



Town of Chapel Hill Bicycle & Pedestrian Study

Creating a Vision to Connect the Community



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U.S. Department of Transportation
Federal Highway Administration

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Background

Purpose

The Nashville Region has exploded in growth and development over the last 20 years. As growth continues to expand outward from the urban core, rural communities are beginning to feel the effects and pressures of accommodating new residents, employees, and traffic. The Town of Chapel Hill is no exception. Understanding the need to get in front of this “wave”, Chapel Hill officials have taken a proactive approach to dealing with the inevitable future demands on the Town’s infrastructure. With assistance from the Tennessee Department of Transportation, the Town is taking the necessary steps towards establishing land use policies and development guidelines that will enable Chapel Hill to grow in a way that keeps the integrity of the Town intact, establishes a sustainable pattern of development into the future, and maintains the Town’s identity.

One of the critical elements of a sustainable infrastructure plan is accommodating non-motorized travel. Chapel Hill’s Bicycle and Pedestrian Plan will provide the groundwork for the Town’s residents and visitors to have a choice of safe and reliable transportation without the need of automobiles. Building off of the community’s vision, Chapel Hill’s Bicycle and Pedestrian Plan will establish desired connections between community centers, offices, schools, shopping, and restaurants.

Plan Approach

For this Plan to be successful, it must compliment the Town’s vision. In other words, as growth continues



throughout Chapel Hill, preserving the Town’s unique identity will strengthen community pride and lead to a future Chapel Hill that all can be proud to support. The Vision Plan is presented to serve as a guiding document for future development. Land use components like character types and densities are included in the Vision Plan and set the groundwork for identifying local attractors or destinations.

Once this vision and land use framework is established, the Bicycle and Pedestrian Concept Plan “connects” the community through a variety of facility types. These connections are categorized into short- and long-term projects and prioritized based on immediate need and complexity.



Finally, illustrative examples and guidance on implementation were prepared for high priority projects. By providing visual materials, the Town will be able to continue the Plan’s momentum, and also aid in public meetings and developer discussions.



Anticipated Results

The Chapel Hill Bicycle and Pedestrian Plan provides the Town with a list of recommended bicycle and pedestrian improvements that will help boost the community’s growth and strengthen relationships with potential funding partners. The Plan will also establish a foundation for land use policy development and developer guidelines that support the community’s vision.

Identify Projects

This report includes a listing of potential bicycle and pedestrian projects categorized by facility type and priority. Estimated project costs are

Background

also provided to help the Town gauge the amount of resources that may be required. For the higher-priority projects identified in this report, illustrative renderings have been developed for the purpose of promoting this Plan during the early stages of implementation.

Identify Potential Funding Sources

While the Plan identifies the transportation desires of Chapel Hill, it also lists potential funding sources and grant opportunities the Town can pursue as a way to augment their financial investment of the Plan. Local match percentages range between 5-50%, but provide an opportunity to leverage the Town's limited resources to fund higher-priced projects.

Create a Policy for the Community Vision

This Plan will also be used as a basis for creating or revising policies and guidelines that promote the Town's vision and serve as a platform for decision making - since it represents the values of the community.

Stakeholders

During the development of the Town's Vision Plan and Bicycle / Pedestrian Concept Plan, Town officials solicited input from local agencies and citizens on the Plan's planning process. The following list identifies the key stakeholders and their role in the Plan's development.

State and Federal

Federal Highway Administration (FHWA)

The FHWA provides oversight, guidance, and funding for transportation improvements and ensure federal regulations and ADA standards are met.

TN Department of Transportation (TDOT)

TDOT also provides oversight, guidance, and funding for transportation improvements. Specifically for this effort, TDOT also provided funds for this study to better understand how the community proposes to utilize US-31A as a multi-modal facility.

TN Dept. of Environment & Conservation (TDEC)

TDEC provides funding of recreational facilities and oversees the Tennessee State Park System. Throughout its existence, Henry Horton State Park has held a close relationship with Chapel Hill.

Regional and Local Governments

South Central TN Development District (SCTDD)

The SCTDD assists local municipalities and county governments with identifying community needs, community development strategies, funding research, and plan implementation.

Chapel Hill

The Town of Chapel Hill government has jurisdiction over transportation projects within their city limits.

Marshall County

Marshall County has jurisdiction and represents the unincorporated areas outside of Chapel Hill's city limits. Additionally, Marshall County operates and maintains the public school system.

Residents, Employees, and Patrons of Chapel Hill

Ultimately, the Town's residents, patrons, and employees represent the end-user and will benefit the most from this Plan. Input from this group of stakeholders is critical to the Plan's success.

Background

Regional Changes

Middle Tennessee has experienced substantial growth over the last 30 years. Suburban sprawl has expanded the footprint of what is now considered the Nashville Region. As a result, new employment centers have emerged in Cool Springs, Spring Hill, and La Vergne/Smyrna. Furthermore, the completion of I-840 re-distributed the growth patterns around the region. During this timeframe, Chapel Hill grew from a small, rural town to a suburban community. Figure 1 below displays population densities as they existed in 2010.

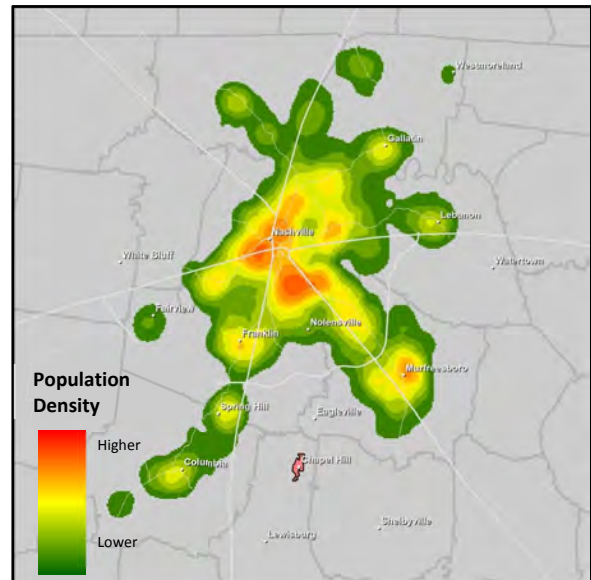
Current and Future Forces

Continuing the trend in growth from the past 30 years, population growth in adjacent counties will have a significant influence on Chapel Hill. With job centers migrating south and affordable land and development opportunities in north Marshall County, the “wave” of suburban sprawl is projected to hit Chapel Hill in the next decade if not sooner. Figure 2 displays the projected growth from adjacent counties advancing into northern Marshall County.

Need for a Vision

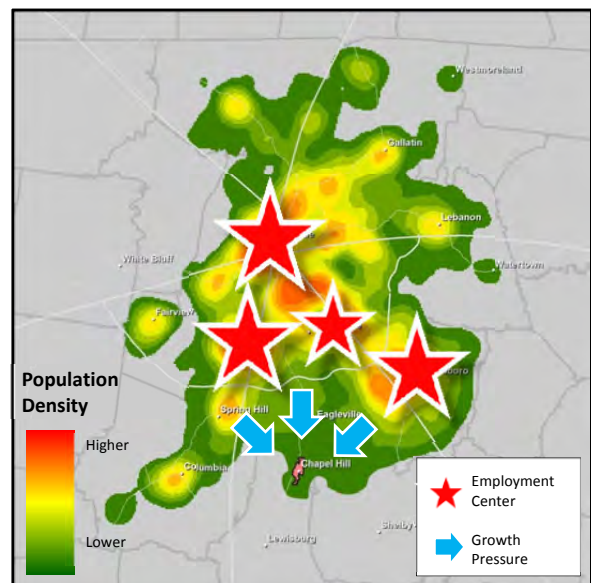
Resulting from current and future forces, growth in Chapel Hill and northern Marshall County is eminent. According to recent population increases shown in Figure 3 the “wave” of suburban sprawl has already hit Chapel Hill.

