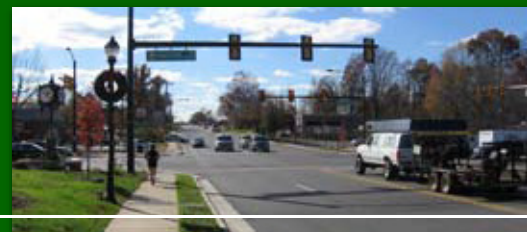




MINT HILL

COMPREHENSIVE TRANSPORTATION PLAN



Kimley-Horn
and Associates, Inc.

FINAL — MAY 2008

Acknowledgements

CITIZENS TRANSPORTATION COMMITTEE

Jack Bryan
Tom Gatz
Tony Long
Jeff Freeman
Roy Fielding

The development of the *Mint Hill Comprehensive Transportation Plan* was a collaborative process that involved numerous stakeholders, including the Town of Mint Hill, Mecklenburg Union Metropolitan Planning Organization, North Carolina Department of Transportation and Mint Hill Citizens.

TOWN OF MINT HILL

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SPECIAL THANKS TO

Commissioner Brenda McRae
Commissioner Tina Ross

Town of
Mint Hill
Comprehensive Transportation Plan

Executive Summary



The community of Mint Hill realizes the importance of transportation planning and recognizes the challenges associated with future growth and development of the area. As such, the citizens have conducted the following *Mint Hill Comprehensive Transportation Plan* which includes transportation recommendations and implementation strategies to best accomplish the goals and objectives identified by the Town. This plan was developed in coordination with local staff, Mint Hill citizens, NCDOT, Mecklenburg Union Metropolitan Planning Organization (MUMPO), and Charlotte Department of Transportation (CDOT).

The study area encompasses approximately 36 square miles which the Town can reasonably expect to influence. Due to the size and comprehensive nature of this plan, an extensive public involvement process was conducted which included two public workshops and a fully active Citizen Transportation Committee. Surveys were used to solicit feedback from public workshop participants, the committee and citizens who participated online. Information gained through this process was used to develop transportation recommendations that addressed the community's concerns and vision for the future of Mint Hill. Chapter 3 provides a more detailed explanation of the process and vision, as well as the results of public engagement efforts.

The *Mint Hill Comprehensive Transportation Plan* addresses the NCDOT required CTP elements: Highways, Bicycles, and Pedestrians; Transit; and Freight. NCDOT standardized maps representing each of these elements are also included in the Appendix of the plan. In addition, the Town of Mint Hill considered community strategic corridors and collector street planning. Each of these elements has specific recommendations that are discussed in Chapter 4.

The Highway element includes specific improvement recommendations for roadways that were classified within the NCDOT standard classifications. The improvement recommendations were based on needs identified by the public and local staff as well as deficiencies found by the Metrolina Regional Travel Demand Model. Figure 4.1 displays a summary of the highway recommendations by NCDOT classification type and segment (descriptions can be found in Chapter 4). The Town took additional interest in twelve community strategic corridors that were identified by the Citizens Advisory Committee. Each of these corridors was considered more closely and feedback from the public, committee, and local staff was solicited to appropriately address the issues that were identified.

The *Mint Hill Comprehensive Transportation Plan* also includes a Collector Street element that identifies recommendations for connections throughout the study area. The collector street element is expected to be used extensively in the site plan approval process to ensure a consistent, connected network of collector streets that will be implemented incrementally as development occurs.

The implementation of this network will ease congestion and increase safety on the main arterials throughout the Town by distributing traffic and allowing for more accessible routes.

In addition, the *Downtown Mint Hill Master Plan* is summarized and transportation recommendations within the *Downtown Mint Hill Overlay Code* have been coordinated to maintain the intent of the *Master Plan*. Figure 4.16 displays this coordination.

The Bicycle and Pedestrian element recommendations are also summarized in Chapter 4. Systems level bicycle and pedestrian plans are presented. General policy recommendations are provided to aide in the implementation of each plan. Additionally, this plan recommends that the Town complete comprehensive bicycle and pedestrian plans through the NCDOT Division of Bicycle and Pedestrian Transportation.

The Transit and Freight elements summarize recommendations that will improve the ridership, efficiency, and connectivity of the current systems. The Transit element recommends additional fixed-route services and a park-and-ride facility. The Freight element recommends future connections and truck routes. More detailed information about these recommendations can be found in Chapter 4.

Chapter 5 provides general policy recommendations, reviews funding opportunities, and presents an action plan to assist local decision-makers and planning staff in the implementation of the *Mint Hill Comprehensive Transportation Plan*. Table 5.1 clearly defines action items to be accomplished and identifies key stakeholders as well as the lead party for each action item. The Town should use this action plan matrix as a guide in implementing the *Mint Hill Comprehensive Transportation Plan*.

The first action item identified in the action plan matrix requires the adoption of the *Mint Hill Comprehensive Transportation Plan*. As with any planning document, it is anticipated that Mint Hill will continually update and maintain the information presented in this plan; therefore it is expected that the plan is subject to change without notice, but that the vision and intent of the plan be maintained and implemented.

