% of total labor force), of which 3,293 (42.7%) are employed and 893 (11.6%) are unemployed. The mean travel time to work was 19.8 minutes.

Employment can be further broken down into sectors of employment, based on the 3,293 employed civilian population 16 years and over. Figure 2.4 illustrates Washington's sectors of employment.

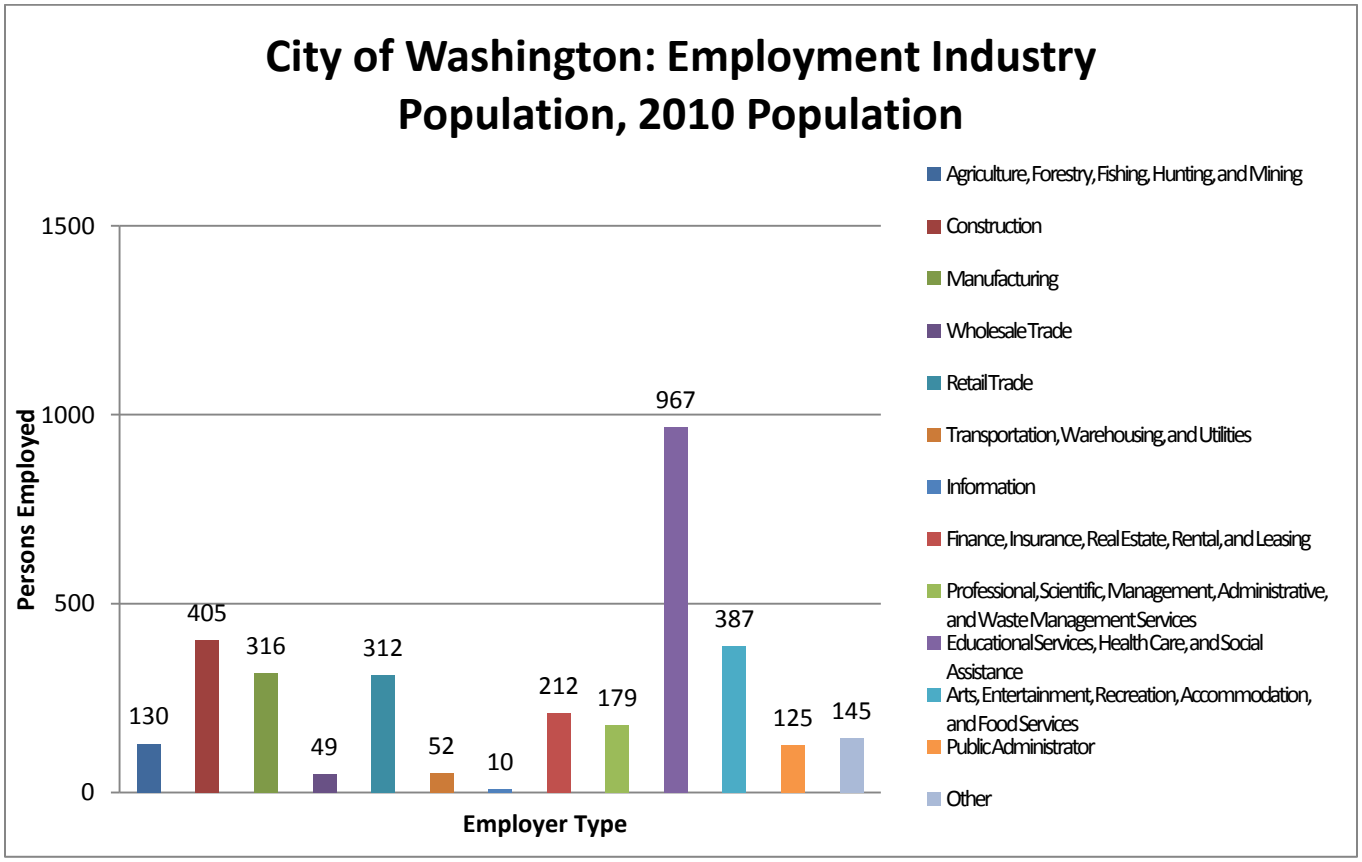
Figure 2.4: City of Washington Sectors of Employment



Source: U.S. Census Data

The employment industry for the population of Washington is focused around Education, Health and Social Services and Manufacturing. The majority of employment opportunities are in Education, Health and Social Services. In Washington, 24% of the employed population works in one of these three sectors. Figure 2.5 illustrates Washington's employment industry by population.

Figure 2.5: City of Washington Employment Industry Population



Source: U.S. Census Data

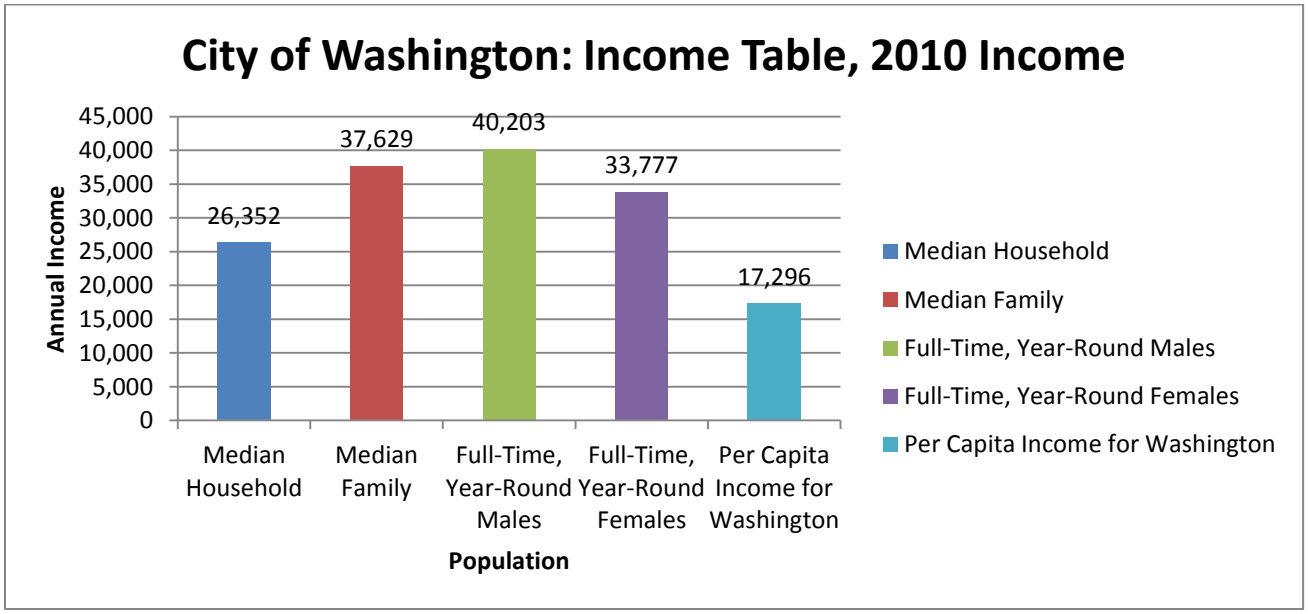
INCOME

According to the 2010 Census, Washington's median household income was $26,352 and the median family income was $37,629. Washington's incomes are significantly less than the state and national averages. According to the 2010 Census, North Carolina's median household income was $46,291 and the median family income was $57,171. During the same year, the US median household income was $52,762 and the median family income was $64,293.

Washington's full-time, year-round workers earned the following median incomes: males $40,203, females $33,777. The per capita income for Washington was $17,296. The City's per capita income was less than of the state and national amounts. In 2010, the per capita income in North Carolina was $25,256 and in the US was $27,915. In 2010, 25.7% of Washington's families were below the poverty line, including 37% of those with related children under age 18 years and 72.1% with related children under 5 years. The population below the poverty line of the state and nation is significantly less than that of Washington with 11.8% in North Carolina and 10.5% in the United States.

From the given data, there were approximately 4,256 households listed in the City with a median annual household income of $26,352. Figure 2.6 illustrates incomes for the employed population of Washington.

Figure 2.6: City of Washington Income

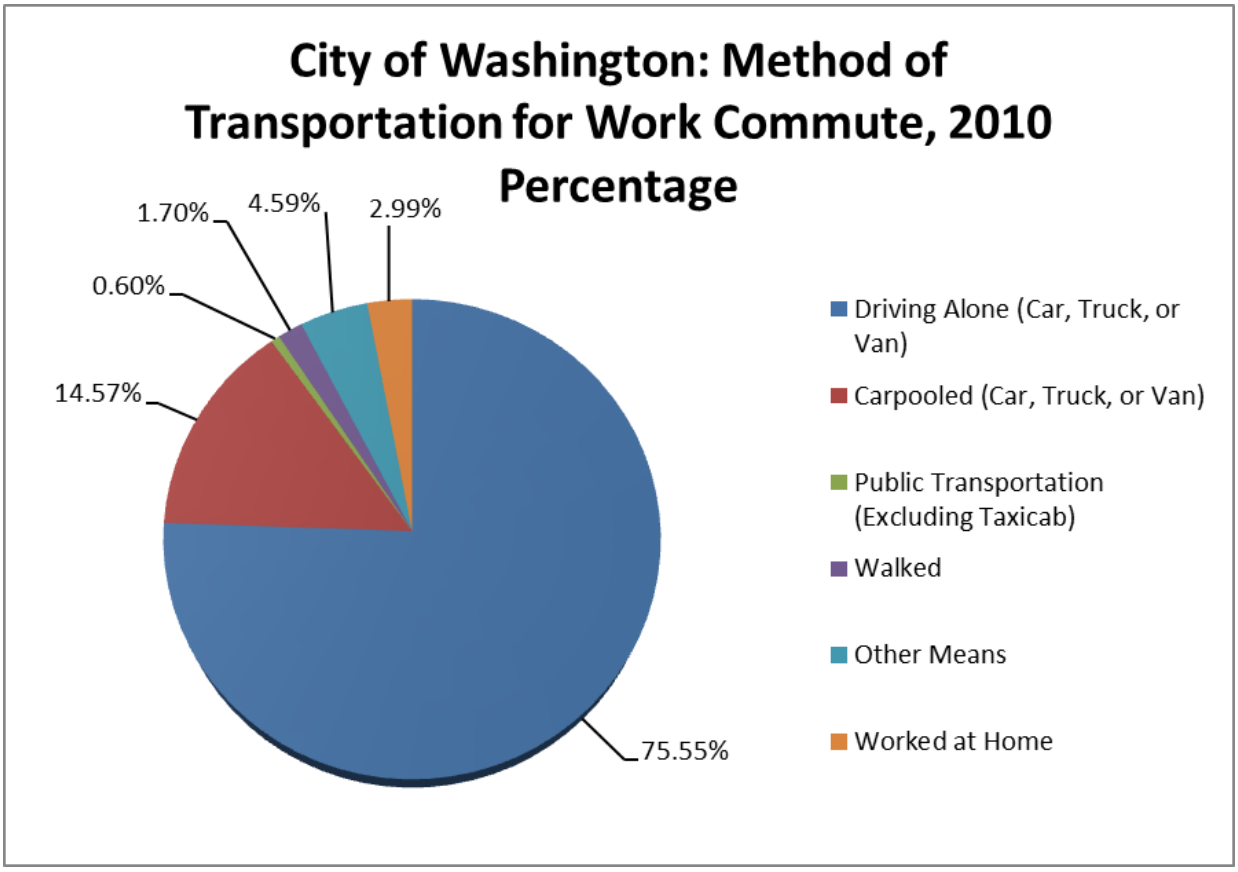


Source: U.S. Census Data

VEHICLES

Approximately eighty percent (80%) of Washington's households have at least one motor vehicle. Of the occupied housing units (total 4,256), 19.9% have no vehicle, 45.4% have one vehicle, 25.2% have two vehicles, and 9.5% have three or more vehicles. Washington's population does not rely on mass public transportation.

Figure 2.7: City of Washington Methods of Transportation to Work



Source: U.S. Census Data

Figure 2.7 illustrates the methods of transportation for working residents (16 years and over) of Washington. The majority of employed residents drive alone to work in their own vehicle.

PUBLIC SURVEY SUMMARY

Public input for the bicycle plan was solicited through online and hard copy surveys. The survey was made available through the City's website, the Beaufort County Health Department's website, and the Washington-Beaufort Chamber of Commerce's website. Hard copies of the survey were made available at numerous locations throughout Washington, including City Hall, Washington Parks and Recreation Department, Washington Visitors Center/Chamber of Commerce, Brown and BHM Libraries, and numerous other local businesses. Citizens in Washington were notified of the survey through local media outlets, area expo's, the City's website, and a display at a local bicycle shop.

The survey period began on August 13, 2012 and continued to accept responses until November 30, 2012 (nearly 4 month period) during which time 314 responses were received for tabulation. For a copy of the survey questions and complete results, please see Appendix A.

Of those 314 overall respondents, 300 answered the question which identified their gender with 54.3% being female. 252 respondents provided their ages, with those between the ages of 50-59 making up the largest group of respondents. Among the bracketed age groups, the majority of respondents were found to be between the ages of 40 up (71%).

The majority of respondents do bicycle, with more than half of them having at least 2 to 5 years of cycling experience. Most said they cycle at least a few times a month, with recreation being the primary purpose of their ride. Results did however show that several users did rely on cycling for commutes to both work and shopping. An examination of crash data shows that this is indeed happening, with several crashes having happened near shopping and retail centers along Carolina Avenue, 15th Street, and John Small Avenue.

The survey found that citizens general opinion of cycling conditions in Washington is one that categorizes cycling as dangerous, particularly when asked in terms of recreational rides. Respondents did however say they would cycle more if the current safety issues were resolved through improvements. Among the most popular choice of improvement that would encourage ridership, bike lanes and greenway trails were the overwhelming recommendations. Respondents also felt that maps of cycling routes as well as bicycle parking racks would also encourage them to use cycling as a means of transportation. In response to the survey responses, planners have included

recommendations in the Plan that would address these safety concerns and encourage ridership.

In order to address the recommendations of this plan, the City will need to find sources of funding to construct projects and implements programs. When asked their thoughts on how the City should fund bicycle improvements, the majority of respondents said they would support public funds being used. While the use of existing local taxes was favorable to respondents, there was little support for new local taxes to fund the improvements. Respondents favored State and Federal Grants as well as NCDOT Maintenance Funds to implement the recommended improvements.

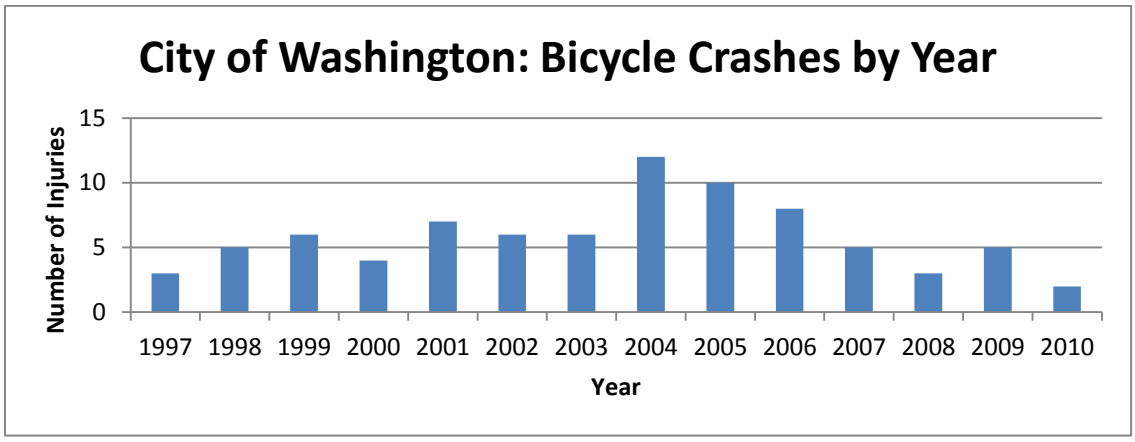
When asked what the most appealing aspects of cycling were, respondents said that cycling for health and fitness as well as the time spent outdoors was their primary motivators. The results shown from the survey regarding the use of cycling for health and fitness should not go unnoticed by the City. Programs promoting bicycling for fitness as well as including the health and fitness aspect in bicycling promotional campaigns should be considered by the City.

LOCAL BICYCLE CRASH DATA

The City of Washington's bicycle crash data were analyzed using the NCDOT's web-based bicycle crash database. These data were created by the UNC Highway Safety Research Center from all reported bicycle-motor vehicle crashes within Washington from 1997-2010. The data were analyzed to determine trends and to identify the high-risk areas of Washington. This information does not include instances involving only bicycles like a fall where medical attention may have been sought.

During the fourteen-year period, The City of Washington experienced eighty-two (82) reported bicycle-motor vehicle crashes. Figure 2.8 shows the distribution of crashes by year from 1997 to 2010.

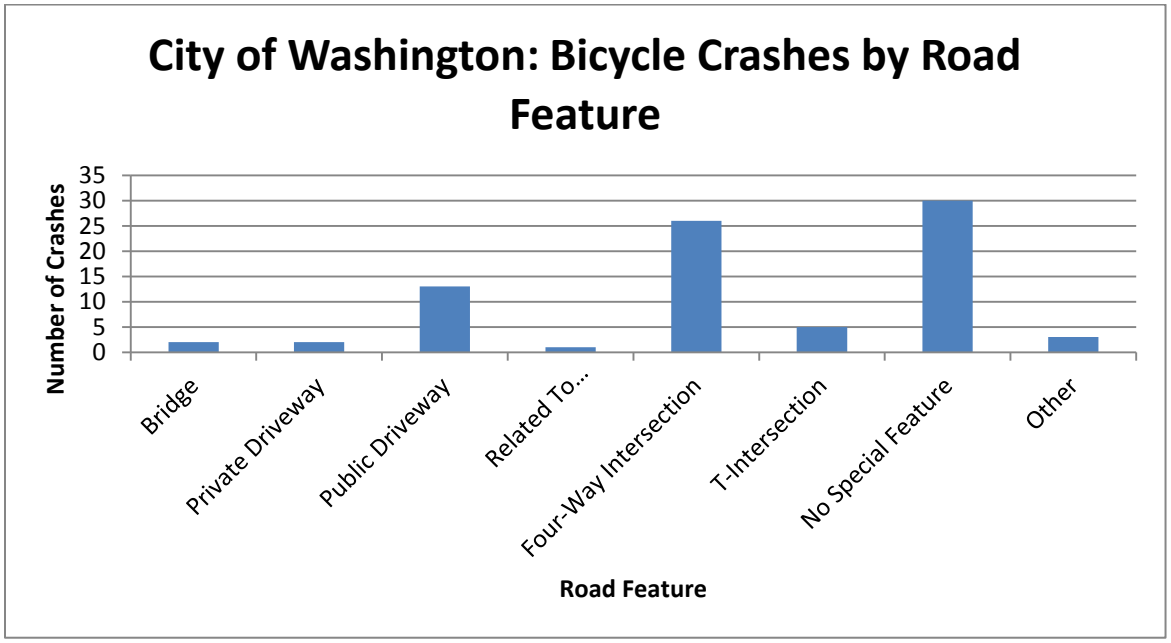
Figure 2.8: City of Washington Bicycle Crashes by Year



Source: NC DOT Division of Bicycle and Pedestrian Transportation, Bicycle Crash Data

Characteristics of crash data were reviewed to determine location injuries and results of the crashes. Figure 2.9 illustrates the road features of the bicycle crashes. Thirty-two (32) out of eighty-two (82) bicycle-motor vehicle crashes occurred at or related to a four-way intersection or T-intersection. Fifteen (15) out of eighty-two (82) bicycle-motor vehicle crashes occurred at a driveway. Thirty-three (33) out of eighty-two (82) bicycle-motor vehicle crashes occurred at locations that either had "no special features" or some "other" feature.

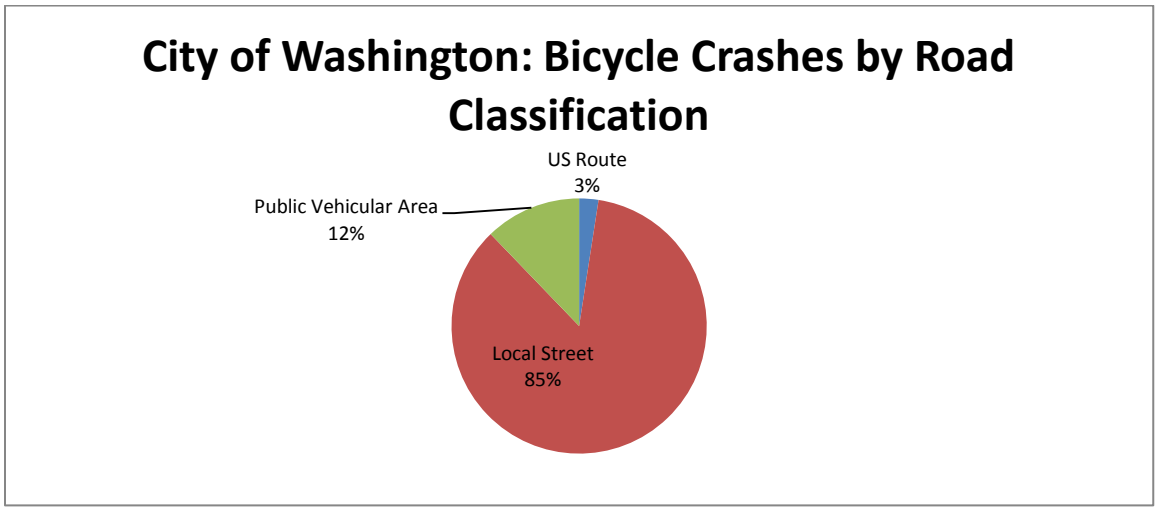
Figure 2.9: City of Washington: Bicycle Crashes by Road Feature



Source: NC DOT Division of Bicycle and Pedestrian Transportation, Bicycle Crash Data

Figure 2.10 illustrates the road classifications for the bicycle crashes. Seventy (70) out of eighty-two (82) or eighty-five percent (85%) of the reported bicycle-motor vehicle crashes occurred on a local city street. This indicates the need for additional safety measured such as bicycle visibility, enforcement, additional signage, marked routes, and driveway improvements.

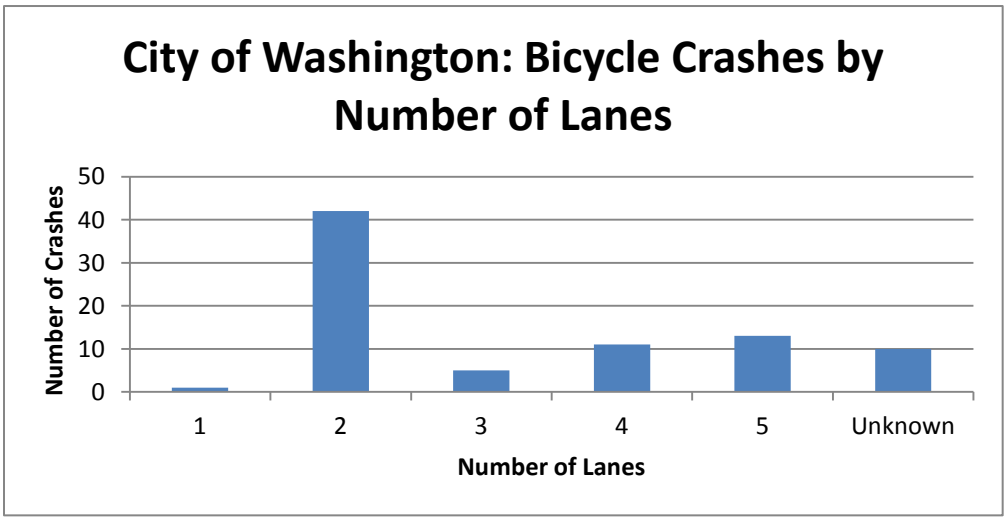
Figure 2.10: City of Washington: Bicycle Crashes by Road Classification



Source: NC DOT Division of Bicycle and Pedestrian Transportation, Bicycle Crash Data

Figure 2.11 illustrates the distribution of crashes by number of lanes. The majority of bicycle crashes (42 of 82) occurred on two-lane roads within the City of Washington, although twenty-nine (29) out of eighty-two (82) crashes occurred on roads with more than two (2) lanes. The number of crashes on multiple-lane roads indicates a possible need for road narrowing, off-road trails, vehicle speed reduction, bike lane installation, enforcement/compliance of traffic laws, and access management and lighting.

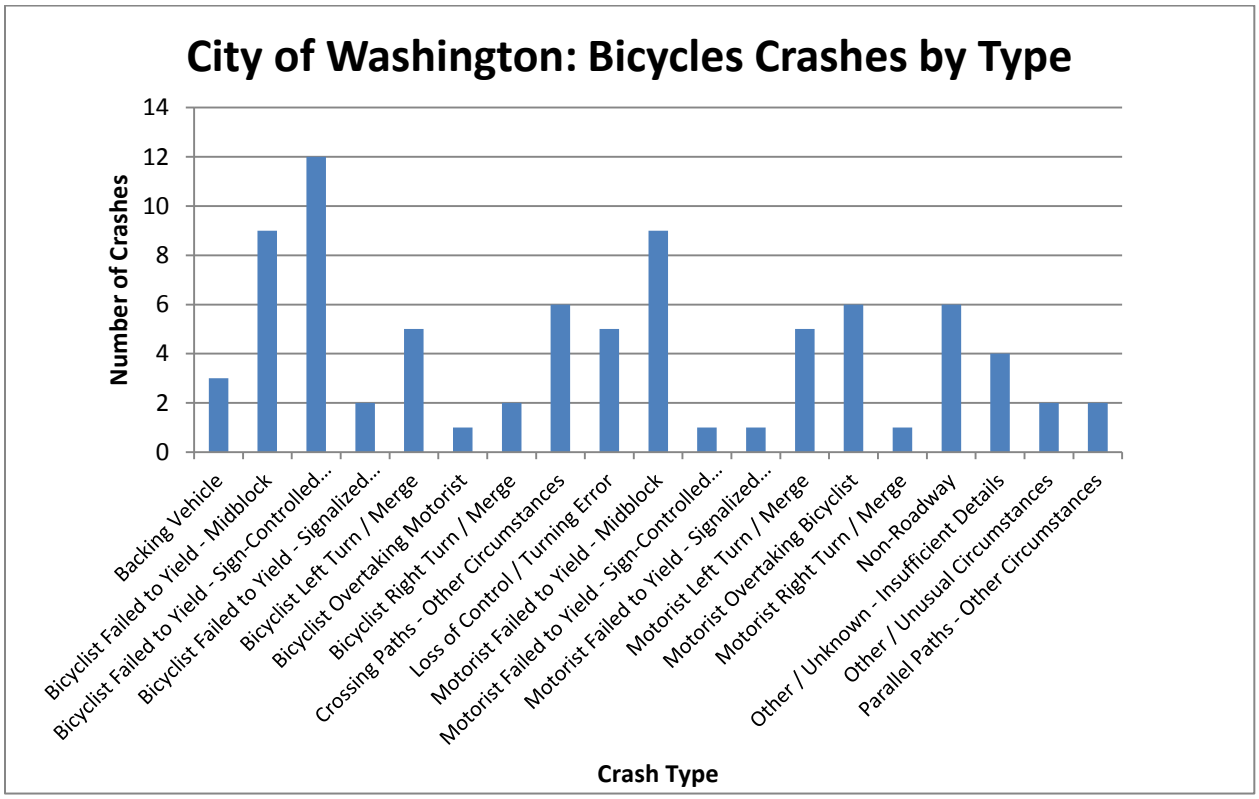
Figure 2.11: City of Washington: Bicycle Crashes by Number of Lanes



Source: NC DOT Division of Bicycle and Pedestrian Transportation, Bicycle Crash Data

Figure 2.12 indicates the types of bicycle-motor vehicle crashes that occurred in Washington. The crash data indicate a need for increased safety education for bicyclists and motorists alike.

Figure 2.12: City of Washington: Bicycle Crashes by Number of Lanes

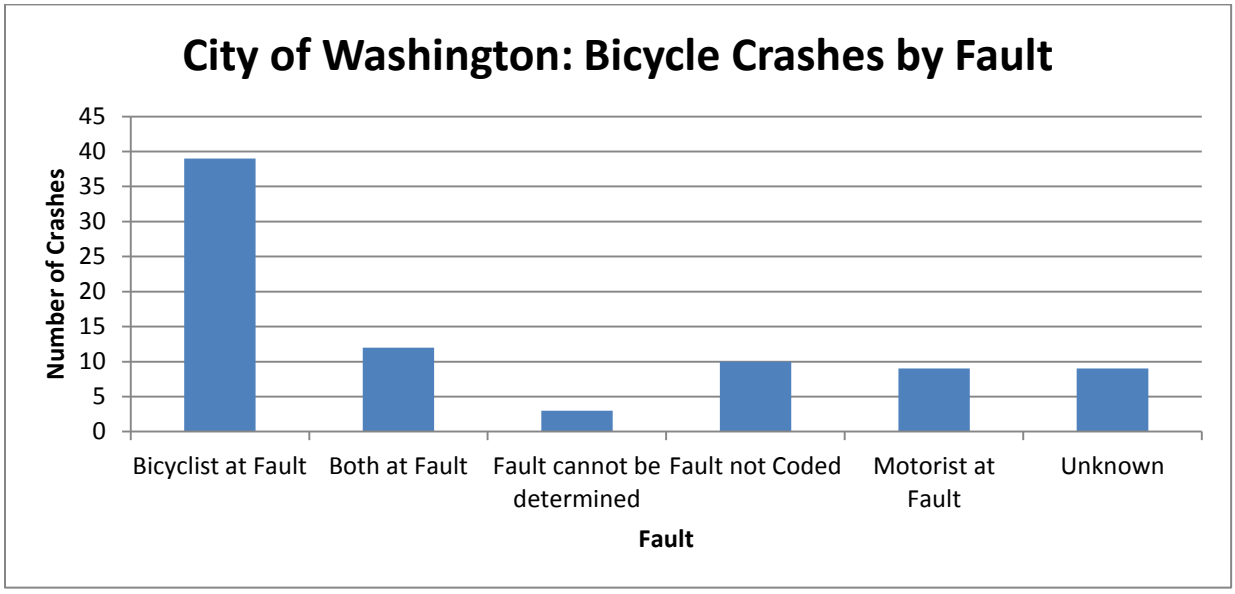


Source: NC DOT Division of Bicycle and Pedestrian Transportation, Bicycle Crash Data

The likelihood of bicycle injury increases with higher speed limits. According to a report (BIKESAFE) by the NC Highway Safety Research Center, "…faster speeds increase the likelihood of bicyclists being struck and seriously injured. At higher speeds, motorists are not likely to stop in time to avoid a crash." The report indicated a driver traveling at 31 miles per hour needs approximately 200 feet to stop, which usually exceeds the available distance to avoid a collision, but a driver traveling at 19 miles per hour is able to stop completely within 100 feet. The City of Washington should consider traffic-calming measures and speed reductions on streets with bicycle facilities.

Figure 2.13 indicates the need for motorist and bicyclist education regarding safety. The data show that there is a greater need for bicyclist education.

