

Spring Hill Bicycle and Greenway Plan

Adopted:



City of Spring Hill, Tennessee

Prepared by Volkert, Inc.



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1.0 Introduction

A City's transportation network is more than roadways, turn-lanes, and traffic signals meant solely for automobile use. Similarly, a City's park system is more than ballfields and playgrounds. A mature and growing community must plan and budget for a wider array of transportation modes and parkland requirements to encompass the needs of a broader community. The *Bicycle and Greenway Plan* is presented to marry Spring Hill's vision and policies for transportation and parkland needs into specific recommendations and policies for bike lanes, greenways, and multi-use pedestrian trails.

The convergence of such national issues as volatile transportation costs, environmental concerns, and a growing interest in health and wellness reveal the need for additional bicycle and pedestrian-friendly facilities to be provided as part of a city's general services for its residents and stakeholders. The City of Spring Hill is undertaking an important step to address these broader issues at a local level by solidifying the policies contained in this planning document with an aim to improve the mobility, health, fitness, and quality of life of residents and stakeholders of the City. The City should build upon the current success and popularity of the Peter Jenkins Walking Trail, which has been recognized by the Tennessee Department of Health publication *Tennessee Trails / Tracks Resources Guide*, as a statewide model for public-private partnerships¹.

The *Bicycle and Greenway Plan*, while produced as a stand-alone document, is consistent with the *Master Parks and Recreation Plan*, adopted in 2012, as well as the City's *Major Thoroughfare Plan Update*, adopted in 2015. The *Bicycle and Greenway Plan* seeks to expand upon these planning documents by guiding the implementation of projects that increase bicycle and pedestrian options, while also providing a continuous and safe non-motorized system that ensures easy access to jobs, services, and commerce. The *Bicycle and Greenway Plan* represents a commitment to design, construct, and maintain a network of safe, convenient, and attractive bicycle and pedestrian facilities for both commuting and recreational use throughout Spring Hill.

The *Master Parks and Recreation Plan* existing conditions survey found approximately 5.06 miles of existing greenway and bicycle trails currently in Spring Hill with recommendations for 221,500 linear feet of additional greenways, trails, multi-use trails, bike lanes, and sidewalks. This document expands upon these recommendations and provides Spring Hill with the projects, programs, and policies necessary to create a first-class bicycling and pedestrian network, enhance and expand the existing greenway system, and provide a well-designed, integrated, safe, and efficient multimodal transportation system. This Plan proposes that the Spring Hill area pursue a robust bikeway and greenway network that includes a total of 483,200 linear feet of bicycle/pedestrian facilities for future development and use.

With growing awareness of the many benefits of bicycling and walking, as it relates to active living and alternative transportation, a network of bicycle and greenway routes will result in many other benefits for the City of Spring Hill such as:

- Enhancing the community image and local quality of life
- Promoting healthier lifestyles
- Reducing commuting costs
- Expanding tourism opportunities
- Increasing and stabilizing property values

¹ <http://www.tn.gov/environment/recreation/docs/trails-tracks-resource-guide.pdf>

- Enhancing the local economy
- Aiding business recruitment efforts
- Providing opportunity for people unable to drive or without cars
- Improving the natural environment
- Preserving natural areas

The *Bicycle and Greenway Plan* provides guidance for the engineering, education, enforcement, and evaluation of an integrated pedestrian friendly transportation system. In order to achieve these benefits and realize a healthier, vibrant, and more bicycle and pedestrian friendly Spring Hill, this plan presents the following Vision and Mission:

Vison:

Create an easy and safe environment to travel by foot and bicycle in and around the City of Spring Hill.

Mission:

To implement a plan and policies for the City of Spring Hill that will:

- 1. Identify and prioritize needed pedestrian and bicycle facilities;*
- 2. Ensure that bicycle and pedestrian facilities are included in all new public and private projects;*
- 3. Develop programs to promote walking and biking through education and ease of use.*



Picture 1- Residents enjoying a greenway system.

1.1 Planning Process

The planning process for this document builds upon the efforts undertaken by the City to produce both the *Master Parks and Recreation Plan* and the *Major Thoroughfare Plan Update*. The creation of a plan for bicycles and greenways involves many of the same elements of any other planning processes. The collection and analysis of demographic data and mapping of existing facilities provides required background data to understand the baseline information of the existing conditions within the City, as well as providing insight into the potential routes for bikes or greenways. Following is a brief description of the planning process utilized for this plan:

- **Existing Community Data and Facilities Inventory** – The purpose of this step was to analyze the City’s current planning documents, demographic data and characteristics, and existing bicycle and greenway facilities. The following planning documents were reviewed: the *Comprehensive Plan*; the *Master Parks and Recreation Plan*; the *Major Thoroughfare Plan Update*; the *Subdivision Regulations of the City of Spring Hill*; and the *Municipal Zoning Ordinance of Spring Hill*.
- **Public Involvement** – A thorough public involvement process was utilized in the planning process to capture as much input from the citizens and stakeholders as possible. An initial



Picture 2- Flyer for the Public Workshop

public workshop was held in late March 2015, building upon the *Master Parks and Recreation Plan* planning process, to capture public input for proposed greenway, bike paths, and multi-use trails. The public workshop was held early in the planning process, with generalized routes set for greenways, bike paths, and multi-use trails to allow citizens to provide their thoughts and ideas on what was needed in terms of providing a comprehensive pedestrian and bicycle system throughout the City.

A final public meeting was hosted by the Parks and Recreation Commission in late June 2015, after the planning process was complete and the plan was in static draft form. The public meeting was also a joint meeting of the Planning Commission and the Board of Mayor and Alderman. At this final public meeting, the plan, its policies, and its recommendations were presented to the public in full. After the final public meeting, the static draft was posted on the Spring Hill website and advertised through the City’s social media outlets.



Picture 3- Final Meeting Flyer

- **Future Needs Identification** – The purpose of this step was to analyze the future needs of the greenway and bike network. To accomplish this, the planning team examined the land uses within Spring Hill that generate or attract bicycle and pedestrian activity and the *Master Parks and Recreation Plan* and the *Major Thoroughfare Plan Update* to fill in gaps in the City’s overall transportation and parkland network.

- **Plan Development** – Based on input from the public meetings, the results of the comparative analyses of the existing facilities and demographic characteristics for both existing and future years, and the recommendations from the *Master Parks and Recreation Plan* and the *Major Thoroughfare Plan Update*, the recommendations for needed bike lanes, multi-use trails, and greenway facilities were identified. Following the needs identification, the planning team analyzed the most appropriate locations for the various needed facilities including pedestrian connections, greenways, and bike trails. This was based on an analysis of population distribution and the identification of attractors and generators within the City. Upon completion of the location analysis, the planning team identified potential bike and/or greenway trail connections that would link together the various parks, population centers, work places, shopping districts, and recreations facilities within Spring Hill. Finally, the project team provided planning level cost estimates for the various recommended facilities and identified potential funding sources for implementation.

1.2 Facilities Analyzed

There are a variety of bicycle and pedestrian facility types from bike lanes and shared roadways to paved shoulders and bike boulevards, as well as multi-use trails and greenways. In addition to recreational use, these facilities are used to provide connections to attractors and generators throughout the City, such as parks and schools. In general a bike facility is a term denoting provisions to accommodate or encourage bicycle travel through the use of specific route designations, bike lane striping, and intersection treatments including parking and storage facilities. Likewise, there are also different types of off-street pedestrian trails, such as greenways and multi-use trails that are important corridors for utilitarian trips and designed to accommodate a variety of users and modes of transport. Specific design guidelines for these facilities can be found in the *Design Guidelines*, included as the Appendix to this Plan. For purposes of this Plan, the following facility types were analyzed and included in the future planning process:

- **Bike Lane:** A shared portion of the roadway that is dedicated as a means to safely separate bicyclists from motor vehicular traffic.
- **Greenway:** A linear area maintained as open space in order to conserve natural and cultural resources and to provide recreational opportunities. Greenways also typically are used as linkages to tie a City's Park System together. They usually provide separation that can benefit pedestrians and/or cyclists, who may be made uncomfortable directly interacting with automobile traffic, particularly if the auto traffic flows at a high rate of speed.
- **Attractors and Generators:** Locations or sites such as residential areas, parks, schools, public or quasi-public uses, retail and shopping centers, employment districts, and historic/cultural destinations that invite individuals to use bicycle and greenway facilities by offering favorable or convenient conditions for use
- **Multi-use Trail:** A trail that is physically separated from motor vehicle traffic by an open space or barrier and either within a right-of-way or a public easement that may be used by bicyclists, pedestrians, joggers, or other non-motorized travelers.
- **Trail Head:** The entry point to a greenway, multi-use trail, or bike lane, which may or may not include onsite parking.

1.3 Benefits of Bicycle and Greenway Facilities

Given the extensive commitment of time and resources needed to realize the benefits of the implementation of the *Bicycle and Greenway Plan*, it is important to assess the value to the City of a comprehensive bicycle and pedestrian transportation network. This section outlines proven benefits that other communities have found with the addition of an interconnected and safe bicycle and pedestrian network to reduce traffic congestion, increase mobility options and improve public health.