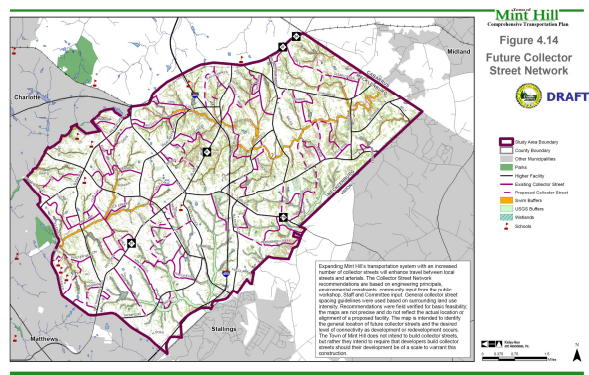
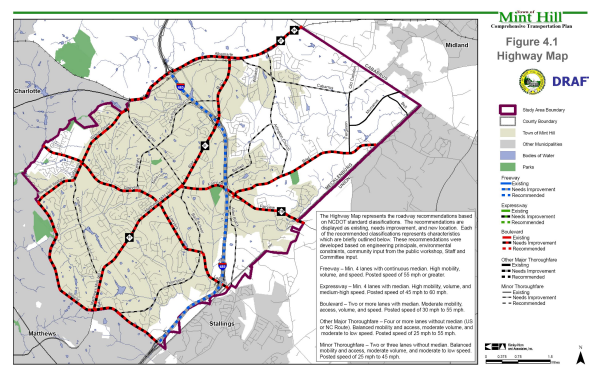


Table 5.1 – Action Plan Matrix

Item	Lead	Stakeholder	Priority	Timeline	Status
1. Adopt the Mint Hill Comprehensive Transportation Plan	Town of Mint Hill	Town Council	High	2024	Completed
2. Develop a comprehensive transportation plan for the Town of Mint Hill	Town of Mint Hill	Town Council	High	2024	In Progress
3. Develop a comprehensive transportation plan for the Town of Mint Hill	Town of Mint Hill	Town Council	High	2024	In Progress
4. Develop a comprehensive transportation plan for the Town of Mint Hill	Town of Mint Hill	Town Council	High	2024	In Progress
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Chapter 1 — Introduction and Background



*Source

Introduction

The citizens of Mint Hill have expressed a desire to implement a transportation plan that will add to the quality of life and unique character of the Town. The resulting Mint Hill Comprehensive Transportation Plan (CTP) that follows represents the transportation recommendations which were determined to best accomplish the goals and objectives of the Town. These recommendations include project and policy suggestions as well as implementation and funding strategies related to transportation improvements. This plan was developed in coordination with the North Carolina Department of Transportation (NCDOT), and Mecklenburg Union Metropolitan Planning Organization (MUMPO) and reflects the hard work and dedication of a Citizens' Advisory Committee as well as area residents and business owners.

The study area encompasses approximately 36 square miles, including the current Town limits as well as the Extra Territorial Jurisdiction (ETJ). To accommodate the needs of the entire study area, an extensive public involvement process was conducted which included two public workshops and a fully involved Citizens' Advisory Committee which met on a regular basis throughout the planning process. In addition, surveys were conducted as a means to collect public opinions on a variety of topics related to transportation. Chapter 3 provides more detailed results of the public involvement process and survey results.

The Mint Hill CTP addresses the NCDOT required comprehensive transportation plan Elements: Highways, Bicycles and Pedestrians, Transit and Freight. Maps representing each of these elements are also included in the Appendix of the CTP. In addition, the Town of Mint Hill considered community strategic corridors and collector street planning. Each of these elements has specific recommendations that are discussed in Chapter 4 of this document.

History and Background

Mint Hill is a Town with roots as a small agricultural area that has transformed into a burgeoning bedroom community of the greater Charlotte area. As Mint Hill continues to grow, transportation infrastructure is likely to emerge as a priority.

The Town of Mint Hill is located in the eastern reaches of Mecklenburg County, bounded to the north by Albemarle Road and Cabarrus County and bounded to the south by the Idlewild Road and Union County. Its proximity to the City of Charlotte (approximately 12 miles), strong sense of community and affordability make it an attractive location for those seeking the conveniences and culture of a large metropolitan area while maintaining a small town

atmosphere. Predominantly a residential community, Mint Hill features an emphasis on growing family amenities, including good schools, numerous churches and recreational facilities.

Originally founded in 1917 with a population of 2,284, the Town has continued to grow, reaching a population of 17,871 in 2005. Since 2000, when the population was 14,922, the population has grown an average of 3.6% per year.

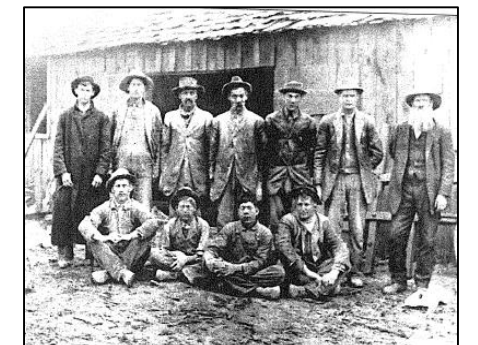
Town Origins

European settlers who came to the area originally built their cabins and farms near many of the streams located in the Rocky River area. The area was attractive to farmers due to the abundance of large tracts of land and a mild climate. Farmers in the area found cotton to be an appropriate crop for the area. The crop could be harvested and taken to the nearby Allen railroad station.

The community's population began to grow when gold was discovered nearby in the early 1800s. Miners took the gold they found to Surface Hill Mine (shown in the image to the top right) to be examined. This increase in population required the addition of more trades, such as blacksmiths and merchants. The middle image to the right shows John Nisbet Rodgers with his employees at his blacksmith shop on Albemarle Road. In 1895, Dallas A. Henderson, a local merchant, built a general store located on Fairview Road. This store is believed to be one of

the first retail sites in the area.