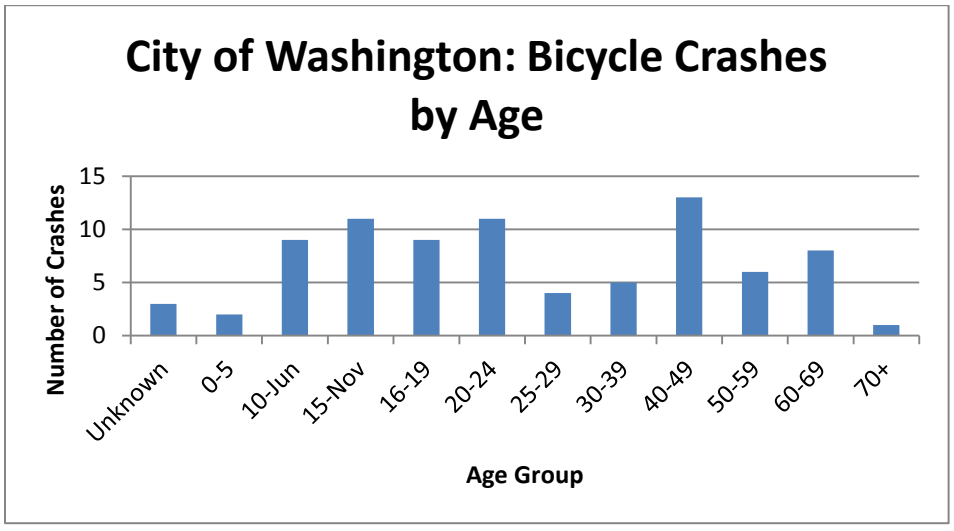
Figure 2.13: City of Washington: Bicycle Crashes by Fault



Source: NC DOT Division of Bicycle and Pedestrian Transportation, Bicycle Crash Data

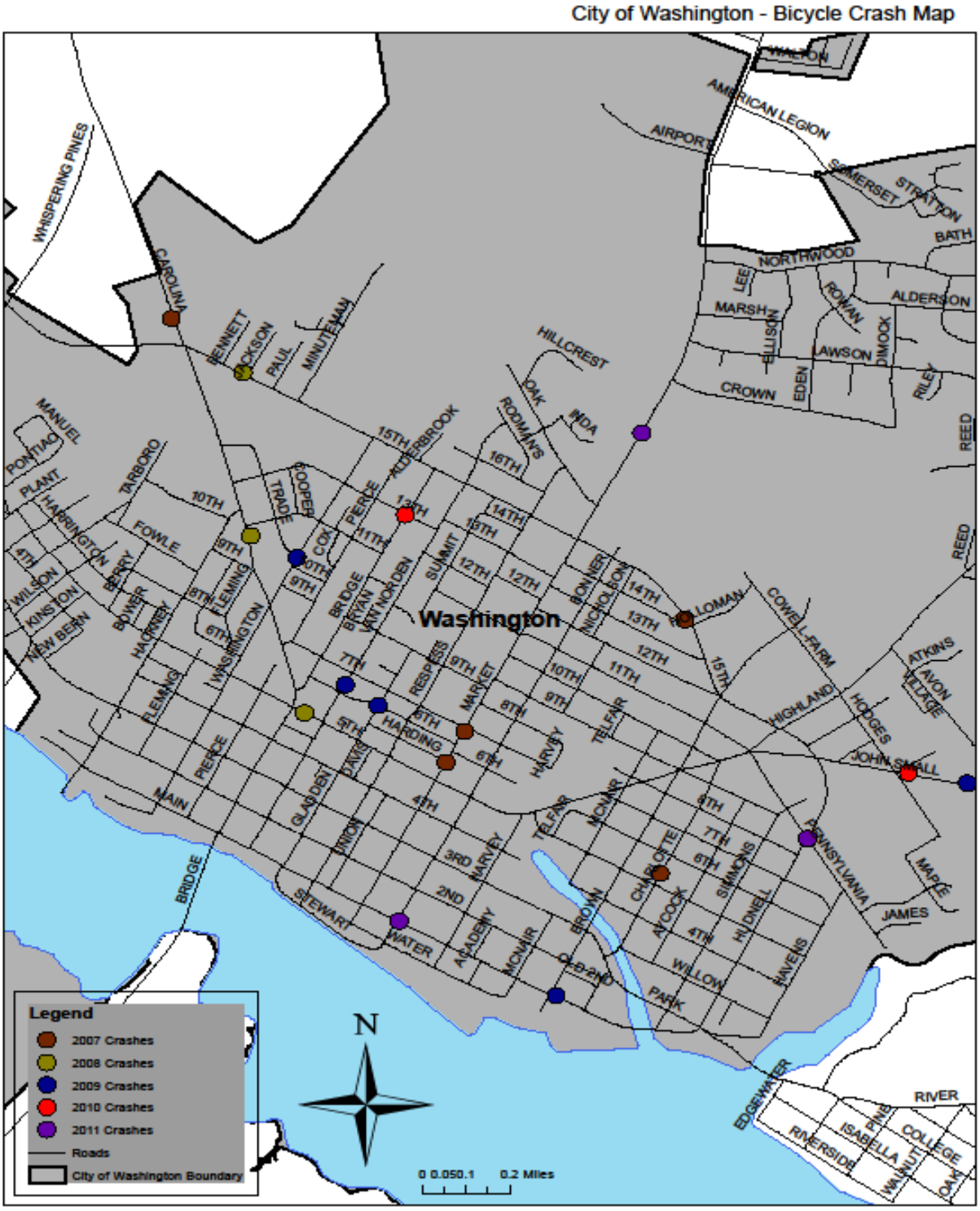
Figure 2.14 shows that a significant proportion of crashes involved school-aged children in Washington and reflects the need for bicycling education in local schools.

Figure 2.14: City of Washington: Bicycle Crashes by Age



Source: NC DOT Division of Bicycle and Pedestrian Transportation, Bicycle Crash Data

Map 2.1 – Bicycle Crash Map



Analysis of Washington's crash data indicates a need for bicycle-friendly development standards, improved bicyclist visibility along roadways and intersections, traffic and bicycle enforcement, and additional bicycle safety education. The City of Washington had eighty-two (82) bicycle-motor vehicle crashes from 1997-2010.

According to crash data, a significant majority of bicycle-motor vehicle crashes involved males. Sixty-seven (67) crashes involved males and fourteen (14) crashes involved females. Analyzed further, sixty-nine (69) of the eighty-two (82) bicycle crashes involved African- Americans. Given the high percentage that these groups comprise, there needs to be a focus on educating these segments of the population. A large portion of these crashes have occurred in one of the most economically disadvantaged residential areas of the City. Bicycle usage in this area as a primary means of transportation is common. Given that this neighborhood is also bordered by 5th Street, Carolina Avenue, 15th Avenue, and Market Street, four of the busiest vehicular traffic thoroughfares in the City, safe bicycle travel is further complicated.

In an effort to combat the dangerous cycling conditions in this area and reduce the rate of crashes, especially among African-Americans, the plan recommends additional signage along 5th Street, a road diet on Carolina Avenue with the inclusion of bike lanes, bike lanes along Market Street, and the conversion of 13th Street (parallel to 15th)into a Bicycle Boulevard. The City and the Police Department should also look to increase the promotion of the safety programs that are recommended in this plan in this residential area.

In addition to analyzing existing conditions, reviewing existing plans, programs, and policies at the Local, Regional, and State level is also important. Plans and policies determine the type of development that is encouraged and allowed in a community while programs offer methods to promote, encourage, and educate the public on bicycling. Therefore, these tools (plans, policies, and programs) are a key component to ensure an environment that is supportive of bicycling.

The following plans, programs, and policies were reviewed in preparation of the Washington Comprehensive Bicycle Plan:

- City of Washington CAMA Core Land Use Plan (2007)
- City of Washington Comprehensive Plan (2013)
- Parks and Recreation Master Plan for Washington, North Carolina (2008)
- City of Washington Pedestrian Master Plan (2006)
- City of Washington Code of' Ordinances
- Walk Bike NC – Statewide Pedestrian and Bicycle Plan (2013)
- 2013-2019 State Transportation Improvement Program (TIP)
- State Programs and Initiatives

RELEVANT PLANS

LOCAL PLANS

CITY OF WASHINGTON CAMA CORE LAND USE PLAN (2007)

The City of Washington's CAMA Core Land Use Plan serves as a guide to making short-term and long-term land use decisions. Washington has two types of roadways: primary roads and secondary roads. While there is no interstate highway, Washington contains two US Highways (17 & 264) and one North Carolina Highway (32). A bypass on US Highway 17 around Washington was

constructed to alleviate congestion created by truck traffic and pass-through vehicles.

The Plan is a data-rich document, providing numerous details on the City's population, economy, and land use patterns, and environmental conditions. The CAMA Plan also documents key growth related issues that were identified through a robust public planning process. The key issues identified in the Plan are:

- Improving the Central Business District
- Managing the development and impacts along the new Highway 17 Bypass
- Developing and improving gateways into the City
- Prioritizing areas for annexation
- Stabilizing and improving neighborhoods

The CAMA plan also includes a number of policies and implementation steps that cover a range of topics. These policy topics include: Public Access; Land Use Compatibility; Infrastructure Carrying Capacity; Transportation; Natural Hazard Areas; Water Quality; and Local Areas of Concern, including cultural, historic, and scenic areas, economic development; downtown revitalization; marinas/shoreline development; and general health and human service's needs.

CITY OF WASHINGTON COMPREHENSIVE PLAN (2013)

The Comprehensive Plan for the City of Washington has been prepared to articulate a vision for the community's future, and establish a road map for how to achieve that future. This Plan is an update of the community's last adopted Comprehensive Plan, adopted by the Washington City Council in 2006. Washington's Comprehensive Plan is a strategic document that compiles information, community dialogue, and preferred public policy choices for the City. This plan provides policy guidance on a variety of complementary community issues, including coordinating growth and infrastructure, highlighting economic development pursuits, and protecting environmental resources.

PARKS AND RECREATION MASTER PLAN FOR WASHINGTON, NORTH CAROLINA (2008)

Washington's City Council adopted the City's most recent Parks and Recreation Master Plan in February 2008. The Plan inventories and evaluates the City's 29 parks/facilities, noting the constraints, as well as the potential for each park/facility. The Plan also compares the City facilities with national standards and while the City is generally providing adequate facilities, it recognizes there

are some unmet needs in the community. The Plan also recommends a Landscape Beautification Plan for all current and future City properties and incorporating the Harbor Management Plan into the Recreation Master Plan. These recommendations are important to the development of off road bicycle and pedestrian facilities, including existing and future proposed facilities. The Plan also includes general policies and guidelines for the City to consider with respect to recreation and park facilities. An update of this plan will begin in 2013, with considerations from this Bicycle Master Plan to be incorporated.

CITY OF WASHINGTON PEDESTRIAN MASTER PLAN (2006)

The 2006 Pedestrian Master Plan includes an inventory of existing pedestrian facilities and programs, along with a description of plans for additional facilities. The Plan discusses regulations impacting pedestrian facilities, transportation issues related to public schools, and barriers to walking. Recommendations included improvements to meet Americans with Disabilities Guidelines, (such as installation of ramps, repairing damaged sidewalks, and improving the timing of signalized crosswalks). The Plan also recommends that the City provide incentives to existing businesses to upgrade their properties to include sidewalks that connect the public walkway to the customer entrance of businesses. The Plan calls for regulations that require sidewalks on public streets when properties develop fronting on such streets. Updates to this Plan will begin in the fall of 2013.

STATE PLANS

The State of North Carolina has many planning documents that support bicycling. One of the most important is the newly developed Walk Bike NC - Statewide Pedestrian and Bicycle Plan (http://www.ncdot.gov/bikeped/planning/walkbikenc/) . Currently, there are no planned improvements in Washington.

WALK BIKE NC - STATEWIDE PEDESTRIAN AND BICYCLE PLAN (2013)

NCDOT launched this project to improve walking and bicycling conditions statewide and develop a vision for the future of bicycling and walking in North Carolina. Planning for walking and bicycling – whether for recreation, exercise, or transportation – helps to create a safer, more efficient network everyone can use. Important tasks included reviewing the current status of bicycling and walking in this State, researching appropriate strategies for improvement, and identifying the most efficient avenues to apply those strategies.

2013-2019 STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM (TIP)

This program funds transportation projects including new construction, maintenance, and safety of existing infrastructure. Each transportation project is described and its status is listed in this report.

RELEVANT PROGRAMS & INITIATIVES

STATE PROGRAMS AND INITIATIVES

The State of North Carolina has many programs and initiatives that support bicycling throughout the State. These programs include:

- Bicycle and Pedestrian Grant Initiative

  The NCDOT Division of Bicycle and Pedestrian Transportation and the Transportation Planning Branch created an annual matching grant program – the Bicycle and Pedestrian Planning Grant Initiative – to encourage municipalities to develop comprehensive bicycle plans and pedestrian plans. This program was initiated in January 2004 and is currently administered through NCDOT-DBPT.

  https://connect.ncdot.gov/municipalities/PlanningGrant/Pages/default.aspx

- Bicycle Helmet Initiative

  Studies have shown that helmets prevent 60 percent of head injury deaths and reduce the overall risk of head injuries by 85 percent. The Division of Bicycle and Pedestrian Transportation has distributed more than 4,800 bike helmets to schools, police departments, fire departments and other organizations through its Bicycle Helmet Initiative, which is funded from revenue from the specialty "Share the Road" license plate. This initiative provides free helmets to underprivileged children.

  http://www.ncdot.gov/bikeped/safetyeducation/helmet_initiative/

- Safe Routs to School
  Safe Routes to School is a national and international movement to enable and encourage children to walk and bicycle to school. SRTS programs look at ways to make walking and biking to school safer and more appealing through road improvements, traffic reduction and education.

  http://www.ncdot.gov/download/programs/srts/SRTS.pdf

- Share the Road Initiative

  The DBPT has been a leader in educating both cyclists and motorists about their rights and responsibilities in sharing roadway space. The DBPT has also worked closely with the Division of Motor Vehicles within NCDOT to incorporate information for motorists about the law and the proper way to interact with bicyclists and pedestrians on North Carolina's highways.In 1982, the Division undertook its first statewide safety campaign on the theme "Bicycles Are Vehicles." The thrust of this campaign was to increase awareness among motorists that bicycles have an equal right to use the state's roads, with the exception of limited access freeways and interstate highways, while educating bicyclists to the need to ride responsibly as vehicle operators. Therefore, everyone operating a vehicle, whether motorized or non-motorized, must make an effort to safely and responsibly "Share the Road."

  http://www.ncdot.gov/bikeped/safetyeducation/

MID-EAST RURAL TRANSPORTATION PLANNING ORGANIZATION

The Mid-East Rural Transportation Planning Organization (RPO) currently does not have any projects identified within the Bike Plan project area. The Mid-East RPO does support Washington's desire to develop a bicycle-friendly community.

LOCAL PROGRAMS AND INITIATIVES

LAW ENFORCEMENT

Bicycling safety education is an important part in the development of Washington's Comprehensive Bicycle Plan, a part that the Washington Police Department can play a big role in. Given the limited number of current bicycle programs that help promote safety and awareness of cyclists in the community, it is recommended that additional safety and promotional programs be created. Existing or past programs that have been conducted or sponsored in partnership by the Police Department have included bicycle rodeos for children in the community.

One of the biggest concerns that police officers have voiced in Washington in regards to cycling is bicyclists' behavior on the roadway. Currently, bicyclists are seen riding against traffic, riding down the middle of the road, and erratically crossing business driveways. Another concern is the use of bicycles with no reflective lighting at night. The Police Department desires to

increase encouragement of bicyclists to obey traffic rules set both locally and at the state level.

There are a few streets within Washington that police identified as higher hazard areas to ride, including:

- Highway 264
- 5th Street
- John Small Avenue
- Carolina Avenue
- 15th Street
- Bridge Street

PARKS AND RECREATION DEPARTMENT

The City of Washington's Parks and Recreation Department manages the City's public parks and recreation facilities and provides programming throughout the year. The Department strives to offer the people of Washington and surrounding areas the opportunity to develop their leisure time and interests through diverse activities and programs, promoting the enrichment of life and creating outlets for developing physical fitness, sportsmanship, leadership and cultural arts. The interaction of people participating in a common interest enables them to grow and prosper in unity of family and community spirit.

It is for these reasons that it is a goal of the Parks and Recreation Department through this Bike Plan to provide safe bicycling routes to connect neighborhoods and schools to recreation facilities. Although the Department does not offer bicycling programs, the City's public facilities are a destination of bikers. Many of the Department's program users are youth who often depend on motor vehicle transportation to attend practices, games, and after-school activities. The Recreation Department would like to see routes developed that would provide "across town" connections within Washington. Some of the identified hazardous areas for bicycling include 5th Street/US 264, Highway 17 Business/Bridge Street/Carolina Avenue, 15th Street, and the railroad tracks near Havens Garden Park.

In addition to parks around town, the Susiegray McConnell Sports Complex serves as Washington's major recreation area having opportunities for people of all ages and abilities. While located along the northern limits of the City outside of the more densely populated areas, there is hope that as long as users commuting by bicycle feel safe doing so, accessibility to the complex will increase. In an effort to improve safety to the facility, this plan recommends the

widening of the existing sidewalk along Market Street Extension, thus creating a multi-use sidepath, connecting pedestrians and cyclist alike.

RELEVANT POLICIES & INSTITUTIONAL FRAMEWORK

FEDERAL AND STATE POLICIES

There are numerous State and Federal policies for the development of bicycle facilities. Through their guidelines, NCDOT has shown their commitment to improving bicycling and pedestrian conditions. This commitment is all the more important as these facilities have become a critical element of the overall transportation system.

USDOT POLICY ON BICYCLE AND PEDESTRIAN ACCOMMODATION REGULATIONS AND RECOMMENDATIONS

The DOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. Because of the numerous individual and community benefits that walking and bicycling provide — including health, safety, environmental, transportation, and quality of life — transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes. USDOT Policy found at: http://www.fhwa.dot.gov/environment/bikeped/policy_accom.htm .

COMPLETE STREETS POLICY OF 2009

The North Carolina Board of Transportation adopted a Complete Streets policy in July 2009. The policy directs the North Carolina Department of Transportation (NCDOT) to consider and incorporate all modes of transportation when building new projects or making improvements to existing infrastructure. Under the new policy, NCDOT will collaborate with cities, towns, and communities during the planning and design phases of new streets or improvement projects. Together, they will decide how to provide the transportation options needed to serve the community and complement the context of the area.

The policy adopted by the Board of Transportation directed NCDOT to develop planning and design guidelines. Complete Streets elements in projects include ADA-compliant curb cuts, sidewalk improvements, new bicycle lanes, roadside improvements for public transportation, landscape features, and other elements that improve transportation for all users. Policy found at http://www.completestreetsnc.org/.

NCDOT RESOLUTION ON BICYCLING AND WALKING

On September 8, 2000, the N.C. Board of Transportation adopted a Resolution for Bicycling and Walking to make bicycling and walking a critical part in the State's long-range transportation system. More information can be found at http://www.ncdot.gov/bikeped/download/bikeped_laws_BOT_Mainstreaming_Resolution.pdf.

NCDOT BICYCLE POLICY

The NCDOT Bicycle Policy offers guidelines to provide bicycle accommodations on State highways and specifies standards for planning, design, construction, maintenance, and operations relevant to bicycle facilities. The policy can be found at http://www.ncdot.gov/bikeped/download/bikeped_laws_Bicycle_Policy.pdf

NCDOT GREENWAY POLICY

In 1994 the NCDOT adopted administrative guidelines to consider greenways and greenway crossings during the highway planning process. This policy was incorporated so that critical corridors which have been adopted by localities for future greenways will not be severed by highway construction. More information can be found at http://www.ncdot.gov/_templates/download/external.html?pdf=http%3A//www.ncdot.gov/bikeped/download/bikeped_laws_Greenway_Admin_Action.pdf

LOCAL POLICIES

There are very few policies or ordinances regarding bicycle safety or facilities in Washington. Currently, the City's Code of Ordinances prohibits bicycles on sidewalks and riding on the handlebars of bicycles. There are no policies or ordinances related to bicycle facility signage or standards. For more detail, please refer to Table 3.1 City of Washington Local Ordinances Related to Bicycling located at the end of Section 3.

The City has acknowledged the need for policies and ordinances to ensure bicycle or multi-use trail facilities when new development occurs. While these types of recreational facilities can be recommended during the planning and permit approval phases, the City should consider an ordinance to require such facilities. The City would like increased trail or route connectivity and it is recommended that installation of facilities during development will provide greater opportunities for more facilities.

RELEVANT BICYCLE STATUTES & ORDINANCES

There are a few existing policies related to bicycles at the local, state, and federal levels.

STATE STATUTES & LAWS

State of North Carolina laws regulate a range of safety and operational issues, including the following areas pertaining to bicycling:

- Helmets (required for all bicyclists 16 years of age and younger)
- Bicycle lighting
- Requirements for riding on the right side of the road
- Impaired driving
- Reckless operation
- Compliance with signs and signals
- One-way streets
- Yielding right-of-way to pedestrians
- Passing another vehicle
- Being passed by another vehicle
- Crashes

More information can be found at
http://www.ncdot.gov/bikeped/lawspolicies/laws/

LOCAL ORDINANCES

As was previously mentioned, the City of Washington has very few ordinances regarding bicycle safety or facilities. Sections of the City of Washington's ordinances related to bicycling are outlined below.

ARTICLE VI. – BICYCLES

Sec. 18-180. – Riding on sidewalk or without hands or handlebars.

(a) It shall be unlawful for any person to operate a bicycle upon and sidewalk or pedestrian walkway in the city except r residential zones

(b) It shall also be unlawful for any person to ride a bicycle on any street alley or highway in the city without having his hands upon the handlebars.

Sec. 18-181. – More than one (1) person riding.

It shall be unlawful for the operator of a bicycle on the public streets to carry any other person on the handlebar, frame or other part of such bicycle unless built for two (2); and it shall be unlawful for any person to so ride upon a bicycle.

In order to develop a strategic bicycle plan to make Washington a bicycle-friendly community, there are a number of issues that will need to be addressed in the development of the plan.

Developing bicycle facilities for Washington will require considerations for:

- Safety
- Skill level of users
- Barriers
- Access to and from bicycle facilities
- Direct and convenient alignment to serve origins and destinations
- Continuity - avoiding abrupt facility discontinuity and stops
- Crash Reduction
- Traffic volumes and speed
- Intersection conditions
- Adequate sight lines
- Convenient bicycle parking at destinations
- Adequate maintenance commitment
- Costs
- Policies

This section identifies the overall transportation system, desired corridors of bicycle travel, special focus areas, and potential projects.

SYSTEM OVERVIEW

The overall transportation system in Washington is automobile dependent. As a result, intersections and thoroughfares were designed to accommodate automobile travel only. Washington's more recent commercial growth has evolved around the US Highway 17 (Carolina Ave.) and 15th Street corridors

through Washington that includes shopping centers with grocery stores, restaurants, and retail establishments. While "urban sprawl" is limited, the pattern of commercial development along the existing thoroughfares is intimidating for bicyclists due to many commercial driveways, intersections that are unsafe to cross, limited access and lack of provisions to accommodate bicycle travel. Currently, special signage used to identify bicyclists in the roadway, such as "Share the Road", is non-existent.

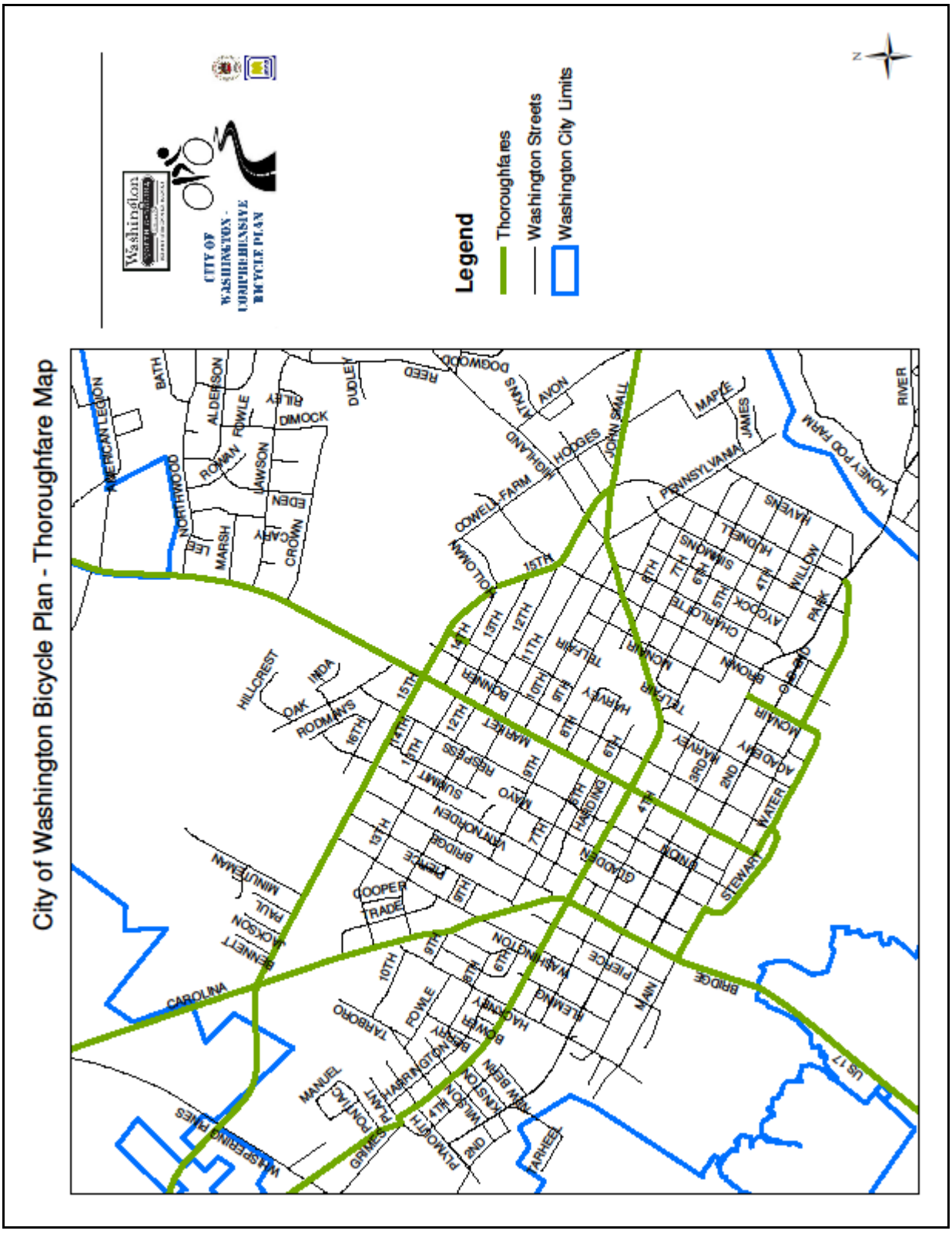
The most bicycle and pedestrian accessible areas of Washington are its residential areas due to low traffic speeds and short blocks.

CORRIDOR IDENTIFICATION

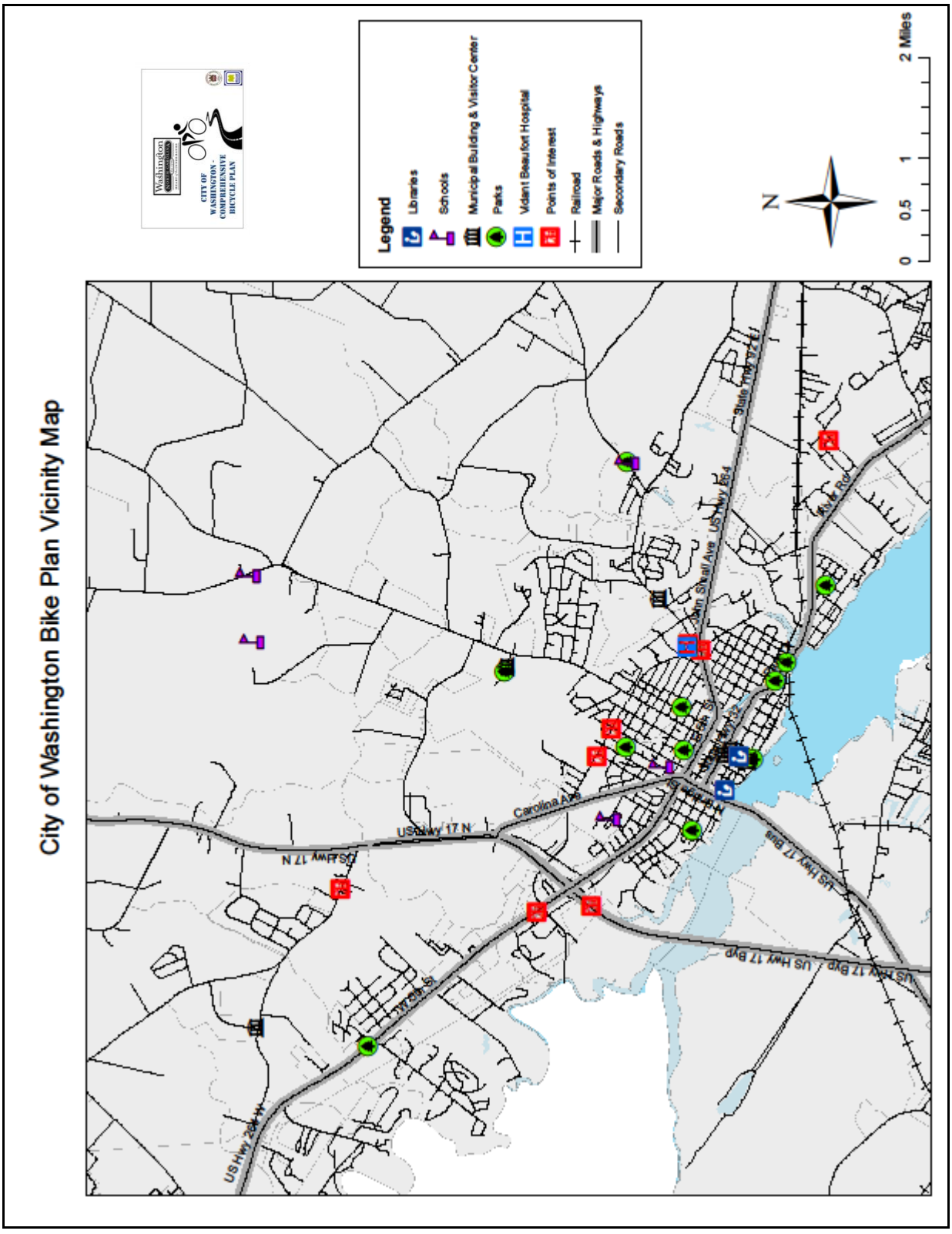
The identification of bicycling corridors, origins, and destination points provides an idea on available access to desired routes and bicycling facilities. The assessment of the conditions of existing bicycling corridors and desired routes will assist in developing recommendations for bicycle facility treatments and-facilities. This subsection will discuss the analysis of the existing conditions for the following in Washington: destinations, origins, and desired corridors of bicycle travel.

Map 4.1 illustrates the most popular corridors in the City of Washington. Map 4.2 illustrates all identified destinations and points of interest throughout the City of Washington project area. Map 4.3 illustrates the North Carolina State Bike Routes, at both the statewide and local level.

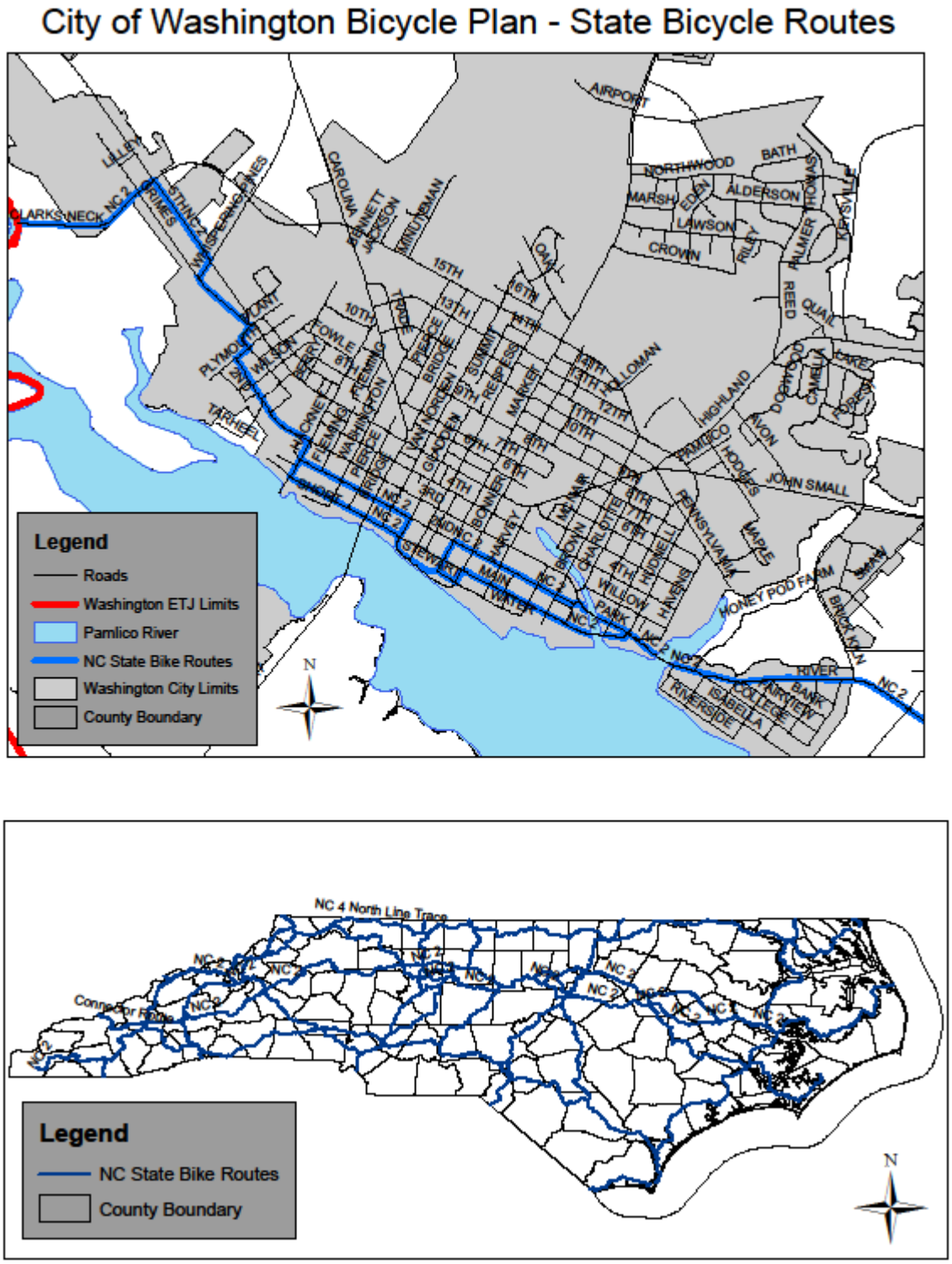
Map 4.1 – Corridor/Thoroughfare Map



Map 4.2 – Points of Interest Map



Map 4.3 – North Carolina State Bicycle Route Map



OPPORTUNITIES/POTENTIAL PROJECTS

Potential projects to improve the existing bicycling network in Washington were developed from public input activities, Steering Committee meetings, and community evaluation. Thirty (32) preliminary recommendations or potential projects have been identified. Refer to Appendix B for a complete description of all preliminary recommendations.