Figure 1: Population Density (2010)



Source: Nashville Area MPO

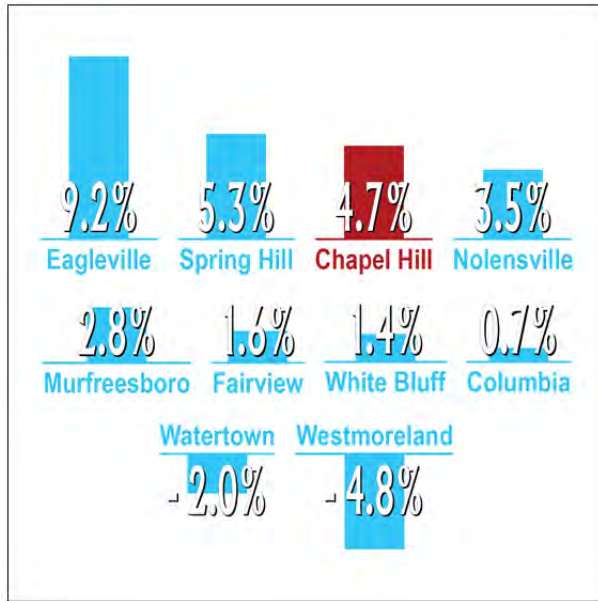
Figure 2: Projected Population Density, Employment Centers, and Surrounding County Influence (2040)



Source: Nashville Area MPO, AECOM

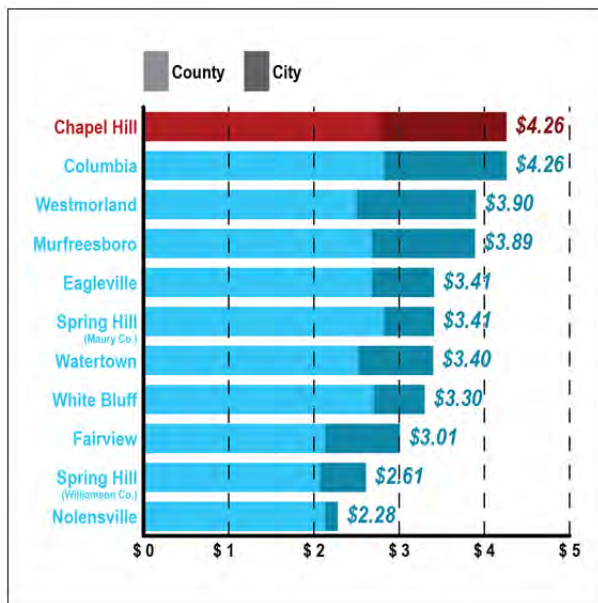
Background

Figure 3: Population Growth Comparisons (2010-2015)



Source: American Community Survey

Figure 4: Property Tax Rate (2017)



Source: TN Comptroller of the Treasury

Property taxes can deter investment if the tax rates offset other advantages of building when compared to regional peers. High property taxes result from the need to provide public services to areas with low property values. As property values increase, tax rates are reduced to ensure a zero-sum increase in taxes collected.

If tax rates reduce to negligible amounts, a tax rate increase can then be imposed to generate new revenue for the city at rates below what was initially set. Currently, property taxes for Chapel Hill are amongst the highest in the Middle Tennessee area (\$1.50 per \$100 of assessed value). Combined with high county property taxes in Marshall County (\$2.76 per \$100 of assessed value), Chapel Hill has the highest property taxes when compared to other peer cities in the region. The high rates are mostly a result of a large concentration of residential property in the area. Figure 4 shows Chapel Hill's property tax rate compared with other peer cities in the Middle Tennessee region. To change this trend, non-residential uses are needed to increase property values as well as sales tax revenue.



Vision Plan

Understanding and accepting that the suburban “wave” will continue to grow, Chapel Hill must position itself to develop in a manner consistent with the community’s goals and values. The first step in determining how Chapel Hill will develop is to define a community vision. This vision will serve as basis for what the community wants to be in the future and will be used when developing the Bicycle and Pedestrian Plan.

Vision Plan Description

The Chapel Hill Vision Plan combines character areas, future land uses, and future attractors to create a unified direction for the community. The Vision not only presents what Chapel Hill desires to become, but also identifies what needs to be protected.

Highway 31A is critical to the growth and success of Chapel Hill. It serves as the central “spine” in which the community depends on for mobility. With the completion of I-840, the importance of US-31A is amplified as it will provide a new connection to the Interstate System. In addition, State Route 99 serves as the traditional connection to the Interstate System. Within the Town’s limits, the Vision Plan distinguishes sections of 31A to best accommodate the anticipated growth pattern. The northern section of 31A is proposed to develop with a Residential character in mind. The central section as will be developed to accommodate a Downtown character; and the southern section as mixed-use. State Route 99 will also be developed as a mixed use character area. Each character area offers a different context and roadway cross sections will need to be altered accordingly. These will be discussed in later sections of this Plan.

As discussed in previous sections, Chapel Hill’s population (and employment) is expected to grow substantially over the next 10 to 15 years. To accommodate the emerging growth while maintaining community traditions and values, land development must be properly planned to best utilize available resources. Building from existing development patterns and identified conservation areas, the Town’s Vision Plan helps identify future land uses to define where different land uses and densities would be suitable. The Vision Plan identifies the northern portion and areas beyond the study area as low density residential. A combination of neighborhood conservation, institutional/public facilities, and a higher density “downtown” district define the central section. The southern section transitions to from higher density mixed use to employment center and commercial corridor.



Chapel Hill Vision

In 2040, Chapel Hill is a small suburban town with a population of approximately 5,000 people. Horton Highway serves as the central "spine" for the community, connecting us to jobs and opportunities in the broader region and serving as the foundation for a well-designed, multimodal transportation network that enhances our economic well-being and improves our quality of life. We are a community that is built on the strength of our public institutions and our well-designed single family neighborhoods and we have learned that more dense housing helps to keep our community affordable for new families. New employment opportunities have emerged for our residents, based on our marketing of our town's gigabit internet accessibility and our strengthened relationship with Henry Horton Recreational area. Eco-tourism and corporate business activities at Henry Horton are now central to our economy.

Growth has presented challenges for us over the last 20 years, but we have not let that growth change our core values: Chapel Hill is a small town that is a safe, wholesome, welcoming and charming place for our families and friends to live, work and play.