Farming maintained its roots and livestock continued to be raised by farmers like Watson Morris who owned the dairy farm located on Lebanon Road depicted in the bottom image to the right. Morris milked nearly one hundred cows by hand during the 1930's and 1940's before automatic machines were installed to assist the dairy operation.



*Source



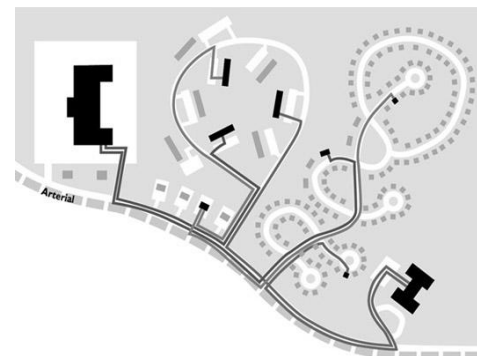
*Source

Introduction and Background

The community continued to grow and develop as a small town with easy access to larger metropolitan amenities. Mint Hill has recently gained easier access to Charlotte with the completion of Interstate I-485. This growth in infrastructure has begun to spur significant commercial development which will likely further establish Mint Hill as a regional destination.

Development and Transportation

Pre-War and Post-War Development Patterns



Typical post-war development patterns

In Mint Hill, as in other communities across the United States, the post-war (WWII) development pattern has impacted the transportation system. In the past, most state, county, and local governmental agencies focused on planning, constructing and maintaining thoroughfare networks — leaving collector street and local street issues to be addressed by private real estate and development entities.

Times have changed. Collector and local street planning is being emphasized more often in local and regional planning efforts through specific collector/local street plans, small area plans, street guidelines and numerous other planning initiatives.

A profound shift in development patterns began to occur in the 1940's as development strayed from the creation of neighborhood units with interconnected street systems and a complementary mixture of land uses in favor of a regionally-oriented, single-use development pattern. Traditional town development patterns declined and homogeneous, residential suburbs began to form. As suburbs replaced rural areas, commercial development followed in response to market conditions. In the same trend, office and employment centers decentralized and relocated to the suburbs.

A number of factors contributed to this new pattern of development including:

- Increased homeownership rates attributed to financing incentives for post-war military personnel and tax incentives associated with home mortgage interest deductions
- Increased automobile sales
- Market trends
- National trends in land use policy
- Unregulated growth

In addition to the trends being established throughout the country, Mint Hill also faced the challenges presented by environmental constraints due to the numerous creeks and streams throughout the Town.

Vehicular Travel in Modern Mint Hill

In the past 150 years, travel modes and patterns have changed dramatically in Mint Hill. Horse, mule-drawn wagons/carts and foot travel dominated the 1800's and early 1900's. The image to the right depicting a horse-drawn carriage on Lawyers Road was taken in 1945. The later part of the 20th century saw the rise of the automobile, which brought about a revolution in travel and an entirely new set of challenges. First mass-produced and made affordable to the American public by Henry Ford, the automobile entered Mint Hill in earnest in the early 1900's. With a private automobile, it became easier to cover longer distances in short periods of time. This offered people the opportunity not only to cover greater distances for leisure, but also to live greater distances from work, thereby fueling the expansion of Mint Hill into the suburban pattern described above. As automobile travel became more commonplace, automobile service stations began to open. The Wilgrove Service Station, pictured to the right, started serving customers in 1927.



*Source

Today, travel networks in Mint Hill are focused on the automobile. The area's highway infrastructure continues to evolve as a way of addressing the needs of changing traffic and development patterns. Major highways in the area include:

- Interstate I-485
- NC Highway 51 (Matthews-Mint Hill Road)
- NC Highway 24/27 (Albemarle Road)

Introduction and Background

Each of these highways carries a high percentage of through traffic – i.e., traffic with neither an origin nor destination within Mint Hill. The area includes several major thoroughfares such as Lawyers, Idlewild, Lebanon and Wilgrove-Mint Hill/Fairview Roads, which carry local as well as some through traffic.

Interstate I-485

Given the nature of growth in the greater Charlotte area and the need for travel infrastructure to accommodate that growth, the region has proactively planned for future travel needs. Interstate I-485 is a planned 67-mile beltway located along the outer fringes of Mecklenburg County designed to serve the Charlotte metropolitan region. Providing an alternative route to bypass the City of Charlotte, Interstate I-485 will facilitate traffic from Interstate I-77 and Interstate I-85. It is anticipated that economic development will boom as the beltway passes through suburban areas. In November, 2003 the segment of Interstate I-485 running through Mint Hill opened, providing five interchanges to serve the community.