Reduce Traffic Congestion

One benefit of a bicycle, pedestrian, and greenways system is to minimize the use of automobiles, especially for short, frequent trips. Some Spring Hill streets carry more vehicular traffic than was originally intended. This has resulted in increasing street maintenance costs, the construction of new and wider streets, traffic congestion, commuter frustration, longer commute times, and increased use of nonrenewable energy resources. The 2009 National Household Travel Survey, conducted by the Federal Highway Administration, found the average vehicular trip length was 9.72 miles. With some trips even shorter, such distances could be achieved with a 10 to 15 minute bike ride or a 30 minute walk.²

Additionally, developing a bicycle, pedestrian, and greenways network uses less land and resources than similar systems for vehicular traffic. The maintenance cost per square foot is much less for these systems than for roadways. While implementing an interconnected bicycle, pedestrian, and greenway system in Spring Hill will not greatly reduce traffic congestion, even a small shift from automobile to bicycle and pedestrian transportation can reduce the overall cost to the City for transportation related projects and maintenance. Additionally, reducing the use of motor vehicles can aid in solving parking issues and consumption of land for parking spaces. Facilities for parking and storing bicycles require much less space and expense than an equal number of spaces for vehicles.

Increased Mobility

Bicycle, pedestrian, and greenway networks provide a needed alternative for those in the community who either choose not to drive or cannot. Individuals in this situation include those without drivers' licenses or cars such as the young, elderly, disabled, persons with poor driving records, or persons with low incomes. An automotive-dependent transportation network limits the choices and opportunities for these individuals. Many of these individuals depend on ad-hoc or informal carpooling, bicycles, or walking to get to work, stores, school, and other necessary destinations. A safe and efficient bicycle, pedestrian, and greenways network allows the City to better accommodate this segment of the population.

Improved Public Health

Bicycle and pedestrian facilities also increase opportunities for recreation and promote environmental protection resulting in more attractive, livable, and vibrant communities. Bicycle and

² <http://nhts.ornl.gov/2009/pub/stt.pdf>

pedestrian transportation and greenway systems can significantly benefit the quality of land, water, and air resources. Short, frequent trips made by automobiles increase air and water pollution. Many of these harmful pollutants can be filtered or trapped by the trees, shrubs, and grasses in greenways and trails before mixing with the air we breathe and water we drink. Natural corridors also provide valuable linkages and habitat for urban wildlife.

Providing adequate pedestrian and bicycle facilities promotes healthy lifestyles by providing safe and inexpensive opportunities for residents of all ages to improve their overall health by making it easier to be more active. There are numerous benefits to exercise, which is essential to maintaining good health. According to the American Heart Association, heart disease is the number one killer of Americans and has been directly linked to obesity.³ Children and teenagers are less physically active than previous generations resulting in greater medical problems. People who are healthy and exercise regularly have fewer claims against their medical insurance and spend fewer days in the hospital.

In summary, investing in a bicycle, pedestrian, and greenway network will yield a substantial return on the community-wide investment. This return will be in the form of increased personal savings for users, increased property values, increased tourism revenue, and an increase in business recruitment, among other factors⁴. For example, a bicycle and pedestrian system that is designed for daily commuting can result in significant personal savings for the users. Owning and operating a bicycle for commuting is significantly less expensive than owning and operating a vehicle. The existence of bicycle and pedestrian facilities and greenspace amenities also factors into the decisions of potential home buyers searching for residential areas that include parks, bicycle and pedestrian amenities, and natural areas. The addition of an interconnected and safe bicycle and pedestrian network will provide the City of Spring Hill with a wide array of benefits and it should be viewed as an investment in the community's improved quality of life.



Picture 4- View of the Swamp Rabbit Trail Greenway System in Greenville, SC.

³ <http://circ.ahajournals.org/content/early/2013/11/11/01.cir.0000437739.71477.ee>

⁴ http://www.nps.gov/pwro/rtca/econ_all.pdf

2.0 Existing Conditions

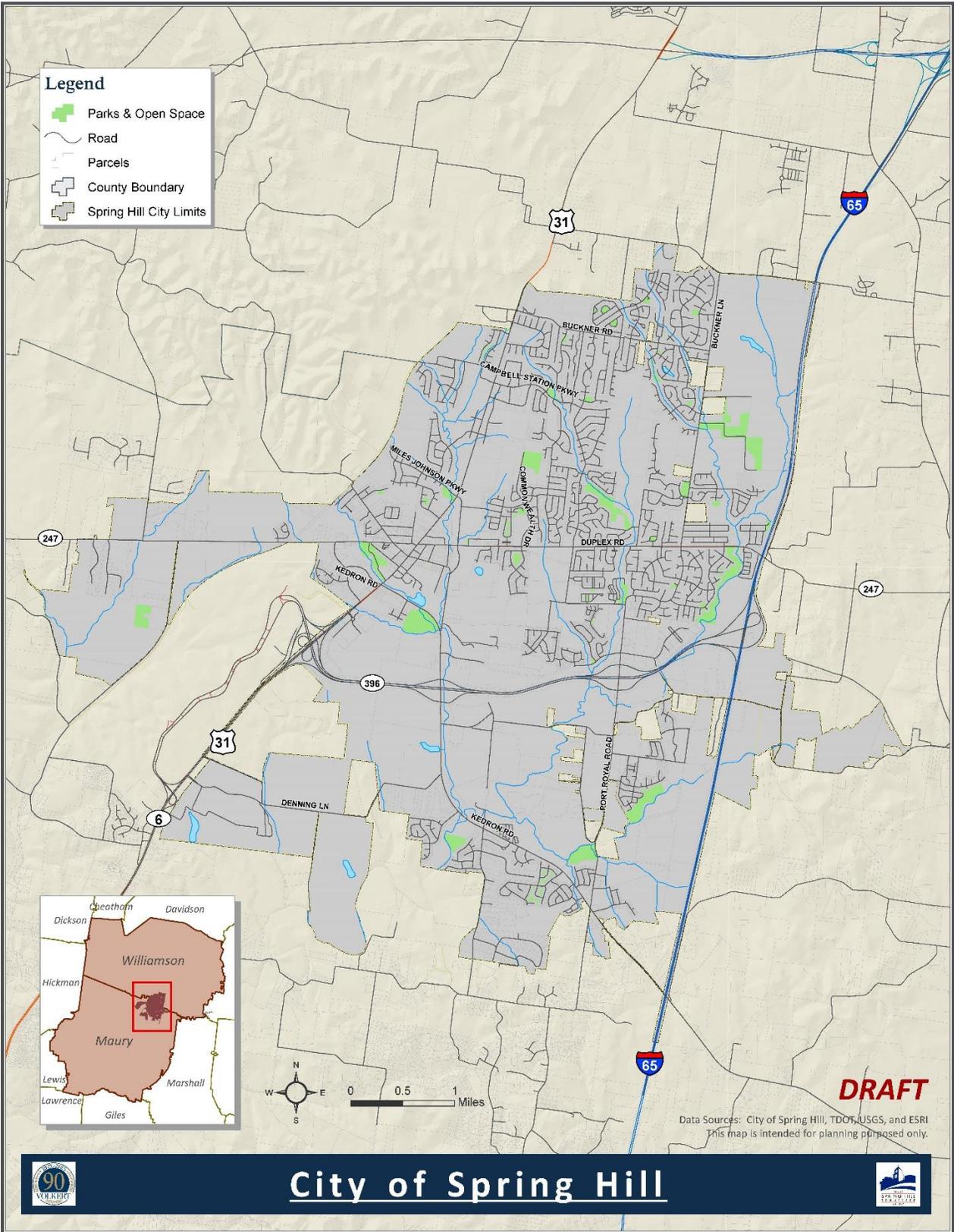
This chapter describes the current greenway and bicycle network within the City of Spring Hill with focus on important destinations for bicyclists and pedestrians, particularly connections to current residential areas, parks, retail/commercial centers, and schools. In addition to existing bike and greenway facilities, population and land-uses were also evaluated to assess opportunities to accommodate the bicycle and pedestrian needs of City residents. A thorough inventory of the current bicycle parks and greenway network is included to provide a baseline from which overall system improvements can be recommended.



Picture 5- Greenways help connect citizens to their natural surroundings. This picture shows Chapman's Retreat Trail, which is part of Spring Hill's existing greenway and trail system.

2.1 Study Area

The study area for this analysis is the entire City limits of Spring Hill, which is 17.7 square miles divided between Williamson County and Maury County. The study area is shown in **Map 1**.



Map 1- City of Spring Hill

2.2 Demographics

The 2014 Special Census counted 32,053 people living in Spring Hill – divided between 23,898 in Williamson County and 8,155 in Maury County. That is a 10 percent increase from the 2010 US Census population of 29,036. **Table 1** shows historical population information for the City. As the table indicates, the population of the City of Spring Hill has grown tremendously in the last 20 years.