Maps 4.3 and 4.4 show the potential opportunities, with Map 4.3 showing on-road projects and Map 4.4 showing the proposed off-road Washington-Greenville Greenway. Map 4.5 shows the proposed bike route loop system that would be created through the completion of the projects proposed in the plan.

During plan development, several potential projects were identified that would improve the existing bicycling network. These potential bicycle facilities projects have been broken down into three categories: On-Road Projects & Preferred Treatments, Off-Road Projects & Preferred Treatments, and Ancillary Facilities. Some projects may require further review and approval by the NCDOT Division 2 Office located in Greenville, NC.

The potential projects were based upon:

- Steering Committee Meetings
- Public Survey & Open House Comments
- Bicycle-Motor Vehicle Crash Data
- Field inventory and Assessment
- Ability to provide connectivity & improve safety

During the March 5, 2013 Steering Committee Meeting, members participated in an exercise to identify opportunities related to the development of a Comprehensive Bicycle Plan. Members identified a list of general opportunities related to connectivity, education and awareness; increasing visibility, and providing additional bicycle elements and facilities. Refer to Appendix B for a complete list of identified opportunities.

Other opportunities that have been offered by citizens and City staff include the use of railroad rights-of-way/corridors and power line easements to create off-road bicycle facilities. The City should also consider its utility easements as opportunities for bicycling corridors. Low-volume streets have been identified as potential bicycle corridors. Opportunities to provide connector routes to regional bicycle routes, parks, residential areas, and other bicycling destinations were recommended during plan development.

ON-ROAD PROJECTS & PREFERRED TREATMENTS

During the early stages of plan development, Mid-East Commission planners conducted numerous site visits to examine the current conditions in Washington. Observations, along with public input that included survey results and comments at public open houses and events, were analyzed together to create an initial list of proposed projects. These projects were then presented to the Steering Committee as well as the public at a second open house. Any necessary adjustments or additional projects based on public comment were then examined for inclusion.

The projects that have been proposed were developed with the idea of making Washington a bikeable community for users of all needs and skill levels. Through the public input survey, it was clear that there are different needs and uses for cyclists in Washington; therefore, the projects that were selected were projects that serve particular purposes, but together create a bicycle system for all users. There are few roadways or facilities that currently exist in Washington that are bicycle friendly; however, it was important to be sure to incorporate these few facilities into the creation of the proposed system. Proposed off-road and ancillary facilities were also incorporated into the decision process.

On-road projects and preferred treatments in this plan include bike lanes, sharrows, paved shoulders, signage, striping, bike signals, and refuge islands, according to specifications and standards outlined by NCDOT.

3rd and Market Intersection Improvement

This intersection, located in the heart of downtown Washington, sits along the proposed Market Street Bike Sharrow Project as well as the currently designated NC Bike Route on 3rd Street. With busy traffic conditions in the intersection and no current crossing signals, this area can be dangerous for bicyclists and pedestrians to navigate. It is recommended that standard bicycle lane markings through the intersection be included to safely accommodate cyclists.

5th and Harvey Intersection Improvement at Jack's Creek Greenway

Jack's Creek Greenway, which is currently in place, is divided at its northern end by 5th Street. The gap requires users to navigate across this busy thoroughfare with no signal, designated markings, or warning signs to motorists. This crossing is also located in a curve, further hindering both cyclist and motorist. The greenway, which will serve as the eastern connector leg of the proposed bike loop route system in Washington, needs to see improvements to the crossing at 5th Street, including a designated crossing at 5th and Harvey Streets, bicycle

crossing signage along both eastbound and westbound 5th Street prior to the crossing, and construction of a mid-block crossing refuge island.

15th and Market Intersection Improvement

This intersection, located at the northern end of the Market Street Bike Lane Project, is a high traffic intersection, with the McConnell Sport Complex, John Small Elementary School, PS Jones Middle School, and the Warren Air Field located to the north of the intersection, retail and shopping centers to the west, and the hospital and medical facilities to the east. Given that 15th Street is projected to exceed its capacity by 2020, riders attempting to use the proposed Market Street Bike Lanes will likely find difficulty crossing at this intersection. It is recommended that standard bicycle lane markings through the intersection be included to safely accommodate cyclists.

3rd and Brown Intersection Improvement

This intersection, located at the southern end of Jack's Creek Greenway, connects riders to the NC Bike Route which currently runs along 3rd Street. Currently, there is no signage or crossings along and on Brown and 3rd Streets in this area, making the location difficult for cyclists coming off of the greenway. It is recommended that bicycle crossing signage, as well as "Share the Road" signage be added to aid bicyclists and pedestrians using the intersection.

John Small and Hudnell Intersection Improvement

This intersection, located at the northern end of the Hudnell Street route, is a high traffic intersection, with hospital/medical facilities, drug stores, and an elementary school all located near this intersection. Given the size of this intersection and the high volume of traffic along John Small Avenue, a redesign of this intersection may be needed to fulfill recommendations. It is recommended that designated bicycle and pedestrian crossings, bicycle and pedestrian crossing signage along both eastbound and westbound John Small Avenue prior to the crossing, and construction of a mid-block crossing refuge island be included to safely accommodate cyclists. Long-term recommendations may also include bicycle-only traffic signals.

11th and 12th Intersection Improvement

This high traffic intersection is located near the hospital/medical facilities and drug stores in Washington. Given the high volume of traffic along 12th Street entering and exiting 15th, it is recommended that bicycle crossing signage, as

well as "Share the Road" signage be added to aid bicyclists and pedestrians using the intersection.

Whispering Pines Connector Project

The Whispering Pines Project will allow connection from the northwestern portion of the City, including the neighborhoods behind the Washington Square Mall area, to the downtown area via Whispering Pines. Whispering Pines is a low traffic corridor that can connect riders from 15th Street Extension, across 5th Street, toward the downtown area and proposed Washington-Greenville Greenway rails-to-trails facility, allowing them to avoid the busier 15th and 5th Street thoroughfares. This route will require mid-block crossings at 5th Street, including striping, signaling, and improvements to the current concrete island to accommodate cyclist and pedestrian crossing. Additionally, there is currently no shoulder along this stretch of roadway, making for dangerous biking conditions. Paved shoulders are also recommended as a part of this project.

Market Street Bike Sharrow Project

Running from Water Street to 3rd Street, this segment of Market runs through the Historic Downtown district, intersecting State Bicycle Route as well as arriving at the Washington Waterfront. Along this stretch, it is recommend bicycle sharrow lanes be included. This will allow cyclists to avoid the door zone of cars parked in the downtown area, while alerting motorists that there are cyclists who use the route.

Market Street Bike Lane Project

Running from 3rd Street to 15th Street, this stretch of Market Street runs mostly through residential neighborhood, with a small stretch exiting the downtown area. As travel lanes currently go from two, up to 4, then drop back to 2 lanes through the area, it is recommended that the four lane stretch between 3rd and 5th Street receive a "road diet", decreasing vehicular travel lanes back to 2 while including bike lanes. This stretch features a wide roadway that is suitable for the inclusion of bike lanes. Given the existing pedestrian sidewalk along this stretch, Market Street is ideal for conversion into a Complete Street.

Stewart Parkway Bike Lane Project

The Stewart Parkway Route, running along the Washington Waterfront in downtown Washington, is one of the top locations in which cyclists riding in and through the area come to visit. With its picturesque setting along the Pamlico River and close proximity to the existing NC Bike Route and proposed Rail to Trail

project, it is recommended that a bike lane be included for westbound cyclist along this stretch, while bicycle sharrow markings be included for eastbound cyclist. This would allow cyclists to easily and safely navigate the area, while promoting the shops and restaurants in the downtown area.

Bridge Street Complete Street Project

Formerly US 17 prior to the completion of the Washington Bypass in 2008, Bridge Street is currently 4 lanes with middle turn lane, with retail and shopping centers being the primary land use along this stretch. Given decreased traffic volumes since the opening of the Washington Bypass, it is recommended that a "road diet" be performed along this stretch, allowing for the inclusion of bike lanes, as well as pedestrian facilities. This will allow cyclists to more easily navigate to shopping centers as well as restaurants and grocery stores in the area. This stretch will connect with the proposed Carolina Avenue Complete Street Project, with intersection improvements at 5th Street/US 264 included as part of the project.

Carolina Avenue Complete Street Project

It is recommended that a "Complete Street" approach be taken to this stretch of Carolina Avenue (HWY 17 Business), which is 4 lanes from 5th Street out toward Highway 17. Given reduced projected traffic counts with the opening of the Washington Bypass, it is recommended that a "road diet" be conducted, reducing motorist travel lanes while adding bike lanes. Pedestrian facilities would also be recommended as a part of this project. This will allow cyclists to more easily navigate to shopping centers as well as restaurants and grocery stores in the area. This stretch will connect with the proposed Bridge Street Complete Street Project, with intersection improvements at 5th Street/US 264 included as part of the project.

Hudnell Street Bike Lane Project

The Hudnell Street Route, which stretches from Park Drive/NC 32 along the Washington waterfront up to John Small Avenue/US 264, will allow cyclists a safe thoroughfare connecting them to NC Bike Route 2, while also connecting surrounding neighborhoods to Havens Garden Park along the waterfront. Bicycle Lanes have been recommended for this route given current roadway condition.

6th and Bonner Bike Lane Project

The Jack's Creek Greenway begins in the northern end of Washington at 6th Street and Bonner Street, which runs parallel to Market Street. It is recommended to include striping for a bicycle lane along Bonner and 6th Streets, connecting to the proposed bike lanes along Market Street. This would allow a safe connection from the Waterfront to northern Washington, with mostly off road usage along the existing greenway.

3rd Street Bicycle Boulevard Project

This east-west stretch would connect cyclists to the proposed Whispering Pines Connector Project as well as the proposed Washington-Greenville Greenway, allowing cyclist to avoid 5th Street/Highway 264. Recommendations along this route include bicycle sharrows, signage designating the corridor as a Bike Boulevard, Pavement Markings, and Stop/Yield signage at intersections along the route (if not currently there), according to NCDOT and FHWA standard. This would connect riders to the proposed loop route systems around Washington.

9th Street Bicycle Boulevard Project

This east-west stretch would connect cyclists from John Small Avenue/Highway 264 to Van Norden, allowing cyclists to avoid 5th Street/Highway 264 and 15th Street. This project would intersect the proposed Market Street Bike Lane Project, providing a safe travel corridor to the designated bike lane facility. Recommendations along this route include bicycle sharrows, signage designating the corridor as a Bike Boulevard, Pavement Markings, and Stop/Yield signage at intersections along the route (if not currently there), according to NCDOT and FHWA standard.

11th Street Bicycle Boulevard Project

This stretch would allow cyclist in northeastern Washington to reach the proposed Market Street route while avoiding dangerous high traffic areas along 15th Street and 5th Street/Hwy 264. Recommendations along this route include bicycle sharrows, signage designating the corridor as a Bike Boulevard, Pavement Markings, and Stop/Yield signage at intersections along the route (if not currently there), according to NCDOT and FHWA standard. This would connect riders to the proposed loop route systems around Washington.

13th Street Bicycle Boulevard Project

Given the low traffic volume, roadway width, and parallel proximity to the heavily traveled 15th Street, it is recommended that this route include bicycle sharrows, signage designating the corridor as a Bike Boulevard, Pavement Markings, and Stop/Yield signage at intersections along the route (if not currently there), according to NCDOT and FHWA standard. This allows for a safe east-west thoroughfare which intersects Market Street.

Brown Street Bicycle Boulevard Project

This short north-south stretch would connect cyclist from the Stewart Parkway and Main Street Projects to the Jacks Creek Greenway, creating a proposed shorter inner loop that would utilize the existing greenway. It is recommended that this route include bicycle sharrows, signage designating the corridor as a Bike Boulevard, Pavement Markings, and Stop/Yield signage at intersections along the route (if not currently there), according to NCDOT and FHWA standard.

Water Street Bicycle Boulevard Project

This east-west stretch would allow cyclist using the Stewart Parkway Project to continue riding along the waterfront, eventually connecting riders back to Main Street and allowing them to feed into the proposed loop route system. It is recommended that this route include bicycle sharrows, signage designating the corridor as a Bike Boulevard, Pavement Markings, and Stop/Yield signage at intersections along the route (if not currently there), according to NCDOT and FHWA standard. This would connect riders to the proposed loop route systems around Washington.

McNair Street Bicycle Boulevard Project

This short north-south route would connect cyclist from the Water Street Route to continue to 3rd Street and Jack's Creek Greenway, providing multiple riding options from the proposed loop system. It is recommended that this route include bicycle sharrows, signage designating the corridor as a Bike Boulevard, Pavement Markings, and Stop/Yield signage at intersections along the route (if not currently there), according to NCDOT and FHWA standard.

Van Norden Street Bicycle Boulevard Project

This north-south route would connect cyclists from Main Street to 15th Street, providing an alternative riding option parallel to the busy Carolina Avenue/Highway 17 Business stretch. It is recommended that this route include bicycle sharrows, signage designating the corridor as a Bike Boulevard, Pavement Markings, and Stop/Yield signage at intersections along the route (if not currently there), including a flashing crossing at 5th Street/Highway 264, according to NCDOT and FHWA standard.

OFF-ROAD PROJECTS & PREFERRED TREATMENTS

Off-road projects and preferred treatments include rail-to-trail projects. The multi-use trails are typically 10 feet wide and can be located along easements and other open tracts of land. For a complete description of the off-road projects, see Appendix B.

Market Street Extension Side Use Path

Currently, there is a pedestrian sidewalk located along Market Street Extension, which runs from 15th Street out to the northern city limit. Located along this stretch is the McConnell Sports Complex, which is a frequent destination for many in the community, especially children participating in recreation leagues and activities. Given that Market Street Extension is a busy 4 lane roadway with a higher speed limit than most roadways within the city, it is recommended that the current sidewalk be widened and converted to a Side Use Path. Side Use Paths can be used by both bicycles and pedestrians, making the recreation facility and surrounding neighborhoods more safely accessible by bicycle.

Washington-Greenville Rails-to-Trails Greenway Route

Phase 1 of the trail in Washington will run along the abandoned Atlantic Coastline Railroad corridor from West 3rd Street to Plymouth Road. Phase 2 will follow the power line easement west from there until it intersects the railroad corridor again just west of Tranter's Creek Drive. Safety of users is the primary concern associated with this proposed route. To combat this concern, the route will need to be well lit and patrolled by local law enforcement. Additional safety measures, such as emergency call boxes, should also be considered to ensure safety for users in the event or criminal activity or health emergency, especially in more remote areas of the trail.

ANCILLARY FACILITIES

Ancillary facilities are support amenities located at destination points and at intermediate points throughout the bicycling network. These facilities directly contribute to the overall success of the bikeways as they provide a convenience to cyclists. Ancillary facilities include bike parking racks, route signage/markings, crossings, water fountains, rest areas, benches and information boards (for maps, etc.).

Bicycle racks are needed at destination locations in Washington. A lack of secure bicycle parking may keep people from biking for transportation. Unattended bikes may result in theft, even when left for short time periods. Adequate capacity bicycle parking racks should be provided at all major destinations identified in the comprehensive bicycle plan including parks, schools, libraries, recreation centers, public buildings, and shopping centers.

Rest areas should be included along bicycle routes that involve longer distances or isolation from public facilities. For example, the recommended routes along the Jack's Creek greenway area should include benches for people to rest and enjoy the scenery of the Jack's Creek. Rest areas encourage bicycling for people of all ages and abilities as it allows them adequate opportunity to stop biking and recover from travel so that they may continue for longer distances.

Signed Bike Routes

Highland Street Route
This stretch would allow cyclists coming from residential areas in northeastern Washington to safely access 11th Street, allowing them reach the proposed Market Street route while avoiding dangerous high traffic areas along 15th Street and 5th Street/Hwy 264.

Main Street Route
This east-west stretch would allow cyclist to travel to destinations in the downtown area along Main Street, while also allowing them to arrive at Stewart Parkway along the waterfront. This stretch would serve as the southern leg of a proposed loop route around Washington, connecting to the proposed western edge of the loop at Hudnell.

Trade Street Route
Running alongside Washington Square Mall and connecting to 13th Street, Trade Street will allow cyclist to access Washington Square Mall, as well as safely get to the signalized intersection along Carolina Avenue/US 17 Business.

Share the Road Signage

15th Street
According to Traffic Count Projections in the Beaufort County Comprehensive Transportation Plan, the 15th Street Corridor will be above capacity by 2020. Given these projections, steps will need to be taken to increase capacity and improve safety. It is recommended that when corridor improvements are in the planning stages, elements of the Complete Streets initiative be included in the design.

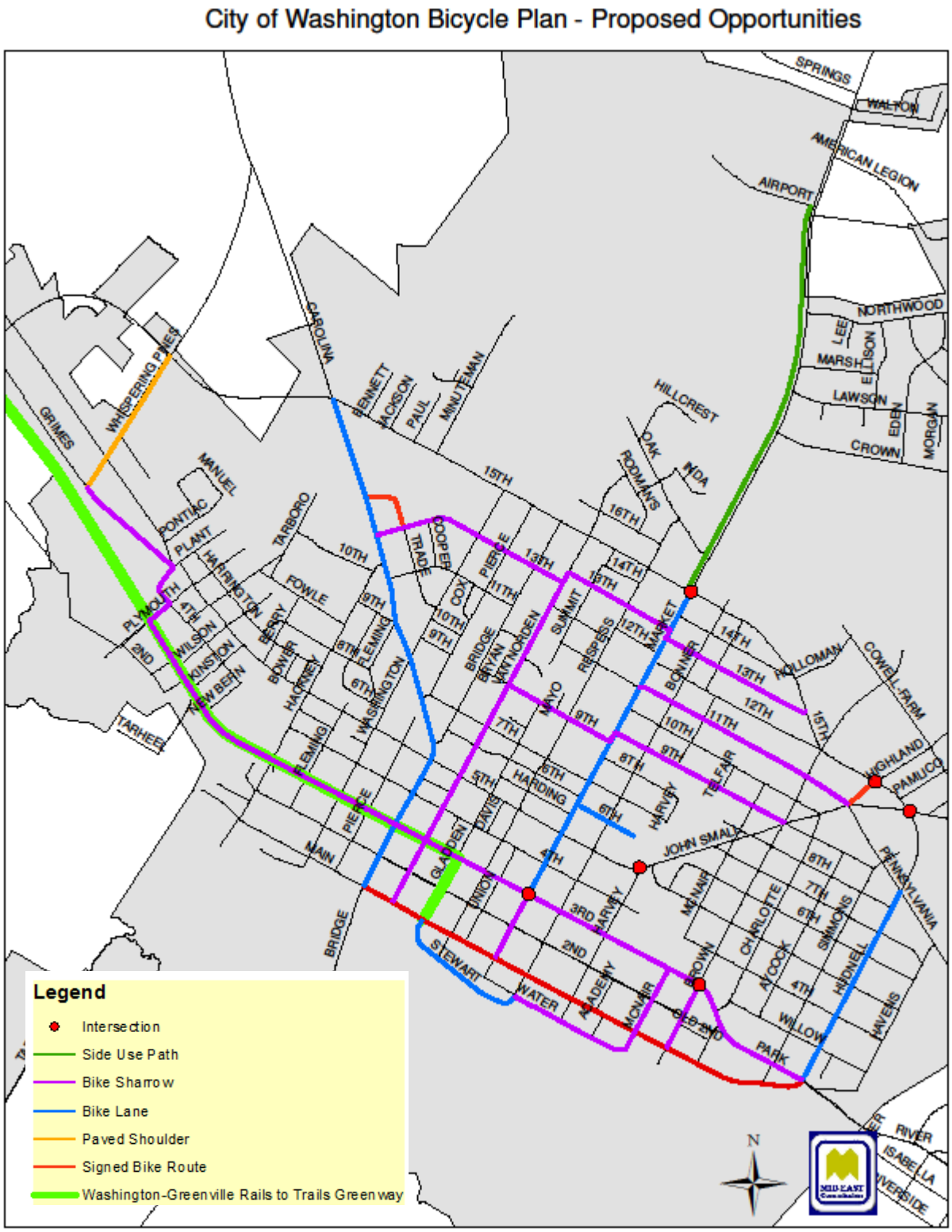
15th Street Extension
According to Traffic Count Projections in the Beaufort County Comprehensive Transportation Plan, the 15th Street Corridor will be above capacity by 2020. Given these projections, steps will need to be taken to increase capacity and improve safety. It is recommended that when corridor improvements are in the planning stages, elements of the Complete Streets initiative be included in the design.

Carolina Avenue
This stretch of Carolina Avenue (HWY 17 Business), which is 4 lanes from 5th Street out toward Highway 17, is recommended to include "Share the Road" signage as well as "Bicycle Friendly Community" signage at the city's gateway. This would alert motorists of cyclists in the area. This signage would also be a part of a Complete Street Project along this section of roadway.

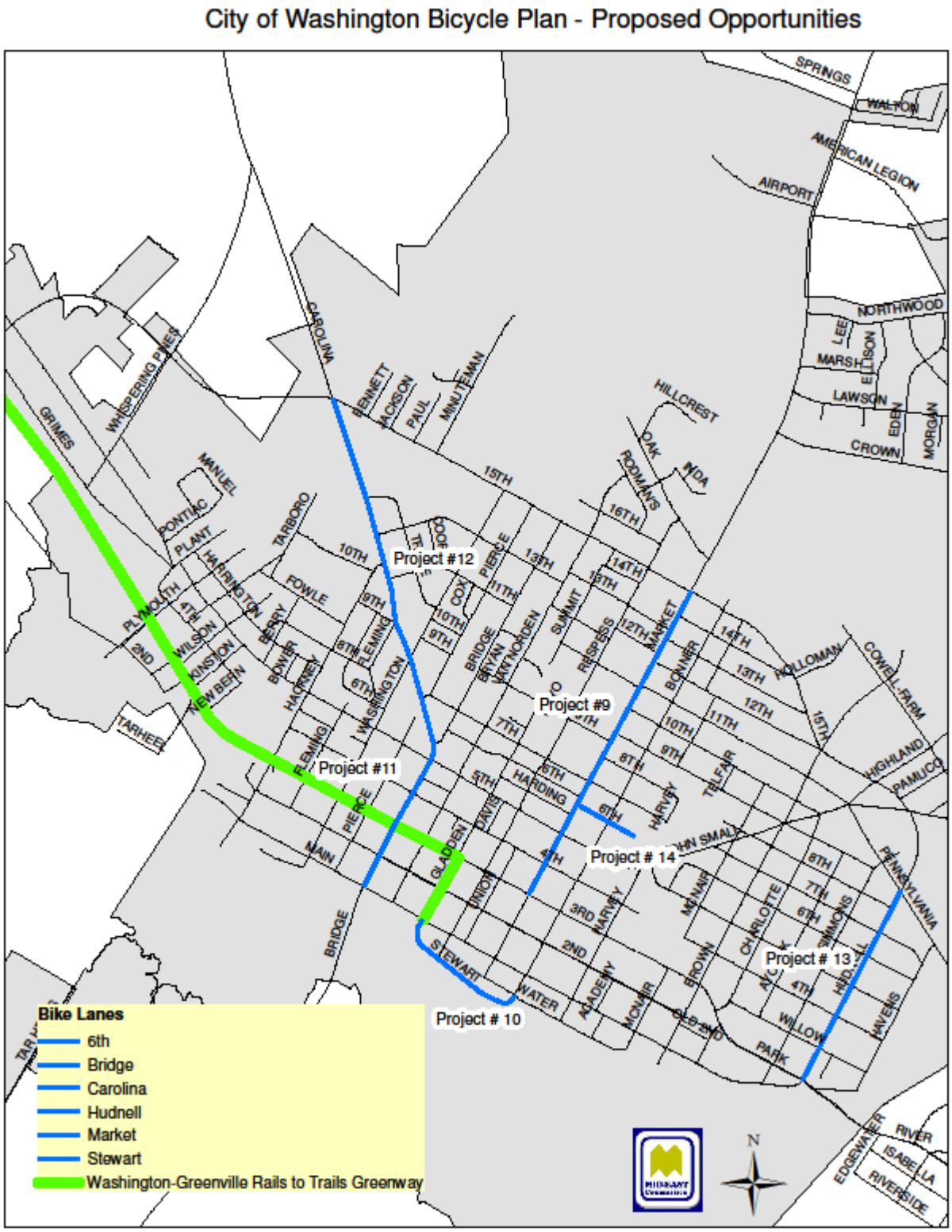
5th Street
As US 264/5th Street/John Small Avenue serves as the major East/West thoroughfare in Washington and are also gateways to the city, it is recommended that "Share the Road" and "Bicycle Friendly City" signage be included along this stretch. This signage will alert motorist that cyclist may be prevalent in the area, and will also acknowledge the efforts the city has made to become a bicycle friendly community.

Market Street Extension
This stretch of Market Street, which is 4 lanes from 15th Street out toward the Recreational Complex and Airport Road, is recommended to include "Share the Road" signage as well as "Bicycle Friendly Community" signage at the city's gateway. This could encourage transportation toward the recreation complex from neighborhoods within the city.

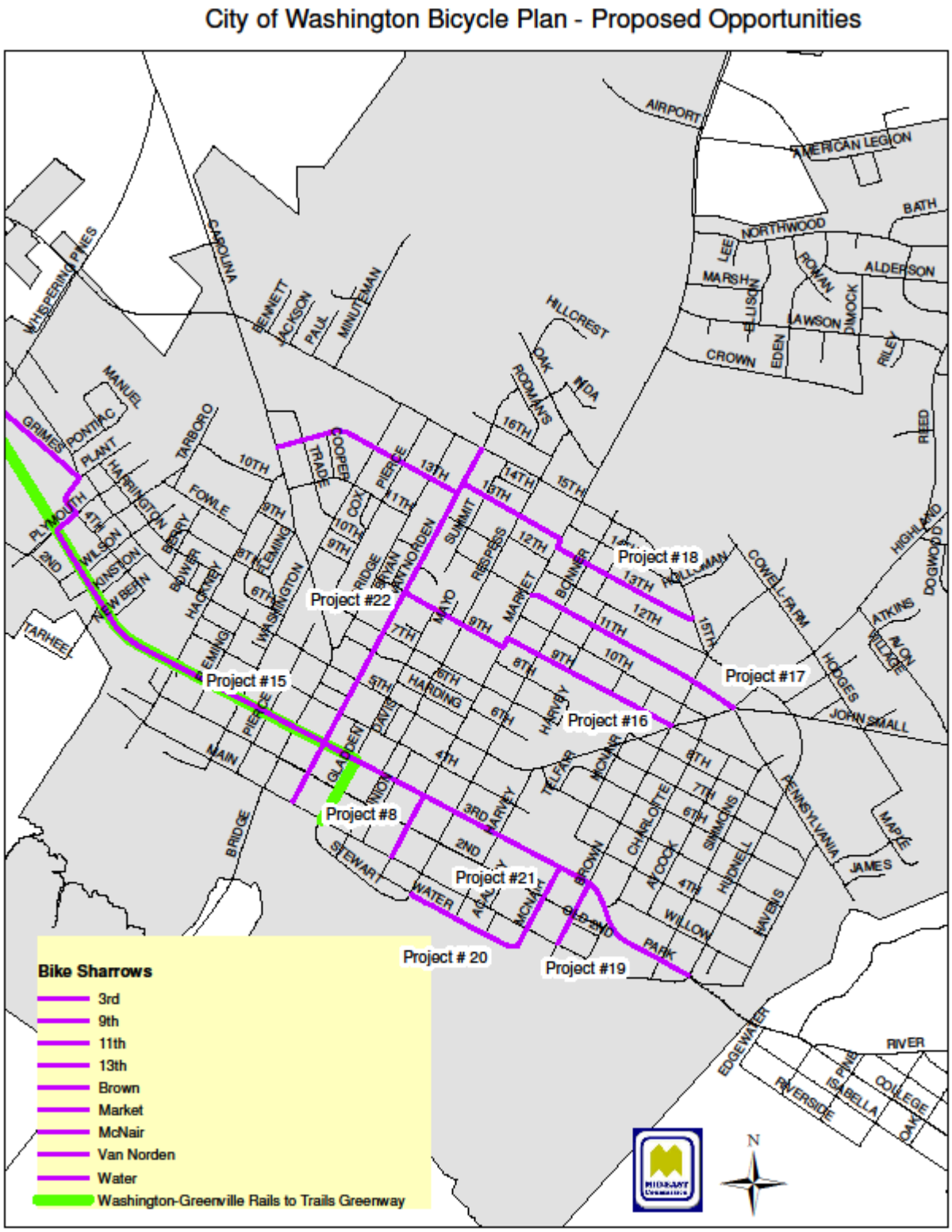
Map 4.4 – Proposed Project Recommendations