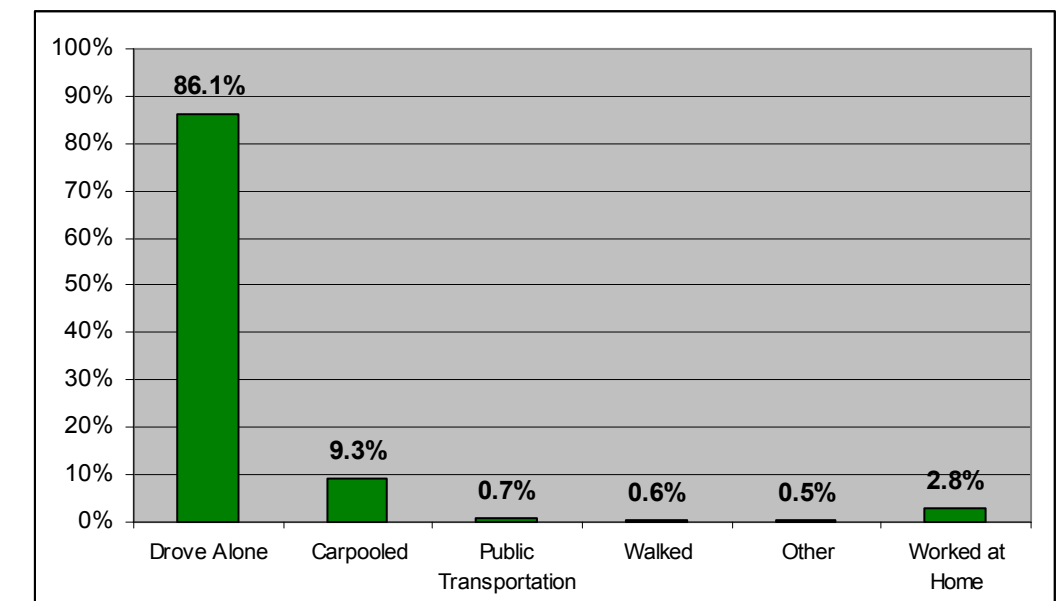
Mint Hill's Commute

Underscoring the need for communities to plan for future travel needs is the data collected as part of the U.S. Census 2000. "Commuting to Work" information was collected to study travel characteristics of the American population. Statistics for Mint Hill (shown in Figure 1.1) indicate that the most popular mode of transportation to and from work was the privately owned vehicle, driven alone (86.1%). Of the survey respondents, 9.3% rideshared or carpooled to work, while only 0.7% of respondents reported using public transportation and 0.6% reported walking to work. Only 0.5% of the survey respondents reported using other means of transportation to travel to work and 2.8% of respondents said they worked from home. These statistics are comparable to the surrounding areas and State averages. However, Mint Hill has a slightly higher than average population that commutes alone to work; 86.1% versus the State average of 79.4%.

Information compiled in 2000 by the North Carolina State Data Center (NCSDC) indicated that approximately 8,000 citizens are employed in Mint Hill and spend an average of 30.2 minutes commuting to work each day.

With so many residents spending so much time on the road, now is the time for Mint Hill to examine its transportation system, consider alternatives and prepare for the future.

Figure 1.1 – Mint Hill Commute to Work



****Source**

Sources:

**Images of America: Mint Hill*, published by Arcadia Publishing in Charleston, SC, with a copyright date of 2005. The book was compiled by the Mint Hill Historical Society.

** US Census 2000

Chapter 2 – Existing Conditions

Introduction

The *Mint Hill Comprehensive Transportation Plan* represents the transportation recommendations that were developed through a process which considered current conditions, trends and issues prevalent in Mint Hill today and the potential challenges of tomorrow. Mint Hill and the immediate surrounding areas have recently been faced with challenges spurred by significant growth. This trend is expected to continue as Mint Hill reinforces its reputation as a dynamic community by addressing new challenges and providing valuable opportunities. As a community which accommodates catalysts for growth like The Bridges at Mint Hill, Mint Hill is in an excellent position to address emerging issues.

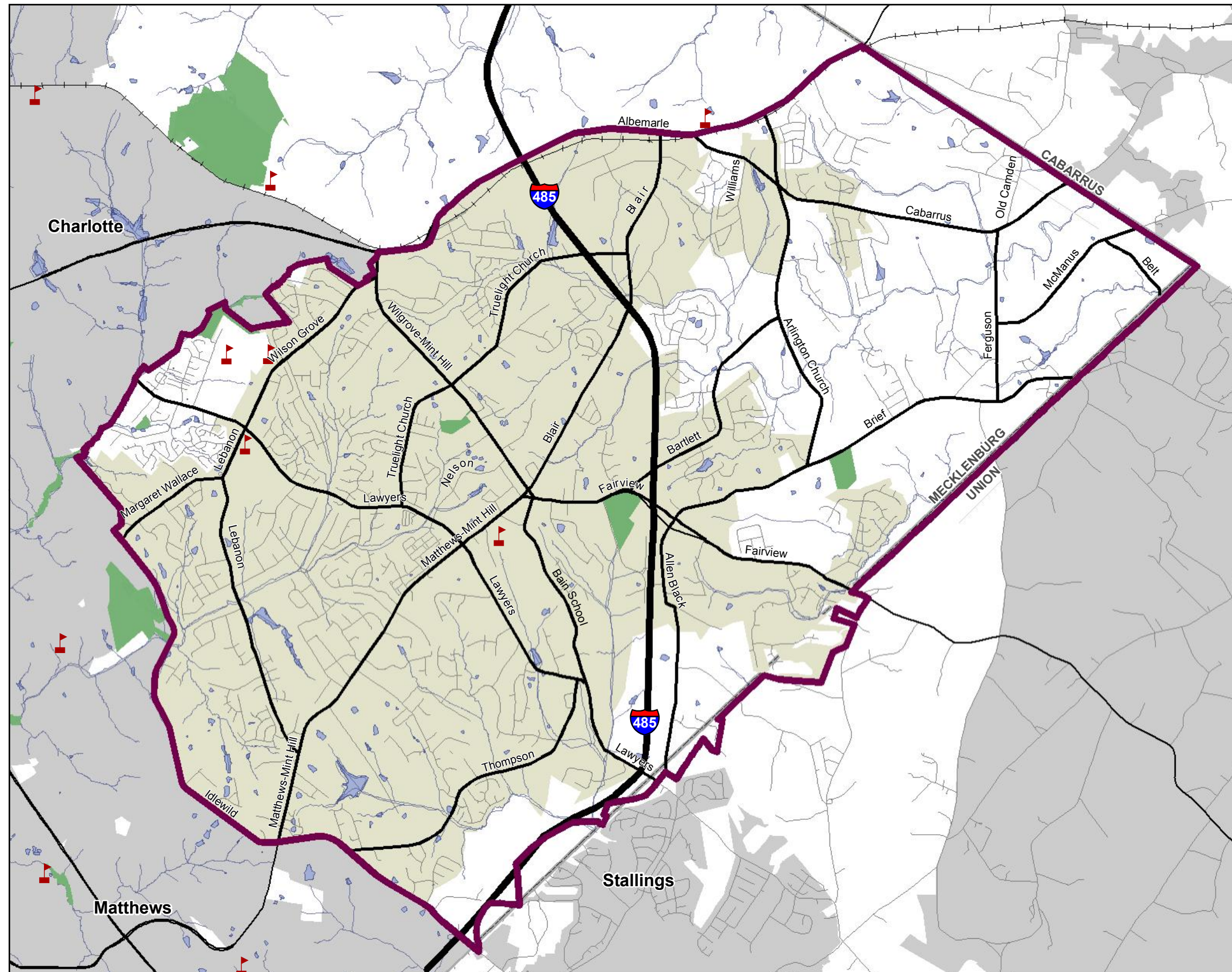
Developing the CTP is one indication of community efforts to support growth proactively. This potential for growth is shown by the Plan's study area (illustrated in Figure 2.1), which includes Mint Hill and the areas in which the Town can reasonably be expected to implement change.