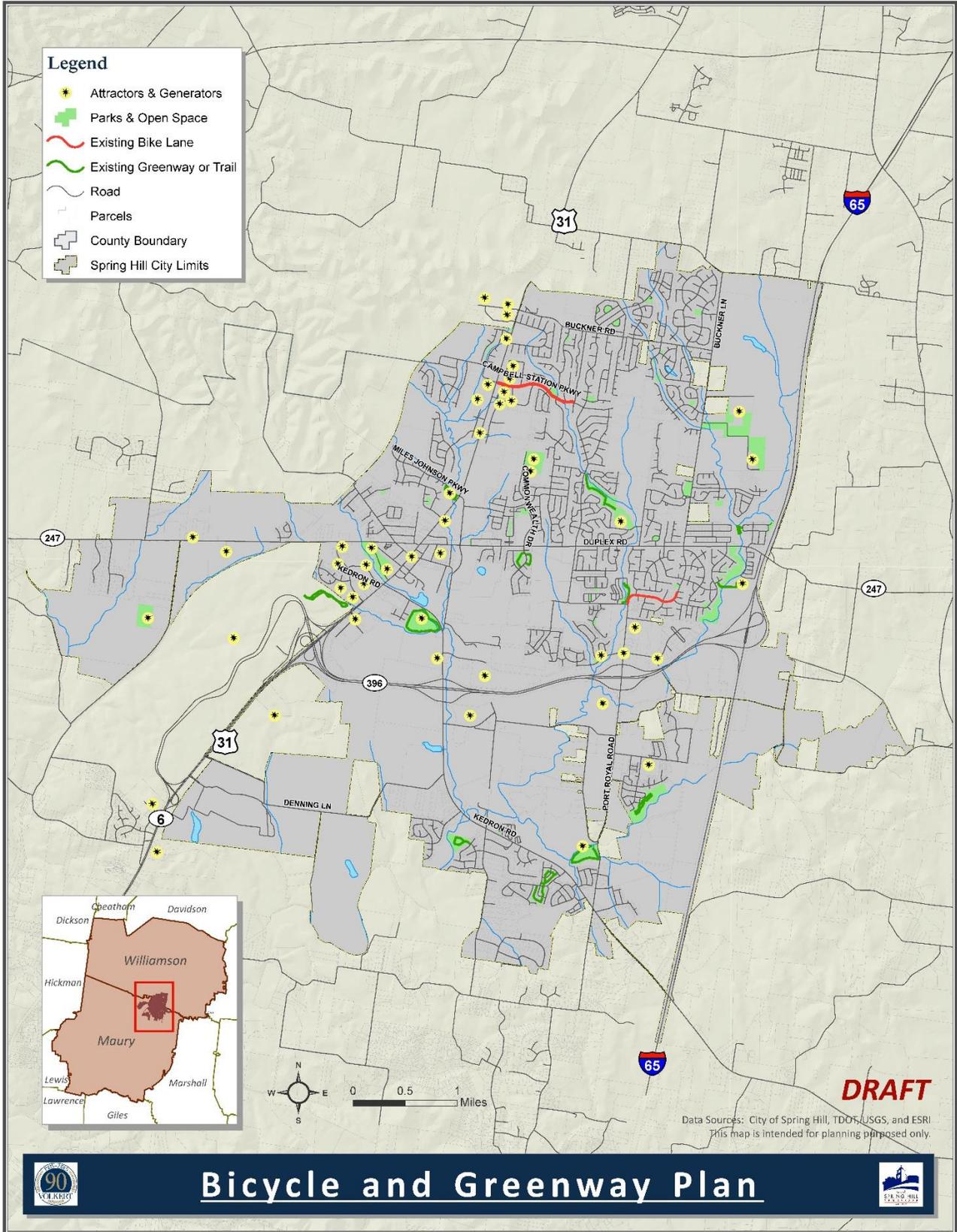
Table 1: Population

Year	Population	Absolute Change	% Change
1970	685	-	-
1980	989	304	44%
1990	1,464	475	48%
2000	7,715	6,251	427%
2010	29,036	21,321	276%
2014	32,053	3,017	10%

According to the 2010 US Census, 48.5 percent of the Spring Hill population was male, while 51.5 percent was female. The majority of the population of the City of Spring Hill is white (89.1 percent) while the largest minority population is Hispanic or Latino (5.6 percent), followed closely by Black or African American (5.4 percent). The median age is 33.1 years old. According to the 2014 Special Census, 26.4 percent of the Spring Hill population is under the age of 19. In addition, the average household size in Spring Hill, according to the US Census, is 2.80. This census data points to a young population that is comprised mostly of families with young children. While all levels of activity and ages are important to consider when planning for future bicycle and greenway or pedestrian facilities, it is particularly important to understand and accommodate the pedestrian and bicycle needs of such a young and active community.

2.3 Attractors and Generators

Bicyclists and pedestrians tend to favor trails or paths with adjacent land uses that are captivating and enticing, such as shopping districts, cultural destinations, and/or areas with distinctive scenic views. The following inventory of attractors and generators, or destinations that have the potential to draw or appeal to bicycle and pedestrian traffic, tend to correlate with high levels of bicycle and pedestrian commuting, and are important when planning greenway and trail connections throughout Spring Hill. Bicycle and pedestrian attractors and generators include employment centers, shopping areas, residential areas, parks, and schools. With the help of City staff, combined with local knowledge, the project team came up with a list of such areas within the City and they are illustrated in **Map 2**.



Map 2- Attractors and Generators

Of particular note are the historical attractions within the City, including the Spring Hill Battlefield and Rippavilla Plantation. The battlefield, a recognized state and national historical place, is maintained to honor the Battle of Spring Hill, which occurred on November 29, 1864. The Battle of Spring Hill has been described as “one of the most controversial non-fighting events of the entire war⁵.” The Spring Hill Battlefield Task Force is working to ensure the Spring Hill Battlefield is sufficiently protected for future generations in connection with the recent sesquicentennial of the Battle of Spring Hill. Rippavilla is an historic plantation site and museum located along Highway 31 in Spring Hill, which is listed on the National Register of Historic Places and has a variety of community events and festivals on site.



Picture 6- Rippavilla hosts many events and festivals every year.

2.4 Greenways and Bike Trails

There are 11 greenways and bike trails in the City of Spring Hill totaling just over 5 miles. **Table 3** below lists each of the greenways and bike trails in the City and they are shown on **Map 2**.

⁵ <http://www.civilwar.org/battlefields/spring-hill.html>

Table 2: Existing Greenways/Trails

Trail No.	Trail Name	Location	Termini	Length (Miles)	Width	Material
1	Harvey Park Trail	Harvey Park	Miles Johnson Parkway parking lot	0.25	8'	asphalt
2	Jerry Erwin Park Trail	Jerry Erwin Park	Kedron Road Parking Lot	0.86	8'	asphalt
3	GM Walking Trail	GM Property	Behind UAW / GM parking area Saturn Pkwy	1.00	6'	asphalt
4	Rutherford Place Trail	Rutherford Place	Creekside Lane	0.25	6'	crushed stone
5	Golfview Estates Trail	Golfview Estates	Kristen Street, Golfview Way, Baker Way	0.75	6'	crushed stone
6	Meadowbrook Trail	Meadowbrook Subdivision	Sequoia Trail	0.50	6'	crushed stone
7	Walden Creek Trail	Walden Creek Apartments	No Public Access	0.25	10'	asphalt
8	Chapman's Retreat Trail	Chapman's Retreat Subdivision	Chapman's Retreat Elementary School, Callender Road	0.25	10'	asphalt
9	Chapman's Crossing Trail	Chapman's Crossing Subdivision	Locerbie Circle	0.20	5'	crushed stone
10	Peter Jenkins Trail	Wyngate Subdivision and Allendale Elementary	Commonwealth Drive	0.64	5'	asphalt
11	Hardins Landing Trail	Hardins Landing Subdivision	Commonwealth Drive	0.36	8'	crushed stone
12	Port Royal Park Walking Trail	Port Royal Park		0.57		asphalt
Total				5.88		