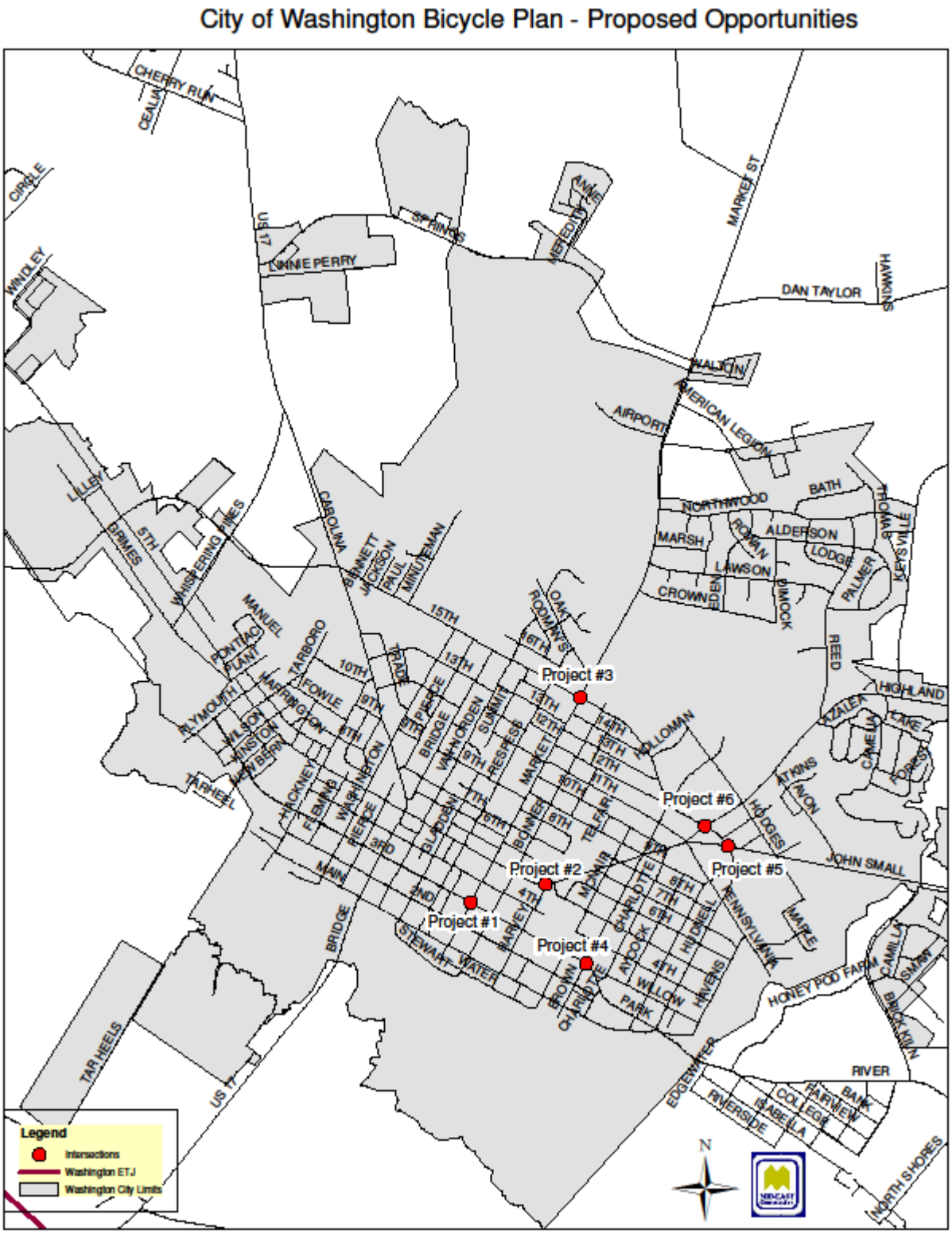
Map 4.5 – Proposed Bike Lane Projects



Map 4.6 – Proposed Bike Sharrow Lane Projects

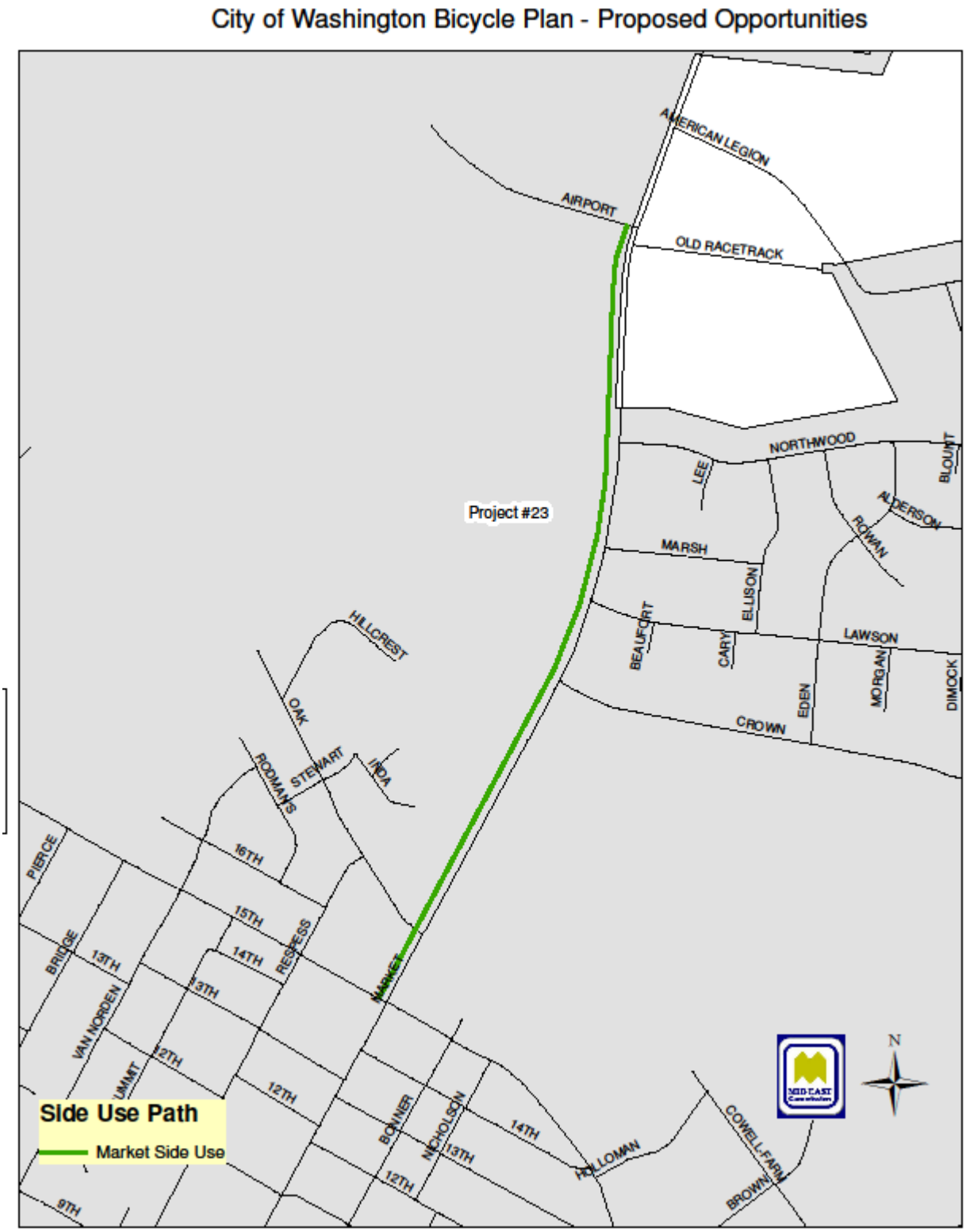


Map 4.7 – Proposed Intersection Improvement Projects

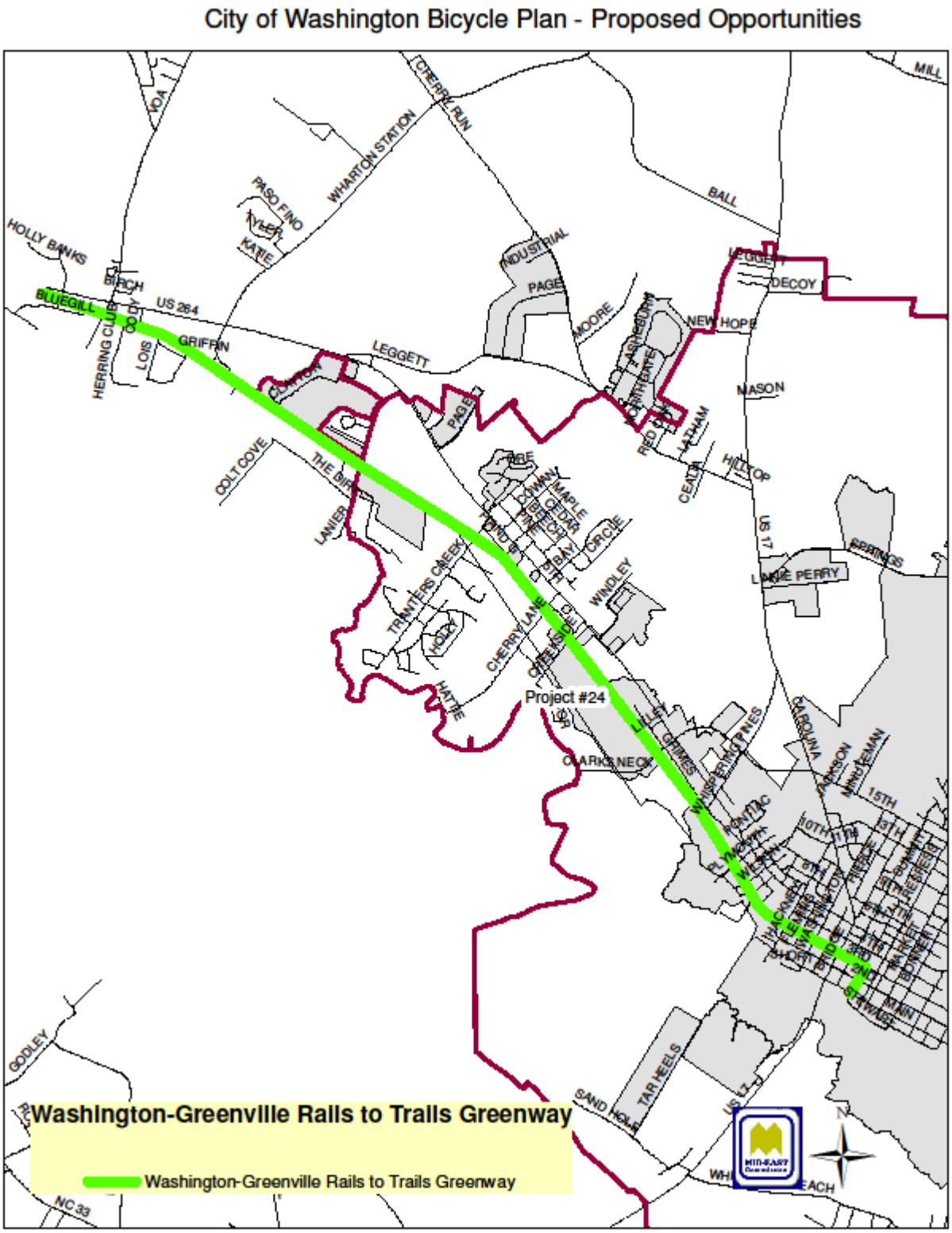


Map 4.8 – Proposed Paved Shoulder Projects

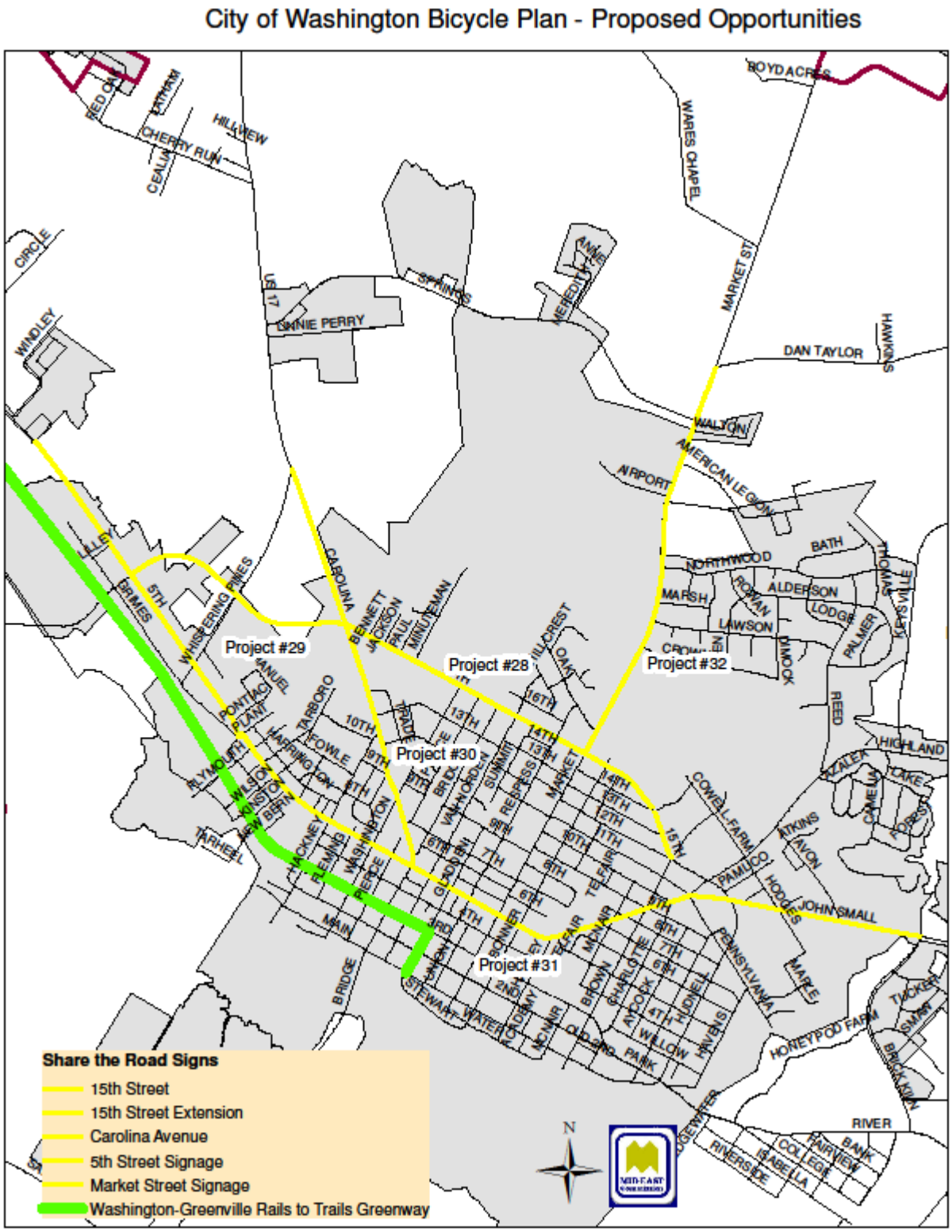
Map 4.9 – Proposed Side Use Path Project



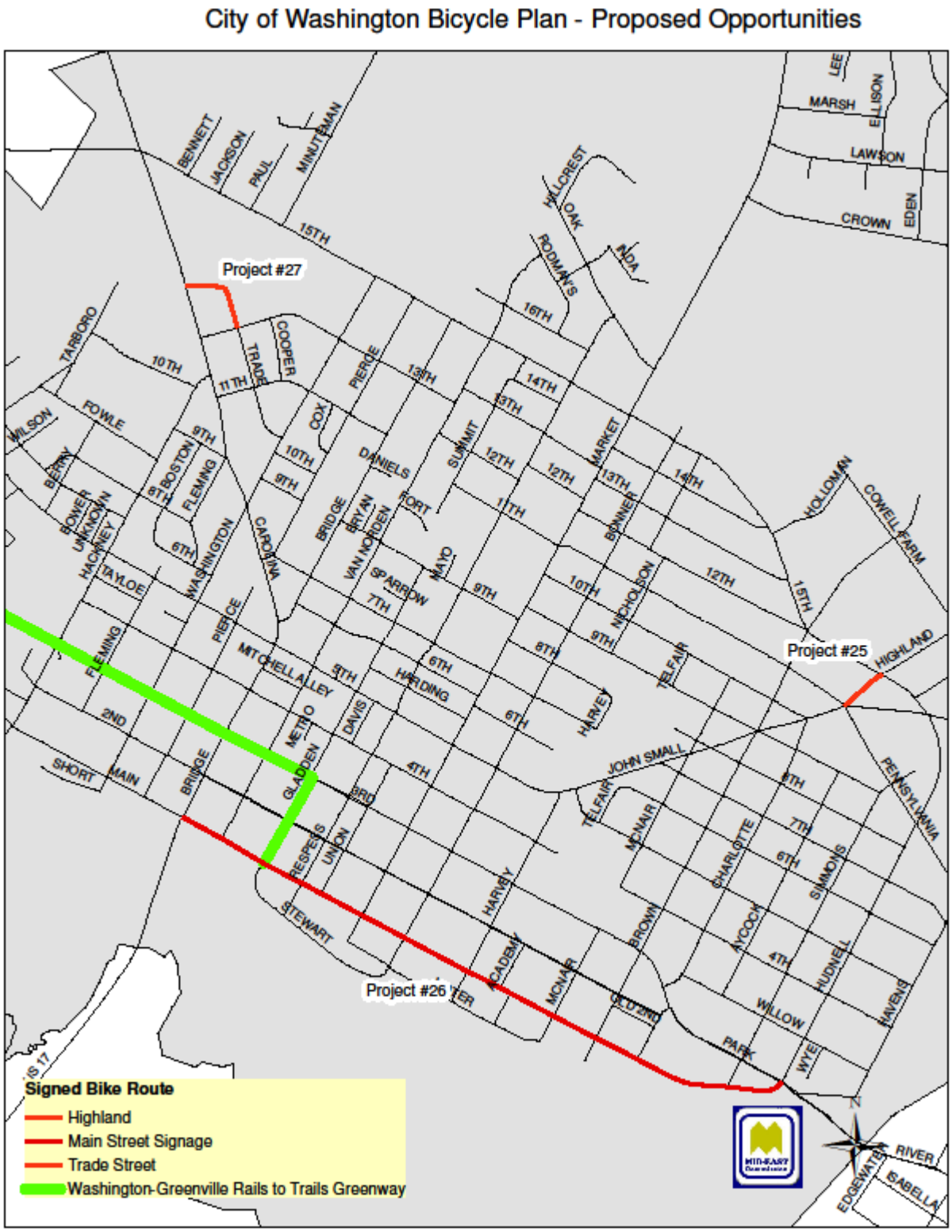
Map 4.10 – Proposed Greenway Project



Map 4.11 – Proposed "Share the Road" Signage Projects

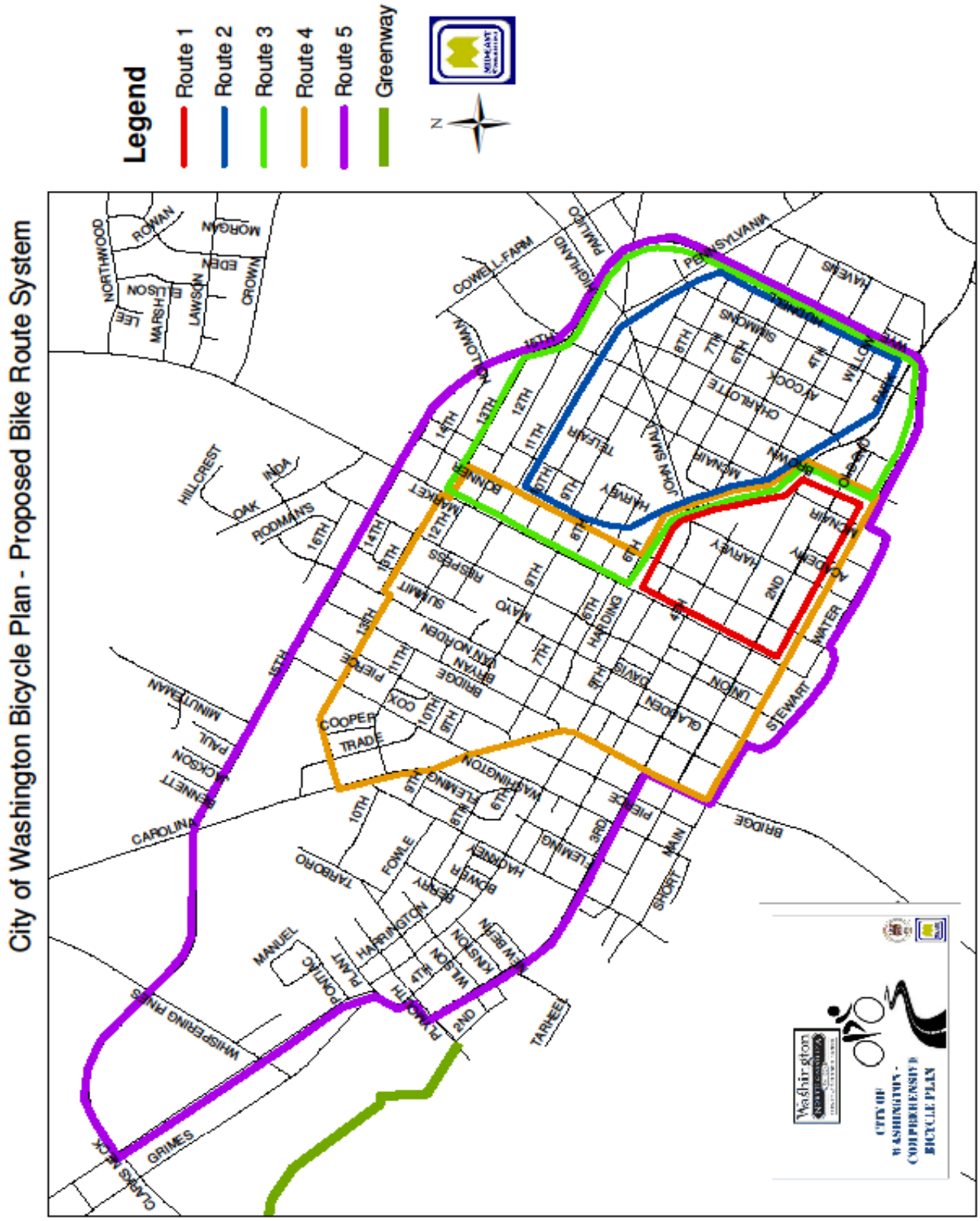


Map 4.12 – Proposed Signed Bike Route Signage Projects



With the proposed projects listed, planners were able to propose multiple potential bicycle routes within the City (Map 4.10). These routes can be as large as encompassing the entire City or as small as a couple of blocks in residential areas. Public survey results showed that potential riders would be more likely to bike if designated routes existed with a map of those routes. These proposed projects would create this route system. It is recommended that the City designate and sign these routes using either a color or number coded system and post these routes online as well as print maps to distribute. Information on destinations located along each route (library, shopping, healthcare) would also be included in this information.

Map 4.13 – Proposed Bike Route Loop System



This section will provide guidance to the City of Washington on design standards and guidelines for new bicycle facilities. These standards and guidelines are a critical component of this bicycle plan and for all facility construction and development.

GENERAL BICYCLE PLANNING & DESIGN GUIDELINES

The design standards and guidelines mentioned in this section are derived from North Carolina Department of Transportation (NCDOT) Bicycle Facilities Planning and Design Guidelines, the American Association of State Highway and Transportation Officials (AASHTO) Guidelines for the Development of Bicycle Facilities, and the Federal Highway Association (FHWA) Manual on Uniform Traffic Control Devices (MUTCD), Part 9- Traffic Controls for Bicycle Facilities. Guidelines can be found at http://www.completestreetsnc.org/wp-content/themes/CompleteStreets_Custom/pdfs/NCDOT-Complete-Streets-Planning-Design-Guidelines.pdf

ROADWAY IMPROVEMENTS

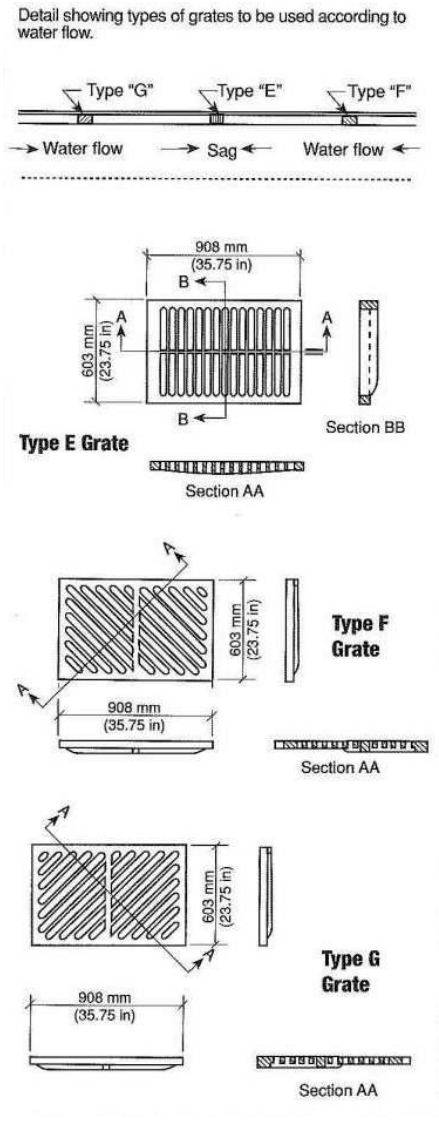
All roadways that allow bicyclists should be designed and constructed for safe use by cyclists; therefore, bicycle-safe design practices should be implemented to avoid costly retrofit improvements in the future. Roadway improvements include safe drainage grates, railroad crossings, bridges, smooth and level pavement surfaces, and traffic signals responsive to bicycles.

DRAINAGE GRATES

Drainage grates and utility covers can be a serious safety hazard for bicyclists. Unsafe grates, as well as a raised or depressed utility covers, can cause a crash by diverting or catching a bicyclist's front wheel.

According to the above mentioned guides, parallel bar drainage grates are the most hazardous because they can trap a bike's front wheel causing loss of steering control and the bar spacing can allow narrow wheels to drop into the grates, resulting in not just property damage but possible injury to the bicyclist.

Unsafe drainage grate covers should be replaced with either "Type E, F, or G standard grate covers"' as shown in the image below. Due to their high risk of property and personal injury, parallel grate covers should be replaced immediately.



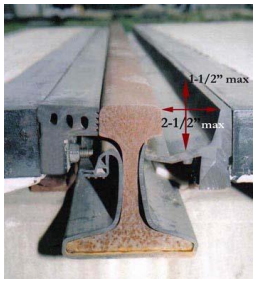
Due to bicyclists' being more sensitive to a roadway surface and projections along it, roadway-resurfacing projects should not leave appurtenances projecting above the pavement surface. Repeated resurfacing a roadway without adjusting drainage grates or utility covers can result in these features being below the road surface, a hazardous tripping condition to bicycle traffic. Therefore, when a roadway is being resurfaced, all manholes, inlets, lampholes, and water valve boxes should be either raised or lowered to be level with the new roadway surface.

RAILROAD CROSSINGS

Railroad crossings can pose a problem for bicyclist at at-grade railroad crossings. Uneven or rough crossings can cause property and possible personal injury for bicyclists: Regular, maintenance and replacement of railroad crossings should be done to avoid any potential problems.

In locations where railroad tracks cross a roadway at less than 45 degrees, the front wheel may be diverted by the rail or trapped in the flangeway, resulting in a loss of steering control. In addition, regardless of the angle, if the transition surface between the roadway and the tracks is rough wheel damage and physical injury is possible.

Railroad tracks that cross roadways and/or bikeways at-grade should do so "as close-to a right angle as possible." If not feasible, design and construction consideration should be given as follows:



- Widening the approach of roadway, bike lane, or shoulder to allow cyclists to cross at approximately 90 degrees without veering into traffic. The minimum widening should be 6-feet; however, 8-feet is desirable, depending on the amount of available right-of-way.

- On low-speed, lightly traveled railroad tracks, commercially available flangeway fillers can be applied to eliminate the gap next to the rail.

BRIDGES

According to North Carolina's Bicycle Facilities Planning and Design Guidelines, improving a bridge to accommodate bicycle traffic involves analyzing four major areas of concern:

- Static Obstructions
  Bicycle-safe bridge railings need to be used on bridges designed for bicycle traffic and on bridges where bicycle protection is warranted. Bicycle rails on bridges should conform to the latest AASHTO Standards and Specifications for Highway Bridges Guidelines. The minimum height of the rail should be 54-inches from the top of riding surface to top of rail. On certain bridges a height railing of 42-inches may be permissible on certain bridges.

  Guardrails on bridge approaches should also be designed for bicycles. A roadside barrier should be placed as far from the travel way as conditions permit. The minimum offset from the traffic lane or paved shoulder edge is 4-feet. However, when the slope on the exterior side of the guardrail is excessive or the hazard is severe, or the outside lanes are narrow, a bicycle-safe railing should be installed on top of the guardrail to provide additional protection, increasing the total height to 54 inches.

- Surface Conditions
  The bridge surface should have smooth expansion joints and the deck should be clear of potential hazards for bicyclists. The bridge should use bicycle-safe drainage grates and drains. Due to potential steering problems, draw bridges and swing bridges with steel decking should not

be designated as bicycle routes without determining the deck's effect on bicycle handling.

A bridge's surface should be clear of debris that could cause problems for bicyclists, forcing them to maneuver into traffic lanes or closer to the bridge edge.

- Bridge Deck Width
  To accommodate bicycles on bridges minimum prior to 4-foot shoulders should be applied in shoulder sections and 4 to 6 foot bike lanes should be applied in curb and gutter sections. Determining the best option is dependent on traffic speed and volume.

- Bridge Approaches
  Either paved shoulders or wide outside lanes should be continued for at least 100-feet on either side of a bridge in order to ensure a safe transition for bicycles. Additional bridge approach treatments can be found in the *North Carolina* Bicycle *Facilities* Planning and *Design* Guidelines.

BOARDWALKS

If a boardwalk is used as a portion of the multi-use segment (for instance, in an environmentally sensitive area), it should be designed to be bicycle and pedestrian friendly. The width of the boardwalk should be a minimum of 10-feet wide or 12-feet wide for bi-directional. If the boardwalk height exceeds 30-inches, railings are required. If required, the railings should be bicycle-safe and a minimum of 54-inches in height, to provide protection along the boardwalk.

The boardwalk surface should be clear of debris and have a smooth and level riding surface. When a boardwalk has to cross a large open area, thus becoming a bridge, AASHTO Standard Specifications for Highway Bridges should be reviewed to ensure appropriate load bearing capacity.

PAVEMENT QUALITY

The pavement quality of a roadway can cause an unpleasant bicycling experience. Pavement irregularities, potholes, and depressions from heavy traffic may not be as noticeable or a concern to motorists, but bicycles with their

narrow wheels and lack of suspension cannot handle these hazardous spots. Therefore, whenever practical, pavement surfaces on all roadways, especially those with facilities should be free of these hazards.

The paving over gutter pans to achieve the minimum requirements for a bicycle facility (i.e,bike lane) is not generally supported. However, if other treatment options are limited then this treatment may occur as long as continuous and consistent maintenance is conducted to prevent the potential break-up of the asphalt applied over the top of the gutter pan

ON-STREET VEHICLE PARKING

In some instances, the removal, narrowing or reconfiguration of on-street parking will have to be conducted in order to accommodate and/or improve safety for bike lanes or shared lane markings along a particular roadway. Generally, when on-street parking is removed, in whole or in part, the safety of motorists, pedestrians, and bicyclists is improved. However, there are alternatives to complete removal of on-street parking.

To reduce potential conflicts and public and private outcry, careful research is needed prior to making a proposal to change on-street parking in a community. A community needs to compile and analyze the following information before proceeding with on-street parking changes for a particular section of roadway:

- Types of land uses along section of roadway in question
- Availability of both on- and off-street parking
- Whether both or one side of roadway will be modified
- Supporting regulations
- Alternatives (narrowing existing parallel parking spaces, back-in/head out diagonal parking verses head-in/back out diagonal parking, parking garage or lot, shared parking spaces, etc.)

<u>Parallel Parking</u>

The use of parallel parking is the standard amongst communities along narrow roadways. A typical parking space is 8 to 10-feet wide and 22-feet long. However, spaces can be narrowed to 7-feet on local streets to allow the necessary room for bike facilities. In some instances, parallel parking may be

applied to one side of roadway to accommodate the existing land uses in order to free up roadway space for bike facilities.

Parallel parking advantages include: 1) provides a buffer between travel lanes and sidewalks and 2) requires less pavement width than diagonal parking. However, some motorists tend to have difficulty maneuvering into the space, it is an inefficient use of street space since it accommodates fewer parking spaces than diagonal, and can pose a safety hazard for bicyclists riding along the roadway and for the pedestrian exiting the vehicle.

Diagonal Parking

Diagonal parking has been an alternative to parallel parking in communities to gain additional spaces in areas of high parking demand. However diagonal parking spaces typically require a length of 17.5 feet and a width of 8.5 feet of space on a road and can cause conflicts with safe bicycle travel, such as poor visibility of on-coming bicyclists.

There are two types of diagonal parking: pull-in/back-out and back-in/head-out. Both types have the same dimensions of 17.5 feet in length and 8.5 feet in width. Their advantages and disadvantages are discussed below. Diagonal backing, when possible, should be placed on one-way road, preferably on the left side to avoid conflict with bicycles. However, if diagonal parking is planned for a two-way road with existing or planned bike lanes or other-on-road bike facilities, the following suggestions should be taken into consideration to decrease potential conflicts:

- Parking spaces should be long enough to accommodate large vehicles
- A 8-inch stripe should be placed between parking area and bike lane to increase a visible separation
- Possible enforcement of vehicles encroaching on bike lane
- A possible median to reduce the ability of motorists to pull into a diagonal parking space opposite the designed direction
- Appropriate warning and informational signs to inform motorists of bicycle presence

Pull In/Back Out Diagonal Parking

The more traditional diagonal parking method, this type requires the motorist to drive head-first into the parking space. Advantages of pull-in diagonal parking are: 1) provides a buffer between travel lanes and sidewalks, 2) is a traffic calming measures (reduces traffic speed, 3) makes it easier to park a vehicle, and 4) accommodates more vehicles along a section of roadway than parallel parking.

The disadvantages of this type of on-street parking are: 1) preferred on one-way roads, 2) preferred on roadway with lower posted speeds and traffic volumes, 3) obstructs sidewalks, 4) decreases visibility when backing out of space, and 5) not compatible with bike routes.

Back In/Head Out Diagonal Parking

An alternative diagonal parking method is back-in or head-out diagonal parking. This type requires the motorist to back into the parking space. The use of back-in diagonal parking provides better visibility when the driver is leaving a parking space, thus improving safety for the motorists, pedestrians exiting vehicles, and bicyclists traveling along the roadway as compared to standard diagonal parking.

Back-in parking advantages include: 1) better loading and unloading of materials into back of vehicle, 2) improves visibility when pulling out of space (actually safer than pull-in parking), 3) provides buffers between streets and sidewalks, 4) is a traffic calming measure (reduces traffic speeds), 5) accommodates more vehicles along a roadway, and 6) can be used along bike routes.

Disadvantages to this type of parking are: 1) preferred on one-way roads, 2) preferred with medians on two-way streets, 3) preferred on roads with lower traffic and post speed limits, and 4) additional educational signage is necessary.

ON-ROAD BICYCLE FACILITIES

On-road bicycle facilities are treatments applied to the existing roadway system, which offers a variety of opportunities for bicycle travel and provides many connections to key destinations needed to support a successful bicycle

network. Experienced riders who travel at a speed of 15-30 mph and are comfortable riding with vehicular traffic typically utilize these types of facilities. Selecting the appropriate facility for a given roadway is important and depends on numerous factors such as, traffic volumes, travel speeds, outside lane width, total pavement width, and percentage of heavy vehicle traffic. The following are various types of on-road applications for bicycle facilities.

BIKE LANES

Bike lanes are incorporated into a roadway that has available space where delineation is desirable for bicyclists and motorists, in order to provide a designated space for each and provide more predictable movements by each. Bike lanes can increase a bicyclist's confidence in safety by knowing motorists will not pass them too closely and motorists know they do not have to swerve out of their lane to pass a bicyclist.

Two-lane and four-lane divided roadways are the best environment for bike lanes. Bike lanes along roadways with numerous commercial driveways should be avoided. Bike lanes are meant to be one-way facilities, which carry bike traffic in the same direction as adjacent motor vehicle traffic. Therefore, two-way bike lanes on one side of the roadway are not recommended. On some one-way roads, two-way buffered bike lanes or cycle tracks may be an option in order to achieve greater connectivity. On one-way streets, bike lanes should be placed on the right side of the street in the direction of travel.

According to AASHTO, there are four different width standards for bike lanes depending on the types of roadway it will be installed on. For roadways with no curb and gutter, the minimum width is 4 feet. On streets with curb and gutter, NCDOT supports 4-foot bike lanes measured from the edge of the gutter pan. It is typical of bicyclists to ride approximately 32-40 inches from curb face; therefore, it is important that the pavement surface is smooth and free of obstructions. If a roadway has a wider gutter pan with storm drains or utility covers within them, additional space should be given for the bike lane to avoid bicyclists from swerving.

Where on-street parking is permitted and the parking stall is marked, the distance between the curb face and outer marking of the bike lane must be 13 to 15 feet to allow a 5 foot minimum width for a bike lane and 8 to 10 feet for the parking stall.