This CTP addresses the area transportation needs by identifying both general and specific transportation system improvement recommendations and strategies. It is important to acknowledge that these recommendations are intended to support a diversified transportation system that considers not only the automobile, but also the bicyclist, the pedestrian and the transit patron. The CTP considers the Town's previous and on-going planning work, including the Town of Mint Hill 2000 Land Use Plan, the Mecklenburg County Greenways Plan, the Downtown Mint Hill Master Plan and the Bridges at Mint Hill Master Plan.

The CTP is not intended to simply plan for the sake of planning, but to plan ways to implement projects to benefit and build the community. As a result, the *Mint Hill Comprehensive Transportation Plan* considers practical issues and includes discussion on strategies, methods and sources of funding for implementation.



Figure 2.1
Study Area Map



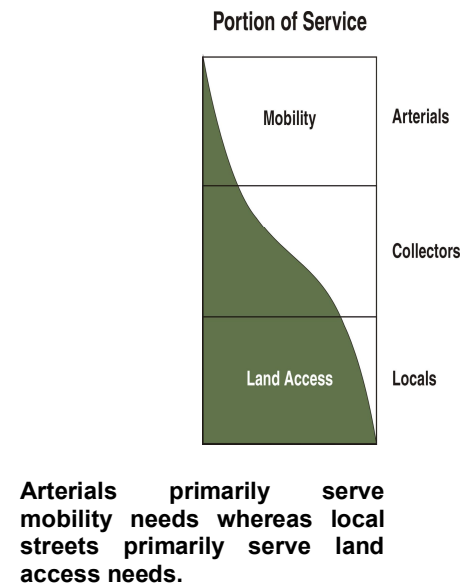
- Study Area Boundary
- County Boundary
- Town of Mint Hill
- Other Municipalities
- Bodies of Water
- Parks
- Schools

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0 0.45 0.9 1.8
Miles



Existing Conditions



Roadway Element

Functional Classification

Functional classification is the process by which streets of different characteristics and usage are grouped into broad categories depending on the service they are intended to provide. These categories are defined by the roadway character and traffic operation of streets. North Carolina Department of Transportation (NCDOT) criteria were used to evaluate and identify existing and future highways. Classifying Mint Hill's street system required close examination of roles that each street performs in the overall transportation system. Classification groups typically include:

- **Arterials** — These facilities provide high mobility, operate at higher speeds (45 mph and above), provide significant roadway capacity, have a great degree of access control and serve longer distances. Arterials include facilities with full access control such as freeways and expressways, as well as boulevards and major thoroughfares. Examples of arterials include I-485 and Albemarle Road.
- **Collectors** — These facilities bridge the gap between arterials and locals by intercepting traffic from the locals and expediting their movement. They provide critical connections in the roadway network. Collectors operate at lower posted speeds (35 mph or less) and serve shorter distances than arterials. Examples of collectors include Truelight Church Road and Arlington Church Road.
- **Locals** — These facilities provide greater access and the least amount of mobility. They are typically connected to one another or to collector streets and provide a high level of access to adjacent land uses/developments (i.e., frequent driveways). Locals serve short distance travel and have low posted speed limits (25 to 35 mph). Most subdivision streets are considered local streets.