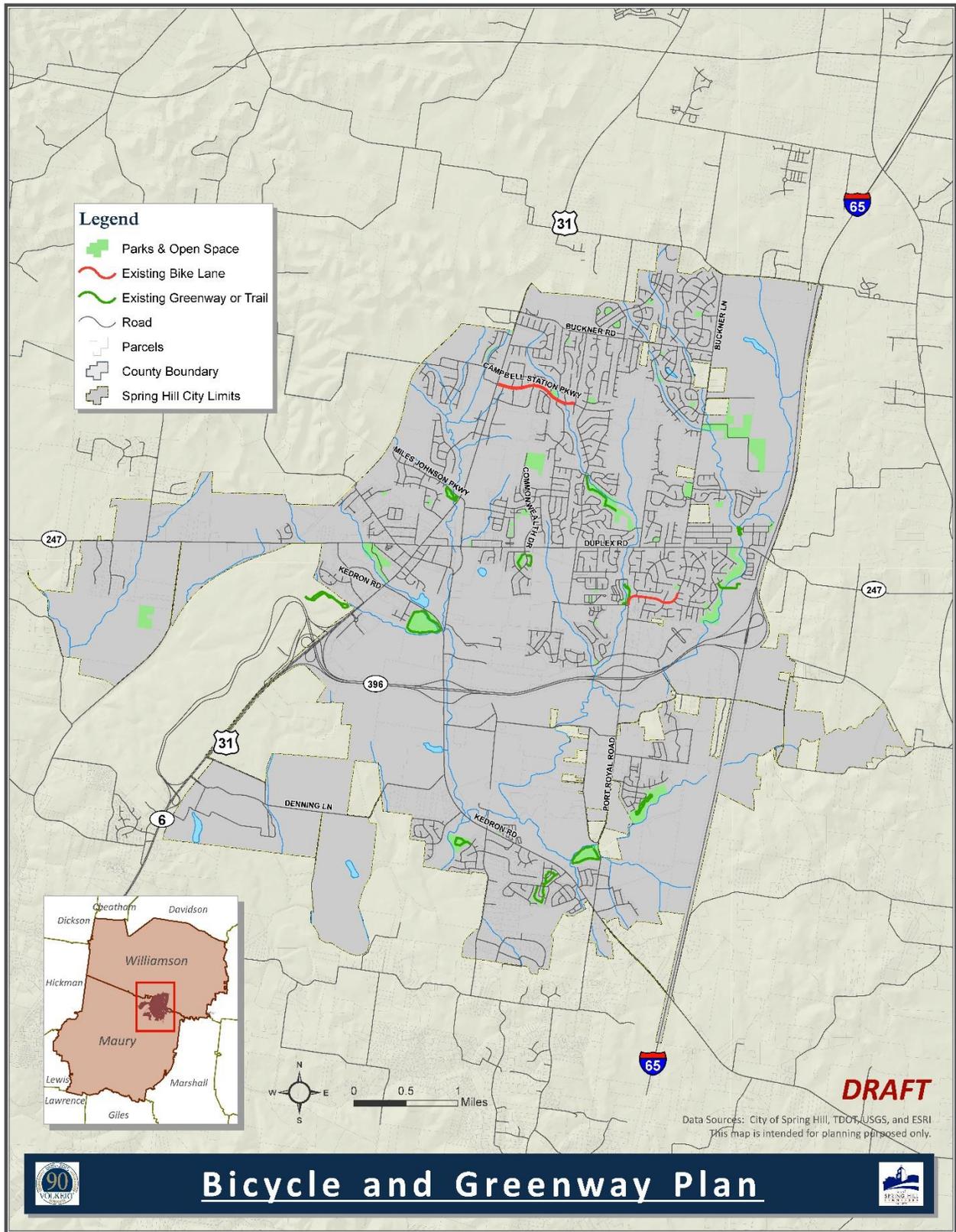
2.5 Bicycle Route and Greenway Deficiencies

Currently, the existing greenway trails in Spring Hill are used predominantly for recreation, with the exception of Peter Jenkins Trail that is used by elementary school students to walk to and from Allendale Elementary School. However, with strains on the street network within the City, there is a demand for a non-motorized transportation system that is efficient, interconnected, and safe. Lack of a continuous, safe bicycle and pedestrian network discourages residents and workers from bicycling or walking to their respective destinations. Low density land use and a transportation network designed solely for motor vehicles also creates a barrier to increased bicycle or pedestrian activity with the City. In fact, there are only two existing bike lanes in the City: along Campbell Station Parkway and along Buckner Lane/Port Royal Road. Campbell Station Parkway, and a short section of Buckner Lane in the Haynes Crossing subdivision, are striped for shoulders that could accommodate bikes but are not marked as bike lanes.



Picture 7-Trail heads are important components to a trail system. This picture shows a trail entrance at Jerry Erwin Park.

While there is not a general standard or recommendation for the length or miles of bicycle and pedestrian facilities for a community, Spring Hill currently has only 5.31 miles of bike/trail facilities, with no bike lanes specifically marked as such. This is an insufficient amount for a community the size of Spring Hill. This Plan aims to remedy this current deficiency by addressing the importance of improving walking and bicycling opportunities by connecting residential areas, employment centers, schools, retail centers, recreational centers, and other attractors to increases individual mobility. The existing bike lanes and greenways are identified on **Map 3**



Map 3- Existing bike lanes and greenways.

3.0 Plan Policies and Recommendations

This section discusses the recommendations for improving the City of Spring Hill's bicycle and greenway network by alleviating the previously described deficiencies and capitalizing upon the noted strengths. It is divided into three parts. Section 3.1 provides the Plan Policies meant to shape and guide City decisions related to bicycle and pedestrian facilities. Section 3.2 contains the Maps depicting the suggested routes for bicycle, greenway, and multi-use facilities throughout the City. Section 3.3 highlights several of the elements of the Plan's *Design Guidelines*, which are incorporated into the recommendations of this Plan for all bike, greenway, and multi-use trail projects.

3.1 Plan Policies

An Interconnected Network

Create and **maintain** an interconnected bicycle and pedestrian network to allow direct connections between attractors, generators, and residential subdivisions throughout the City. Special attention should be given to completing bicycle and pedestrian facilities adjacent to schools, historic sites, and public institutions. Where meaningful and appropriate, connections should also be made between private open spaces within residential subdivisions and the broader bicycle and pedestrian network.

Action Items:

1. Prioritization of facilitates within the Capital Improvement Program.
2. Inclusion of those facilities within the annual city budget.

Complete Streets Policy

Adopt a Complete Streets Policy. A Complete Street is defined by Smart Growth America as a street that is for everyone. It is a street that is designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities. ⁶ Complete Streets make it easy to cross the street, walk to shops, and bicycle to work.

A Complete Streets policy can take the form of an ordinance, a resolution, or a design manual. In essence, a Complete Streets policy will ensure that bicycle and pedestrian accommodation should be included as part of all roadway projects, unless there is a compelling reason not to include them, such as topography or safety concerns.

The inclusion of a Complete Streets policy will enable the City to ensure that, when private development occurs, the goals of this plan will continue throughout the City and not just through the use of public improvements.

Action Item: Formulate and adopt a Complete Streets policy that is right for Spring Hill.

⁶ <http://www.smartgrowthamerica.org/complete-streets>

Land Use and Development

Require private development to fully incorporate the routes recommended by this Plan. This plan policy should be interpreted broadly, since exact future conditions are unknown and development may occur in such a fashion that was not considered by the planning process upon which this plan is based. In any event, the proposed projects and connectivity concepts presented in the Maps in Section 3.2 should be maintained and required as part of development proposals.

Promote land use and site design decisions that incorporate pedestrian and bicycle infrastructure as basic elements of the site development process.

Any lands proposed for annexation into the City after the adoption of this Plan should be **integrated** into the City's interconnected bicycle and pedestrian network and should abide by the recommendations and policies of this Plan.

Action Items:

1. Amend the City's *Subdivision Regulations* and *Zoning Ordinance* to include provisions to require greenway and bicycle facilities, as outlined by this plan, to be provided as part of the development review process.
2. Review the City's *Subdivision Regulations* and *Zoning Ordinance* to ensure regulatory language is clear, consistent, and coordinated for greenway and bicycle facilities.
3. Review the *Zoning Ordinance* annexation procedures to ensure that facilities proposed by this plan are included as part of any annexation request.

Safety

Strive to maintain a safe bicycle and pedestrian network. The Parks and Recreation Department may either create a holistic set of Bicycle and Pedestrian Safety Guidelines or separate Guidelines for individual trails or greenways, based on specific circumstances. For example, certain segments of a multi-use trail may be appropriate for motorize vehicles, such as golf carts, based on site conditions and other considerations. A strategy employed by many communities to maximize safety is to utilize the Crime Prevention Through Environmental Design (CPTED) methodology when planning and designing greenways and trails to ensure that the user's security is a chief consideration. In terms of design elements specific to the various facilities and supporting elements, please refer to the *Design Guidelines* appendix of this document.

Action Items:

1. Amend the City's *Subdivision Regulations* and *Zoning Ordinance* regulations as appropriate to require greenway and bicycle facilities to be constructed according to the *Design Guidelines* recommendations.
2. Establish Bicycle and Pedestrian Safety Guidelines.