Roadway Characters

Residential



- Residential Characteristics:
- Roadways With Wider Shoulders
 - Consistently Spaced Access Points
 - Larger Lot Sizes

Downtown

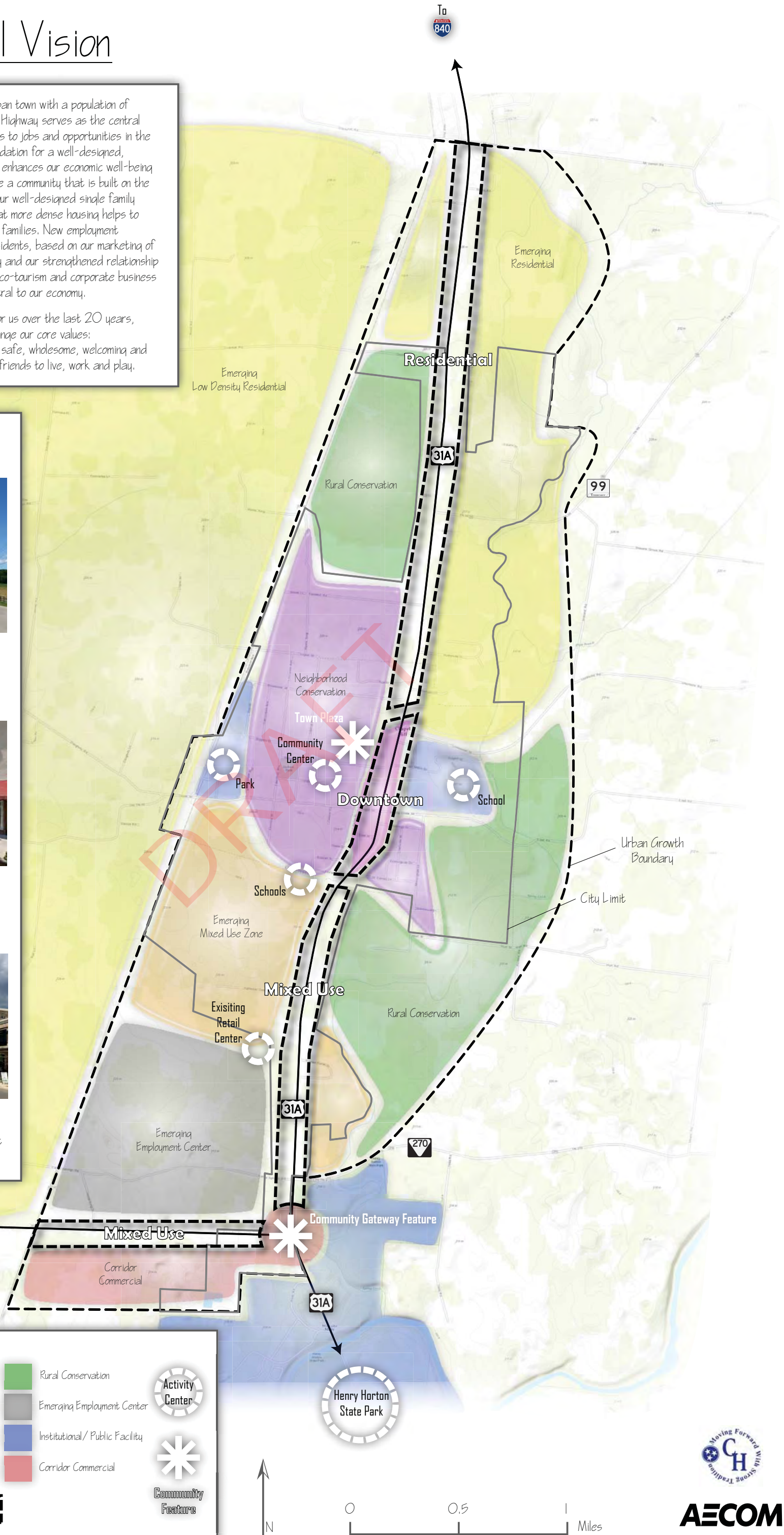


- Downtown Characteristics:
- Minimal Building Setbacks
 - Wide Sidewalks
 - Traffic Buffers

Mixed Use

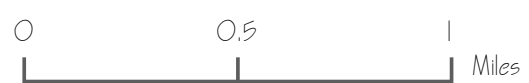


- Mixed-Use Characteristics:
- Multi-Family Residential and Commercial Developments Co-exist
 - Higher Densities
 - Multi-Modal Infrastructure



Legend

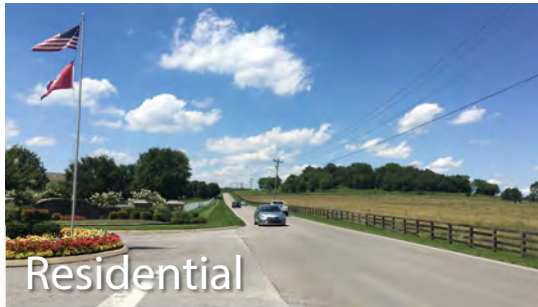
- | | | |
|--|--------------------------------|--|
| Emerging Residential (1-4 units / acre) | Rural Conservation | |
| Emerging Mixed Use Zone (Up to 5 units / acre) | Emerging Employment Center | |
| Neighborhood Conservation (Up to 2 units / acre) | Institutional/ Public Facility | |
| "Downtown" District | Corridor Commercial | |
| Roadway Character | | |



Vision Plan - Roadway Characters

Roadway Characters

The Chapel Hill Vision Plan utilizes the concept of character areas to describe the context of how major corridors relate to the adjacent land. Each character area identifies a different design form that is suitable for the land use types that it supports. The three character types are described below.



Residential

The Residential character area has a lower density development pattern and is predominately comprised of single family homes. Structures in this character area are set further back from the roadway and should be oriented to face the major thoroughfare. This character area should act as the gateway to the community and should have an identifiable and welcoming feature, such as a continuous fence.



Downtown

The Downtown character area has a higher density development pattern and is comprised of mainly commercial and institutional land uses. Structures in the Downtown character area are set adjacent to the roadway and are also oriented to face the major thoroughfare. Parking should be provided behind the structures. This character area should provide a sense of place, offering a variety of activities while creating the community an identity.



Mixed-Use

The Mixed-Use character area has a combination of low and high density development patterns and offers both commercial and residential land uses. Structures in the Mixed-Use character area are set adjacent to the roadway and are oriented facing the major thoroughfare. Like the Downtown character area, parking should be provided behind the buildings – away from the road. This character area should offer a wide variety of land uses for the different needs of the public user.

Chapel Hill Vision - Future Land Uses and Attractors

Future Land Uses

The Chapel Hill Vision Plan also identifies future land uses to help guide the type and density of development that is desired for the different parts of the town.

Emerging Residential / Emerging Low Density Residential

The Emerging Residential future land use consists of new multi- and single-family homes. The average density should be between one and four units per acre. Emerging Low Density Residential consists of single family homes only, with average densities of one to two units per acre.

Emerging Mixed-Use Zone

The Emerging Mixed-Use zone future land use consists of new multi- and single-family homes, as well as office and retail establishments. The average density should be up to five units per acre plus any non-residential. Developments within this zone should be master planned and include an appropriate mixture of varying uses. Residential and non-residential can be located within the same structure. When this occurs, it is recommended that the non-residential units are at ground level.

Neighborhood Conservation

The Neighborhood Conservation future land use consists of existing neighborhoods with single family homes. The average density is up to two units per acre. A concerted effort should be made to protect these neighborhoods and all new development in these areas should integrate with the traditional development pattern.