To classify Mint Hill's streets, a set of qualitative and quantitative criteria was applied uniformly to the street system. These criteria were provided by the NCDOT Planning Branch and included information relating to access and control, intersection control, mobility function, types of trips served, number of travel lanes and other characteristics that define the particular class street. These classifications were used when considering possible facility upgrades and recommendations. The NCDOT classification criteria follows:

- **Freeways**
 - Functional purpose – high mobility, high volume, high speed
 - Posted speed – 55 mph or greater
 - Cross-section – minimum four lanes with continuous median
 - Multi-modal elements – high occupancy vehicle (HOV)/high occupancy toll (HOT) lanes, busways, truck lanes, park-and-ride facilities at or near interchanges, adjacent shared use paths (separate from roadway and outside rights-of-way (ROW))
 - Type of access control – full control of access
 - Access management – interchange spacing (urban – one mile; non-urban – three miles); at interchanges on the intersecting roadway, full control of access for 1,000 ft. or for 350 ft. plus 650 ft. island or median; use of frontage roads and rear service roads
 - Intersecting facilities – interchange or grade separation (no signals or at-grade intersections)
 - Driveways – not allowed
- **Expressways**
 - Functional purpose – high mobility, high volume and medium-high speed
 - Posted speed – 45 to 60 mph
 - Cross-section – minimum four lanes with median
 - Multi-modal elements – HOV lanes, busways, very wide paved shoulders (rural), shared use paths (separate from roadway but within right-of-way (ROW))
 - Type of access control – limited or partial control of access
 - Access management – minimum interchange/intersection spacing 2,000 ft.; median breaks only at intersections with minor roadways or to permit U-turns; use of frontage roads, rear service roads; driveways should be limited in location and number; use of acceleration/deceleration or right turning lanes
 - Intersecting facilities – interchange; at-grade intersection for minor roadways; right-in/right-out and/or left-over or grade separation (no signalization for through traffic)
 - Driveways – right-in/right-out only; direct driveway access via service roads or other alternate connections
- **Boulevards**
 - Functional purpose – moderate mobility, access and volume and medium speed
 - Posted speed – 30 to 55 mph
 - Cross-section – two or more lanes with median (median breaks allowed for U-turns per current *NCDOT Driveway Manual*)

Existing Conditions

- Multi-modal elements – bus stops, bike lanes (urban) or wide paved shoulders (rural), sidewalks (urban – local government option)
- Type of access control – limited control of access, partial control of access or no control of access
- Access management – two lane facilities may have medians with crossovers, medians with turning pockets or turn lanes; use of acceleration/deceleration or right turning lanes are optional; for abutting properties, use of shared driveways, internal out parcel access and cross-connectivity between adjacent properties is strongly encouraged
- Intersecting facilities – at grade intersections and driveways; interchanges at special locations with high volumes
- Driveways – primarily right-in/right-out, some right-in/right-out in combination with median leftovers; major driveways may be full movement when access is not possible using an alternate roadway
- Other Major Thoroughfares –
 - Functional purpose – balanced mobility and access, moderate volume, low to medium speed; will include all US and NC routes not designated as freeway, expressway or boulevard
 - Posted speed – 25 to 55 mph
 - Cross-section – four or more lanes without median (US and NC routes may have less than four lanes)
 - Multi-modal elements – bus stops, bike lanes/wide outer lane (urban) or wide paved shoulder (rural), sidewalks (urban)
 - Type of access control – no control of access
 - Access management – continuous left turn lanes; for abutting properties, use of shared driveways, internal out parcel access and cross-connectivity between adjacent properties is strongly encouraged
 - Intersecting facilities – intersections and driveways
 - Driveways – full movement on two lanes with center turn lane as permitted by the current *NCDOT Driveway Manual*
- Minor Thoroughfares –
 - Functional purpose – balanced mobility and access, moderate volume, low to medium speed
 - Posted speed – 25 to 45 mph
 - Cross-section – ultimately three lanes (no more than one lane per direction) or less without median
 - Multi-modal elements – bus stops, bike lanes/wide outer lane (urban) or wide paved shoulder (rural), sidewalks (urban)
 - ROW – no control of access
 - Access management – continuous left turn lanes; for abutting properties, use of shared driveways, internal out parcel access and

cross-connectivity between adjacent properties is strongly encouraged

- Intersecting facilities – intersections and driveways
- Driveways – full movement on two lane roadway with center turn lane as permitted by the current *NCDOT Driveway Manual*

System Deficiencies

Figure 2.2 illustrates 2005 average annual daily traffic (AADT) volumes on study roadways in the Mint Hill area. Corridors that displayed noticeably high traffic volumes included sections of the following (vehicles per day [vpd]):

- Interstate I-485 between Lawyers Road and Fairview Road – 45,000 vpd
- Interstate I-485 between Fairview Road and Blair Road – 42,000 vpd
- Interstate I-485 between Blair Road and Albemarle Road – 40,000 vpd
- Lebanon Road south of Lawyers Road – 20,000 vpd
- Albemarle Road east of Wilgrove-Mint Hill Road – 19,000 vpd
- Lawyers Road west of Wilson Grove Road – 18,000 vpd