Comfort and Enjoyment

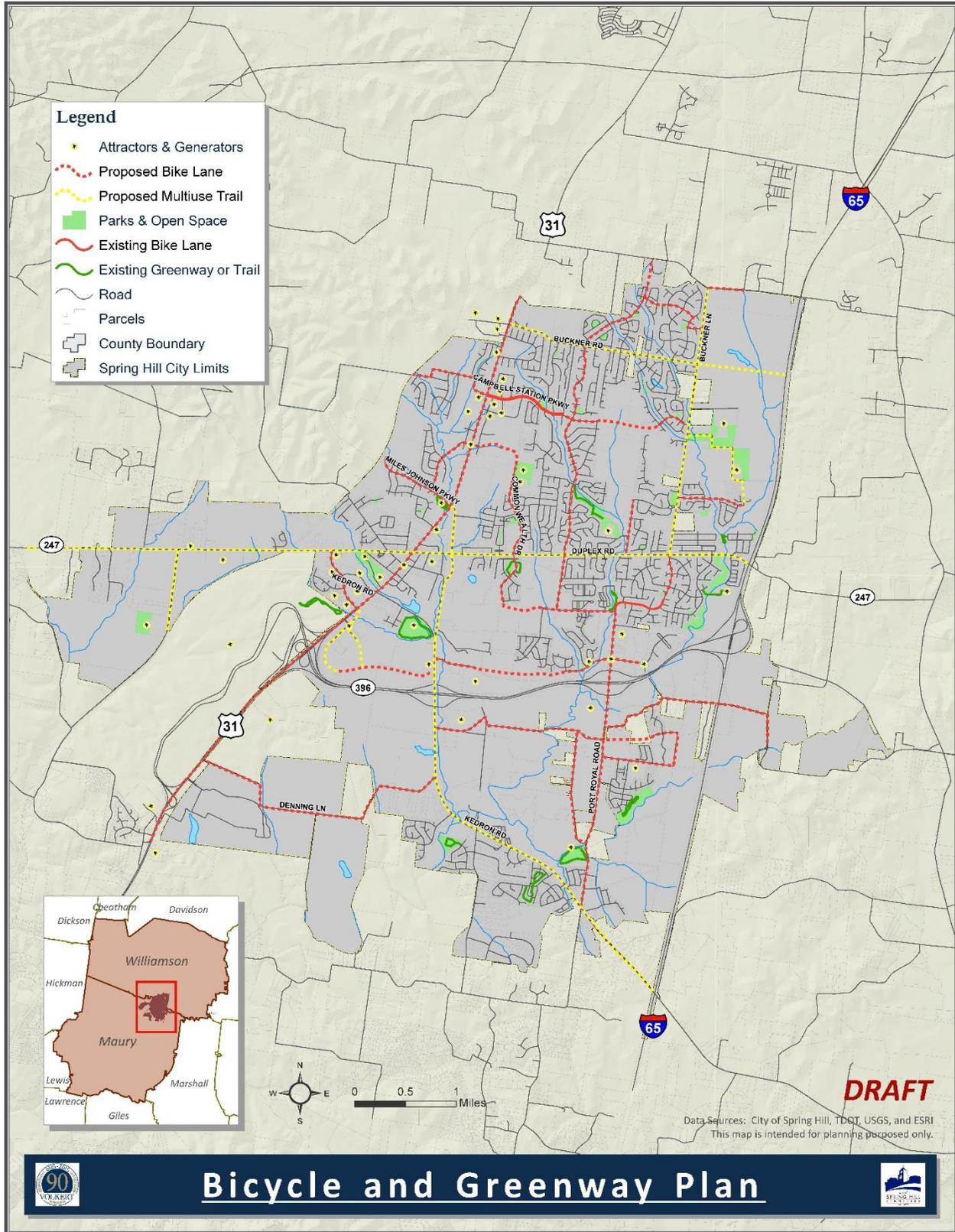
Encourage the inclusion of artistic, historic, and natural elements throughout the bicycle and pedestrian network, along with trail furniture, pedestrian scale lighting, and landscaping, to ensure that the network is both comfortable and enjoyable. The recommendations related to these elements of the network are presented in the *Design Guidelines* appendix.

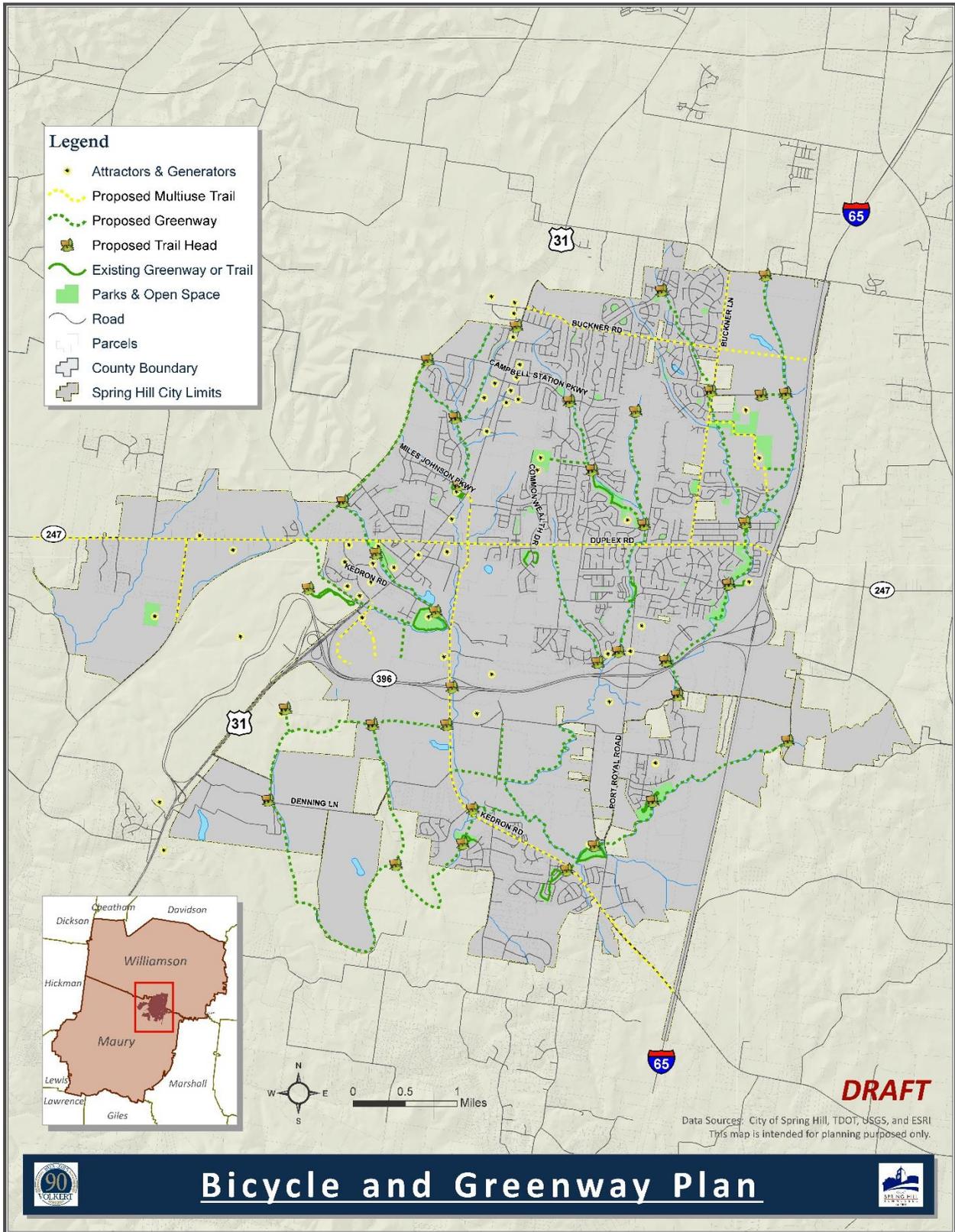
Action Items:

1. Follow *Design Guideline* recommendations for appropriate trail furniture and lighting.
2. Include appropriate native landscaping and public art displays as elements of each facility as it is planned and budgeted.