If on-street parking is permitted but the parking stall or area is not marked, the shared area should be a minimum of 11 feet without a curb face and 12 feet adjacent to a curb face. If the parking area has a high turnover rate, an additional 1-2 feet is preferred. To avoid obstacles, poor visibility, and hazards, bike lanes should never be placed between parking area and curb line.

On rural roadways without curb and gutter and infrequent parking, bike lanes should be located within the limits of the paved shoulder at the outsider edge. These bike lanes should have a minimum width of 4 feet, where the area beyond the paved shoulder can provide additional maneuvering room. If heavy truck traffic is present or the speed limit is over 50 mph, a width of 5 feet or more should be provided.

Bike lanes should be marked with a 6-inch solid white line, and an additional 4-inch solid white line can be placed between the parking area and the bike lane for more clarification. As mentioned previously, improper drainage grates can pose a hazard for bicyclists; therefore, immediate replacement or retrofitting is necessary to provide a safe riding area for bicyclists.

CYCLE TRACKS

A cycle track is an exclusive bicycle facility that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. Cycle tracks provide space that is separated from vehicle travel lanes, parking lanes and sidewalk by pavement markings or coloring, bollards, curbs/medians or a combination of these elements.

WIDE OUTSIDE LANES

The desirable width of a travel lane is 12 feet, but on roadways with bicycle traffic, widening the outside lane can benefit both bicyclists and motorists. A wide outside lane refers to a wider, outside travel lane shared by bicyclists and motorists. Wide outside lanes have no stripes to delineate a separate lane for bicyclists. However, there is a potential concern for increased speed by motor vehicles with widened outside lanes, which creates a safety concern for bicyclists.

The minimum width for an outside lane is 14 feet of usable and clear (from obstructions) riding area. Generally, an extra 1-foot is added for flush or

depressed obstructions, such as a joint or soft shoulder. An additional 2 feet should be added to accommodate raised obstructions like curb and gutter. On existing roadways where extending the pavement to widen the outside lane is not feasible, the lane striping can be shifted to narrow the inside lane(s) while widening the outside lane. If this is done, the inside lane(s) should not be narrower than 14-feet; however, the volume of truck traffic should be taken into account and if truck volumes are greater than 5% of the total traffic volume narrow lanes of 11-feet should not be used.

Due to no defining markings, wide outside lanes require bicyclists and motorists to be more aware of and attentive to each other. This on-road treatment was not recommended in this Plan.

WIDE PAVED SHOULDERS

Wide paved shoulders are often used in rural areas or on roads with relatively few driveways and intersections. Smoothly paved shoulders are a preferred bicycle facility by cyclists and motorists. Paved shoulders can also provide an emergency pull-off area for vehicles, eliminate rutting and drop-off adjacent to travel lane edge, provide adequate cross slope for drainage, reduce maintenance, and provide lateral support for roadway base and surface course.

For a paved shoulder to accommodate bicyclist, the paved shoulder must be a minimum of 4-feet wide and be a smooth and level surface. Additional width is desirable if the speed limit exceeds 35 mph, if the vehicular traffic percentage for truck, bus and recreation vehicles is high, or if static obstructions exist at the right side.

A minimum 2-foot clearance should be provided from the edge of pavement to the top of the foreslope of a ditch; however, if the slope is greater than 2:1, the clearance should be 3-feet. If a guardrail is provided adjacent to the paved shoulder, a 4-foot clearance is preferred. All road signs and other vertical obstructions should be offset a minimum of 6-feet from pavement edge.

UNSIGNED SHARED ROADWAY (NO BIKEWAY DESIGNATION OR TREATMENT)

The majority of bicyclists travel on streets without bikeway designation or signage. This trend will probably continue to happen since portions of a community's existing roadway system has low traffic volumes and additional treatments are not necessary (i.e., minor residential streets). In addition, some roadways in a community may be unsafe or would be unsuitable for bicycle

travel; therefore, it would be inappropriate to encourage bicycle traffic by designating them as bicycle routes with signage or on-street treatments.

SIGNED SHARED ROADWAY (DESIGNATED BIKE ROUTES)

A signed shared roadway is a designated bike route with appropriate signage. Signed shared roadways serve either to provide continuity to other bicycle facilities or designate preferred routes through high-demand corridors.

By designating a roadway as a bike route, a community is stating there are advantages to using these routes compared to alternative routes (i.e., wider travel lanes, smoother road surface, avoidance of high vehicular traffic, ease of use by bicyclists, low speed limits, etc.).

A signed shared roadway should be maintained in a manner consistent with the needs of bicyclists and have appropriate signage along the designated route. The placement and spacing of signs should be based on Part 9 of the MUTCD (Traffic Controls for Bicycle Facilities). For signed bike routes to be functional and successful, supplemental signs should be placed beneath the main sign when located along routes leading to high demand destinations (Downtown, Schools, Parks, etc.).

D11-1

D1-1

M1-8

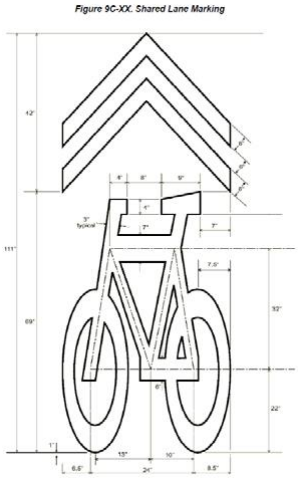

M7-6

All directional changes should be signed with appropriate arrow signs and signage should not end at a barrier, instead information directing a bicyclist around the barrier is preferred. Just as placement of signs is important, care should be given to avoid installing too many signs. The overuse of signs can result in loss of effectiveness to bicyclists and motorists; therefore, a community should be conservative on the use of regulatory and warning signs along bike routes.

SHARROWS

Recommended by the North Carolina Committee on Uniform Traffic Control Devices (NCUTCD) in January 2007, the use of shared lane markings (bike-with-chevron) to identify where on roadway bicyclists should ride has provided another option for improving awareness of bicycles on shared roadways. The benefits of using the 'bike-with chevron', sharrow, or shared lane marking are:

- Assists bicyclists on identifying the appropriate and legal line of travel;
- Encourages motorists to pass bicyclists safely and with adequate clearance;
- Reduces the likelihood of a cyclist getting hit by a parked car door;
- Alert motorist of the lateral location bicyclist may occupy; and
- Reduces wrong-way bicycling



On roadways with on-street parking, the shared lane marking must be placed a minimum of 11-feet from curb face, or from pavement edge when there is no curb. Roadways with no on-street parking, the marking must be placed 4-feet from curb face or edge of pavement. This marking should not be used on shoulders or in designated bicycle lanes, and on roadways with speed limits above 35 mph. When used along a roadway, the shared lane marking should be placed immediately after an intersection and spaced at intervals no greater than 250-feet.

OFF-ROAD FACILITIES

Off-road facilities provide an alternative for those less experienced bicyclists, children, and a variety of other non-motorized users, such as pedestrians, skaters, and joggers, with a safe and potentially scenic travel route. These types of facilities appeal to families with children of varying skills and abilities and have been successful in reintroducing the public and communities to bicycling as a form of recreation and transportation. Long stretches of continuous roadway right-of-way, utility easements, railroad easements, shorelines, and parks are excellent locations for these facilities.

Depending on facility location, additional safety measures may be needed due to their potentially secluded nature or terrain.

SIDE PATHS/BICYCLE PATHS

Side Paths or Bicycle Paths are trails alongside a roadway and should not be mistaken for sidewalks or multi-use trails. Unlike sidewalks, side paths are a non-motorized extension of the road intended for the exclusive or preferential use of bicycles. A designating feature of side paths compared to multi-use trials is that they do not have their own right-of-way; instead, they share the roadway right-of-way. However, this closeness to the roadway and their intended purpose results in diligence with planning and design of these facilities to reduce conflicts with driveways, side streets, and turning traffic. Side paths should only be used where there are few or no conflicts to connect other bicycle system components, when there is a demand for various users, and not at the expense of on-road bicycle facilities.

Per AASHTO, side paths should be designed as a two-way facility with a minimum of ten (10) feet (prefer 12 feet for high bicycle use areas or for probable shared use by pedestrians or joggers) to allow for the necessary operating and maneuvering of multiple bicycles with a minimum 5 feet (prefer 6 feet) of acceptable separation between it and the roadway to demonstrate its use is for bicycles not motor vehicles. If a five (5) feet buffer is not available due to space constraints, a suitable barrier must be provided, such as vegetation and/or a 54-inch high fence or railing. The path should also have a two (2) foot graded buffer along both sides of the pavement to allow clearance between it and any obstructions.

In some instances and upon further study, engineering, and additional signage, side paths may be narrower due to limited space, such as passing between buildings or utility poles that cannot be moved or across bridges that cannot be modified. These narrow segments of a path may be acceptable or necessary for a short distance, but should be handled on a case-by-case basis and should not be given a blank approval by a community.

Side paths should be adequately signed and all intersections or road crosses should be handled according to AASHTO and MUTCD standards.

MULTI-USE TRAILS

Multi-use trails and greenways are developed to serve bicyclists, runners, walkers, and wheelchairs. Multi-use trails are installed in many locations, such as a connection through residential neighborhoods, along rivers, on abandoned railroad beds, in parks to provide additional recreation, and along utility

rights-of-way or within their own right-of-way. Pavement for multi-use trails can range from various conventional pavements to pervious pavements to compacted screenings. AASHTO and FHWA recommend multi-use trails meet the following:

- A minimum width of ten (10) feet and encourages twelve(12) feet or more where heavy user traffic is anticipated for bi-directional trails
- A minimum width of six (6) feet for single direction trails
- A two (2) foot graded area adjacent to both sides of the trail with a maximum 1:6 slope
- Cleared of vertical obstructions, such as tree limbs lower than eight (8) feet to allow for safe under-passage
- On sloped landscapes, have grades that do not exceed 5% with a graduated scale up to 11% or more for short distances
- A cross slope of less than 2%
- Ninety (90) degree angles should be avoided for safety reasons
- A separation of at least five (5) feet from roadways or a forty-two (42) inch high-physical barrier
- Additional horizontal clearance width is needed for curved trails, trails with steep slopes, and trails with high posted speeds to ensure user safety

Accessibility should be a top consideration for developing these trails; therefore, as many barriers as possible need to be removed.

Informational signs at trail access points indicating steep grades, excessive cross slopes, uneven surfaces, and narrow widths will help users determine if the trail is appropriate for their use. Trails should be built within the land contour and be designed with environmental sensitivity.

When adjacent to canals, ditches or slopes steeper than 1:3, a separation of five (5) feet from the edge of the path pavement to the top of slope is desirable. The vertical clearance should be a minimum of 8 feet; it

may be greater (10 feet) if needed to provide for maintenance and access of emergency vehicles.
The trail design needs to take into consideration user experience, bicyclist speeds and environmental conditions; however, the design minimum speed should be 20 mph.

For further guidance on multi-use trails, see North Carolina Division of Bicycle and Pedestrian Transportation website at the following:
https://connect.ncdot.gov/projects/BikePed/Documents/Shared%20Use%20Pathways.pdf

BICYCLE SIGNAGE

The use of bicycle signage is an important and basic treatment for improving a community's bicycle network. The installation of informational, regulatory, and warning signs must comply with the Federal Highway Administration Manual for Uniform Traffic Control Devices (MUTCD), Part 9 (Traffic Controls for Bicycle Facilities). However, overuse of signs not only provides visual clutter to motorists, they can foster noncompliance and disregard that could lead to crashes.

Regulatory and warning signs provide helpful information to motorists and bicyclists unfamiliar with an area, notify motorists of the presence of bicyclists, and give bicyclists the ability use a roadway safely. The use of regulatory and warning signs within school zones can be extremely useful for bicyclist and pedestrian safety, in addition to slowing traffic speeds. There are several different regulatory and warning signs to assist in warning or prohibiting actions by motorists and bicyclists, and they all must comply with MUTCD.

The installation of signage on shared roadways is beneficial to bicyclists and motorists by raising awareness of the potential presence of bicyclists on a road, and by informing or identifying a designated route for bicyclists. The most common bicycle sign seen on roadways is the "Share the Road" sign; however, as mentioned earlier the overuse of this sign can reduce the effectiveness. Additional information on "Share the Road" initiative can be found at:
http://www.ncdot.gov/bikeped/safetyeducation/

All available signs assist with ensuring traffic flows safely and efficiently whether you are driving or riding a bicycle.

R9-7

W7-5

R7-9

W11-1

W16-1

R5-1b

R9-3c

W8-10

W8-10p

R5-6

M1-9

R3-17

M4-11

R4-11

W11-15*

W11-15P*

BICYCLE PARKING FACILITIES

The selection and placement of appropriate bicycle racks are an important component to a comprehensive bicycle plan. The lack of parking facilities for bicycles tends to keep people from using their bikes for basic transportation due to the risk of theft or possible damage. Therefore, the following guidelines should be considered when selecting and placing bicycle parking facilities in Washington to promote bicycling and discourage the use of trees, railings, sign posts, and other appurtenances.

When deciding on the type of bicycle parking device to use, the following components should be considered:

1. Level of Security Needed
   The level of bicycle security is dependent upon the type of parking needed, short-term or long-term. Short-term parking is generally located in the front of a store or destination, which does not need as much security as long-term parking (i.e., employee parking). The use of racks can be used for short-term parking; whereas; bicycle lockers, locked enclosures, or locked rooms within buildings would provide better security-for-long-term parking needs. All parking facilities should be permanently anchored to prevent moving by bicycle users or vandals.

2. The Type of Rack or Device and How it Works
   A rack should support a bicycle upright by its frame in two places, prevent the bicycle wheel from tipping over, enable the frame and either one or-two wheels to be locked to the rack, support all types of bicycles, and allow front-in and back-in parking. Racks that do not support the bicycle frame should not be used, since rims can easily become bent if a rack only supports one wheel. Examples of racks not recommended are Comb, Toast, School-Yard, and other Wheel-bending racks.

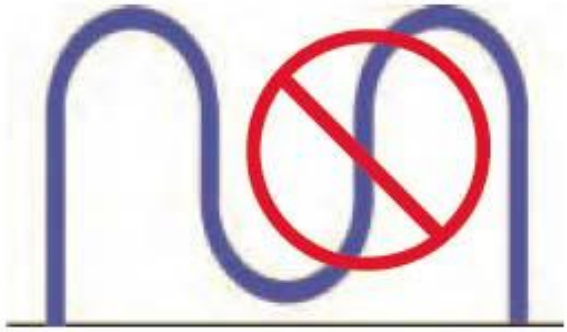
3. Number of Spaces Needed
   Assessing the appropriate number of bicycle parking spaces for different destinations can be done by rough estimates of current users and potential users. Generally, allow roughly 2' by 6' for each bicycle space to allow accessibility. It is recommended that a few racks or parking units be available at first and when demand increases, expand.

Types of Parking Devices

INVERTED "U"
One rack element supports two bikes.

"A"
One rack element supports two bikes.

POST AND LOOP
One rack element supports two bikes.



WAVE
One rack element is a vertical segment of the rack.

COMB
One rack element is a vertical segment of the rack.

TOAST
One rack element holds one wheel of a bike.

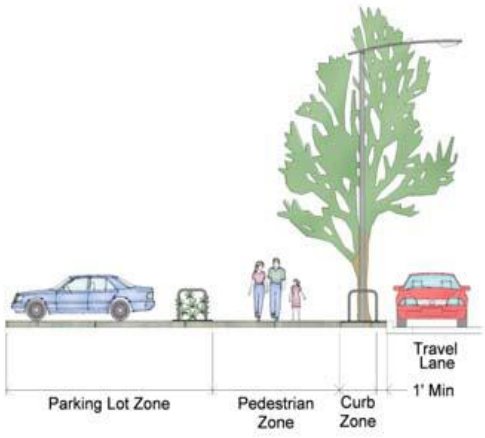
The placement of bicycle parking can be as important to the potential user as any other factor. For instance, a rack placed in the wrong location will not be used. Therefore, the following elements should be used to determine the best possible location:

1. Long-Term and Short-Term Parking Needs.
   As mentioned previously, long-term and short-term parking needs differ in the type of parking facility needed in addition to location of those facilities. Short-term parking is needed at popular destinations such as retail stores, libraries, parks, banks, post offices, and other places where there is a high turnover rate of users during the day. Short-term parking should be conveniently located, near building entrances. If a bicyclist has to walk out of their way to use the facility, they will find somewhere closer to park. The best location for a rack is immediately adjacent (within 50' of main entrance) to the building entrance it serves. If more than one building will be served by the facility or a building has more than one main entrance, the parking facility should be distributed to serve all buildings or main entrances. The rack should not impede the pedestrian flow into and out of that entrance.

D4-3

   Long-term parking is needed at schools, employment centers, and other places where daily user turnover rates are low. Unlike short-term parking, convenience is slightly less important than security for long-term parking.

2. Relationship to Automobile Parking and Traffic Lanes.
   If a bicycle facility is placed near a parking lot or traffic lanes, a protection barrier its needed to mitigate potential damage to the bicycle and rack.



3. Relationship to Pedestrian Space
   Bicycle parking facilities should not impede into the pedestrian space. It is very easy for pedestrians to become distracted and walk into a rack or parked bicycle potentially resulting in personal injury. Therefore, parking facilities should have a minimum clearance of 48"' from a parked bicycle to the edge of the pedestrian path. If this distance is not available, the parking facility should be very noticeable and free of projections.

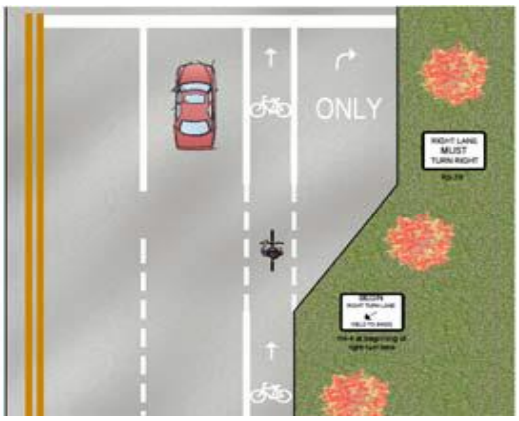
4. Visibility and Protection.
   A parking facility should be placed in a location that is highly visible to the surrounding buildings and pedestrian areas, such locations will mitigate possible vandalism, theft, and reduce fears of bike users. All parking facilities should have a bicycle parking guide sign to inform potential users of the parking areas. The placement of parking facilities under roof overhangs (not under the drip line) or other elements will shelter bikes from the weather.

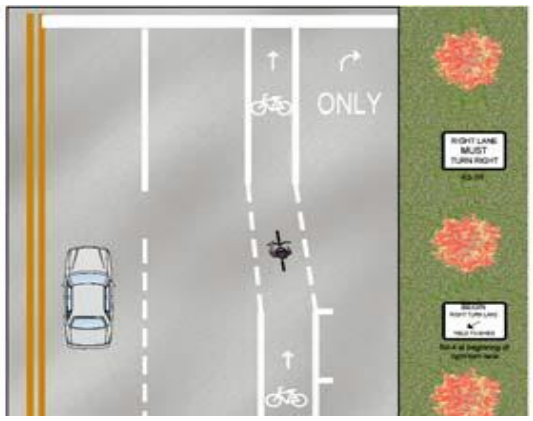
INTERSECTION TREATMENTS

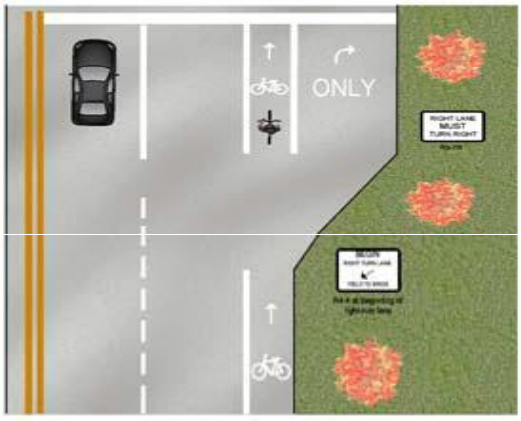
Designing a smooth transition at intersections for bicyclists and motorists can be difficult, especially handling right-turn lanes. However, there are many different methods to improve intersection conditions for bicyclists and motorists at various intersections. To provide a safe environment for easy turning movements for both bicycles and motor vehicles, on-road applications should be made to ensure: 1) Motorists make right turns as close to the right-hand curb as possible, 2) Bicyclists going straight should be to the left of right turning traffic, and 3) Bicyclists turning left should turn from the left lane or as close to the centerline or the left side lane as possible

INTERSECTIONS WITH RIGHT-TURN LANES

Intersections with bicycle lanes tend to confuse both cyclists and motorists when it comes to turning movements. Bike-lanes are designed to keep bicyclists to the right side of the roadway; however, without additional signage or markings bicyclists and motorists have a hard time determining how to conduct right-hand turns.







The best option to clarify how bicyclists and motorists should handle a right-turn lane is shown in the illustration on the previous page for streets that do not have on-street parking.

SIGNALIZED INTERSECTIONS

Detection of bicyclists at traffic-actuated signals is crucial for bicyclists' safety and encourages proper crossings of the intersection. Improving an existing signalized intersection with bicycle-activated detector loops can make them friendlier to bicyclists. The purpose of these loops to allow the bicyclist to trigger change in the traffic signal, since the majority of vehicular detector loops are too large or do not carry the small area a bicycle would occupy in a travel lane.

The loop should be located in the bicyclist's expected, path, including left-turn lanes and shoulders. It is also helpful to provide a pavement marking to identify the location where a bicyclist has to be to activate the signal.

However, in some situations, the use of pedestrian or bicyclist-activated buttons may be an acceptable alternative to the use of detectors provided a bicyclist does not have to demount or make unsafe leaning movements to use them.

PATH-ROADWAY INTERSECTIONS

The intersection of a path or trail and a roadway should be at a logical and visible location. Motorists should be warned ahead of time of the approaching trail crossing and the potential trail users should be alerted of the upcoming intersection. Maintaining visibility between trail users and motorists is extremely important for the safety of trail users.

The path-roadway intersection approach should be made at a relatively flat grade so bicyclists are not traveling downhill into the oncoming traffic at the intersection. If the intersection is more than 75-feet from curb to curb, it is desirable for a center median refuge area to be provided for safe crossing of travel lanes.

Bollards and signage are typically placed at the path-roadway intersection to limit entrance onto the trail to pedestrians and bicyclists.

Use of signage and traffic calming features such as speed tables or crosswalks will aid to alert motoring traffic of the potential existence of crossing pedestrian or bike traffic.

Considerations for carefully planned path-roadway intersections should include the following:

- Crossings should be a safe-enough distance from neighboring intersections to not interfere (or be interfered) with traffic flow
- A roadway with flat topography is desirable to increase motorist visibility of the path crossing
- Motorists and trail users should be warned, such as with signage (including trail stop signs), changes in pavement texture, flashing beacons, raised crossings, striping, etc.
- A refuge is needed where crossing distance is excessive and in conditions exhibiting high volumes/speeds and where the primary user group crossing the roadway requires additional time, such as school children and the elderly.
- The crossing should occur as close to perpendicular (90 degrees) to the roadway as possible.
- If possible, it may be desirable to bring the path crossing up to a nearby signalized crossing in situations with high speeds/ADT and design and/or physical constraints.
- Signalized crossings may be necessary on trails with significant usage when intersecting with demanding roadways, but MUTCD warrants must be met for the installation of a signalized crossing.

INNOVATIVE DESIGN TREATMENTS

There are several situations or transition areas where innovative design treatments may be used to provide accommodations for bicyclists. The following paragraphs briefly describe those transition areas and offer design and construction guidance.

COLORED BIKE LANES

The color bike lane treatment involves using colored pavement or paint within the boundaries of a bike lane to help visually elevate the prominence of the bike lane on the road; thus, increasing safety, comfort, and awareness of bicyclists.

BICYCLE BOULEVARDS

A bicycle boulevard is a shared roadway that has been optimized for bicycle traffic on low-traffic streets that are too narrow to install a bike lane or have a low level of vehicular traffic making a bike lane unnecessary. Bicycle boulevards are generally adjacent to a nearby arterial road with high or potentially high bicycle traffic, and provide a direct, cross-town route. However, in contrast with other shared roadways, bicycle boulevards discourage cut-through motor vehicle traffic with various traffic calming devices, but typically allow local motor vehicle traffic. They are designed to give priority to bicyclists for through-going traffic rather than vehicular.

Stop signs and traffic signals are limited on bicycle boulevards to make the route more attractive to cyclists. Based on site visits, five locations in the City were found to be potential bicycle boulevard locations, including 11th Street, 13th Street, Brown Street, McNair Street, and Water Street. There locations are located near proposed (Market Street Bike Lanes) or existing facilities (Jack's Creek Greenway), or adjacent to busy thoroughfares (15th Street).

BIKE BOXES

Bike boxes or advanced stop lines are generally used on busy streets to bring bicyclists to the front of traffic at intersections with priority crossing and turning.

The box reduces the possibility of right-hook conflict with motorists. A bike box can be filled with color to provide increased visibility or just striped.

BICYCLE ACCOMODATIONS DURING CONSTRUCTION

Bicycle and pedestrian accommodations should be provided during roadway construction regardless of the project scale. To assist in identifying the appropriate accommodations, AASHTO, MUTCD (Chapter 6) and NCDOT Work Zone Traffic Control Unit have published guidelines and procedures.
Some accommodations for bicyclists during roadway construction projects include:

- Advance signage to alert bicyclists of approaching restrictions or closures of bicyclist facilities. Signs usually include "Bike Lane Closed Ahead" or "Bikes Seek Alternative Routes."

- Detour routes as alternatives to the main bicycle route. Providing a detour route with adequate signage will assist a bicyclist in maneuvering around a construction project.

SCHOOL ZONES

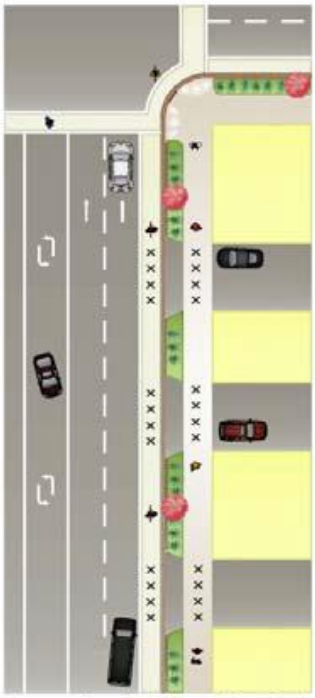
According to the Safe Routes to School Guide, "ideally, the school zone starts at the front door and encompasses the campus and as many blocks as possible that surround the school and has a high concentration of school-generated traffic". Normally, the school zone includes the school campus, the streets along the campus, and two blocks around the campus perimeter. The school zone should be well marked with signage (school crossing signs, speed limit signs, etc.), pavement markings, and other traffic calming devices to alert drivers of the high concentration of children.

The MUTCD, Part 7 sets forth principles and standards for controlling traffic in school zones. The manual provides information on appropriate design, application, and maintenance of traffic control devices (signage, pavement markings, signals) and other controls (crossing guards, student patrols, crossings, etc.) required for the special conditions in school areas. Therefore, Part 7 of the MUTCD should be reviewed and followed when improving school zones.

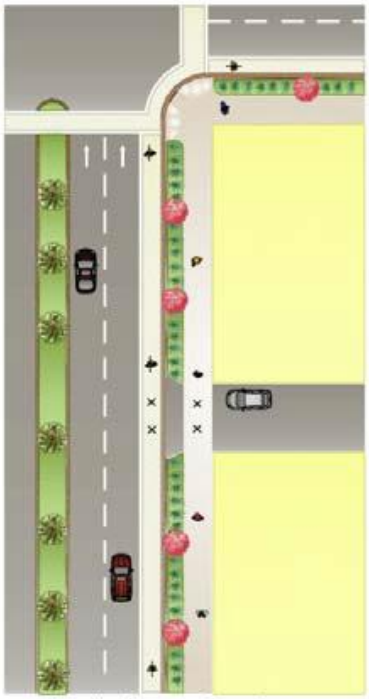
COMMERCIAL DEVELOPMENT

Commercial establishments generate a high volume of vehicle traffic, which in turn can generate opportunities for pedestrian and vehicle crashes. Uncontrolled access points from the roadways into the parking area of a commercial building or parking lots can all be potential accident areas. It is important that the City maintain a policy of access management to limit the number of commercial and residential crossings of any sidepath and on roadways with bike lanes.

The driveway ramp design for commercial land uses, the number of vehicle access points, and the distance between existing driveways all have a direct effect on the overall bicycle and pedestrian environment.



Uncontrolled Accesses Create 8 Potential Conflict Points (X) For Pedestrian & Bicyclists At Every Driveway



A Raised Median & Consolidating Driveways Reduce Conflict Points (X) For Pedestrian & Bicyclists

Limiting and consolidating vehicle driveways into a commercial site reduces conflict points. This illustration on the right shows how access management can be done. This method can also reduce the number of vehicle-vehicle crashes if the driveways are located near traffic control devices.

RESIDENTIAL DEVELOPMENT

Since an overwhelming number of bicycle trips are generated from residential development, applying the above driveway design components will assist in reducing possible conflict points within newer residential areas. In addition, existing or future cul-de-sacs should be connected to the closest local collector street or to other cul-de-sacs in adjoining subdivisions via multi-use paths. This connection will improve connectivity and accessibility to surrounding land uses.

STREETSCAPE IMPROVEMENTS

The use of street lighting, landscaping, and pedestrian furniture enhances a street environment and provides increased comfort and safety for bicyclists and pedestrians. These elements also turn the street into a pedestrian designation.

STREET LIGHTING

Good placement and quality of lighting can enhance an environment, as well as provide increased bicyclist and pedestrian comfort and safety. Street lighting also improves the motorist ability to see bicyclists and pedestrians at night. Streetlights and building lights within commercial areas can enhance the ambiance of the area, in addition to increased visibility of bicyclists and pedestrians by motorists within parking lots. All intersections should be provided with street lighting to ensure safety of all users. For further guidance on street design lighting, refer to the *AASHTO Informational Guide* for Roadway *Lighting.* Street level lighting in downtown and along bicycle corridors will improve the atmosphere by providing comfort, security, and safety. The use of uniform lighting levels along all bicycle corridors should be considered in all bicycle facility improvements.

The typical cost of installing street lighting varies by type of fixture used and the utility providers.

STREET TREES AND VEGETATION

The use of landscaping along a street can provide several benefits, such as providing a separation between motorists and pedestrians, reducing the visual width of the roadway and thus producing a traffic calming effect, and providing a more pleasant street environment. Landscaping can include a variety of trees, bushes, and flower beds that can be planted in the buffer area between the sidewalk and roadway or in the street median**.**

Choosing appropriate plants for the local climate and surrounding area, providing adequate space for growth, and preparing the ground can help ensure they survive with minimal maintenance and do not buckle the sidewalks as they mature. The use of rain gardens and other plant alternatives should also be considered to reduce installation and continuous cost of irrigation. All shrubs should be low-growing and trees should be kept trimmed to at least eight (8) to ten (10) feet to ensure sight distance, vertical clearance, and security.

Landscaping costs vary depending upon the size of planting, plant selection, and additional elements (irrigation and maintenance). However, multiple

entities, such neighborhoods, businesses, City, and Non Profits can share the costs.

ROAD DIET TREATMENTS

A road diet is an effective method of improving bicycle-friendliness, safety, and calming traffic along streets. The street is physically narrowed or the street is given the perception of being narrowed. There are several different methods of physically narrowing the roadway:

- Lane widths can be reduced and excess asphalt striped with a bicycle lane or paved shoulders
- Travel lanes are removed
- Sidewalks and landscaped areas are extended or on-street parking is added within the former curb lines

The physical reduction of street widths is usually done along residential streets; however, if a traffic analysis is conducted and lane reduction is determined to be appropriate then the use can be applied on any street. A nonphysical method of street narrowing is planting trees along the street, resulting in a sense of spatial enclosure what will promote reduced vehicle speeds. The use of curb extensions, on-street parking, separated walkways with planting strips, and bike lanes also make the street appear narrower.


Signage along Jack's Creek Greenway

Section 6 - RECOMMENDATIONS FOR ANCILLARY FACILITIES, PROGRAMS & POLICIES

This section outlines recommendations for ancillary facilities, programs, and policies to assist in making the City of Washington a bicycle-friendly community. These recommendations satisfy Education, Encouragement, and Enforcement categories of a bicycle-friendly community.

The recommendations for programs and policies have been prioritized based on ease with which they can be implemented. The lower cost programs, such as Bicycle Registration and Bicycle Rodeos are prioritized for the short-term, or within five years of the Plan's completion. Mid-term priorities are those that should be addressed within 6 - 10 years and long-term priorities are those that should be addressed beyond ten years from the completion of the Plan. Table 6.0 includes the implementation phases of all recommended programs and policies. Implementation phases of projects are discussed in Section 7.

The implementation of various programs not only encourages bicycling, but also provides education, enforcement, and maintenance opportunities to ensure Washington has a comprehensive bicycle network where its users feel comfortable to bike in the community.