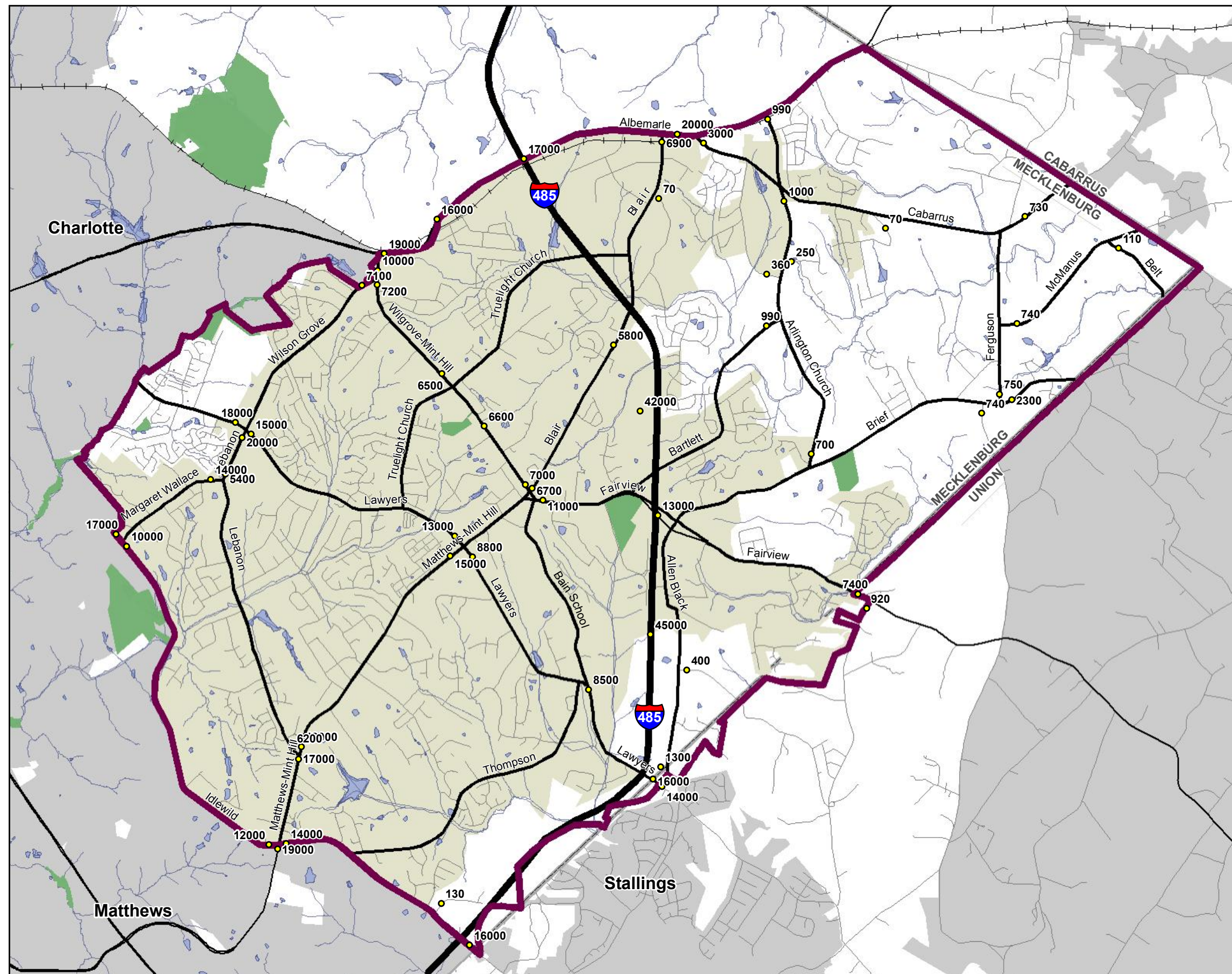
The rapid growth in Mint Hill has resulted in peak hour traffic congestion along many roadway corridors. During morning and afternoon peak travel periods, sections of commuter corridors are frequently congested. In some cases, travel speed is reduced to a crawl. Several roadways in the study area are heavily congested including sections of Albemarle, Lawyers and Lebanon Roads. These roadways experience heavy traffic and long delays during peak hours. See **Figure 2.3** which illustrates existing unacceptable levels of service also known as existing deficiencies.



According to the Highway Capacity Manual, level of service (LOS) is a measure used to describe the operating conditions that drivers experience in a traffic stream. LOS is designated by letter, similar to grades in school, with A representing the best conditions and F the worst. LOS A is generally free-flow with few delays, while LOS F constitutes highly congested, stop-and-go conditions. LOS D or better is generally considered acceptable. At LOS D, the roadway is busy but traffic is still flowing at a reasonable speed.