"Downtown" District

The "Downtown" District future land use consists of new and existing office, retail and institutional establishments. The average density is higher with at least two-story structures and exclusively non-residential. This future land use should provide a sense of place, offering a variety of activities while creating the community an identity.

Rural Conservation

The Rural Conservation future land use consists of existing farms and single family homes. The average density is less than one unit per two acres. A concerted effort should be made to protect these rural areas and all new development in these areas should remain as a low density development pattern.

Emerging Employment Center

The Emerging Employment Center future land use consists of new office and other commercial establishments. The average density can vary depending on the specific requirements of the occupant.

Institutional/ Public Facility

The Institutional/ Public Facility future land use consists of new and existing public amenities. This land use is typically government owned property and is utilized for parks, schools, community centers, and libraries.

Corridor Commercial

The Corridor Commercial future land use consists of new commercial and retail establishments. The average density is lower and structures rarely exceed one-story heights. Typical developments would include chain restaurants, big-box stores, hotels, and entertainment venues such as movie theaters.

Chapel Hill Vision - Future Land Uses and Attractors

Future Attractors

The Chapel Hill Vision Plan identifies future attractors to indicate potential activity centers and community features. The Bicycle and Pedestrian Concept Plan provides the blueprint for how connections will be made between the future attractors below:



Community Features

- Plazas
- Roundabouts
- Public Gathering Areas



Activity Centers

- Schools
- Parks
- Retail
- Community Centers

Connecting the Community

Based on the Vision Plan, the Town's Bicycle and Pedestrian Concept Plan will be used to connect the community's attractors through a variety of facility types. The connections established in the Concept Plan are further segmented into projects where their costs are estimated and priorities are developed.

Connectivity - Bicycle & Pedestrian Concept Plan

Bicycle & Pedestrian Concept Plan Description

The Bicycle and Pedestrian Concept Plan builds from the vision to connect the community to existing and future attractors. The Concept Plan not only presents what connections desired by cyclist and pedestrians, but also identifies what type of connection is best suited for the expected user. The Concept Plan is then used to generate a prioritized list of projects to address the identified connections.



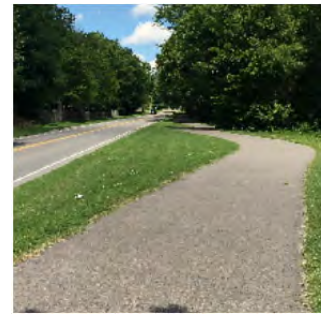
Sidewalk



Bike Lane



Greenway



Multi-Use Path



As previously stated, Highway 31A is critical to the growth and success of Chapel Hill. It serves as the central “spine” in which the community depends on for mobility. Highway 31A also provides access to community core activity space near the Depot Street intersection. Building adequate, non-motorized infrastructure in this area that includes sidewalk amenities for adjacent neighborhoods and attractors is essential to the safety and health of the community. On and off street multi-modal paths provide safe and effective transportation options with bike routes along the state routes and multi-use trails in future developments. A proposed greenway along Spring Creek will provide a recreational facility as well as an eco-tourist connection with Henry Horton State Park.

Chapel Hill’s Bicycle and Pedestrian Plan looks to achieve the following objectives:

- ➊ Provide safe and effective multi-modal paths both on and off the streets;
- ➋ Connect current and future major activity centers;
- ➌ Develop a sidewalk “framework that gets children to and from school and connects the neighborhood to other amenities;
- ➍ Provide a trail system that connects parks and serves as an alternative travel route for residents and visitors;
- ➎ Establish eco-tourism “journey trails” that focus more on recreational trips and less on efficient mobility;’
- ➏ Provide bicycle-friendly facilities that operate within a mixture of dedicated lanes and shared routes.

Bicycle & Pedestrian Concept Plan

The Town of Chapel Hill's **vision** is to provide safe and efficient multi-modal options that connect residents and visitors to places they want to go.

With support from our partners at the State and County, **Chapel Hill's Bicycle and Pedestrian Plan** will begin to set the foundation for a multi-modal transportation network designed to provide residents and visitors easy access to the Town's parks, schools, community center, shops, and neighborhoods. In addition, this Plan will help improve the overall health of the community.

With these goals in mind, Chapel Hill's Bicycle and Pedestrian Plan will look to achieve the following objectives:

- * Provide safe and effective multi-modal paths both on and off the streets;
- * Connect current and future major activity centers;
- * Develop a sidewalk "framework" that gets children to school and connects the neighborhood to other amenities;
- * Provide a trail system that connects parks and serves as an alternative travel route for residents and visitors;
- * Establish eco-tourism "journey trails" that focus more on recreational trips and less on efficient mobility;
- * Providing bicycle-friendly facilities that operate within a mixture of dedicated lanes and shared routes.

Facility Types:

- | | | | |
|--|------------------------|--|-----------------|
|  | Sidewalk |  | Greenway |
|  | Bike Route / Bike Lane |  | Multi-use Trail |