ANCILLARY FACILITIES

Ancillary facilities are those supporting amenities located at specific destinations and intermediate points throughout the bicycle network. They are an important component to encouraging biking in Washington. Ancillary facilities include:

- Mapping & Signage
- Traffic Calming Initiatives
- Multi-Use Trailheads and Support Facilities
- Bicycle Repair Stations
- Raised Boardwalks

MAPPING & SIGNAGE

The City should consider developing a Bicycle Network Map that identifies the types of road features, destinations, bicycle facilities, and identified routes. The map should be posted in destination areas and available to the public. A Bicycle Network Map would benefit the citizens of Washington by providing a tool that could be used to promote bicycle routes and education.

The City should consider signing identified new routes with informative, way-finding signage that can help visitors and residents alike to determine appropriate bicycle routes to various destinations. See Map 4.11 for proposed bike route system.

TRAFFIC CALMING INITIATIVES

Reduce Speeds

While many areas in Washington already have relatively low posted speed limits, the thoroughfare roads should be examined to see if any biking areas would benefit from reduced speeds. Calming the arterial streets and the connector streets, such as Carolina Avenue, Bridge Street, 5th Street, John Small Avenue, 15th Street, Market Street, Main Street, and 3rd Street may improve bicycling routes by increasing bicycling awareness and security.

If the City determines the need to lower speed limits, then if should contact NCDOT. The authority to lower speeds is set out in NC General Statute 20-141(f) and states that *"Whenever local authorities within their respective jurisdictions determine upon the basis of an engineering and traffic investigation that a higher maximum speed than those set forth in subsection (b) is reasonable and safe, or that any speed hereinbefore set forth is greater than is reasonable and safe, under the conditions found to exist upon any part of a street within the corporate limits of a municipality and which street is a part of the State highway system (except those highways designated as part of the interstate highway system or other controlled-access highway) said local authorities shall determine and declare a safe and reasonable speed limit. A speed limit set pursuant to this subsection may not exceed 55 miles per hour. Limits set pursuant to this subsection shall become effective when the Department of Transportation has passed a concurring ordinance and signs are erected giving notice of the authorized speed limit."*

Use Bicycle Friendly Devices

Traffic calming devices are intended to create safer roadway conditions for bicyclists and slow motor vehicle speeds. The following bicycle-friendly devices will aid in calming traffic and provide bicycling facilities:

- Raised crosswalks and curb extensions. Raised crosswalks are flat-topped speed humps placed in intersections or specific pedestrian crossing areas to slow motor vehicle speed and raise awareness of pedestrians in the roadway. Curb extensions may slow motor vehicle speed by creating shape to a roadway. Installation of curb extensions works well when placed on alternating sides of the road to form S-shaped curves.
- Speed cushions with wheel cut-outs, or gaps, for bicyclists. Speed humps and cushions change the level of the road to slow the speed of motor vehicles, yet they can be inconvenient and potentially dangerous for cyclists. Installation of wheel cut-outs, or gaps, in the speed cushions provides a bike-friendly element to the roadway to avoid the full impact of the traffic calming device.
- Bypass lanes for bicyclists at narrow parts of the road. When roadways narrow, motorists tend to slow their speed as they travel. However, when cyclists are traveling along a narrow roadway, motorists drive closer to cyclists in order to pass them. Installation of bypass lanes for bicyclists at narrow parts of the roadway will provide a safer condition for cyclists to travels.

For new or reconstructed streets, implement guidelines that call for traffic calming:

- Lane Diet: reduce the width of traffic lanes and lower the speed. Since motorist tend to slow their speed on narrow roads, reducing the width of traffic lanes and lowering the speed limit will aid in traffic calming. During planning phases, a roadway should be evaluated to consider the addition of bike lanes as a result of reducing the width of traffic lanes.

- Add or widen medians, which will limit turning locations. The addition of medians along the centerline of the roadways will limit cross traffic to designated intersections, or breaks in the medians.

- Stripe marked bicycle lanes to improve bicycle access. Bike lanes provide an area of exclusive-use for cyclists and when appropriately striped and signed they increase motorist awareness of bicyclists in the roadway

BICYCLE PARKING FACILITIES

Providing bicycling facilities in Washington will encourage bicycling, thus increasing bicycling trips and reducing vehicular traffic. Parking racks should be located in popular destinations such as downtown, shopping centers, parks, schools, and Public buildings to facilitate the parking needs of cyclists. See Section 5 for bicycle parking guidelines and standards.

MULTI-USE TRAILHEADS AND SUPPORT FACILITIES

Entrances into multi-use trails are excellent location for posting safety and general bicycle education material; in addition to information on the trail route. The trailhead could also include various support facilities such as vehicular parking, restrooms, drinking fountains, picnic shelters, benches, bicycle racks, trash receptacles and other types of amenities to ensure the trail is an inviting and pleasurable destination.

BICYCLE REPAIR STATIONS

Bicycle service stations are beneficial to the bicycling network because of the variety of services that may be incorporated into the facility. Bicycle service stations may include air pumps for tire repair, tools, parking racks, water fountains, benches and more. While the services may vary, the facility may become a place to meet or be incorporated into existing destinations.

RAISED BOARDWALKS

Due to Washington's topography and water features, there will most likely be a need for elevated boardwalks across environmentally sensitive areas along segments of certain bike facilities. The use of boardwalks may function as small bridges over an area; therefore, special design and construction may be required to ensure adequate clearance and safety is addressed for bicyclist and pedestrians alike. **Please refer to Section 5 for specific design guidelines**.

PROGRAMS

SPOT IMPROVEMENT PROGRAM

The City should consider implementing a 'Spot Improvement Program" to identify, report, and correct potential issues on the roadways. The potential issues may include pothole repair, grate repair/replacement, bridge rails, or cracked pavements. The City should consider an online notification form on the Bicycle and Pedestrian page which would allow residents to report needed repairs online (see Encouragement Programs & Initiatives sub-section for discussion of web page).

INFRASTRUCTURE MAINTENANCE PROGRAM

Infrastructure maintenance of bicycle facilities may include involvement of the community through creative programs such as "Adopt-a-Trail" or donation of bicycle parking racks. Involving the community would increase awareness of the bicycling network in Washington and promote local businesses and vendors. An infrastructure maintenance program is recommended as a short-term priority to maintain existing bicycle facilities. As new bicycle projects are implemented, the program will need to be expanded to maintain additional bicycle facilities.

EDUCATION PROGRAM

The importance of educational programs must be addressed with the issue of bicycle safety. Bicycle crash data indicate that collisions involve improper actions on the part of bicyclists, motorists, or both. Efforts to reduce bicycle-motor vehicle crashes need to include educational programs to increase awareness of improper actions and promote correct actions. Safety education programs must include components for bicyclists and motorists. Education programs are a short-term and ongoing priority to provide instruction to bicyclists, pedestrians, and motorists.

Bicycle Rodeo Program

The City of Washington has offered Bicycle Rodeo programs in the past to educate children and parents about safe bicycling skills. It is recommended that these rodeos again be offered, with potential partnerships among the Police Department, Parks and Recreation Department, and local bike shops and businesses. The City should continue those programs including activities such as an obstacle course, hand signal instruction, bike safety prizes (helmets, lights, vests) and bike maintenance courses. This program is recommended as a short-term priority.

Bike Law Education for Police

Partnering with law enforcement is an essential component of bicycle programs that seek to enable all users to share roadways safely. These partnerships help to provide information about and ensure consistent enforcement of bicycle safety laws. They also address motorist as well as cyclist behavior. The City and the Police Department should partner in this effort, with components of this collaboration including:

- Development of courses for law enforcement officers about bicycle safety and laws, and Safe Routes to School
- Development of Bicycle Safety Enforcement Plans
- Development of easy reference materials for officers, such as brochures
- Development of bicycle safety videos
- Joint education and enforcement activities conducted by law enforcement officers and volunteers

Smart Cycling Program

The American League of Bicyclists offers courses to adults and children to teach bicyclist and motorists how to ride safely and share the road. The American League of Bicyclists offers rider education based on curricula set forth in the Smart Cycling Program. Smart Cycling courses are taught throughout the United States by certified instructors. The Smart Cycling Program is recommended as a mid-term priority in order to allow the City time to implement additional bicycle facilities in an effort to create a more bike-friendly environment.

ENFORCEMENT PROGRAM

Public Relations & Awareness Program

A public relations & awareness program is recommended as a short-term priority and should be evaluated and expanded as bicycle facilities are implemented throughout Washington.

The City should consider developing pamphlets to educate motorists and bicyclists of the rules of the road, as well as include information on various biking routes around Washington. The pamphlets could be distributed by the City's Recreation Department, Police Department during enforcement patrol, Visitors Center, and local businesses.

Washington should consider installing bicycle friendly signs, or "Share the Road" signs, at "gateways" to raise awareness that Washington is a bicycle-friendly. It is also recommended that this signage be included along major

thoroughfares and at locations of high traffic volume. Signage helps to-create an understanding that bicyclist and motorists shall share the road.

Bicycle Registration Program

A bicycle registration program is recommended as a short-term priority. Bicycle registration programs have been effective in returning lost or stolen bikes to their owners by matching serial numbers. Serial numbers are a set of characters that uniquely identify an object and can be used for traceability and warranty purposes. Bike serial numbers can be used in national record systems and increase the chances of returning a bicycle to its registered owner. When bikes are registered, the owner submits, to the police department, the serial number and identifying features, such as color and size, in addition to the owner's contact information. An identification stamp will be applied to the bike. The City should consider increasing awareness of this program by providing a mobile registration unit at local schools, community and neighborhood events to actively register bicycles instead of requiring the bike to be brought to the Department. The police department may consider a nominal processing fee for bike registration.

Bicycle Helmet Give-Away Program

To enforce bicycling rules and encourage safety and compliance, the City should consider promotional programs that include donating helmets and/or night-lights to cyclists that lack proper equipment. The Police Department, in conjunction with Beaufort County Schools for younger riders, should consider conducting helmet giveaways and also consider providing night-lights and other safety equipment. In its enforcement program, vouchers for helmets may be provided when riders without helmets are noticed. To assist in providing helmets and funding for helmets and other safety equipment, the City should look at opportunities such as the NCDOT Bicycle Helmet Initiative and the Wal-Mart Foundation. The bicycle helmet giveaway program is recommended as a short-term priority to increase the safety of bicyclists in Washington.

Police-on-Bikes Program

A program that can have a positive affect on multiple fronts, Police -on-Bikes would provide a positive example of cycling for the public, encouraging civilians to try bicycle transportation. Riding bikes would assist in keeping cops more vigorous and fit and help connect them to the community, less hidden and isolated from neighborhoods than police driving in cars. As officers begin experiencing the streets from the cyclist's point of view, they will be less inclined to tolerate motor vehicle speeding and red-light running — the major causes of accidents for cyclists and for everyone else. Bike patrols can also save money, as the total cost of purchasing, outfitting, and maintaining a police bicycle, for the life of the bike, is a tiny fraction of the cost of patrol cars.

ENCOURAGEMENT PROGRAMS & INITIATIVES

General promotion of bicycling in Washington can be accomplished by enhancing the City's website: (http://www.washington-nc.com/). Currently, bicycling is not addressed on Washington's website. It is recommended that bicycle safety and promotion be included. On the Recreation webpage of the City's website, it is recommended that a Bicycle and Pedestrian webpage be created. On this page, the City can post proposed bicycle routes, maps, safety tips, promotional brochure and promotional events involving bicycling. The proposed SPOT Improvement Page could also be linked to this page. The Police Department's webpage could be improved to include a link to Bicycle Safety Tips, as well as the proposed brochure. This program is recommended as a short-term priority and the City should continue to use its website for general promotion of safe bicycling. Additionally, the City should consider posting on its website the benefits of bicycling, rules, bicycle routes, recommendations, and project updates.

Bicycle Parking Rack Installation Program

With an increase in bicycle transportation, adequate parking facilities will be needed. It is recommended that the City develop a bicycle parking rack installation program. This would benefit the community by providing bicycle parking at major private and public destinations in Washington. Bicycle parking racks encourage bicycling by providing a secure location for cyclists to store their bikes while visiting a destination. The City should consider a bicycle parking rack installation program as a short-term priority due to the current lack of bicycle parking facilities.

Bicycle and Pedestrian Advisory Committee

As a short-term priority, the City should consider establishing a standing Bicycle and Pedestrian Advisory Committee to advocate for bicycle and pedestrian-friendly City policies and actions. Citizens currently serving on the Bicycle and Pedestrian Plan Steering Committees, as well as any additional interested citizens, would serve as committee members and City staff would facilitate committee meetings. A Bicycle and Pedestrian Advisory Committee would meet regularly to discuss issues; provide recommendations and/or advise City staff regarding bicycle and pedestrian related concerns and actions. Additionally, the committee may consider coordinating an annual event, generating brochures or marketing materials, and/or reviewing development plans for bicycle and pedestrian friendliness.

POLICIES

Bicycle friendly policies are an efficient way to improve bicycling in Washington because they require bicycle facilities at the onset of development rather than a retroactive approach. The City should consider modifying its local ordinances and policies to provide a balanced approach to both on and off-street bicycling and support facilities; including a more detailed guideline for bicycle parking and amenities.

ZONING ORDINANCE & SUBDIVISION REGULATIONS

Currently, the City can recommend that bicycle facilities be incorporated into new development projects, but there is no City policy to require such facilities. Washington acknowledges the need for regulations requiring bicycle facilities as development occurs. Washington should consider revising its Zoning Ordinance and Subdivision regulations to set a standard for the City and require bicycle facilities with certain development requests. Washington should consider an ordinance requiring bike facilities on all arterial and connector roads as development occurs as well as providing connections to neighboring roads and bike facilities. Additionally, the City should include greenway set-asides to promote future development through conservation of recreational land.

Local policies and ordinances related to bicycling were discussed in Section 3 of this Plan.

COMPLETE STREETS ORDINANCE

As a short-term priority recommendation, Washington should develop and implement a Complete Streets Ordinance to ensure all new and reconstruction of roadways have "complete street" elements (components for all types of transportation) incorporated into the design and construction as appropriate. These elements include:

- ADA-complaint curb cuts
- ADA-compliant sidewalk improvements
- New bicycle lanes
- Pedestrian medians
- Roadside improvements for public transportation; including bus shelters and bus priority traffic signals (as appropriate)
- Traffic calming measures, such as chicanes, curb extensions, and speed humps/tables
- Improved landscaping and streetscape features, such as benches, trees, and street/pedestrian lighting
- Intersection and crosswalk improvements for all non-motorized users

- Other improvements to ensure safety, accessibility, and quality of the roadway

MAINTENANCE

The City should consider implementing bicycle facilities into the regular maintenance schedule to maintain safety and usability of facilities. Maintenance activities may include repairing bicycle-parking racks, cracks/potholes in pavement, restriping of lanes, and removal of debris from the roadways/shoulders. Including bicycle facilities in the established maintenance schedule will place a priority on and establish a standard for adequate facilities. A maintenance policy is a short-term and ongoing priority to maintain new and existing bicycle facilities.

CITY FUNDING

The City should consider allocating resources on an annual basis to establish a bicycle network, maintain existing facilities, and fund programs and on-going activities directed towards encouragement, enforcement, and education. The allocation of City funding for bicycle facilities will be an ongoing need.

BICYCLE PARKING ORDINANCE

The City should consider including bicycle parking in permitted uses or districts to ensure that alternative transportation is adequately served. The bicycle parking ordinance should define the number of expected parking spaces rather than the number of expected racks as racks can be constructed to hold a wide range of spaces for bikes. The downtown and commercial areas of Washington would benefit from this type of ordinance because cyclists would have a place to safely secure their bicycles. The requirement to provide bicycle parking to certain land uses will encourage bicycling and reduce vehicular congestion. The bicycle parking ordinance should also recommend that bicycle parking racks be placed in identifiable locations to promote convenient access. A bicycle parking ordinance is recommended as a short-term priority.

NEW BRIDGE PROJECTS

As a mid-term priority, Washington should consider an ordinance requiring bicycle accommodations on all new bridge projects. Currently, there are no identified bridge replacement projects. However, when projects are planned, bicycle facilities should be implemented to provide safe crossings to bicyclists, pedestrians, and motor vehicles.

STREET IMPROVEMENTS ORDINANCE

The City should consider an ordinance requiring bikeway construction on all streets that would provide for continuation and enhancement of existing bikeways, provide access to current or future school sites, or that would conform to the adopted bicycle plan. A Streets Improvements Ordinance is recommended as a short-term priority to enhance connections and expansions to the City's proposed bike routes.

COMMERCIAL DEVELOPMENT

It is important that the City maintain a policy of access management to limit the number of commercial and residential crossings of any sidepath and on roadways with bike lanes. Uncontrolled access points from the roadways into the parking area of a commercial building, parking lots, and access from parking lot to the building can all be potential accident areas. Limiting and consolidating vehicle driveways into a commercial site reduces conflict points.

BIKEWAYS AND BIKE FACILITIES ORDINANCE

The City should consider adopting an ordinance that would define the various types of bikeways and bicycle facilities and set forth a set of criteria for development of such facilities. All criteria should be consistent with minimum approved measures set forth by the NCDOT. The City should consider developing an inventory of bike routes and facilities as they are developed or installed. A Bikeways and Bike Facilities Ordinance is recommended as a short-term priority to establish criteria for the design and implementation of future bicycle facilities.

NC Estuarium along Washington Waterfront

CONSTRUCTION PROJECTS

The initial list of potential project locations was developed based on input from the Steering Committee meetings, City staff, Public Open House #1, the public survey, and the results of the roadway inventory. Bicycle considerations should be included as part of all new road/street construction and maintenance improvement processes.

A wide range of projects have been identified to make Washington more bicycle-friendly. Physical improvements from on-road projects; such as adding bike lanes to off-road projects such as multi-use trails are recommended. Thirty (32) construction projects are recommended including six (6) intersection-improvements, one (1) paved shoulder, nine (9) sharrows, six (6) bike lanes, one (1) side use path, one (1) greenway, three (3) signed bike routes, and five (5) "Share the Road" signage improvements. A comprehensive description of all construction projects are found in Tables 7.1 through 7.3.

The following definitions apply to the terms as utilized in Table 7.1:

- *Road Class - Identified ownership of road(s) in project*
- *Type of Project - Identifies project type (bike lane, shared roadway multi-use trail, paved shoulder, hazard/spot improvement, intersection improvement)*
- *Project / Improvement Name - Identified project name*
- *At/On - Identifies location of project (street, intersection, etc)*
- *From - Identifies starting point of construction project*

- *To - Identifies ending point of construction project*
- *Approximate Length (ft.) – Identifies approximate length of project in feet*
- *Preferred Treatment – Identifies recommended project improvement(s)*
- *Estimated Cost Range – Magnitude of estimated cost calculated using various sources.*
    - *Minimal: Cost estimate for project is $10,000 or less based on existing conditions, proposed treatment, any further study that is needed, and level of engineering, and project components (permits, acquisition, coordination, etc.).*
    - *Low: Cost estimate for project range from $10,001- $99,999 based on existing conditions; proposed treatment, any further study that is needed, and level of engineering, and project components (permits, acquisition, coordination, etc.).*
    - *Moderate: Cost estimate for project range from $100,000 - $299,999 based on existing conditions, proposed treatment, any further study that is needed, and level of engineering, arid project components (permits, acquisition, coordination, etc.).*
    - *High: Cost estimate for project range is $300,000 or higher based on existing conditions, proposed treatment, any further study that is needed, and level of engineering, and project components (permits, acquisition, coordination, etc.).*
- *Preliminary Opinion of Probable Costs - These costs are rough estimates and should not be considered final. Surveying, engineering design, environmental considerations, rights-of-way considerations and coordination among interested parties need to be completed to determine costs to be utilized for specific project budgeting. General cost estimates are described in Appendix C.*

PRIORITIZED PROJECTS

Project prioritization was a process which included the identification of locations for potential projects, determining the appropriate treatments for projects, and prioritizing those projects. Following project development, projects were then prioritized based on the following factors:

- *Public Input: information from Steering Committee, comments from participants in Public Open Houses and public survey.*

- *Project Characteristics: During the third Steering Committee meeting, members selected criteria on which to base the prioritization of projects. These factors included:*

    - *Safety*
    - *Connectivity to frequent destination points*
    - *Immediate need for project*
    - *Cost*

- *Constructability and Cost: General cost estimates are included in Appendix C.*

Table 7.1 - Proposed Projects

* All recommended treatments in this plan will require approval by NCDOT * Division 2 prior to implementation

Project Reference #	Road Class	Type of Project	Project/Improvement Name	At/On	From	To	Length (Ft.)	Treatment	Cost Range	Cost Estimate
1	Local/NCDOT	Intersection Improvement	3rd and Market Intersection Improvement	3rd Street/Market Street	NA	NA	NA	Install Standard Bike Lanes at Intersection	Minimal	$5,000
2	NCDOT	Intersection Improvement	5th and Harvey Intersection Improvement at Jack's Creek Greenway	5th/Harvey Street	NA	NA	NA	Install Crossing Striping; Crossing Signage; Refuge island	Low	$20,000
3	NCDOT	Intersection Improvement	15th and Market Intersection Improvement	Market Street/15th Street	NA	NA	NA	Install Standard Bike Lanes at Intersection	Minimal	$5,000
4	Local	Intersection Improvement	3rd and Brown Intersection Improvement	Brown Street/3rd Street	NA	NA	NA	Install Bicycle Crossing Signage	Minimal	$1,000
5	NCDOT	Intersection Improvement	John Small and Hudnell Intersection Improvement	John Small/ Hudnell Street	NA	NA	NA	Install Crossing Striping; Crossing Signage; Refuge island	Low	$50,000
6	Local/NCDOT	Intersection Improvement	11th and 12th Intersection Improvement	12th Street/ 11th Street	NA	NA	NA	Install Bicycle Crossing Signage	Minimal	$3,000

Project Reference #	Road Class	Type of Project	Project/Improvement Name	At/On	From	To	Length (Ft.)	Treatment	Cost Range	Cost Estimate
7	Local/NCDOT	Paved Shoulder	Whispering Pines Route	Whispering Pines/5th Street	Grimes Road	15th Street Extension	2000	Install Paved Shoulders	Moderate	$240,000
8	NCDOT	Sharrow	Market Street Bike Sharrow Project	Market Street	Water Street	3rd Street	950	Install Bicycle Sharrows per NCDOT Guidelines	Minimal	$2,500
9	NCDOT	Bike Lane	Market Street Bike Lane Project	Market Street	3rd Street	15th Street	4568	Install Bike Lanes per NCDOT Guideline; Road Diet	Minimal	$505,210
10	Local	Bike Lane	Stewart Parkway Bike Lane Project	Stewart Parkway	Main Street	Water Street	1800	Install Bike Lanes (West) and Sharrows (East) per NCDOT Guideline	Minimal	$3,000
11	NCDOT	Bike Lane	Bridge Street Complete Street Project	Bridge Street	Main Street	5th Street	1900	Install Bike Lanes per NCDOT Guideline; Road Diet	Minimal	$1,000,000
12	NCDOT	Bike Lane	Carolina Avenue Complete Street Project	Carolina Avenue	5th Street	15th Street	7500	Install Bike Lanes per NCDOT Guideline; Road Diet	High	$3,000,000
13	Local	Bike Lane	Hudnell Street Bike Lane Project	Hudnell Street	Park Dr/ Main Street	John Small Avenue	4000	Install Bike Lanes per NCDOT Guideline	Low	$11,300
14	Local	Bike Lane	6th and Bonner Bike Lane Project	6th and Bonner Streets	Jacks Creek Greenwa	Market Street	550	Install Bike Lanes per NCDOT Guideline	Minimal	$250
15	Local/NCDOT	Sharrow	3rd Street Route	Grimes Rd/ Plant St/ 3rd Street	Whispering Pines	Hudnell Street	13400	Install Bicycle Sharrows per NCDOT Guidelines	Low	$38,000

Project Reference #	Road Class	Type of Project	Project/Improvement Name	At/On	From	To	Length (Ft.)	Treatment	Cost Range	Cost estimate
16	NCDOT	Sharrow; Signage	9th Street Bicycle Boulevard Project	9th Street	John Small Avenue	Van Norden	4,200	Install Bicycle Sharrows per NCDOT Guidelines; Install Signage at intersections	Minimal	$10,000
17	NCDOT	Sharrow; Signage	11th Street Bicycle Boulevard Project	11th Street	Highland Drive	Market Street	3,200	Install Bicycle Sharrows per NCDOT Guidelines; Install Signage at intersections	Minimal	$9,000
18	Local	Sharrow; Signage	13th Street Bicycle Boulevard Project	13th Street	15th Street	Carolina Avenue	6,340	Install Bicycle Sharrows per NCDOT Guidelines; Install Signage at intersections	Minimal/ Low	$18,000
19	Local	Sharow; Signage	Brown Street Bicycle Boulevard Project	Brown Street	Main Street	3rd Street/ Jack's	1,000	Install Bicycle Sharrows per NCDOT Guidelines; Install Signage at intersections	Minimal	$2,800
20	Local	Sharrow; Signage	Water Street Bicycle Boulevard Project	Water Street	Stewart Parkway	Main Street	1,800	Install Bicycle Sharrows per NCDOT Guidelines; Install Signage at intersections	Minimal	$5,100
21	Local	Sharrow; Signage	McNair Street Bicycle Boulevard Project	McNair Street	Water Street	3rd Street	1,000	Install Bicycle Sharrows per NCDOT Guidelines; Install Signage at intersections	Minimal	$2,800
22	NCDOT	Sharrow; Signage	Van Norden Bicycle Boulevard Project	Van Norden Street	Main Street	15th Street	5,500	Install Bicycle Sharrows per NCDOT Guidelines; Install Signage at intersections	Minimal	$17,400
23	NCDOT	Side Use Path	Market Street Extension Side use Path	Market Street Extension	15th Street	Airport Road	5,500	Widen existing sidewalk to meet Side Use Path standard	High	$528,000
24	NA	Greenway	Washington / Greenville Greenway	New Location	3rd Street	Tranter Creek Rd	28,300	Construct Greenway to NCDOT Guidelines	High	$3,000,000

Project Reference #	Road Class	Type of Project	Project/Improvement Name	At/On	From	To	Length (Ft.)	Treatment	Cost Range	Cost Estimate
25	NCDOT	Signed Bike Route	Highland Street Route	Highland Drive	12 Street	11th Street	350	Install Bicycle Route Signage	Minimal	$2,500
26	NCDOT	Signed Bike Route	Main Street Route	Main Street	Bridge Street	Hudnell Street	6,400	Install Bicycle Route Signage	Minimal	$2,500
27	NCDOT	Signed Bike Route	Trade Street Route	Trade Street	13th Street	Carolina Avenue	750	Install Bicycle Route Signage	Minimal	$300
28	NCDOT	Share the Road Signage	15th Street Route	15th Street	12th Street	Carolina Avenue	8,100	Install Share the Road Signage per NCDOT Guidelines'	Minimal	$3,000
29	NCDOT	Share the Road Signage	15th Street Extension Route	15th Street Extension	Carolina Avenue	5th Street	4,800	Install Share the Road Signage per NCDOT Guidelines'	Minimal	$2,000
30	NCDOT	Share the Road Signage	Carolina Avenue Route	Carolina Avenue	5th Street	HWY 17	7,500	Install Share the Road Signage per NCDOT Guidelines'	Minimal	$2,500
31	NCDOT	Share the Road Signage	5th Street Route	5th Street	Flanders Filters Road	Asbury Church	45,000	Install Share the Road Signage per NCDOT Guidelines'	Low	$17,000
32	NCDOT	Share the Road Signage	Market Street Extension	Market Street	15th Street	Airport Rd	5,500	Install Share the Road Signage per NCDOT Guidelines'	Minimal	$2,000

IMPLEMENTATION STRATEGY

This chapter describes how the recommendations for improving Washington's bicycling conditions will be implemented. Priorities are outlined for projects, plans, and policies as well as potential partners and funding sources. Implementation of this Plan will require a collaborative effort between a variety of City departments and agencies. The City's staff should be aware of the Plan recommendations and seek to implement them as part of other regular work efforts. The NCDOT Division of Bicycle and Pedestrian Transportation may provide technical expertise on issues related to bicycling and ensure that implementation of the Plan moves forward. Progress on improving the Plan should.be monitored on no less than an annual basis. Almost every project involving street or transportation improvements offers an opportunity to implement a component of this Plan. Implementation priorities of recommended programs and policies are listed in Table 6.0 Implementation Table, located on page 115 of this Plan.

Table 8.1: Implementation Table	
Program Name	***Implementation Phase***
SPOT Improvement Program	Short-Term
Infrastructure Maintenance Program	Short-Term
Education Programs	Short-Term
Bicycle Rodeo Program	Short-Term
Smart Cycling Program	Mid-Term
Public Relations & Awareness Program	Short-Term
Bicycle Registration Program	Short-Term
Bicycle Helmet Give Away Program	Short-Term
Bicycle Parking Installation Program	Short-Term
Bicycle and Pedestrian Advisory Committee	Short-Term
Mapping/Signage Program	Short-Term
Local, Regional, and National Rides	Mid-Term
Bike Law Education for Police	Short-Term
Police on Bikes	Short-Term
Policy Name	***Implementation Phase***
Zoning Ordinance and Subdivision Regulations	Short-Term
Complete Streets Ordinance	Short-Term
Maintenance Policy	Short-Term
City Funding Policy	Short-Term, Ongoing
Bicycle Parking Ordinance	Short-Term
New Bridge Projects Policy	Mid-Term
Streets Improvements Ordinance	Short-Term
Commercial Development Policy	Short-Term
Bikeways and Bike Facilities Ordinance	Short-Term
Speed Limit/Traffic Calming	Mid-Term

INITIATING ACTIONS

The following initiating actions will ensure implementation of the Comprehensive Bicycle Plan and help the City to meet the goals and objectives of it.

Action: <u>Establish a Standing Bicycle and Pedestrian Advisory Committee</u>

- Establish an on-going committee to monitor progress of the plans implementation. Section 7 of this document includes a comprehensive list of all recommended projects. Projects are listed according to priority rank by project type.

- Review development plans to identify opportunities for bicycle and pedestrian facilities.

Action: <u>Provide Bicycle Facilities as parts of all existing/proposed roadways</u>

- Accommodate bicycling as part of all new roadway projects.

- Incorporate requirements for bike facilities into the City's policies and ordinances.

- Seek opportunities to provide bicycle lanes, shared roadway markings, and signage as part of repaving projects in an effort to provide the City additional bicycle facilities. Repaving projects may allow for the restriping of lane width or, in some situations, the addition of paved shoulder width.

- Repair potholes, surface hazards, sight-distance obstructions and other maintenance problems on a regular basis.

Action: <u>All City departments should consult the Comprehensive Bicycle Plan when implementing projects and conducting plan reviews.</u>

- Washington's development review process should be modified to include requirements for on-site and off- site bicycle connections, facilities, and amenities.

- Establish a Bicycle and Pedestrian Committee to review development plans.

Action: <u>Develop a Bicycle Education Program and Enforce Traffic Laws.</u>

See Section 6 for recommended programs, such as Bike Helmet Program, Police-on-Bikes and other encouragement programs.

- Develop a bicycle education program as part of the City's overall communication and education programs.

- Use the City's website, newsletter, and local newspaper as information and educational tools

- Use the Local Public Access Channel to advertise Bicycle Safety Education Public Service Announcements as well as any events such as safety rodeos and rides.

Action: <u>Plan and Construct Bicycle Amenities.</u>

- The City should establish requirements for the addition, design, location, and number of racks for land uses. See Section 5 for design guidance and Section 6 for recommended policies, such as a bicycle parking facilities ordinance and bikeways and bike facilities ordinance.

- Provide racks in public areas and along activity corridors.

- Develop and provide maps of bicycle facilities, routes and popular destinations. See Section 4 for discussion related to color coded route designation, mapping, route signage, and other ancillary facilities.

Action: <u>Reduce Speed Limits and Use Bicycle-Friendly Devices.</u>

The City should consider traffic calming measures and/or speed reductions on roads with bicycle facilities. See Sections 5 and 6 for guidance and discussion about road diets, traffic calming devices, and lowering speed.

Action: <u>Update the Comprehensive Bicycle Plan every 5 - 10 years.</u>

Updates to the Plan are essential to address the changing needs and priorities in Washington. The plan should be reviewed on no less than an annual basis, with public input serving as an essential piece for future plan updates and reviews.

Action: <u>Evaluate new bicycle facility treatments.</u>

New bicycle treatments should be evaluated to determine their effectiveness. The results of the evaluations will be used to refine, adjust, and guide future use of these treatments. Bicycle usage, motorist response, safety, and maintenance needs should be addressed during evaluation of new bicycle facilities. This includes the evaluation of the following facilities:

- Shared lane markings (Sharrows) and bicycle lane markings.
- Signage.
- Roadway crossing improvements/treatments.

Action: <u>Establish partnerships based on their potential interest or involvement in a project.</u>

The City should look to local agencies, businesses, organizations and governmental departments to provide partnership opportunities to assist the in meeting the goals of the Bicycle Plan. These partnerships may be utilized to develop bicycle education, enforcement, and encouragement programs.