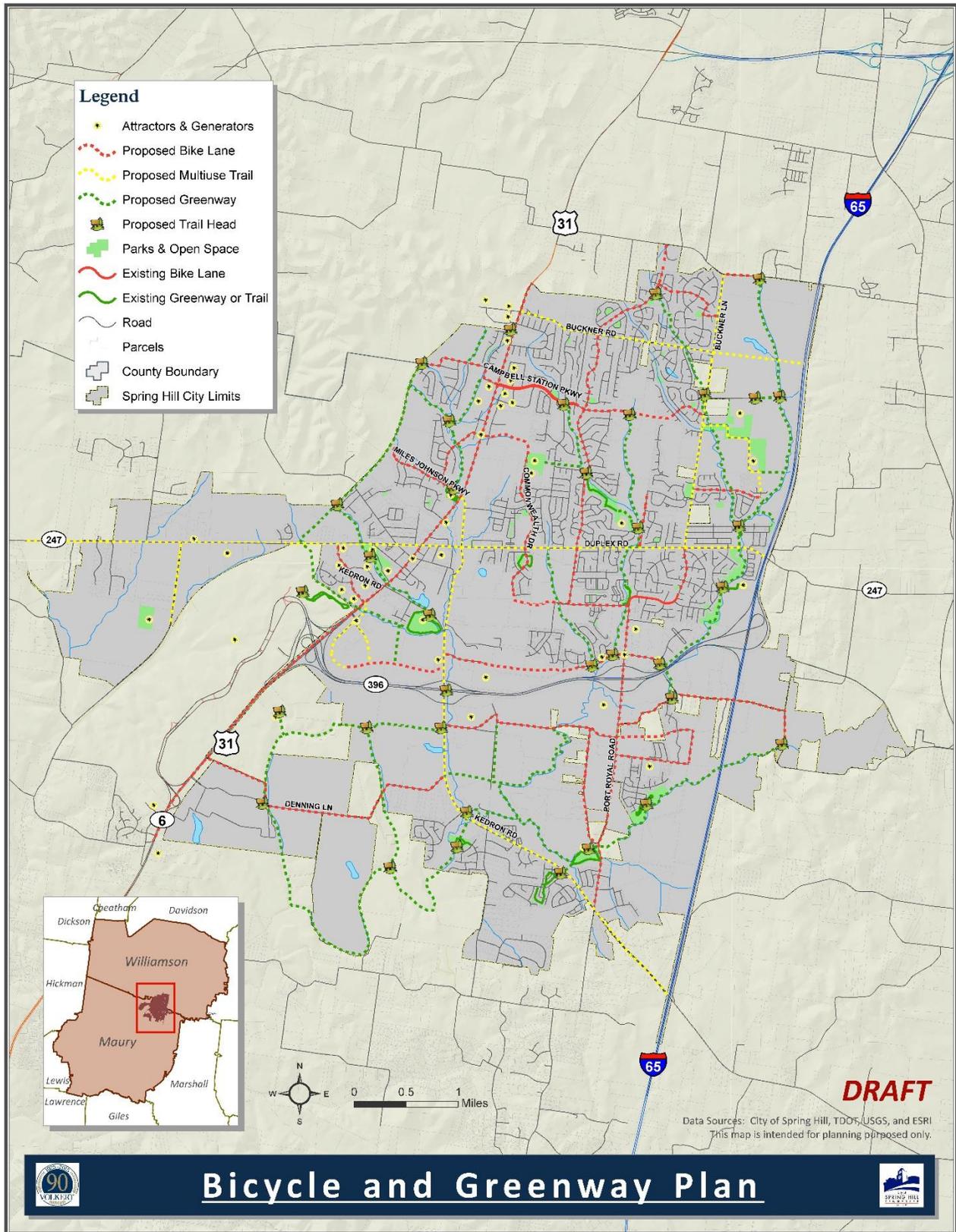
3.2 Mapping of the Proposed Facilities

The results of the overall effort of this planning process are best captured in the series of maps that follows. The following provides the recommend routes for proposed bike lanes, greenways, and multi-use trails within the City of Spring Hill. **Map 4** depicts the bike lanes. **Map 5** depicts the greenways and trails. Finally, **Map 6** includes multi-use trails and includes all the recommended bike lanes and greenways shown on Maps 4 and 5. Please note: these routes are to be considered preliminary design/budgeting level plans, exact routes may vary, based on detailed private development proposals, new City capital budget priorities, and/or specific site conditions. The underlying policy for these routes is to provide the connections, as shown, between attractors, generators, and residential areas in a cost-effective and efficient manner.





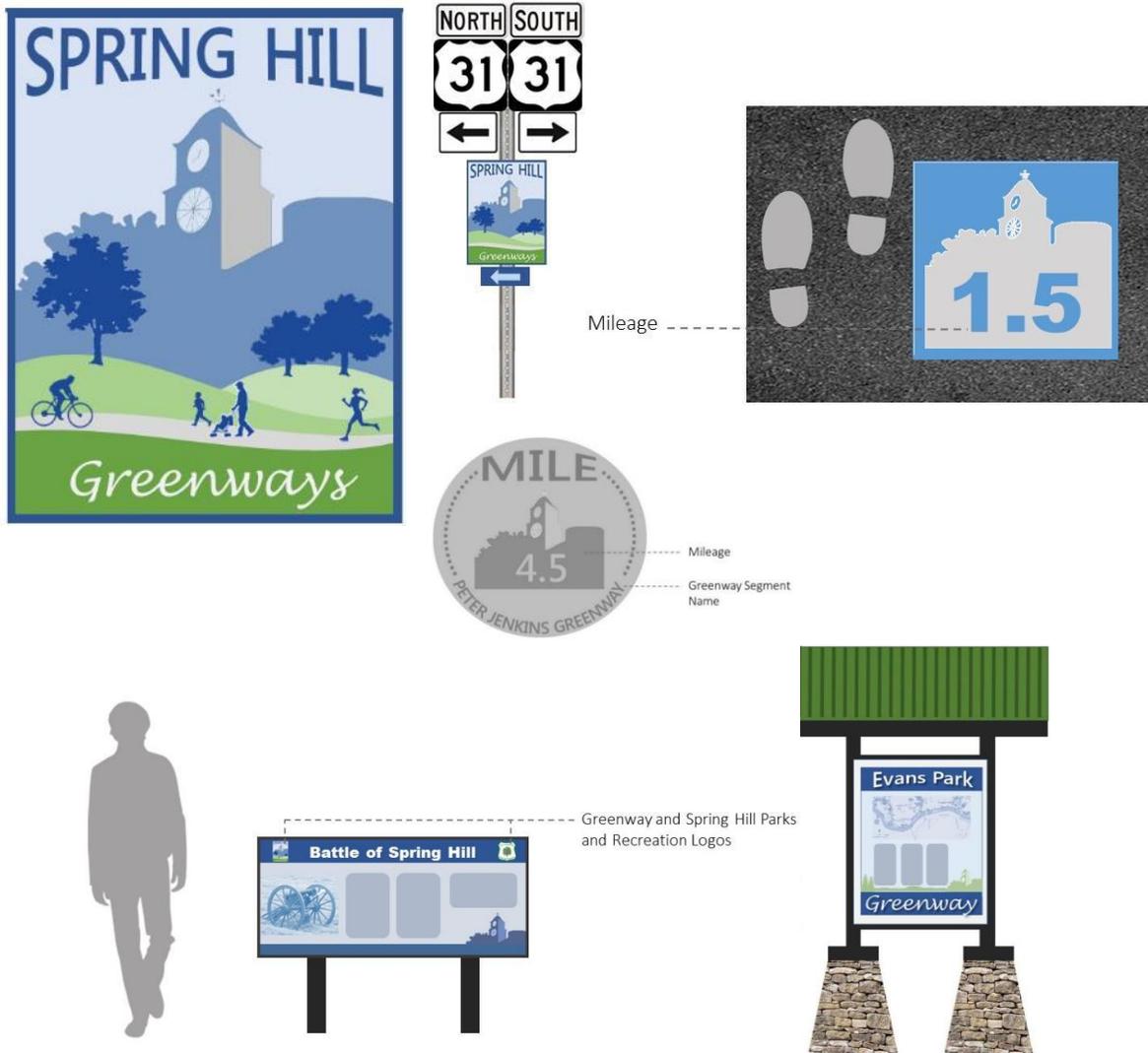
Map 5- Proposed Greenways & Trail Heads



Map 6- Combined Improvements Map, which depicts Greenways, Trailheads, Bike Lanes, and Multi-use Trails.

Section 3.3 Bicycle and Greenway Design Guidelines

The *Bicycle and Greenway Design Guidelines*, included as the appendix to this Plan, are provided to form the foundation for the planning, construction, and furnishing for all facilities recommended by this Plan (bike lanes, greenways, multi-use trails, and trail heads) and shown on the Maps in Section 3.2. The *Design Guidelines* provide a wide array of design and development standards for bicycle and greenway routes, including: cross-sections for trails; trail design speed; relationship of pathways to roadways; bridge standards; railing and fence standards; guidance on typical amenities such as bicycle parking, benches, picnic tables, pet waste stations, and other trail furniture; and a template for signage and wayfinding for the bicycle and greenway network. The *Design Guidelines* are hereby incorporated into all recommendations of this Plan and should be adopted and used as the design template for all bike lanes, greenways, and multi-use trail facilities within the City of Spring Hill.



4.0 Implementation

As indicated in Chapter 3, there are multiple needs within the City of Spring Hill in terms of providing a bicycle and pedestrian network. Given the number of needed facilities, it is necessary to develop a detailed implementation plan that will serve as a guide to City leadership as they prioritize capital projects. There are three primary components in an implementation plan, cost estimates, project schedule/time frame, and potential funding strategies. Each is addressed below.

4.1 Cost Estimates and Project Priority

This section includes project cost estimates and project priority. Both the cost estimates and the project priority are presented to provide the City with tools to use in Capital Improvement Budgeting. The cost estimates provide the funding amounts necessary to plan for and implement the recommended projects. Additionally, the cost estimates are grouped according to priority, to provide an organizing method for future capital improvement budgeting.

Cost Estimates

Estimating the costs of greenway, bike trail, or multi-use trail facilities in a planning context is an inexact science, as construction timelines may be undefined and materials costs can fluctuate over time. Additionally, the details of design of these facilities and required property acquisition can vary greatly, once field surveys are conducted to determine an exact alignment and appropriate amenities, gateway treatments, inclusion of parking areas, and the like are finalized. Cost estimating in a planning context is a needed and necessary process to provide generalized project costs for capital budget planning; however, the numbers should be viewed as a planning tool only.

Cost estimates for this Plan were developed for the recommended projects using industry accepted standards for construction of the various facilities. It should be noted that while engineering costs are included in these cost estimates, right of way costs are not. The cost estimates are planning level estimates and are intended for planning purposes only.

Project Priority

In order to bring all of these proposed projects to fruition, a strategy must be established to fund them. Unfortunately, many communities today, including Spring Hill, do not have the funding to build all of the trail or greenway facilities that are needed and/or desired. However, by developing a long range implementation plan to construct these projects over a period of many years, it becomes much more feasible. More immediate needs were identified and have been placed in the short term category while needs that are based more on anticipated population growth and desired amenities were placed in the mid term and long term category.

The timeframe for improvements are short term, mid term, and long term. Short term projects are intended to be implemented by 2020, mid term projects are intended to be implemented by 2030, and long term projects are intended to be implemented by 2040.

Cost estimates and Project Priorities are separated by facility type (Bike Lanes, Greenways, and Multi-use Trails) and are provided in **Table 3 for Recommended Bike Lane Projects**, **Table 4 for Recommended Greenway Projects**, and **Table 5 for Recommended Multi-use Trail Projects**.