Facility Types

Sidewalk



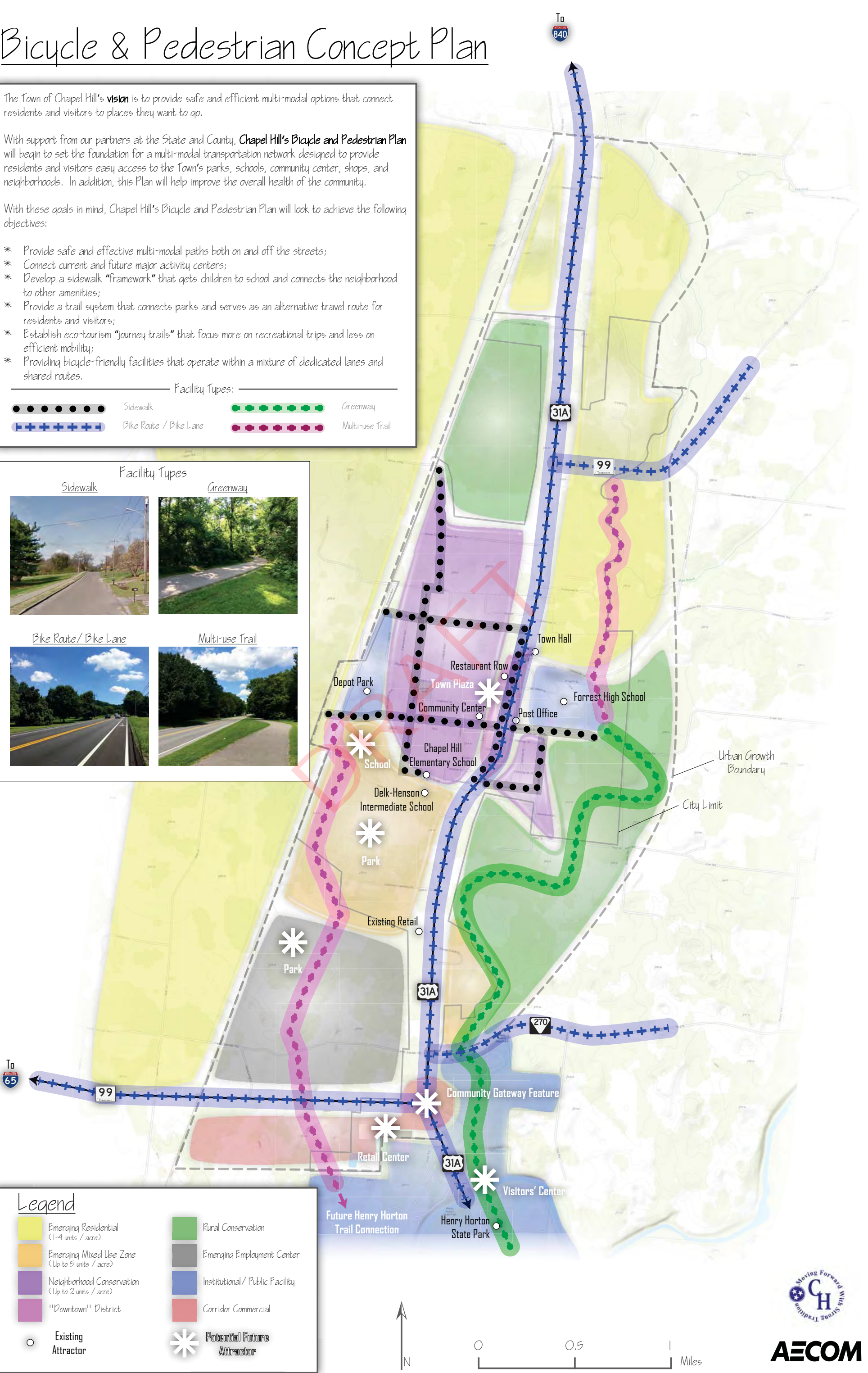
Greenway



Bike Route / Bike Lane



Multi-use Trail



Legend

- | | | | |
|---|--|---|---------------------------------|
|  | Emerging Residential (1-4 units / acre) |  | Rural Conservation |
|  | Emerging Mixed Use Zone (Up to 5 units / acre) |  | Emerging Employment Center |
|  | Neighborhood Conservation (Up to 2 units / acre) |  | Institutional / Public Facility |
|  | "Downtown" District |  | Corridor Commercial |
|  | Existing Attractor |  | Potential Future Attractor |



Bicycle & Pedestrian Concept Plan - Facility Types

Facility Types

The following facility types offer bicycle and pedestrian connections throughout the community using the development patterns which emerge from the Vision Plan.

Pedestrian Facilities

Sidewalks provide dedicated space within the public right-of-way for use by pedestrians. A sidewalk is located adjacent to the roadway and can be used in either direction by persons travelling on foot or by wheelchair. The standard sidewalk width is five feet. This allows for the effective movement of two passing pedestrians, as well as meeting ADA guidelines for wheelchair accessibility. A 2 to 4 foot buffer space is recommended between the roadway and the sidewalk. For safety and comfort reasons, sidewalks are physically separated from the roadway by either buffer space or a curb.

Sidewalks

Sidewalks without curb and gutter are typical in rural settings. A larger buffer space is recommended between the roadway and the sidewalk as vehicular speeds increase. The presence of curb and gutter is typically reserved for denser, urban areas. Although sidewalks can be placed directly next to a curb, it is recommended to include a two foot buffer between the curb and sidewalk. In most cases where sidewalks were missing from the original roadway design, underground drainage structures need to be constructed. This can lead to significant increases in project cost.

Bicycle Routes

Bicycle routes provide space for bicyclists within the public right-of-way through the use of pavement markings and /or signage. Bike routes are typically located adjacent to travel lanes with bicyclists traveling in the same direction as vehicular traffic. Bike lanes provide a dedicated space for cyclists along a bike route.

Bike Routes and Bike Lanes

Bike routes can be either be shared space in the roadway or a dedicated facility. Bike routes that share space with vehicular traffic, are designated by a shared lane marking, (often referred to as a “sharrow” pavement markings), and/or signage indicating that the roadway is a bike route.



Shared Lane Marking

Bike lanes designate a dedicated space for bicyclists within the public right-of-way through the use of pavement markings and signage. FHWA recommends a minimum 5-foot bike lane measured from the face of the curb, or 4-feet when a gutter pan is included. Bike lanes are delineated by a solid white stripe and approved bike lane pavement symbol. Buffers and/or rumble strips can be used to improve the safety and comfort of cyclists on roadways with higher vehicular speeds.

Bicycle & Pedestrian Concept Plan - Facility Types

Shared Use Facilities

Shared-use facilities provide non-motorized travel options to area residents and visitors. These facilities can be utilized for different travel purposes, (e.g., transport, recreation), and can be traversed in either direction of travel.

Multi-use Trails

Multi-use trails are dedicated paths for non-motorized transportation to provide a user mobility options to arrive at their desired destination. These trails can be within roadway right-of-way but are typically separate. If within the right-of-way, multi-use trails should be spaced more than five feet from the roadway. TDOT prefers multi-use paths to a minimum of 12 feet wide.

Greenways

Greenways are also dedicated paths for non-motorized transportation but are primarily used for recreation. These “journey trails” facilitate eco-tourism and should focus on the “experience” of the trip and less on efficient mobility to reach a destination. Preferred greenway widths are also 12 feet. The surface of a greenway path can vary. The decision is usually based on factors such as context, constructability, and cost.

Bicycle & Pedestrian Concept Plan - Projects

Projects

Infrastructure improvement plans are typically grouped into phases or milestones. These phases contain groups of projects arranged by geographical location, improvement type, expected date of completion, or priority. The projects listed in Chapel Hill Bicycle & Pedestrian Concept Plan are grouped by priority, but has maintained the ability to reorganize by project type or geography - depending on funding source eligibility.

Project Phasing

The projects in this Plan fall into three phases. In addition, some projects are phased based on developer-driven timelines, or “quick fix” projects. The Special Project identified in this Plan is the future Spring Creek Greenway, which will require the cooperation and coordination of several different agencies and funding sources, and will occur over the course of time.

Development-driven projects also occur over time, but are implemented as properties are developed. The “quick fix” projects in this plan consist of low cost improvements such as pavement markings.

Project Costs

Projects costs were estimated in this plan using typical items needed in the construction of each different type of facility. An estimated value was derived for each item, based on the 2016 TDOT average unit pay items on a per linear foot basis. The costs presented represent the estimated cost for the entire length of the project. It is important to note that the estimated costs do not include the purchase of

right-of-way, easements and/or any additional costs associated with utility relocation.

Estimated costs by phase are shown in Table 1. Figure 5 displays the projects grouped by facility type. The projects identified in this Plan and their locations are shown on the following maps in Figures 6 and 7.