Washington should consider establishing or strengthening partnerships with the following to achieve the completion of the Plan's projects and recommendations:

- North Carolina Department of Transportation
- Mid-East RPO
- Mid-East Commission Local Government Services Department
- Beaufort County Government
    - Beaufort County Health Department
    - Beaufort County Schools
- Washington Harbor District Alliance
- Washington-Beaufort County Chamber of Commerce
- Local Businesses
- Local Developers
- Local Bicycle Clubs
- Neighborhood Associations
- Elected Officials

Action: <u>Plan, Recruit, and Host Local, Regional, and national Rides/Events.</u>

The City should look to partner with its allies at the Harbor District, Chamber of Commerce, and other local recreation and leisure promotional programs to organize local and regional rides, while also attracting national and regional cycle rides and organizations to bring their groups/events to Washington.

These events can benefit the City both through economic promotion and increased local participation/interest in cycling. Rides can attract numerous participants, both on the regional and national level, to the area, which could boost the local economy through business at hotels and restaurants. Through rides and events such as these, Washington can boost its reputation as a bicycle friendly community, further attracting cyclist to the City.

PERFORMANCE MEASURES

The City of Washington should continue to monitor performance measures following the adoption of the plan. In doing so, the City can determine the amount of progress being made toward the eventual goal of achieving the plan's vision. These measures should be reviewed and updated every few years to ensure that goals which require the City's resources are being met when the resources are available.

EVALUATION/MONITORING PROCESS

The City, in partnership with the Mid-East Rural Planning Organization, should provide an ongoing evaluation of bicycle transportation in Washington to determine if the goals and objectives of the plan are being met. These organizations must also continue to monitor if goals and objectives should be modified to reflect changing circumstances or attitudes. It is recommended that this evaluation be conducted biannually with concern towards the goals of the plan. Performance monitoring should be led by the City's Planning Department, with support of a Bicycling/Pedestrian Advisory Committee, and the Mid-East RPO Staff.

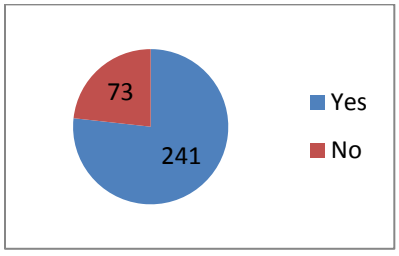
Performance measures are used to monitor progress towards the implementation of the Plan. Based on the recommendations made in the plan, Washington can measure success a number of ways, including

- Miles of on-street bicycle routes created
- Changes in the number of people using bicycle programs
- Creation/Adoption of multi-modal policies that improve the quality of travel experience
- Connections to surrounding communities/multi-modal facilities
- New linear feet of multi-modal accommodation

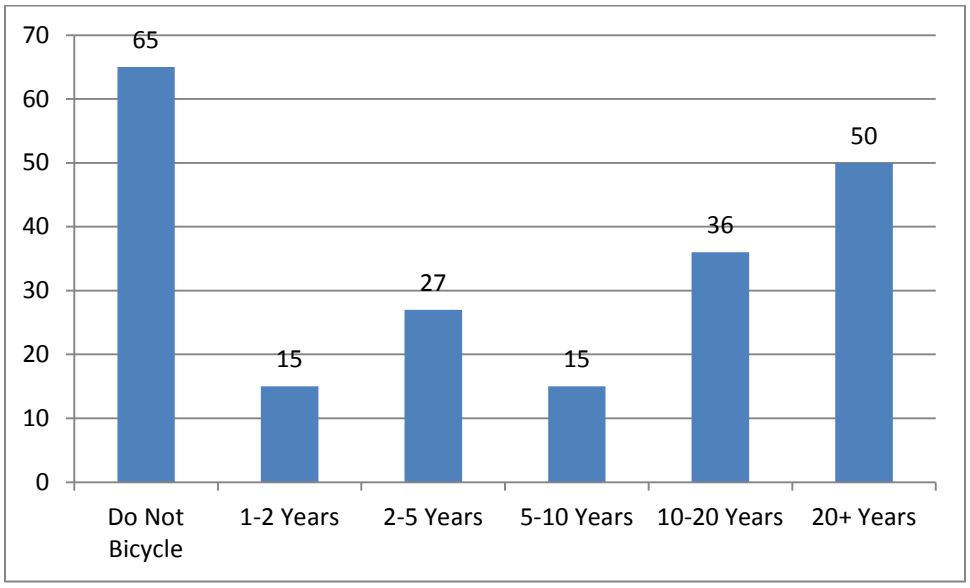
During the development of the Bicycle Plan, public input from a range of community members was sought through a variety of means. During the planning process, a public input survey, Steering Committee meetings, public open houses, and informational booths were set up at public events in Washington to provide the public insight into the planning process, as well as give them an opportunity to provide input.

A Public Input Survey was conducted at the start of the planning process to learn more about bicycling habits, users, points of interest, areas of concerns, and other relevant information that would assist in the development of the plan. An overview of survey results can be found in Section 2 of this document, with the full results as follows:

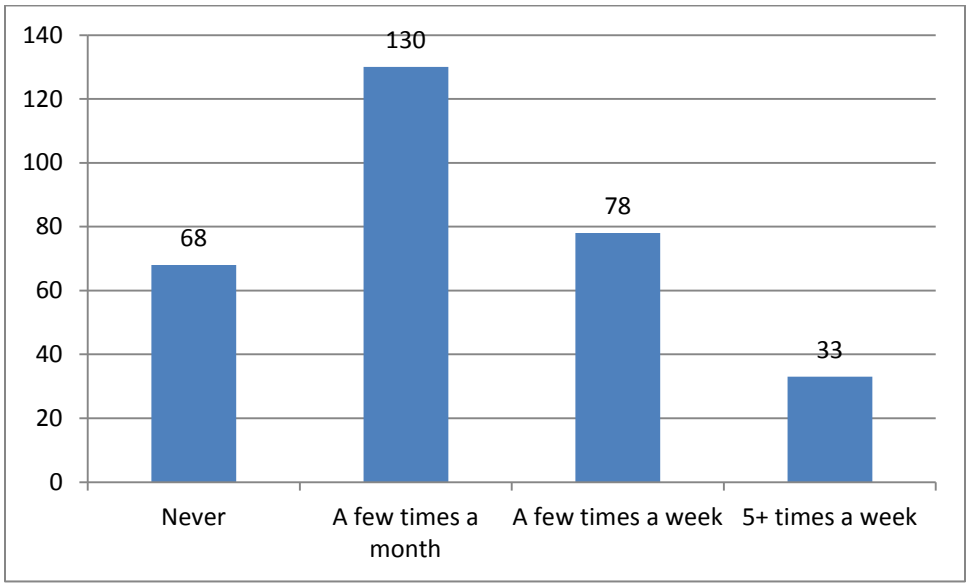
1. Do you bicycle?



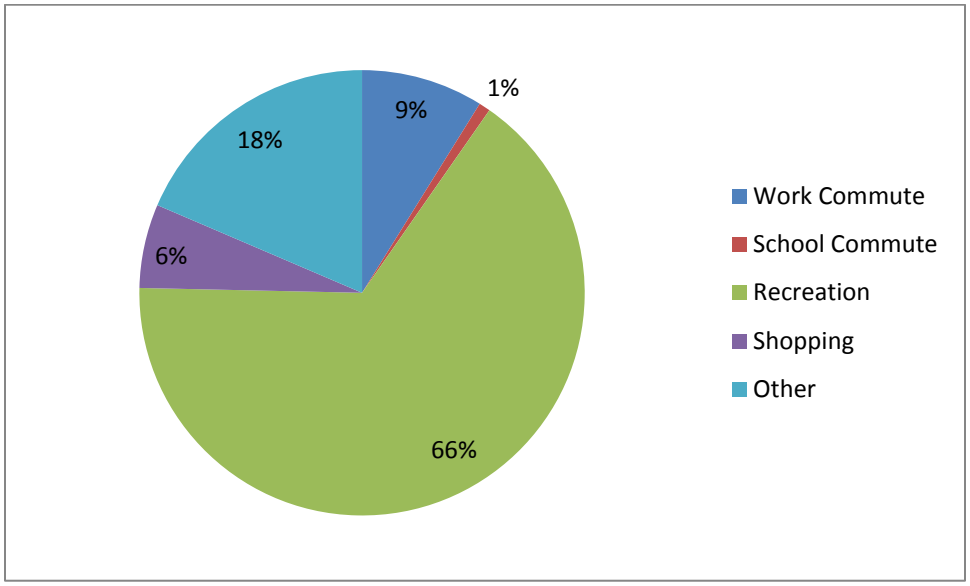
2. How long have you been bicycle riding?



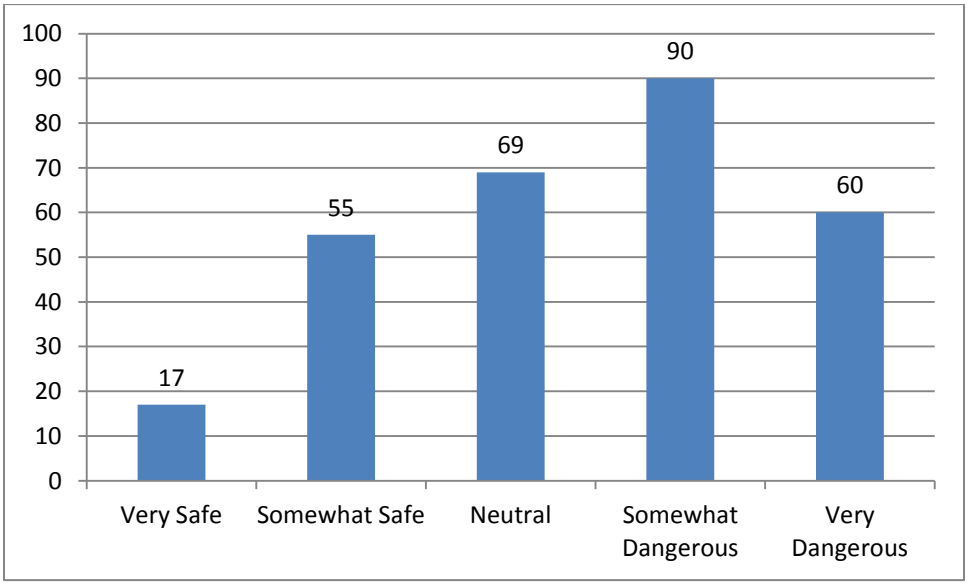
3. How frequently do you bicycle?



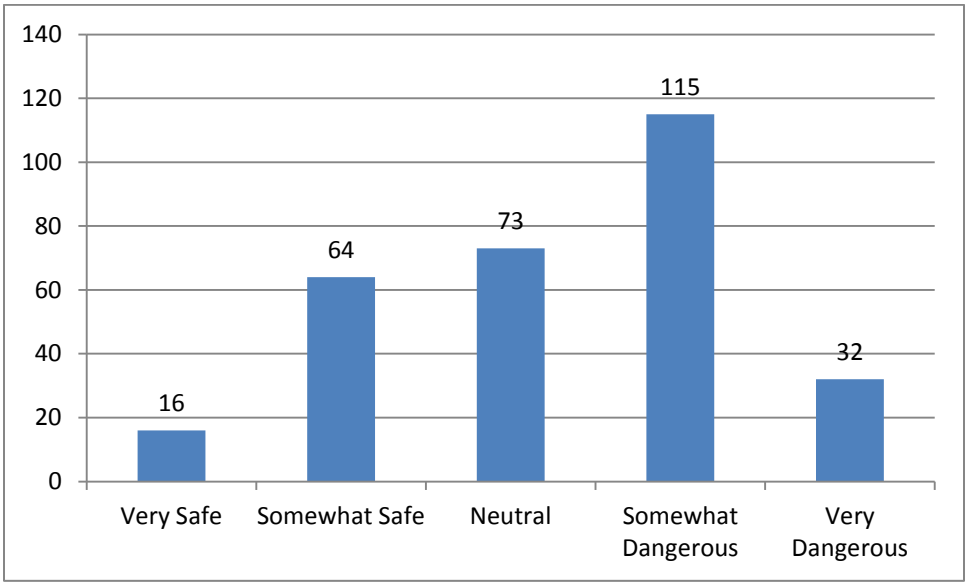
4. What is your primary purpose for bicycling?



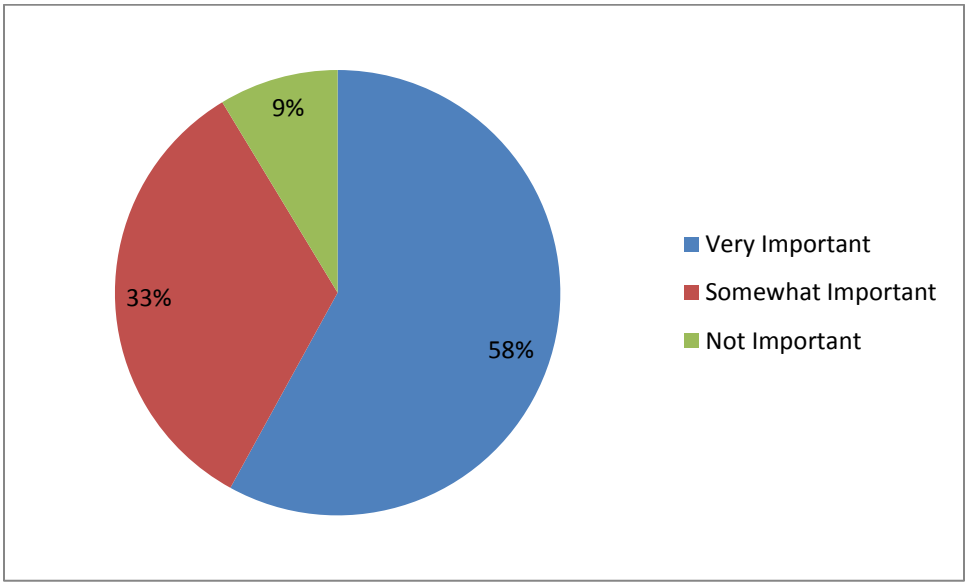
6. How do you feel about bicycling for daily needs in Washington?



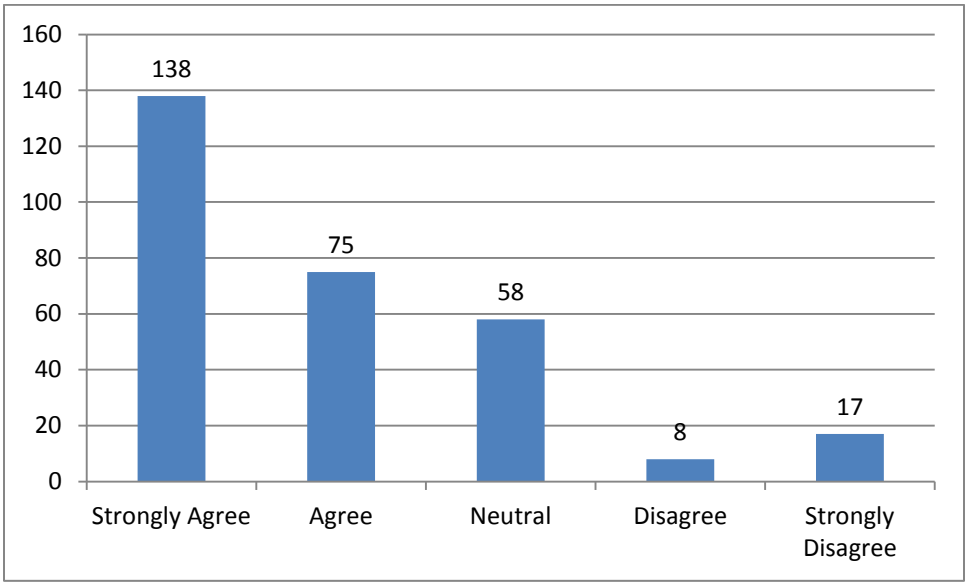
7. Do you feel bicycling for recreation in Washington is?



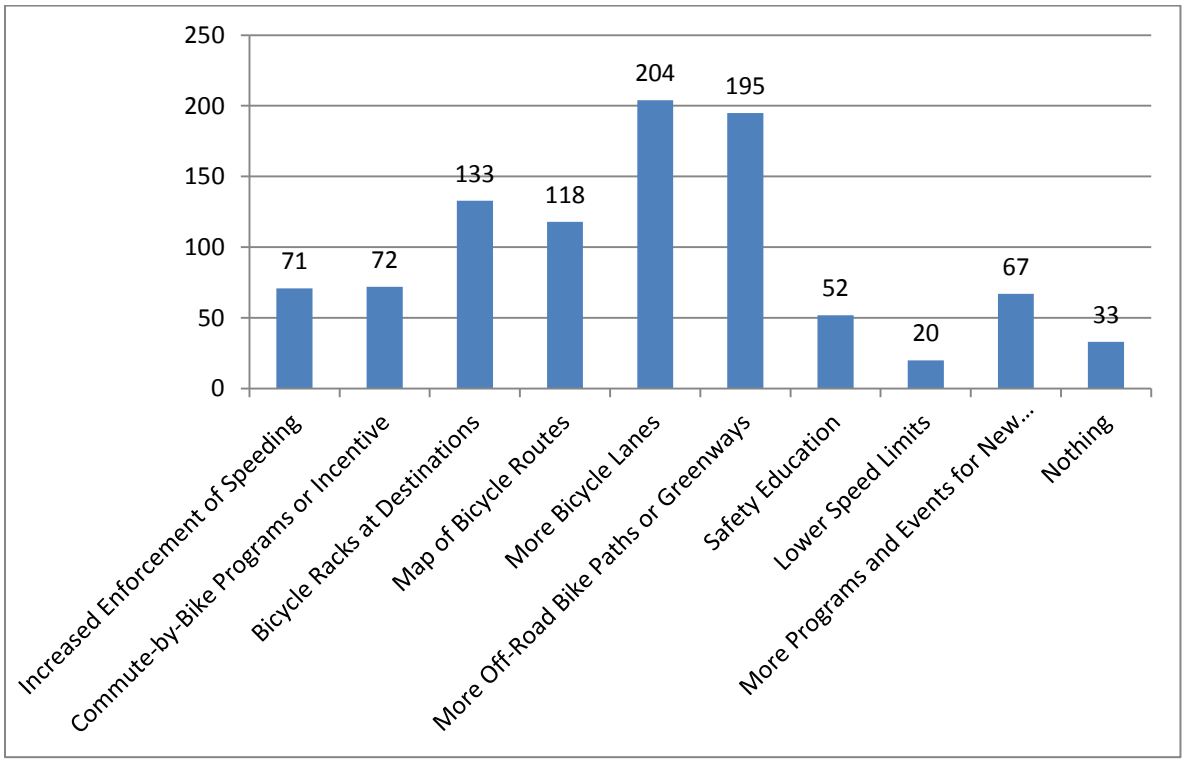
8. How important to you is improving bicycling conditions in Washington?



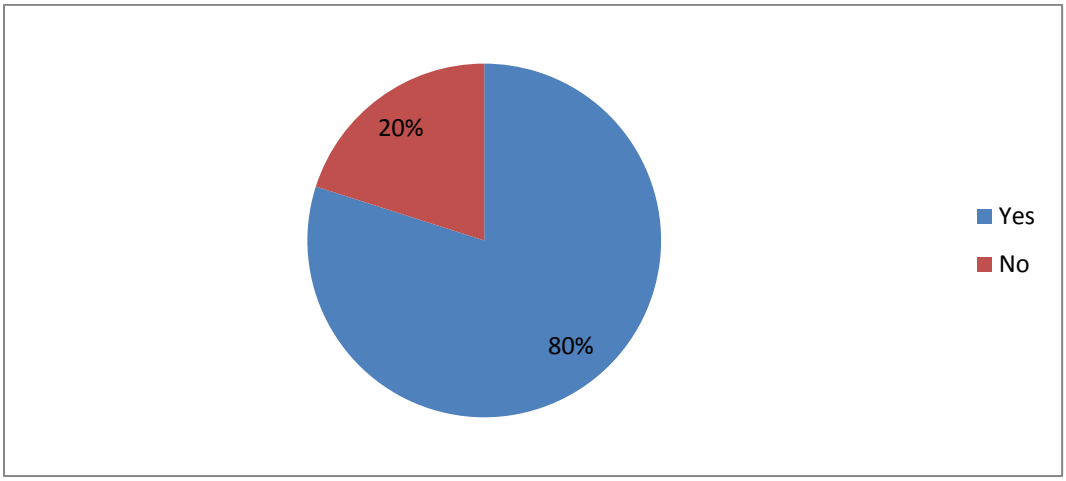
9. Would you bicycle more if safety issues in Washington were resolved?



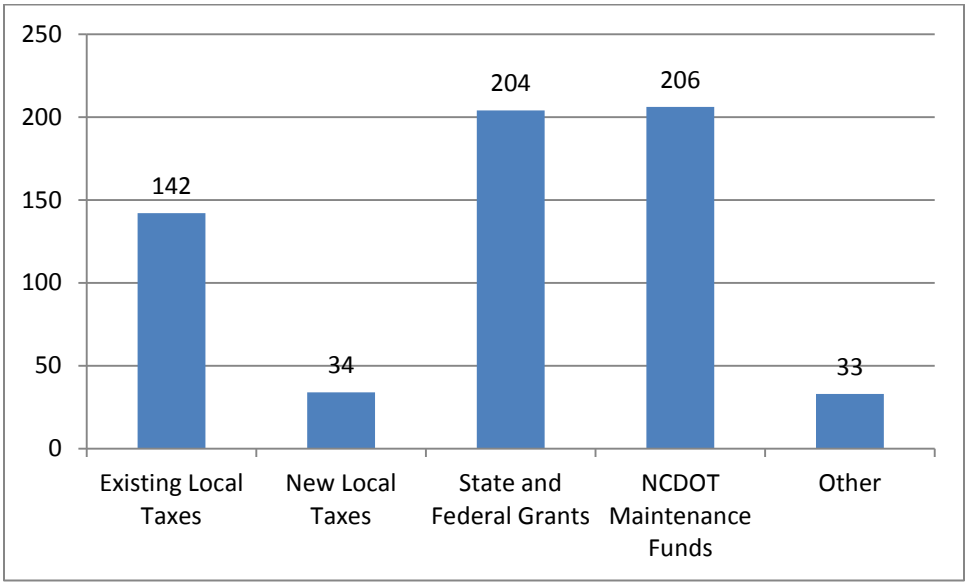
10. Which of the following changes would encourage you to bike more often?



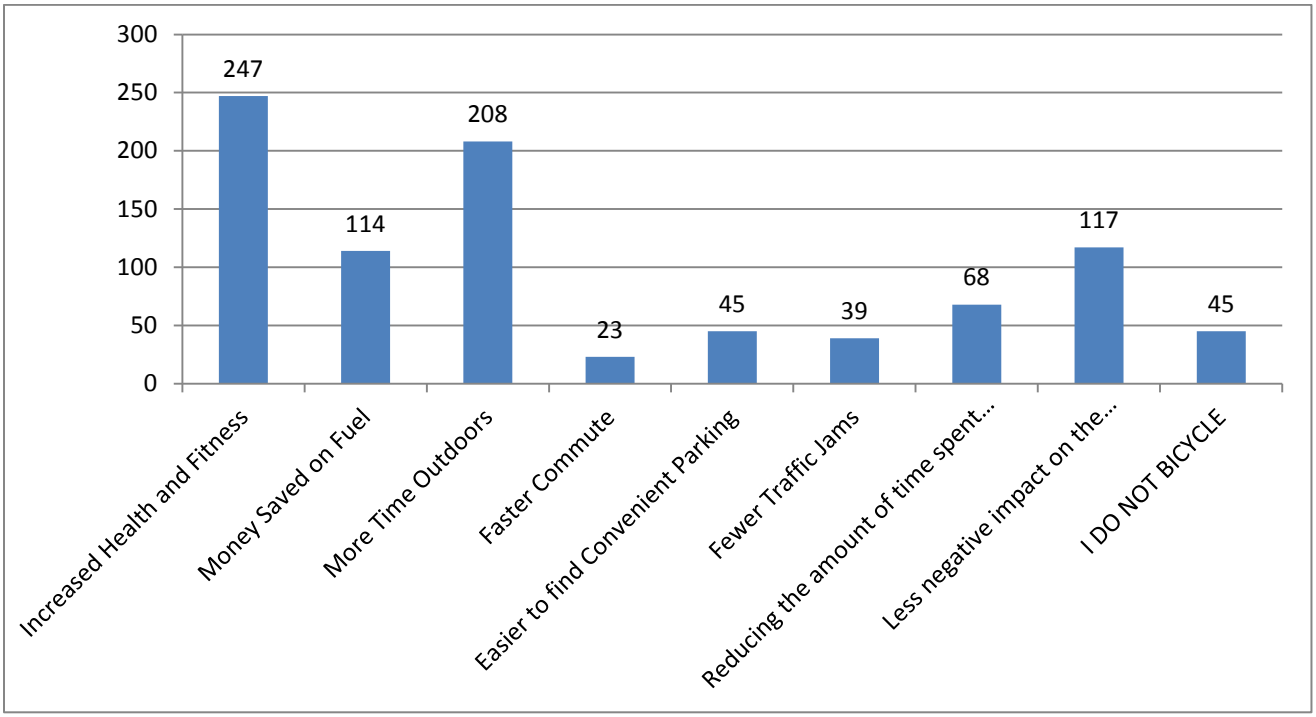
15. Should public funds be used to improve bicycle transportation?



16. What types of funds should be used to improve bicycle transportation?



18. What aspect of biking is most appealing to you?



22. Where do you live?

Washington	Beaufort County	Greenville/Pitt County	New Hanover County	Bear Grass	Jamesville	Plymouth	Virginia
207	74	12	1	2	1	1	2

A Steering Committee comprised of members from a variety of backgrounds and areas in Washington met on six occasions to assist in guiding the development of the plan. This group was responsible for deciding the projects that have been included, as well as deciding the priority of each project included in this document.

In addition to Steering Committee meetings, two Public Open Houses were held to provide insight into the plan, as well as provide the public information on the proposals recommended in the document. These meetings allowed citizens to provide their ideas and thoughts, as well as give input on areas they would like to have access to and areas they avoid due to safety concerns.

Mid-East staff also provided the public insight into the planning process at two local events. Early in the process, a Bike Plan Informational Booth was set up at the Washington-Beaufort Business Expo, held in Washington. Following the second public Open House, in an effort to collect additional public feedback, staff set up another informational booth during the BoCo Music Festival, held along the Washington waterfront. During both events, staff received feedback and interacted with interested citizens.

City of Washington
Bicycle Plan Steering Committee
Thursday May 24, 2012

Sign In

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City of Washington
Bicycle Plan Steering Committee
Tuesday August 28, 2012

Sign In

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[illegible]	[illegible] 2nd St.	[illegible]	[illegible]

City of Washington
Bicycle Plan Steering Committee
Wednesday January 9, 2013

Sign In

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City of Washington
Bicycle Plan Steering Committee
Tuesday March 5, 2013

Sign In

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Kristi Roberson	210 W Main St.	252-975-9367 x234	Kroberson@washingtonnc.gov.

City of Washington
Bicycle Plan Steering Committee
Tuesday May 14, 2013

Sign In

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Bryant [illegible]			
ALLISON [illegible]			

City of Washington
Comprehensive Bicycle Plan Open House
Monday November 5, 2012

Sign In

Name	Address	Phone Number(s)	E-Mail
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Teresa Hamilton	P&R	975-9367 X224	on file
Ben Rogers		974-[illegible]	
SAM WALL	115 S. REED DR	9456444	samgwall@hotmail.com
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LIANE HARSH		252-721-8636	LIANE@[illegible]

City of Washington
Comprehensive Bicycle Plan Open House
Monday April 22, 2013

Sign In

Name	Address	Phone Number(s)	E-Mail
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Brooke Lanning	217 Hudnell St	833-4575	lblanning84@gmail.com
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Johnson Buck	" "	"	"
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Appendix B –
IDENTIFIED PROJECT OPPORTUNITIES

During the development of the Bicycle Plan, staff and the Steering Committee identified numerous projects and programs to include in the plan. These ideas were sent to the public for their input through public open houses and informational booths. The driving factors behind the choices in projects and programs included committee input, field visit observations, crash data, and existing plans currently in place. The following is a list developed and reviewed by staff and steering committee:

- Proposed Projects and Descriptions
- Proposed Signage
- Proposed Education/Safety Programs

Proposed Project Descriptions:

13th Street:

Given the low traffic volume, roadway width, and parallel proximity to the heavily traveled 15th Street, it is recommended that Bike Sharrow Lanes be placed along 13th Street. This allows for a safe, east-west thoroughfare which intersects Market Street, the safest north-south thoroughfare planned within the city.

Trade Street:

Running alongside Washington Square Mall and connecting to 13th Street, Trade Street will allow cyclist to access Washington Square Mall, as well as safely get to the signalized intersection along Carolina Avenue/US 17 Business.

Market Street:

Water to 5th:

This segment of Market runs through the Historic Downtown district, intersecting State Bicycle Route as well as arriving at the Washington Waterfront. Along this stretch, it is recommend bicycle sharrow lanes be included. This will allow cyclist to avoid the door zone of cars parked in the downtown area, while alerting motorist that there are cyclist that use the route.

5th to 15th:

This stretch of Market Street, which runs through mostly residential neighborhood, drops from 4 lanes to 2 lanes through the area. This stretch features wide roadways, capable of allowing for side street parking. It is recommended that roadway sharrow lanes be included. This will allow cyclist to avoid the door zone of cars parked along this stretch, while alerting motorist that there are cyclist that use the route.

Proposed Project Descriptions:

Bridge/US 17 Business:

5th to Main:

As the existing State Designated Bike Route runs from US 264/5th Street onto Bridge Street toward the Waterfront, a safe thoroughfare along Bridge Street is needed. Currently, Bridge Street is a four lane facility with a turning lane and is Curb and Gutter. Given projected decreased traffic levels with the construction of the Washington Bypass, it is recommended that a road diet be conducted, with turn lanes removed and bike lanes included.

Bridge to Main:

As the plan recommends signage be included on Bridge Street directing cyclist onto both 3rd and Main Streets, improvements along Main Street are needed to make for safe bicycle movement through the area. It is recommended that roadway sharrow lanes be included. This will allow cyclist to avoid the door zone of cars parked along this stretch, while alerting motorist that there are cyclist that use the route.

Stewart Parkway to Water Street:

As many riders desire to ride along the waterfront in Washington, it is important to allow for safe access in and through the area. It is recommended that roadway sharrow lanes be included. This will allow cyclist to avoid the door zone of cars parked along this stretch, while alerting motorist that there are cyclist that use the route.

Proposed Project Descriptions:

Connections Utilizing Existing Jack's Creek Greenway:

Bonner/6th/Market:

The Jack's Creek Greenway begins in the northern end of Washington at 6th Street and Bonner Street, which runs parallel to Market Street. It is recommended to include striping for a bicycle lane along Bonner and 6th Streets, connecting to the proposed improvements along Market Street. This would allow a safe connection from the Waterfront to northern Washington, with mostly off road usage along the existing greenway.

Washington-Greenville Rails to Trails Greenway:

The greenway trail is to serve as an Active Transportation Corridor connecting downtown Greenville, East Carolina University's North Campus Crossing, the Washington waterfront, Cypress Landing and neighborhoods and communities along the way. Users will be able to hike, bike, or ride horses (restricted area) away from vehicular traffic, and enjoy the scenic beauty and historic and natural features of the area.

Phase 1 of the trail, in Washington, will run along the abandoned Atlantic Coastline Railroad corridor from West 3rd Street to Plymouth Road. Phase 2 will follow the power line easement west from there until it intersects the railroad corridor again just west of Tranter's Creek Drive. Future phases will extend west to Greenville, and south to Cypress Landing. In Greenville a new greenway trail alignment will connect North Campus Crossing with uptown.

Signage:

Bridge onto 3rd and Main Streets:

Given the recent inclusion of bicycle signage on 3rd Street, the plan recommends signage be included on Bridge Street directing cyclist onto 3rd and Main Streets.

Market Street:

This stretch of Market Street, which is 4 lanes from 15th Street out toward the Recreational Complex and Airport Road, is recommended to include "Share the Road" signage as well as "Bicycle Friendly Community" signage at the city's gateway. This could encourage transportation toward the recreation complex from neighborhoods within the city.

15th Street:

Given current congestion and dangerous bicycling conditions along the 15th Street thoroughfare, short term improvements are recommended. "Share the Road" signage is recommended to be included to alert motorist that cyclist may be in the area.

As Market Street is the most direct route into Downtown and the Washington Waterfront from 15th Street and Northern Washington, improvements to the Market Street/15th Street Intersection need to be considered. In addition to signage, crossing signals are recommended to be installed and pavement treated to include designated crossing areas.

Signage:

US 264/5th Street/John Small Avenue:

As US 264/5th Street/John Small Avenue serves as the major East/West thoroughfare in Washington and are also gateways to the city, it is recommended that "Share the Road" and "Bicycle Friendly City" signage be included along this stretch. This signage will alert motorist that cyclist may be prevalent in the area, and will also acknowledge the efforts the city has made to become a bicycle friendly community.

Mac Nair to 3rd:

Given low traffic through the area as well as narrow roadway widths, the inclusion of bike lanes or sharrow lanes would not be feasible. However, given the ability of Mac Nair to connect 3rd/Park Drive, signage is recommended to be included through this stretch. This allows riders to connect to both the Jack's Creek Greenway as well as Park Drive/NC 32, which is often taken by riders out of town toward the east.