Table 3: Cost Estimates for Recommended Bike Lane Projects

BIKE LANE PROJECT	TERMINUS	TOTAL LENGTH IN FEET	OPINION OF PROBABLE COST*	PRIORITY
New Port Royal Road Bike Lanes Phase 1	From Thompson's Station Road to Buckner Road	6,305	\$291,290	Short Term
Wades Crossing Bike Lanes	From Buckner Lane to Spring Station Road	3,472	\$160,410	Short Term
Commonwealth Drive Bike Lanes Phase 1	From U.S. 31 to Longview Elementary School	4,223	\$195,100	Short Term
Commonwealth Drive Bike Lanes Phase 2	From Longview Elementary School to Duplex Road	3,846	\$177,685	Short Term
New Port Royal Road Bike Lanes Phase 2	From Stewart Campbell Point to Burgess Lane	3,532	\$163,180	Short Term
Stewart Campbell Bike Lanes	From Loudenslager Drive to Buckner Lane	6,968	\$321,920	Short Term
Luther Bradley Parkway Bike Lanes	From The Crossings to Kedron Road	9,493	\$438,580	Short Term
Derryberry Bike Lanes	From Port Royal Road to Tom Lunn Road	5,436	\$251,145	Short Term
Cameron Farms Bike Lanes	From New Port Royal Road to Buckner Lane	4,201	\$194,090	Mid Term
Buckner Lane Bike Lanes Phase 4	From Duplex Road to Lona Court	2,263	\$104,550	Mid Term
US 31 Bike Lanes Phase 1	From Buckner Road to Campbell Station Parkway	3,846	\$177,685	Mid Term
US 31 Bike Lanes Phase 2	From Campbell Station Parkway to Belshire Way	2,693	\$124,420	Mid Term
US 31 Bike Lanes Phase 3	From Belshire Way to Miles Johnson Parkway	3,365	\$155,465	Mid Term
US 31 Bike Lanes Phase 4	From Miles Johnson Parkway to Duplex Road	3,144	\$145,250	Mid Term

BIKE LANE PROJECT	TERMINUS	TOTAL LENGTH IN FEET	OPINION OF PROBABLE COST*	PRIORITY
US 31 Bike Lanes Phase 5	From Duplex Road to Kedron Road	2,785	\$128,670	Mid Term
US 31 Bike Lanes Phase 6	From Kedron Road to The Crossings	2,157	\$99,655	Mid Term
Campbell Station Bike Lanes	Along Campbell Station Parkway from U.S. 31 to Wilkes Lane and along Wilkes Lane from Campbell Station Parkway to the railroad tracks west of The Arbors at Autumn Ridge	5,014	\$231,650	Mid Term
New Port Royal Road Bike Lanes Phase 4	From Buckner Road to Stewart Campbell Point	4,089	\$188,910	Mid Term
New Port Royal Road Bike Lanes Phase 3	From Burgess Lane to Duplex Road	3,764	\$173,900	Mid Term
Belshire Bike Lanes	From U.S. 31 to Miles Johnson Parkway	3,642	\$168,260	Mid Term
Autumn Ridge Bike Lanes	From U.S. 31 to just west of Autumn Ridge Way	4,562	\$210,765	Mid Term
Town Center Bike Lanes	From Beechcroft Road to U.S. 31	3,462	\$159,945	Mid Term
Port Royal Road Bike Lanes Phase 1	From Duplex Road to Reserve Boulevard	8,346	\$385,585	Mid Term
Reserve Bike Lanes	From Kedron Road to Port Royal Road	9,451	\$436,635	Mid Term
Old Port Royal Bike Lanes	From Port Royal Road to Parkway Business Center	1,838	\$84,915	Mid Term
Thompson's Station Road Bike Lanes	From Buckner Lane to Sherrie Street	1,878	\$86,760	Long Term
US 31 Bike Lanes Phase 7	From The Crossings to southern City Limits	10,500	\$485,100	Long Term
Commonwealth Drive Bike Lanes Phase 3	From Duplex Road to Port Royal Road	5,796	\$267,775	Long Term
Port Royal Road Bike Lanes Phase 2	From Reserve Boulevard to Derryberry Lane	5,108	\$235,990	Long Term
Port Royal Road Bike Lanes Phase 3	From Derryberry Lane to Kedron Road	7,967	\$368,075	Long Term

BIKE LANE PROJECT	TERMINUS	TOTAL LENGTH IN FEET	OPINION OF PROBABLE COST*	PRIORITY
Denning Lane Bike Lanes	From U.S. 31 to Kedron Road	14,765	\$682,145	Long Term
Royal Park Boulevard Bike Lanes	From Kedron Road to Timberline Drive	2,875	\$132,825	Long Term
Jim Warren Road Bike Lanes	From Port Royal Road to south of Crafton Road	10,852	\$501,360	Long Term
Lunn Bike Lanes	From Port Royal Road to Worthington Lane	10,667	\$492,815	Long Term

Table 4: Cost Estimates for Recommended Greenway Projects

GREENWAY PROJECT	TERMINUS	TOTAL LENGTH IN FEET	OPINION OF PROBABLE COST*	PRIORITY
Harvey Park Greenway Phase 1	From Campbell Station Parkway to Harvey Park.	7,100	\$195,250	Short Term
Peter Jenkins Greenway Phase 1	From Longview Recreation Center to New Port Royal Road	2,580	\$70,950	Short Term
Peter Jenkins Greenway Phase 2	From current Peter Jenkins trail eastern terminus to Duplex Road	2,900	\$79,750	Short Term
Peter Jenkins Greenway Phase 3	From Duplex Road to Port Royal Greenway	1,890	\$51,975	Short Term
Peter Jenkins Greenway Phase 4	From southern terminus of Port Royal Greenway to Reserves Boulevard	2,755	\$75,765	Short Term
Battlefield Greenway Phase 1	From Jerry Erwin Park to GM Trail including US 31 underpass	2,700	\$233,750	Short Term
Port Royal Greenway Phase 1	From Port Royal Park to Kedron Road	1,550	\$42,625	Short Term
Port Royal Greenway Phase 2	From Longhunter Chase park to Port Royal Park	5,840	\$160,600	Short Term
Rippavilla Greenway Phase 1	From Kedron Road to northern loop of Rippavilla Greenway	4,000	\$110,000	Short Term

GREENWAY PROJECT	TERMINUS	TOTAL LENGTH IN FEET	OPINION OF PROBABLE COST*	PRIORITY
Battlefield Greenway Phase 2	From Battlefield Greenway Phase 1 to Luther Bradley Parkway.	1,900	\$52,250	Mid Term
Battlefield Greenway Phase 3	From GM Greenway to Beechcroft Road	2,100	\$57,750	Mid Term
Harvey Park Greenway Phase 3	From terminus of Harvey Park Greenway Phase 1 to Battlefield Greenway Phase 6	2,800	\$77,000	Mid Term
Peter Jenkins Greenway Phase 5	From eastern midpoint of Peter Jenkins Greenway Phase 2 to Campbell Station Parkway Extension	6,100	\$167,750	Mid Term
Peter Jenkins Greenway Phase 6	From midpoint of Peter Jenkins Greenway Phase 1 to Campbell Station Parkway	3,380	\$92,950	Mid Term
Summit Greenway Phase 1	From south side of Chapman's Crossing Trail to Duplex Road	575	\$15,815	Mid Term
Summit Greenway Phase 2	From north side of Chapman's Crossing Trail to Twin Lakes Drive including connections to Chapman's Crossing Park, Wades Crossing and Spring Station Middle School	11,480	\$315,700	Mid Term
Summit Greenway Phase 3	From Duplex Road to Chapmans Retreat Trail	8,700	\$239,250	Mid Term
Summit Greenway Phase 4	From Buckner Road to Summit Greenway Phase 2	6,500	\$178,750	Mid Term
Peter Jenkins Greenway Phase 7	From Reserves Boulevard to Duplex Road	6,650	\$182,875	Mid Term
Kings Creek Greenway Phase 1	From Kedron Road to Lunn Road and Royal Park Boulevard	12,150	\$334,125	Mid Term

GREENWAY PROJECT	TERMINUS	TOTAL LENGTH IN FEET	OPINION OF PROBABLE COST*	PRIORITY
Battlefield Greenway Phase 4	From Beechcroft Road to Battlefield Greenway Phase 6 terminus	2,625	\$72,190	Mid Term
Battlefield Greenway Phase 6	From Battlefield Greenway Phase 4 terminus to Jerry Erwin Park	7,500	\$206,250	Mid Term
Battlefield Greenway Phase 5	From Battlefield Greenway Phase 4 and 6 terminus to Wilkes Lane	8,500	\$233,750	Long Term
Kings Creek Greenway Phase 2	From Kings Creek Greenway Phase 1 to Rutherford Creek	2,025	\$55,700	Long Term
Kings Creek Greenway Phase 3	From Kedron Road to Port Royal Greenway Phase 1	7,400	\$203,500	Long Term
Rippavilla Greenway Phase 2	From Rippavilla Greenway Phase 1 western terminus to Rippavilla property	5,700	\$156,750	Long Term
Rippavilla Greenway Phase 3	From Rippavilla Greenway Phase 1 western terminus to Denning Lane	3,200	\$88,000	Long Term
Rippavilla Greenway Phase 4	From Kedron Road through Rutherford Place Trail to Denning Lane	12,295	\$338,110	Long Term
Rippavilla Greenway Phase 5	From Rippavilla Greenway Phase 4 midpoint to Rippavilla Greenway Phase 2 terminus	19,260	\$529,650	Long Term
Port Royal Greenway Phase 3	From Port Royal Greenway Phase 2 terminus to Jim Warren Road including I-65 underpass	6,900	\$629,750	Long Term
Harvey Park Greenway Phase 4	From Wilkes Lane to City Limits	2,050	\$56,375	Long Term
Summit Greenway Phase 5	From Buckner Lane to Buckner Road	3,350	\$92,125	Long Term
Summit Greenway Phase 6	From Buckner Road to New Port Royal Road	3,400	\$93,500	Long Term