Table 1: Estimated Costs, by Phase

Phase	Estimated Cost
One	\$ 2,366,000
Two	\$ 528,000
Three	\$ 2,127,000
Development Driven Projects	\$ 1,456,000
Special Projects	\$ 1,983,000
Total	\$ 8,460,000

Figure 5: Estimated Costs by Facility Type


Pedestrian Facilities
\$ 4,917,000


Bicycle Routes
\$ 104,000


Shared-Use Facilities
\$3,439,000

Bicycle & Pedestrian Projects - by Phase

Figure 6

Phase 1							
Project	Street	Improvement Type	From	To	Length (Feet)	\$/LF	Estimated Cost**
S-1*	Highway 31A	Bike Route	Rocketeer Boulevard	Henry Horton Trail Connection	10,398	\$3	\$33,000
S-2*	Highway 31A - East side	Bike Route	Unionville Road	City Limits	736	\$3	\$2,000
S-3*	Highway 31A	Bike Route	Broadview Street	City Limits	7,901	\$3	\$25,000
S-4*	Sylvester Chun Highway (SR-99)	Bike Route	Multi-use Trail connection	Highway 31A	2,514	\$3	\$8,000
S-5*	Eagleville Pike (SR-99)	Bike Route	Highway 31A	City Limits	2,209	\$3	\$7,000
1-1	Highway 31A - East side	Sidewalk - C/G and Bike Route	Unionville Road	Spring Creek Street	1,867	\$263	\$491,000
1-2	Highway 31A - East side	Sidewalk - C/G and Bike Route	Spring Creek Street	Forrest Lane	1,656	\$263	\$435,000
1-3	Highway 31A - West side	Sidewalk - C/G and Bike Route	Broadview Street	Depot Street	2,618	\$263	\$688,000
1-4	Highway 31A - West side	Sidewalk - C/G and Bike Route	Depot Street	Rocketeer Boulevard	2,567	\$263	\$675,000
Total							\$2,366,000

Phase 2							
Project	Street	Improvement Type	From	To	Length (Feet)	\$/LF	Estimated Cost**
2-1	Depot Street	Sidewalk	Depot Park	Highway 31A	3,414	\$102	\$350,000
2-2	Spring Creek Street	Sidewalk	Highway 31A	Morningside Drive	982	\$102	\$101,000
2-3	Unionville Road	Sidewalk	Highway 31A	School Entrance	755	\$102	\$77,000
Total							\$528,000

Phase 3							
Project	Street	Improvement Type	From	To	Length (Feet)	\$/LF	Estimated Cost**
3-1	Broadview Street	Sidewalk	Depot Park	Highway 31A	3,816	\$102	\$391,000
3-2	Feedmill Road/Logue Street	Sidewalk	Broadview Street	Feedmill Road	2,621	\$102	\$269,000
3-3	Lawrence Avenue/Emmons Street	Sidewalk	School Entrance	Broadview Street	3,703	\$102	\$380,000
3-4	Rocketeer Boulevard	Sidewalk - C/G	Emmons Street	Highway 31A	2,247	\$260	\$584,000
3-5	Forrest Lane	Sidewalk	Highway 31A	Morningside Drive	1,497	\$102	\$153,000
3-6	Unionville Road	Sidewalk	School Entrance	Spring Creek Greenway	1,078	\$102	\$110,000
3-7	Morningside Drive	Sidewalk	Spring Creek Street	Forrest Lane	1,542	\$102	\$158,000
3-8	Spring Creek Street	Sidewalk	Morningside Drive	School Entrance	805	\$102	\$82,000
Total							\$2,127,000

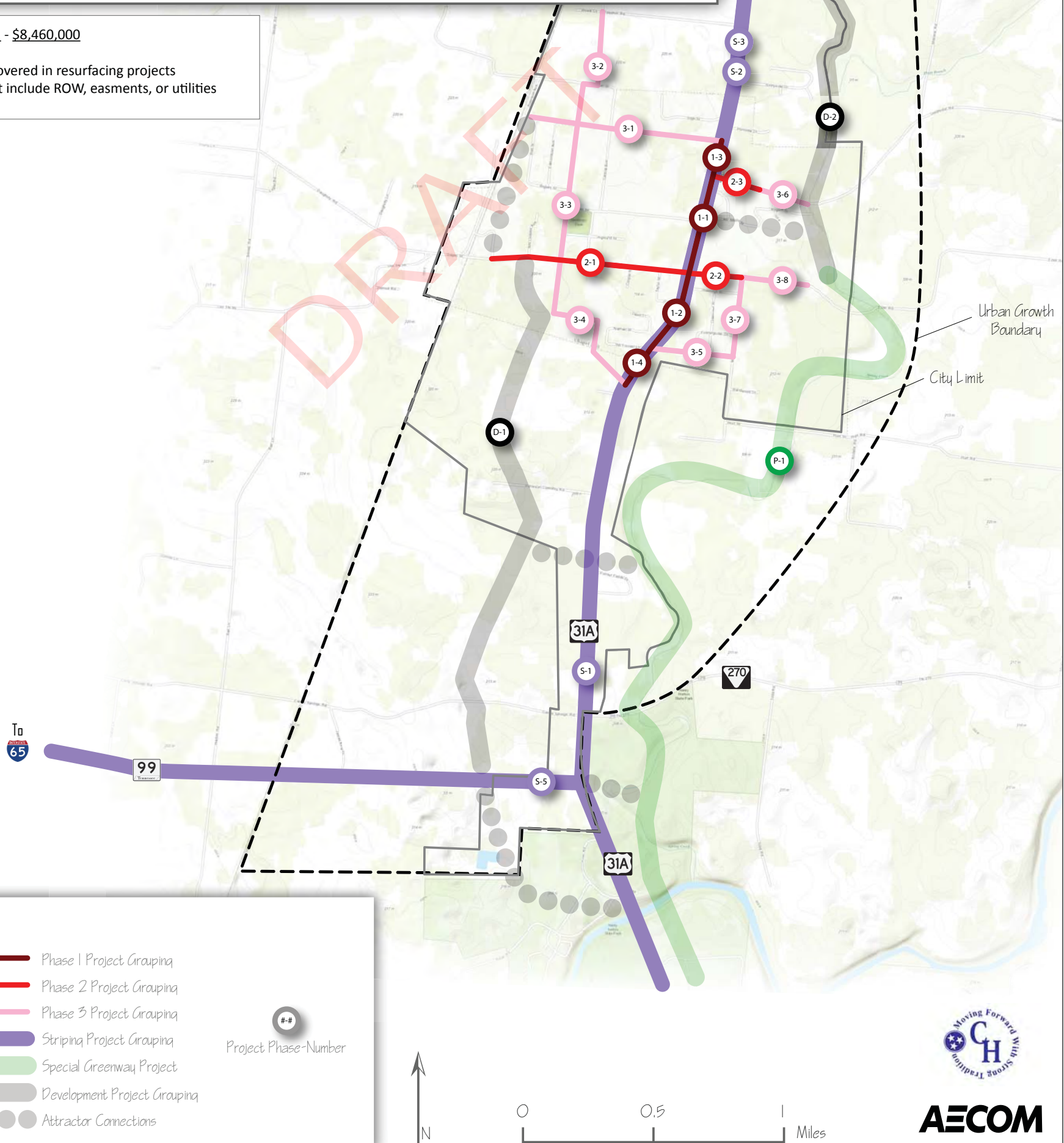
Development Driven							
Project	Street	Improvement Type	From	To	Length (Feet)	\$/LF	Estimated Cost**
D-1	Southwest Multi-use Path	Multi-use Path	Depot Street	Sylvester Chun Highway (SR-99)	10,143	\$92	\$933,000
D-2	Northeast Multi-use Path	Multi-use Path	Unionville Road	Eagleville Pike (SR-99)	5,684	\$92	\$523,000
Total							\$1,456,000