Future Complete Street Projects:

15th Street:

According to Traffic Count Projections in the Beaufort County Comprehensive Transportation Plan, the 15th Street Corridor will be above capacity by 2020. Given these projections, steps will need to be taken to increase capacity and improve safety. It is recommended that when corridor improvements are in the planning stages, elements of the Complete Streets initiative be included in the design.

Proposed Educational/Safety Programs:

- Establishment of a Bicycle and Pedestrian Advisory Board
    - Comprised of members of the Bike Plan Steering Committee, recreation staff, planning staff, and interested citizens, this group can continue to advocate for bicycle safety and promotion through work on programs such as bike rodeos, safety training presentations, and biking brochure development. Additionally, this group can assist the Mid-East RPO in selecting projects to submit into NCDOT Bike/Ped Prioritization, and sever as the city's lesion to the RPO regarding bicycle and pedestrian projects.

- Educational and Safety Presentations
    - Members of the Steering Committee/Advisory Board (proposed) can conduct presentations to youth at locations such as schools and the Boys and Girls Club that will attract youth to bicycling, while providing important educational and safety information and demonstrations of proper equipment usage.

- Bicycle Rodeo
    - With the participation of Steering Committee/Advisory Board (proposed) members, City Police, Recreation Staff, and interested stakeholders (bicycle shop), a Bicycle Safety Rodeo can be organized. The event would feature an obstacle course that would teach participants safe riding habits, while the event would feature safety equipment demonstrations for parents of participants. The event would also feature bicycle and safety equipment inspections and minor repairs

Proposed Educational/Safety Programs:

- Promotional Feature on Local Cable Access
    - Recreation Staff could work with Steering Committee/Advisory Board (proposed) members to put together a promotional short that would promote bicycling in the City of Washington.

- Creation of Bicycle Route and Safety Brochure
    - Recreation Staff could work to create a brochure that would feature bicycle routes, area information, and safety regulations. These brochures would be made available at City offices, the Chamber of Commerce, Bike Shops in the region, and available as a PDF online via the City webpage.

- Bicycle Registration/Reflector Giveaway
    - City Police could develop a bicycle registration program in which citizens can register their cycles. Following registration, the cyclist will receive a sticker featuring a registration number, thus helping prevent bicycle thefts. Upon registration, cyclist will also receive a reflector, helping to cut down on incidents where cyclist are not visible during non-daylight hours.

- Helmet Giveaway
    - Recreation staff could work along with Police Staff on preparing a grant application to receive funding for the purchase of bicycle helmets, to be distributed to low-income youth in need within the city. City Staff can also work with the Bicycle and Pedestrian Division at NCDOT on acquiring helmets for the giveaway.

Proposed Educational/Safety Programs:

- Bicycle and Pedestrian Page on City Recreation Webpage
    - City Staff, along with their web host, could work to create a Bicycle and Pedestrian Page that would be available from the City's Recreation webpage. This webpage would feature information on Bicycle and Pedestrian Facilities, Plans, Safety Guidelines, and other related information, including the proposed Brochure.

SAMPLE COST ESTIMATES

Below are approximate unit costs for the types of projects proposed in this Plan, based on some example project costs that have been recently implemented, along with costs of other projects. Project cost estimations included in this Plan are based on these figures, and do not necessarily include extra costs involved in the project such as advanced grading issues, land acquisition, land clearing, etc.

Shared-Use Paths

- Floodplain paths, such as creek or sewer paths may require more site preparation. Floodplain costs usually involve drainage issues (i.e., need for culverts and bridges, or geotextiles), permitting issues, and boardwalk. Greenways are typically constructed on creek corridors or sewer easements, and whose greenways therefore provide good cost examples for Washington's rail-trail project.
- Rail Trails and sidepaths that have the advantage of being on a relatively cleared alignment with some existing grading and base work already complete can be constructed more economically.

Typical Costs Associated with Floodplain Shared - Use Paths on Waterways or Sewer Lines

- $120 per linear asphalt foot (installation including grading, clearing, construction, and a sub-base with 18" on either side of asphalt for shoulder stabilization) 633,600 per mile +10% administration and design = approximately $700,000 per mile = $132 per linear foot

- 10' Concrete walkway: $300,000 - $500,000 per mile (with design and administration – add 10%)

- 10' wide prefabricated "Steadfast" type Pedestrian Bridge: $1,200 per linear foot with design, engineering, installation and administration costs. An 8' wide clearance can reduce this cost.

- 10' paved asphalt path (with two-foot margins and associated improvements): $100 -$125 per foot ($528,000 - $660,000 per mile.) Add 10% for design and administration.

- Boardwalk: Historically $200 / linear foot ($1,056,000 / mile), lately has increased to $225 - $250 per linear foot. Unit prices on bids can see boardwalks come in anywhere from $150 - 350/LF. Boardwalk is 8' clear.

- Converted Culverts and Underpasses: $60,000 - $100,000. Varies according to width, lighting needs, if stream restoration is involved, and other circumstances.

- Typical estimate of $120 per linear foot for construction of path (clearing, grading, subbase -- 14' wide, asphalt trail 10' wide).

- Estimates of $1,000,000/mile for the design and construction of greenway paths (10' wide asphalt trail). This cost takes into account various factors including need for culverts, drainage and flood studies.

Costs Typical with Upland Multi-Use Paths on Rail Beds, Road Corridors, Gas, or Electric Lines.

- Construction is less expensive in upland areas, especially where grading is already complete or where a subbase is not needed.

- Rail Trail construction can be estimated at $510,000 per mile, based on other North Carolina Rail Trail projects plus an additional 10% for design and administration. This plan uses $106 per linear foot to calculate all costs estimations for paths built on roadway and other upland corridors.

- 10' Crushed Rock walkway: $80,000 - $120,000 per mile (with design and administration – add 10%). These greenways have high maintenance costs.

- Parking lot: $18 per square yard. (Parking lots for greenways can typically be shared with shopping areas, parks, or other public destinations and more typically are not needed at all because they are neighborhood access points.)

Intersections

- Crosswalk/Countdown signal: $5,000 per intersection (this includes installation and an additional installed post). This cost can be up to $15,000 per intersection if a retrofit is done with APS devices.

- Curb extensions: $5,000 - $25,000

- Simple neighborhood crosswalks with signs and markings: $500 - $1,500

- Enhanced crosswalk with special stencils, raised platforms, or special signage: $5,000

- Raised crosswalks: $2,000 – $15,000

- Refuge island: $10,000 – $40,000

- In pavement illumination: $25,000 – $40,000 per crossing

- Hawk signal: $40,000

- Mid Block Flashing Crosswalk: $20,000 for equipment and $20,000 to install

Lane Marking

- Bicycle or vehicle lane striping (thermoplastic): $15,000/mile with design and administration for both sides of the road.

- $1.20 per linear foot of thermoplastic for line striping

- $350.00 for each set of performed thermoplastic bike symbols with arrows

Lighting, Landscaping, and Signage

- Lighting: Varies widely depending on type of light and location. Lighting an underpass could be $2,000 - $5,000 for 3 to 4 lights.

- Landscaping: Contractor installed foliage costs around $400 - $500 per tree and $25 - $50 per shrub.

- Marking a route with signs: $2,000 per mile with design and administration

- Signs: $250 – $350 each

Table C.1 – Recommended Project Cost Estimates

Project Reference #	Type of Project	Project/Improvement Name	At/On	Length (Ft.)	Treatment	Cost Range	Cost Estimate
1	Intersection Improvement	3rd and Market Intersection Improvement	3rd Street/Market Street	NA	Install Colored Bike Lanes at Intersection	Minimal	$5,000
2	Intersection Improvement	5th and Harvey Intersection Improvement at Jack's Creek Greenway	5th/Harvey Street	NA	Install Crossing Striping; Crossing Signage; Refuge island	Low	$20,000
3	Intersection Improvement	15th and Market Intersection Improvement	Market Street/15th Street	NA	Install Colored Bike Lanes at Intersection	Minimal	$5,000
4	Intersection Improvement	3rd and Brown Intersection Improvement	Brown Street/3rd Street	NA	Install Bicycle Crossing Signage	Minimal	$1,000
5	Intersection Improvement	John Small and Hudnell Intersection Improvement	John Small/ Hudnell Street	NA	Install Bicycle-Only Signals; Colored Bike Lanes	Low	$15,000
6	Intersection Improvement	11th and 12th Intersection Improvement	12th Street/ 11th Street	NA	Install Bicycle-Only Signals; Colored Bike Lanes	Low	$15,000

15	14	13	12	11	10	9	8	7	**Project Reference #**
Sharrow	Bike Lane	Bike Lane	Bike Lane	Bike Lane	Bike Lane	Bike Lane	Sharrow	Paved Shoulder	**Type of Project**
3rd Street Route	6th and Bonner Bike Lane Project	Hudnell Street Bike Lane Project	Carolina Avenue Complete Street Project	Bridge Street Complete Street Project	Stewart Parkway Bike Lane Project	Market Street Bike Lane Project	Market Street Bike Sharrow Project	Whispering Pines Route	**Project/Improvement Name**
Grimes Rd/ Plant St/	6th and Bonner Streets	Hudnell Street	Carolina Avenue	Bridge Street	Stewart Parkway	Market Street	Market Street	Whispering Pines/5th Street	**At/On**
13400	550	4000	7500	1900	1800	3668	1850	2000	**Length (Ft.)**
Install Bicycle Sharrows per NCDOT Guidelines	Install Bike Lanes per NCDOT Guideline	Install Bike Lanes per NCDOT Guideline	Install Bike Lanes per NCDOT Guideline	Install Bike Lanes per NCDOT Guideline	Install Bike Lanes per NCDOT Guideline	Install Bike Lanes per NCDOT Guideline	Install Bicycle Sharrows per NCDOT Guidelines	Install Paved Shoulders	**Treatment**
Low	Minimal	Low	High	Minimal	Minimal	Minimal	Minimal	Moderate	**Cost Range**
$38,000	$250	$11,300	$3,000,000	$1,900	$1,800	$5,210	$5,250	$240,000	**Cost Estimate**

24	23	22	21	20	19	18	17	16	**Project Reference #**
Signed Bike Route	Signed Bike Route	Greenway	Side Use Path	Sharrow; Signage	Sharrow; Signage	Sharow; Signage	Sharrow; Signage	Sharrow; Signage	**Type of Project**
Main Street Route	Highland Street Route	Washington/ Greenville Greenway	Market Street Extension Side use Path	McNair Street Bicycle Boulevard Project	Water Street Bicycle Boulevard Project	Brown Street Bicycle Boulevard Project	13th Street Bicycle Boulevard Project	11th Street Bicycle Boulevard Project	**Project/Improvement Name**
Main Street	Highland Drive	New Location	Market Street Extension	McNair Street	Water Street	Brown Street	13th Street	11th Street	**At/On**
6,400	350	28,300	5,500	1,000	1,800	1,000	6,340	3,200	**Length (Ft.)**
Install Bicycle Route Signage	Install Bicycle Route Signage	Construct Greenway to NCDOT Guidelines	Widen existing sidewalk to meet Side Use Path standard	Install Bicycle Sharrows per NCDOT Guidelines; Install Signage at intersections	Install Bicycle Sharrows per NCDOT Guidelines; Install Signage at intersections	Install Bicycle Sharrows per NCDOT Guidelines; Install Signage at intersections	Install Bicycle Sharrows per NCDOT Guidelines; Install Signage at intersections	Install Bicycle Sharrows per NCDOT Guidelines; Install Signage at intersections	**Treatment**
Minimal	Minimal	High	High	Minimal	Minimal	Minimal	Minimal/ Low	Minimal	**Cost Range**
$2,500	$2,500	$3,000,000	$528,000	$2,800	$5,100	$2,800	$18,000	$9,000	**Cost estimate**

30	29	28	27	26	25	**Project Reference #**
Share the Road Signage	Share the Road Signage	Share the Road Signage	Share the Road Signage	Share the Road Signage	Signed Bike Route	**Type of Project**
Market Street Extension	5th Street Route	Carolina Avenue Route	15th Street Extension Route	15th Street Route	Trade Street Route	**Project/Improvement Name**
Market Street	5th Street	Carolina Avenue	15th Street Extension	15th Street	Trade Street	**At/On**
5,500	45,000	7,500	4,800	8,100	750	**Length (Ft.)**
Install Share the Road Signage per NCDOT Guidelines'	Install Share the Road Signage per NCDOT Guidelines'	Install Share the Road Signage per NCDOT Guidelines'	Install Share the Road Signage per NCDOT Guidelines'	Install Share the Road Signage per NCDOT Guidelines'	Install Bicycle Route Signage	**Treatment**
Minimal	Low	Minimal	Minimal	Minimal	Minimal	**Cost Range**
$2,000	$17,000	$2,500	$2,000	$3,000	$300	**Cost Estimate**

When considering possible funding sources for the City of Washington's bicycle projects, it is important to consider that it is highly unlikely that all construction activities will be accomplished from a single funding source since these projects are expected to be in the millions of dollars. It will be necessary to consider several sources of funding, that when combined, would support full project construction. This paper outlines the most likely sources of funding for the projects at the federal, state, local government level and from the private sector.

STATE AND FEDERAL

Federal funding is typically directed through State agencies to local governments either in the form of grants or direct appropriations. State budget shortfalls may make it extremely difficult to accurately forecast available funding for future project development. The following is a list of possible Federal and State funding sources that could be used to support construction of the many bicycle projects. Since these funding categories are difficult to forecast, it is recommended that the City continue to work with the Mid-East RPO on getting bicycle projects listed in the TIP (Transportation Improvement Program), as discussed below.

DEPARTMENT OF ENERGY (DOE)

The Department of Energy's Energy Efficiency and Conservation Block Grants (EECBG) grants may be used to reduce energy use and fossil fuel emissions and for improvements in energy efficiency. Section 7 of the funding announcement states that these grants provide opportunities for the development and implementation of transportation programs to conserve energy used in

transportation including development of infrastructure such as bike lanes and pathways and pedestrian walkways.

NC DEPARTMENT OF TRANSPORTATION AND MAP-21

The most likely source of funding for the pedestrian projects would come from the North Carolina Department of Transportation and the federal funding program MAP-21. Some of the sub-programs within MAP-21 and within NCDOT are listed below:

- The Strategic Mobility Formula component of the Strategic Transportation Investments bill (passed into law in 2013) outlines the general structure of NCDOT's project prioritization process. The formula includes three funding categories – Statewide Mobility, Regional Impact and Division Needs. Bike and pedestrian are only eligible within the Division Needs category. Metropolitan Planning Organizations (MPOs), Rural Planning Organizations (RPOs), and NCDOT Divisions may submit projects through the prioritization process. Independent bike and pedestrian projects (shared-use paths, bike lanes, sidewalks, intersection improvements, etc.) are comparatively evaluated based on safety, access, demand/density, constructability, and benefit-cost criteria. Bike/pedestrian projects must compete with all other transportation modes with projects across all modes ranked collectively. Projects that score well are selected for programming in the State Transportation Improvement Program (TIP). This process occurs every two years. Priority projects are included in the developmental STIP (years 6 to 10) and the 10-year Program & Resource Plan. Further information on state transportation funding legislation and the prioritization process can be found at https://connect.ncdot.gov/projects/planning/Pages/StrategicPrioritization.aspx.
- NCDOT Discretionary Funds: The Statewide Discretionary Fund consists of $10 million and is administered by the Secretary of the Department of Transportation. This fund can be used on any project at any location within the State. Primary, urban, secondary, industrial access, and spot safety projects are eligible for this funding. The Town would have to make a direct appeal to the Secretary of NCDOT to access these funds.
- NCDOT Contingency Fund: The Statewide Contingency Fund is a $10 million fund administered by the Secretary of Transportation. Again, the Town would have to appeal directly to the Secretary.

- Bicycle and Pedestrian accommodations such as; bike lanes, wide paved shoulders, sidewalks, intersection improvements, bicycle and pedestrian safe bridge design, etc. are frequently included as "incidental" features of larger highway/roadway projects. This is increasingly common with the adoption of NCDOT's "Complete Streets" Policy.
  In addition, bicycle safe drainage grates and handicapped accessible sidewalk ramps are now a standard feature of all NCDOT highway construction. Most pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of federal and state roadway construction funds, and usually with a local match. On-road bicycle accommodations, if warranted, typically do not require a local match.
  "Incidental Projects" are often constructed as part of a larger transportation project, when they are justified by local plans that show these improvements as part of a larger, multi-modal transportation system. Having a local bicycle or pedestrian plan is important, because it allows NCDOT to identify where bike and pedestrian improvements are needed and can be included as part of highway or street improvement project.

NC DEPARTMENT OF ENVIRONMENT – RECREATIONAL TRAILS; AND ADOPT-A-TRAIL GRANTS

The State Trails Program is a section of the N.C. Division of Parks and Recreation. The program originated in 1973 with the North Carolina Trails System Act and is dedicated to helping citizens, organizations and agencies plan, develop and manage all types of trails ranging from greenways and trails for hiking, biking and horseback riding to river trails and off-highway vehicle trails. The Recreation Trails Program awards grants up to $75,000 per project. The Adopt-A-Trail Program awards grants up to $5,000 per project.

POWELL BILL FUNDS

Annually, State street-aid (Powell Bill) allocations are made to incorporated municipalities which establish their eligibility and qualify as provided by G.S. 136-41.1 through 136-41.4. Powell Bill funds shall be expended only for the purposes of maintaining, repairing, constructing, reconstructing or widening of local streets that are the responsibility of the municipalities or for planning, construction, and maintenance of bikeways or sidewalks along public streets and highways.

COMMUNITY DEVELOPMENT BLOCK GRANT FUNDS

Community Development Block Grant (CDBG) funds are available to local municipal or county governments for projects that enhance the viability of communities by providing decent housing and suitable living environments and by expanding economic opportunities, principally for persons of low- and moderate-income. State CDBG funds are provided by the U.S. Department of Housing and Urban Development (HUD) to the state of North Carolina. Some urban counties and cities in North Carolina receive CDBG funding directly from HUD. Each year, CDBG provides funding to local governments for hundreds of critically-needed community improvement projects throughout the state. These community improvement projects are administered by the Division of Community Assistance and the Commerce Finance Center under eight grant categories. Two categories might be of support to the City of Washington Bicycle Projects: infrastructure and community revitalization.

LAND AND WATER CONSERVATION TRUST FUND

The Land and Water Conservation Fund (LWCF) has historically been a primary funding source of the US Department of the Interior for outdoor recreation development and [and acquisition by local governments and state agencies. In North Carolina, the program is administered by the Department of Environment and Natural Resources.

N.C. PARKS AND RECREATION TRUST FUND (PARTF)

The Parks and Recreation Trust Fund (PARTF) provide dollar-for-dollar matching grants to local governments for parks and recreational projects to serve the general public. Counties, incorporated municipalities and public authorities, as defined by G.S. 159-7, are eligible applicants.

A local government can request a maximum of $500,000 with each application. An applicant must match the grant dollar-for-dollar, 50% of the total cost of the project, and may contribute more than 50%. The appraised value of land to be donated to the applicant can be used as part of the match. The value of in-kind services, such as volunteer work, cannot be used as part of the match.

SAFE ROUTES TO SCHOOL PROGRAM

(MANAGED BY NCDOT, DBPT)

Safe Routes to School (SRTS) is a program that enables and encourages children to walk and bike to school. The program helps make walking and bicycling to school a safe and more appealing method of transportation for children. SRTS facilitates the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools. The North Carolina Safe Routes to School Program is supported by federal funds through SAFETEA-LU and MAP-21 legislation. Please note that all SRTS projects "shall be treated as projects on a Federal-aid system under chapter 1 of title 23, United States Code." Although no local match is required and all SRTS projects are 100% federally funded under the SAFETEA-LU, agencies are encouraged to leverage other funding sources that may be available to them, including grant awards, local, state, or other federal funding. SRTS funds can be used for proposed projects that are within 2 miles of a school public or private, K-8, in a municipality or in the county jurisdiction. In response to the Strategic Transportation Investments law of June 2013, proposed SRTS projects will be considered as part of the Bicycle and Pedestrian project input with Strategic Prioritization Office for funding consideration. Most of the types of eligible SRTS projects include sidewalks or a shared-use path. However, intersection improvements (i.e. signalization, marking/upgrading crosswalks, etc.), on street bicycle facilities (bike lanes, wide paved shoulders, etc.) or off-street shared-use paths are also eligible for SRTS funds. For a more inclusive list, please visit the FHWA SRTS program.

LOCAL GOVERNMENT

Local funding sources that would support sidewalk and pedestrian project construction will most likely be limited but should be explored.

LOCAL RURAL PLANNING ORGANIZATION

The Mid-East Rural Planning Organization (RPO) manages the transportation planning process required by Federal law. The RPO plans for the area's surface transportation needs, including highways, transit, bicycle, and pedestrian facilities. There are two subcommittees of the RPO: the Technical Advisory Committee and the Technical Coordinating Committee. An

important part of the transportation planning process is to identify transportation needs and to explore feasible alternatives to meet those needs. Plans and programs are often conducted in partnership with the NC Department of Transportation to identify needs and projects to enhance Washington's transportation infrastructure.

It is suggested that the City work closely with the RPO on getting these projects listed on the TIP since this may be the primary source of funding for the project. Typically, projects on this list require a 20% local match.

CITY OF WASHINGTON CAPITAL IMPROVEMENT PROGRAMMING

The City of Washington may have funding available to support some elements of construction or repair. It will be important to meet with City Council representatives and the City Manager to judge the availability of this funding.

OTHER LOCAL FUNDING OPTIONS

- Bonds/Loans
- Taxes
- Impact fees
- Exactions
- Tax increment financing
- Partnerships

PRIVATE SECTOR

Many communities have solicited greenway funding assistance from private foundations and other conservation-minded benefactors. Below are several examples of private funding opportunities available.

LAND FOR TOMORROW CAMPAIGN

Land for Tomorrow is a diverse partnership of businesses, conservationists, farmers, environmental groups, health professionals and community groups committed to securing support from the public and General Assembly for protecting land, water and historic places. The campaign is asking the North

Carolina General Assembly to support issuance of a bond for $200 million a year for five years to preserve and protect its special land and water resources. Land for Tomorrow will enable North Carolina to reach a goal of ensuring that working farms and forests; sanctuaries for wildlife; land bordering streams, parks and greenways; land that helps strengthen communities and promotes job growth; historic downtowns and neighborhoods; and more, will be there to enhance the quality of life for generations to come. Website: http://www.landfortomorrow.org/

THE ROBERT WOOD JOHNSON FOUNDATION

The Robert Wood Johnson Foundation was established as a national philanthropy in 1972 and today it is the largest U.S. foundation devoted to improving the health and health care of all Americans. Grant making is concentrated in four areas:

- To assure that all Americans have access to basic health care at a reasonable cost
- To improve care and support for people with chronic health conditions
- To promote healthy communities and lifestyles
- To reduce the personal, social and economic harm caused by substance abuse: tobacco, alcohol, and illicit drugs

For more specific information about what types of projects are funded and how to apply, visit http://www.rwjf.org/applications/.

NORTH CAROLINA COMMUNITY FOUNDATION

The North Carolina Community Foundation, established in 1988, is a statewide foundation seeking gifts from individuals, corporations, and other foundations to build endowments and ensure financial security for nonprofit organizations and institutions throughout the state. Based in Raleigh, North Carolina, the foundation also manages a number of community affiliates throughout North Carolina, that make grants in the areas of human services, education, health, arts, religion, civic affairs, and the conservation and preservation of historical, cultural, and environmental resources. The foundation also manages various scholarship programs statewide. Web site: http://nccommunityfoundation.org/

AMERICAN GREEN WAYS EASTMAN KODAK AWARDS

The Conservation Fund's American Greenways Program has teamed with the Eastman Kodak Corporation and the National Geographic Society to award small grants ($250 to $2,000) to stimulate the planning, design and development of greenways. These grants Can be used for activities such as mapping, conducting ecological assessments, surveying land, holding conferences, developing brochures, producing interpretive displays, incorporating land trusts, and building trails. Grants cannot be used for academic research, institutional support, lobbying or political activities. For more information visit The Conservation Fund's website at: www.conservationfund.org.

NATIONAL TRAILS FUND

American Hiking Society created the National Trails Fund in 1998, the only privately supported national grants program providing funding to grassroots organizations working toward establishing, protecting and maintaining foot trails in America. 73 million people enjoy foot trails annually, yet many of our favorite trails need major repairs due to a $200 million backlog of badly needed maintenance. National Trails Fund grants help give local organizations the resources they need to secure access, volunteers, tools and materials to protect America's cherished public trails. To date, American Hiking has granted more than $240,000 to 56 different trail projects across the U.S. for land acquisition, constituency building campaigns, and traditional trail work projects. Awards range from $500 to $10,000 per project.

- Projects the American Hiking Society will consider include:
- Securing trail lands, including acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements.
- Building and maintaining trails which will result in visible and substantial ease of access, improved hiker safety, and/or avoidance of environmental damage.
- Constituency building surrounding specific trail projects ¬including volunteer recruitment and support.

Web site: www.americanhiking.org/alliance/fund.html.

BLUECROSS BLUESHIELD OF NORTH CAROLINA FOUNDATION (BCBS)

Blue Cross Blue Shield (BCBS) focuses on programs that use an outcome approach to improve the health and well-being of residents. The Health of

Vulnerable Populations grants program focuses on improving health outcomes for at-risk populations. The Healthy Active Communities grant concentrates on increased physical activity and healthy eating habits. Eligible grant applicants must be located in North Carolina, be able to provide recent tax forms and, depending on the size of the nonprofit, provide an audit.

http://www.bcbsncfoundation.org/

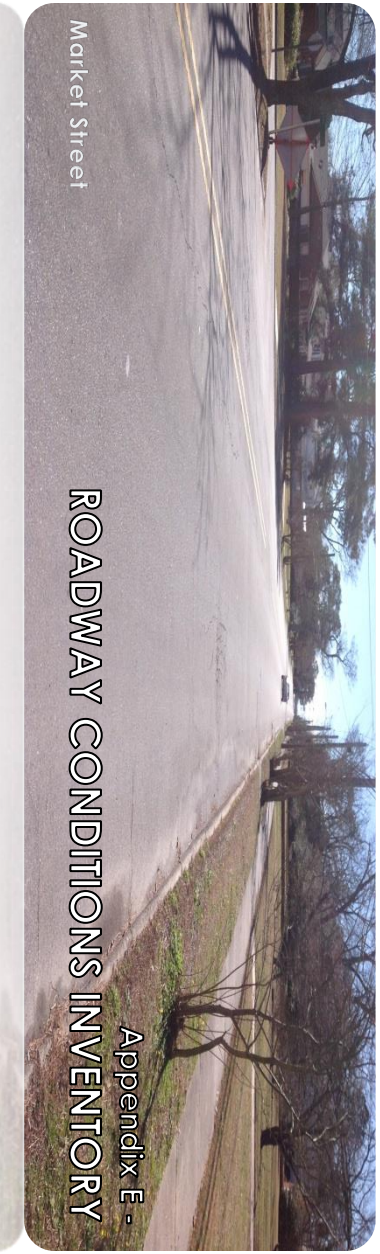
LOCAL TRAIL SPONSORS

A sponsorship program for trail amenities allows smaller donations to be received from both individuals and businesses. Cash donations could be placed into a trust fund to be accessed for certain construction or acquisition projects associated with the greenways and open space system. Some recognition of the donors is appropriate and can be accomplished through the placement of a plaque, the naming of a trail segment, and/or special recognition at an opening ceremony. Types of gifts other than cash could include donations of services, equipment, labor, or reduced costs for supplies.

VOLUNTEER WORK

It is expected that many citizens will be excited about the development of a greenway corridor. Individual volunteers from the community can be brought together with groups of volunteers form church groups, civic groups, scout troops and environmental groups to work on greenway development on special community workdays. Volunteers can also be used for fund-raising, maintenance, and programming needs.

5	4	3	2	1	Project Reference #
Intersection Improvement	Intersection Improvement	Intersection Improvement	Intersection Improvement	Intersection Improvement	**Type of Project**
John Small and Hudnell Intersection Improvement	3rd and Brown Intersection Improvement	15th and Market Intersection Improvement	5th and Harvey Intersection Improvement at Jack's Creek Greenway	3rd and Market Intersection Improvement	**Project/Improvement Name**
John Small/ Hudnell Street	Brown Street/3rd Street	Market Street/15th Street	5th/Harvey Street	3rd Street/Market Street	**At/On**
NA	NA	NA	NA	NA	**From**
NA	NA	NA	NA	NA	**To**
NA	NA	NA	NA	NA	**Length (Ft.)**
35' (Hudnell) 40' (John Small)	30'	30'	30'	30'	**Road Width**
5A	2C	2B	2B	2C	**Cross Section**
Y	Y	Y	Y	Y	**Curb and Gutter**
100'-150'	50'	60'	60'	60'	**ROW**
50	35	35	50	25	**Speed Limit**



14	13	12	11	10	9	8	7	6	**Project Reference #**
Bike Lane	Bike Lane	Bike Lane	Bike Lane	Bike Lane	Bike Lane	Sharrow	Paved Shoulder	Intersection Improvement	**Type of Project**
6th and Bonner Bike Lane Project	Hudnell Street Bike Lane Project	Carolina Avenue Complete Street Project	Bridge Street Complete Street Project	Stewart Parkway Bike Lane Project	Market Street Bike Lane Project	Market Street Bike Sharrow Project	Whispering Pines Route	11th and 12th Intersection Improvement	**Project/Improvement Name**
6th and Bonner Streets	Hudnell Street	Carolina Avenue	Bridge Street	Stewart Parkway	Market Street	Market Street	Whispering Pines/5th Street	12th Street/ 11th Street	**At/On**
Jacks Creek Greenway	Park Dr/ Main Street	5th Street	Main Street	Main Street	5th Street/ US 264	Water Street	Grimes Road	NA	**From**
Market Street	John Small Avenue	15th Street	5th Street	Water Street	15th Street	5th Street/US 264	15th Street Extension	NA	**To**
550	4000	7500	1900	1800	3668	1850	2000	NA	**Length (Ft.)**
30'	40'	70'	70'	30'	40'	30'	30'	30'	**Road Width**
2C	2C	5A	5A	2B	2C	2C	2C	2C	**Cross Section**
Y	Y	Y	Y	Y	Y	Y	N	Y	**Curb and Gutter**
60'	50'	100'	100'	70'	60'	60'	100'	70'-80'	**ROW**
35	35	35	35	20	35	35	35	35	**Speed Limit**

23	22	21	20	19	18	17	16	15	**Project Reference #**
Signed Bike Route	Greenway	Side Use Path	Sharrow; Signage	Sharrow; Signage	Sharow; Signage	Sharrow; Signage	Sharrow; Signage	Sharrow; Signage	**Type of Project**
Highland Street Route	Washington / Greenville Greenway	Market Street Extension Side use Path	McNair Street Bicycle Boulevard Project	Water Street Bicycle Boulevard Project	Brown Street Bicycle Boulevard Project	13th Street Bicycle Boulevard Project	11th Street Bicycle Boulevard Project	3rd Street Route	**Project/Improvement Name**
Highland Drive	New Location	Market Street Extension	McNair Street	Water Street	Brown Street	13th Street	11th Street	Grimes Rd/ Plant St/ 3rd Street	**At/On**
12 Street	3rd Street	15th Street	Water Street	Stewart Parkway	Main Street	15th Street	Highland Drive	Whispering Pines	**From**
11th Street	Tranter Creek Rd	Airport Road	3rd Street	Main Street	3rd Street/ Jack's Creek	Carolina Avenue	Market Street	Hudnell Street	**To**
350	28,300	5,500	1,000	1,800	1,000	6,340	3,200	13400	**Length (Ft.)**
50'	N/A	50'	30'	30'	30'	30'	30'	30'	**Road Width**
2C	MA	2B	2C	2C	2C	2C	2C	2B	**Cross Section**
Y	NA	Y	Y	Y	Y	Y	Y	Y	**Curb and Gutter**
70'- 80'		70'-80'	40'-60'	40'-60'	50'	50'	50'	60'	**ROW**
35	N/A	45	20	20	35	35	35	35	**Speed Limit**

30	29	28	27	26	25	24	**Project Reference #**
Share the Road Signage	Share the Road Signage	Share the Road Signage	Share the Road Signage	Share the Road Signage	Signed Bike Route	Signed Bike Route	**Type of Project**
Market Street Extension	5th Street Route	Carolina Avenue Route	15th Street Extension Route	15th Street Route	Trade Street Route	Main Street Route	**Project/Improvement Name**
Market Street	5th Street	Carolina Avenue	15th Street Extension	15th Street	Trade Street	Main Street	**At/On**
15th Street	Flanders Filters Road	5th Street	Carolina Avenue	12th Street	13th Street	Bridge Street	**From**
Airport Rd	Asbury Church Road	HWY 17	5th Street	Carolina Avenue	Carolina Avenue	Hudnell Street	**To**
5,500	45,000	7,500	4,800	8,100	750	6,400	**Length (Ft.)**
50'	50'	70'	60'	50'	30'	30'	**Road Width**
2B	5A	5A	2B	2B	2C	2C	**Cross Section**
Y	Y	Y	Y	Y	Y	Y	**Curb and Gutter**
70'-80'	60'	100'	80'	60'	50'	50'-60'	**ROW**
45	50	35	45	35	35	20	**Speed Limit**