GREENWAY PROJECT	TERMINUS	TOTAL LENGTH IN FEET	OPINION OF PROBABLE COST*	PRIORITY
Summit Greenway Phase 7	From Twin Lakes Drive to Thompsons Station Road	6,350	174,625	Long Term
Summit Greenway Phase 8	From Old Port Royal Road to Jim Warren Road including Saturn Parkway underpass	1,900	\$492,250	Long Term

Table 5: Cost Estimates for Recommended Multi-use Trail Projects

MULTI-USE PATH PROJECT	TERMINUS	TOTAL LENGTH IN FEET	OPINION OF PROBABLE COST*	PRIORITY
Cleburne Multi-Use Path	From Beechcroft Road to Spring Hill Middle School	4,267	\$140,810	Short Term
Beechcroft Multi-Use Path Phase 2	From Town Center Parkway to Cleburne Road	7,954	\$262,485	Short Term
Duplex Multi-Use Path	From U.S. 31 (Main Street) to I-65	17,500	\$577,500	Short Term
Miles Johnson Multi-Use Path Phase 1	From U.S. 31 (Main Street) to Duplex Road	2,620	\$86,460	Short Term
Miles Johnson Multi-Use Path Phase 2	From Duplex Road to Kedron Road	4,573	\$150,910	Short Term
Kedron Multi-Use Path Phase 1	From Miles Johnson Parkway to Saturn Parkway	2,912	\$96,100	Short Term
The Crossings Multi-Use Path Phase 2	From the Crossings Boulevard roundabout through the Crossings Shopping Center	2,393	\$78,970	Short Term
Spring Station Multi-Use Path	From Buckner Lane to Wades Crossing	6,453	\$212,950	Short Term
Beechcroft Multi-Use Path Phase 1	From U.S. 31 (Main Street) to Town Center Parkway	4,161	\$137,315	Mid Term
Kedron Multi-Use Path Phase 2	From Saturn Parkway to Mahlon Moore Road	8,048	\$265,590	Mid Term
Kedron Multi-Use Path Phase 3	From Mahlon Moore Road to Port Royal Road	6,887	\$227,270	Mid Term

MULTI-USE PATH PROJECT	TERMINUS	TOTAL LENGTH IN FEET	OPINION OF PROBABLE COST*	PRIORITY
The Crossings Multi-Use Path Phase 1	From U.S. 31 (Main Street) to movie theater	4,385	\$144,700	Mid Term
Buckner Lane Multi-Use Path Phase 1	From Thompson's Station Road to Buckner Road	3,986	\$131,540	Mid Term
Buckner Lane Multi-Use Path Phase 2	From Buckner Road to Spring Station Road	3,680	\$121,440	Mid Term
Buckner Lane Multi-Use Path Phase 3	From Spring Station Road to Duplex Road	6,339	\$209,190	Mid Term
Buckner Road Multi-Use Path Phase 1	From U.S. 31 (Main Street) to New Port Royal Road	4,202	\$138,670	Mid Term
Buckner Road Multi-Use Path Phase 2	From New Port Royal Road to Buckner Lane	5,889	\$194,340	Mid Term
Buckner Road Multi-Use Path Phase 3	From Buckner Lane to I-65	4,674	\$154,240	Mid Term
Beechcroft Multi-Use Path Phase 3	From east of Petty Lane to Cleburne Road	8,021	\$264,700	Long Term
Kedron Road Multi-Use Path Phase 4	From Port Royal Road to I-65	5,846	\$192,920	Long Term

4.2 Funding Strategies

As seen in **Tables 3 - 5**, a substantial investment in infrastructure is needed to provide an adequate bicycle and greenway system for the citizens of Spring Hill. Including a Capital Budget for bicycle and pedestrian improvements of more than \$18,000,000 will be difficult in a growing City with competing demands for limited budgetary resources. In order to accomplish this, multiple funding sources are required and it will take a substantial investment of time and effort to acquire the funding. Following is a description of several funding sources that the City and its partner agencies should pursue for funding opportunities.

Non-Profit Groups

The City should continue to build on recent successes by seeking other opportunities to partner with these organizations or others with similar goals in mind.

Corporate Sponsorships

Team with businesses that would be interested in providing land, labor, materials, etc., or that would be willing to pay for naming rights and/or signage for advertising purposes. This strategy has recently been proven successful with the Peter Jenkins Walking Trail extension project. The City partnered with Outdoor Encounter, a non-profit organization who received donations from several

private companies to provide in-kind services and/or made cash donations for the construction of the trail. In return, the companies were recognized in multiple news media stories and were recognized at the opening of the trail.

Fund Raising/Community Involvement

Start an Adopt-a-Park/Adopt-a-Trail program to help construct and maintain trails and greenways. Adoptions could be made by corporations and/or community members and could consist of funds raised and/or time donated to construction and maintenance. There are many successful Adopt-a-Park/Adopt-a-Trail programs in communities throughout the country.

Another option would be to start a neighborhood pick-up program for neighborhood associations and/or civic groups to provide clean up and maintenance of trails, greenways, equipment, etc. Lastly, several fund raising strategies could be used, such as community yard sales, bake sales, name a brick/piece of equipment campaign, revenue from sports tournaments, etc.

Property Tax/Sales Tax Increase

It is possible to dedicate a portion of property taxes and/or sales taxes paid by City of Spring Hill residents to fund bike route, trail, and/or greenway facilities. This has been successfully implemented by communities around the country. If this funding mechanism is implemented, it is recommended that City residents vote on a parks allocation of taxes rather than the Board of Mayor and Aldermen (BOMA) using general fund monies. This would provide residents with more direct ownership of the decision. One benefit of implementing this strategy is that citizens are assured that a certain portion of their tax dollars are going specifically toward something that benefits the community directly in the form of tangible bicycle and pedestrian infrastructure projects.

Partnerships with Maury/Williamson Counties or Neighboring Municipalities

Partner with Maury and/or Williamson County and/or neighboring municipalities to help fund and connect projects. By pooling resources, it may be possible to bring more projects to fruition. In addition, it might be possible to partner with the Maury and Williamson County school systems so that they might provide land adjacent to or on school grounds for parks and recreation development.

Grant Funds

The state and federal governments have many grant programs that could be utilized to obtain funds for trails. Some of these grants include enhancement grants, Active Living grants, Land and Water Conservation funds, Surface Transportation Program (STP) funds, Safe Routes to Schools, etc.

Bond Issue

The City of Spring Hill could issue bonds to fund projects. The most common types of municipal bonds are general obligation bonds, which are tax exempt bonds with low interest rates that governments use as a funding source for capital projects. These bonds would be re-paid with funds dedicated to such payments, usually through a property tax levy.

Usage Fees

Lower on the list of preferences would be usage fees that would be charged to access park facilities. The preference would be for as many facilities to be free and open to public as possible, but some

level of usage fees may be necessary to cover funding gaps and operations and maintenance associated with the facilities.

Adequate Facilities Tax / Impact Fees

The City of Spring Hill could levy an adequate facilities tax or institute Impact Fees for new development, which is permitted by the state for high-growth communities. All or a portion of the adequate facilities tax or impact fees could be utilized for facilities recommended by this plan.

State Street Aid Fund

This fund is comprised of a portion of the proceeds from the state gas tax and is available to incorporated communities throughout the state for use on municipal streets. (Streets, as defined by TCA § 54-4-201, which would include greenways and trails that are “public ways dedicated to public use and maintained for general public travel lying within a municipality’s corporate boundaries.)

5.0 Conclusion

Spring Hill, after experiencing rapid growth and development over the past 30 years, is poised to become a leader in quality of life of its residents among regional peer cities. One component of becoming a City with an improving quality of life is a connected and complete network of bicycle lanes, multi-use paths, and greenway trails that function as a vital link between the City's parkland and transportation network.

The City has some of the highest numbers of families with young children in the region and, as such, there is a much needed commitment by the City to provide linkages between the City's park system and its transportation network. By developing this plan, the City has taken the first step in establishing a commitment to providing an excellent community to live, work and play. This Plan provides a detailed "trail map" for the City, its citizens, and stakeholders to follow in terms of creating a connected, complete, and comfortable bicycle and pedestrian network. The City of Spring Hill stands to benefit greatly from the implementation of this network with potential benefits to its citizens through the promotion of exercise and personal health, community pride, economic development/growth, and environmental enhancement. By implementing this Plan, the City of Spring Hill will further its efforts to create an attractive, viable, and vibrant community for current and future generations of citizens and stakeholders.