Special Project							
Project	Street	Improvement Type	From	To	Length (Feet)	\$/LF	Estimated Cost**
P-1	Spring Creek Greenway	Greenway	Wilhoite Mill Trail Parking	Spring Creek Street	21,560	\$92	\$1,983,000

Total Plan Cost* - \$8,460,000

*Cost may be covered in resurfacing projects

**Cost does not include ROW, easments, or utilities



Legend

- Phase 1 Project Grouping
- Phase 2 Project Grouping
- Phase 3 Project Grouping
- Striping Project Grouping
- Special Greenway Project
- Development Project Grouping
- Attractor Connections
- ## Project Phase-Number



Bicycle & Pedestrian Projects - by Type

Figure 7

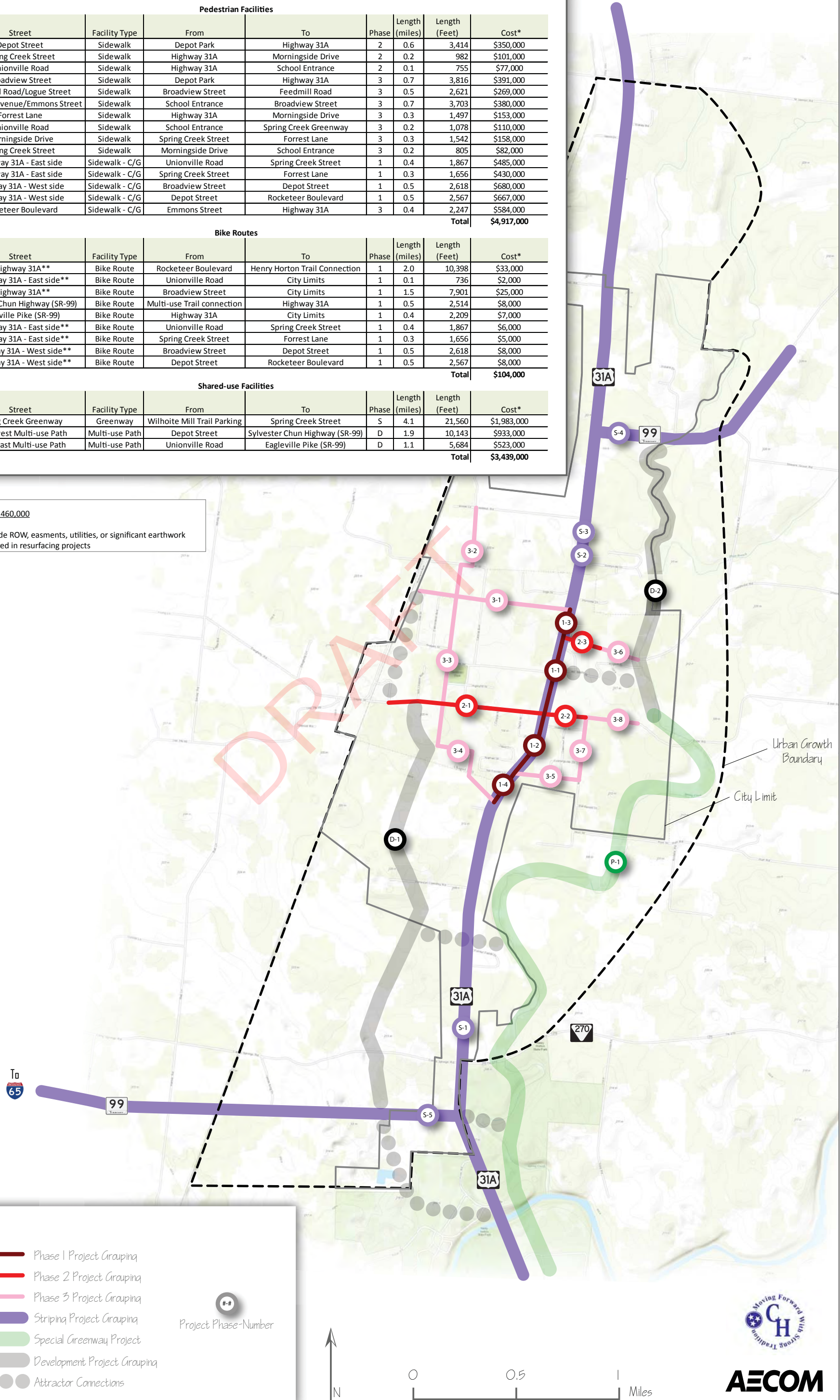
Pedestrian Facilities								
Project	Street	Facility Type	From	To	Phase	Length (miles)	Length (Feet)	Cost*
2-1	Depot Street	Sidewalk	Depot Park	Highway 31A	2	0.6	3,414	\$350,000
2-2	Spring Creek Street	Sidewalk	Highway 31A	Morningside Drive	2	0.2	982	\$101,000
2-3	Unionville Road	Sidewalk	Highway 31A	School Entrance	2	0.1	755	\$77,000
3-1	Broadview Street	Sidewalk	Depot Park	Highway 31A	3	0.7	3,816	\$391,000
3-2	Feedmill Road/Logue Street	Sidewalk	Broadview Street	Feedmill Road	3	0.5	2,621	\$269,000
3-3	Lawrence Avenue/Emmons Street	Sidewalk	School Entrance	Broadview Street	3	0.7	3,703	\$380,000
3-5	Forrest Lane	Sidewalk	Highway 31A	Morningside Drive	3	0.3	1,497	\$153,000
3-6	Unionville Road	Sidewalk	School Entrance	Spring Creek Greenway	3	0.2	1,078	\$110,000
3-7	Morningside Drive	Sidewalk	Spring Creek Street	Forrest Lane	3	0.3	1,542	\$158,000
3-8	Spring Creek Street	Sidewalk	Morningside Drive	School Entrance	3	0.2	805	\$82,000
1-1	Highway 31A - East side	Sidewalk - C/G	Unionville Road	Spring Creek Street	1	0.4	1,867	\$485,000
1-2	Highway 31A - East side	Sidewalk - C/G	Spring Creek Street	Forrest Lane	1	0.3	1,656	\$430,000
1-3	Highway 31A - West side	Sidewalk - C/G	Broadview Street	Depot Street	1	0.5	2,618	\$680,000
1-4	Highway 31A - West side	Sidewalk - C/G	Depot Street	Rocketeer Boulevard	1	0.5	2,567	\$667,000
3-4	Rocketeer Boulevard	Sidewalk - C/G	Emmons Street	Highway 31A	3	0.4	2,247	\$584,000
							Total	\$4,917,000

Bike Routes								
Project	Street	Facility Type	From	To	Phase	Length (miles)	Length (Feet)	Cost*
S-1	Highway 31A**	Bike Route	Rocketeer Boulevard	Henry Horton Trail Connection	1	2.0	10,398	\$33,000
S-2	Highway 31A - East side**	Bike Route	Unionville Road	City Limits	1	0.1	736	\$2,000
S-3	Highway 31A**	Bike Route	Broadview Street	City Limits	1	1.5	7,901	\$25,000
S-4	Sylvester Chun Highway (SR-99)	Bike Route	Multi-use Trail connection	Highway 31A	1	0.5	2,514	\$8,000
S-5	Eagleville Pike (SR-99)	Bike Route	Highway 31A	City Limits	1	0.4	2,209	\$7,000
1-1	Highway 31A - East side**	Bike Route	Unionville Road	Spring Creek Street	1	0.4	1,867	\$6,000
1-2	Highway 31A - East side**	Bike Route	Spring Creek Street	Forrest Lane	1	0.3	1,656	\$5,000
1-3	Highway 31A - West side**	Bike Route	Broadview Street	Depot Street	1	0.5	2,618	\$8,000
1-4	Highway 31A - West side**	Bike Route	Depot Street	Rocketeer Boulevard	1	0.5	2,567	\$8,000
							Total	\$104,000

Shared-use Facilities								
Project	Street	Facility Type	From	To	Phase	Length (miles)	Length (Feet)	Cost*
S-1	Spring Creek Greenway	Greenway	Wilhoite Mill Trail Parking	Spring Creek Street	S	4.1	21,560	\$1,983,000
D-1	Southwest Multi-use Path	Multi-use Path	Depot Street	Sylvester Chun Highway (SR-99)	D	1.9	10,143	\$933,000
D-2	Northeast Multi-use Path	Multi-use Path	Unionville Road	Eagleville Pike (SR-99)	D	1.1	5,684	\$523,000
							Total	\$3,439,000

Total Plan Cost* - \$8,460,000

*Cost does not include ROW, easments, utilities, or significant earthwork
 **Cost may be covered in resurfacing projects



Legend

- Phase 1 Project Grouping
- Phase 2 Project Grouping
- Phase 3 Project Grouping
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- ## Project Phase-Number



First Steps

Implementation

Implementation of Chapel Hill's Bicycle & Pedestrian Plan will require the cooperation and coordination of state and federal governments as well as the Chapel Hill community. It is important to identify project partners early to help identify any potential issues or opportunities.

Partners

Each project will require different partners to adequately address the many aspects of implementation; however, it is crucial that TDOT, FHWA, and local residents are involved in all stages of project development.

Depending on the project type and location, additional insight may be required by environmental agencies such as the Tennessee Department of Environment and Conservation (TDEC), and the Environmental Protection Agency (EPA).

Funding Programs

The project type, cost, and amount of local match determine the eligible funding programs that can be pursued on a project. Different funding programs are administered through varying State departments. Table 2 below lists funding programs available for bicycle and pedestrian improvements in Tennessee.

Table 2: Bicycle and Pedestrian Eligible Grant Programs

Agency	Grant	Eligibility	Local Match	Award Amount
TN Department of Transportation	Multi-Modal Access Grant	Meet ADA standards, be on or create a direct connection to a state route, provide direct access to a transit hub	5%	Not to Exceed \$ 1 million
TN Department of Transportation	Congestion Mitigation and Air Quality Improvement Program	Projects that improve air quality and reduce congestion	20%	Varies
TN Department of Transportation	Transportation Alternatives Program	Must be one of 16 eligible activities and must relate to surface transportation	20%	\$ 1.2 million average
TN Department of Transportation	Surface Transportation Block Grant	Must be included in the Tennessee Statewide Transportation Improvement Program	20%	Varies
TN Department of Environment and Conservation	Recreation Educational Service Grants (Local Parks and Recreation Fund)	Purchase of land for parks, natural areas, greenways and the purchase of land for recreational facilities. Funds also may be used for trail development and capital projects in parks, natural areas and greenways	50%	Varies
TN Department of Environment and Conservation	Recreation Educational Service Grants (Recreational Trails Program)	Land acquisition for trails, trail maintenance, trail construction, trail rehabilitation and for trail head support facilities	20%	Varies
TN Department of Environment and Conservation	Recreation Educational Service Grants (Land and Water Conservation Funds)	Acquisition and development of public outdoor recreation areas and facilities	50%	Varies

First Steps

Stages of a Project

Large infrastructure projects are typically developed in stages. With each stage, more detail is added to allow for better cost and scheduling estimates. The three major stages of a project are as follows:

1. Vision/Planning Level

This stage represents the “birth” of a project and is the stage of projects in this document. Projects at this stage define project type and general location. Specific alignments, materials used, phasing, and funding sources are typically unknown during this stage and are subject to change. Projects in this stage are typically long range in nature and have not been officially pursued for design and construction, but may have been recommended for a planning-level study.

2. Conceptual/Programming Level

This stage continues the momentum gathered from the Vision/Planning Level stage and begins to refine the project details, such as right-of-way needs and estimated cost. Actual alignments, materials, phasing, and funding sources will be narrowed down, but not necessarily defined. Projects in this stage are typically near-term in nature and have had some level of study performed that contained a list of preferred recommendations.

3. Design/Construction Level

This stage further refines the details established in the Conceptual/Programming Level stage and defines the specific design plans including alignment, termini, right-of-way acquisition, easements, utility relocations, materials used, phasing and

funding. The project should also contain a detailed and accurate cost estimate. Projects in this stage usually have a committed funding source are typically listed in a near-term Improvement Plan.

Illustrative Projects

As discussed earlier, the Concept Plan produced a list of bicycle and pedestrian projects for Chapel Hill at the vision/planning level. For this study, the projects identified in Phase 1 and 2 of the Concept Plan are considered higher priority projects and have been visualized and to assist with timely progression to the next stage of development and ultimately implementation. Illustrative sheets have been created for the following projects:

Highway 31A Streetscape

The Highway 31A Streetscape consists of bicycle and pedestrian improvements along Highway 31A between Rocketeer Boulevard and Unionville Road. Three unique cross-sections were used to accommodate both



bicycle and pedestrian movements through the “spine” of Town.

Depot Street Sidewalk



The Depot Street Sidewalk project connects the newly developed Depot Park on the west side of the Town to Highway 31A through the construction of a 5-foot sidewalk.

Highway 31A Streetscape

This project extends from Rocketeer Boulevard to Unionville Road and is divided into three sections. The first section begins at Rocketeer Boulevard and continues north to Downtown Chapel Hill. The southern section contains two 12-foot travel lanes, 5-foot bike lanes adjacent to a new curb and gutter, and 5-foot sidewalks on both sides. The Downtown section begins near Ezell Street and terminates north of Depot Street to the Fire Station. This section contains two 12-foot travel lanes, curb and gutter, a 6-foot paved buffer, and 12-foot sidewalks on either side of the road. The northern section begins at the Fire Station and terminates at Unionville Road – near the Town Hall. This section includes two 12-foot lanes, curb and gutter, a 6-foot grass strip, and 12-foot sidewalks. Complementing the roadway investments are planter boxes, trees, benches and seating areas for cafes. The proposed improvements create a unique and identifiable space for the residents and visitors of Chapel Hill to enjoy.

Downtown Chapel Hill (Existing)



Downtown Chapel Hill (Proposed)



Depot Street Sidewalk

Depot Street includes few existing features within the available 36 feet of Right-of-Way, which generally spans from Highway 31A to Depot Park. The existing features include one 16-foot travel lane and mailboxes of adjacent property owners.

The improvements in the proposed typical section include the addition of a five foot buffered sidewalk within the Right-of-Way. The sidewalk is buffered with by a bio-filtration ditch to minimize storm runoff. The proposed improvements create a connection for the residents and visitors of Chapel Hill from the downtown district to residential neighborhoods and community attractors such as Depot Park and the Community Center.

Depot Street (Looking East)