Figure 2.2

2005 Annual Average Daily Traffic (AADT) Map










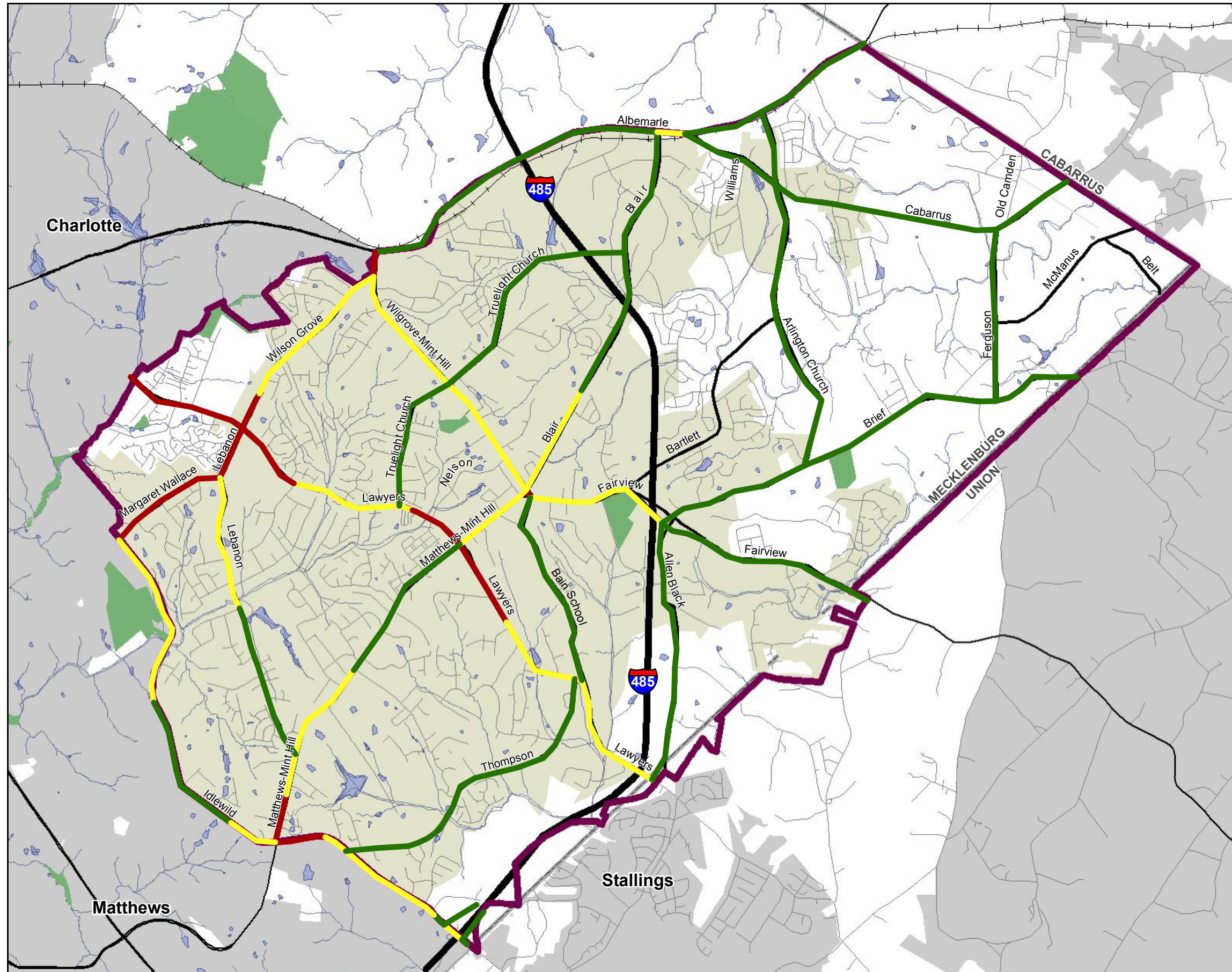
-
- | | |
|--|----------------------|
|  | Study Area Boundary |
|  | County Boundary |
|  | Town of Mint Hill |
|  | Other Municipalities |
|  | Bodies of Water |
|  | Parks |
|  | 2005 AADT |

Figure 2.3
2000 Level of Service
(LOS)



-
- Study Area Boundary
- County Boundary
- Town of Mint Hill
- Other Municipalities
- Bodies of Water
- Parks
- LOS A - B
- LOS C - D
- LOS E - F

Existing Conditions

Traffic Safety and Crash History

Assessing traffic safety is a key component to any successful transportation plan and a thorough examination of crash history and traffic patterns can typically predict key locations where an improvement in traffic safety will be beneficial. According to data published by NCDOT, the cost of an average crash, to the community, is typically \$47,000 [according to data for NCDOT Crash Cost based on 2006 dollars (published August 7, 2007)]. This cost includes medical care, emergency services, victim work loss, employer cost, traffic delay, property damage and the overall quality of life. Costs for various types of crashes are provided in **Table 2.1**. Crash Type A refers to injuries that are disabling, Type B injuries are those which are evident, but not disabling and Type C injuries are possible injuries, perhaps not reported at the time of the crash.

Table 2.1 – NCDOT Cost per Crash Statistics

Crash Type	Cost Per Crash (2003 dollars)
Fatal Crash	\$4,000,000
A Injury Crash	\$240,000
B Injury Crash	\$69,000
C Injury Crash	\$33,000
Property Damage Only Crash	\$4,700
Average Crash	\$47,000
Non-Fatal Injury Crash	\$51,000
Severe Injury Crash (F+A)	\$1,500,000
Moderate Injury Crash (B+C)	\$43,000

***NCDOT Traffic Safety Systems Management**

A traditional approach to determining locations for safety countermeasures involves a thorough study of the number of crashes in a location and the associated crash rate for the location. The Mint Hill analysis built on this approach, while factoring in other key components such as traffic volumes, overall severity of crashes and facility type. The inclusion of these components allowed a priority ranking system to be established that will help money earmarked for safety projects be spent in the most efficient and cost-effective manner. Crashes on segments of roadway and intersections of major roadways were examined, as described in the following report.

Existing Conditions

Intersection Data

NCDOT provided crash data for segments of facilities with a classification higher than a collector street from January 1, 2004 to December 31, 2006. Priority rankings for this analysis were established, as shown in **Table 2.2**.

The priority rankings were developed using a scoring method based on AADT¹, total crashes, equivalent property damage only (EPDO) rate², crash rate³ and functional classification. A score was assigned representing each characteristic based on a local distribution of the characteristic itself. For example, EPDO is a measure of the property damage that occurs in a crash weighted by injury type, was considered throughout the study area and a score was assigned to each segment based on a comparison of the EPDO within the study area. A complete breakdown of the crash statistics and the scoring system can be found in the **Appendix** of this report.

Crashes at intersections of major roadways were examined, as described here in **Table 2.2**. The analysis performed to rank crash location priorities was used as a guide in the recommendations. Mitigation measures were considered.

Table 2.2 — Intersection Priority Rankings
Crash Data Analyzed January 1, 2004 to December 31, 2006

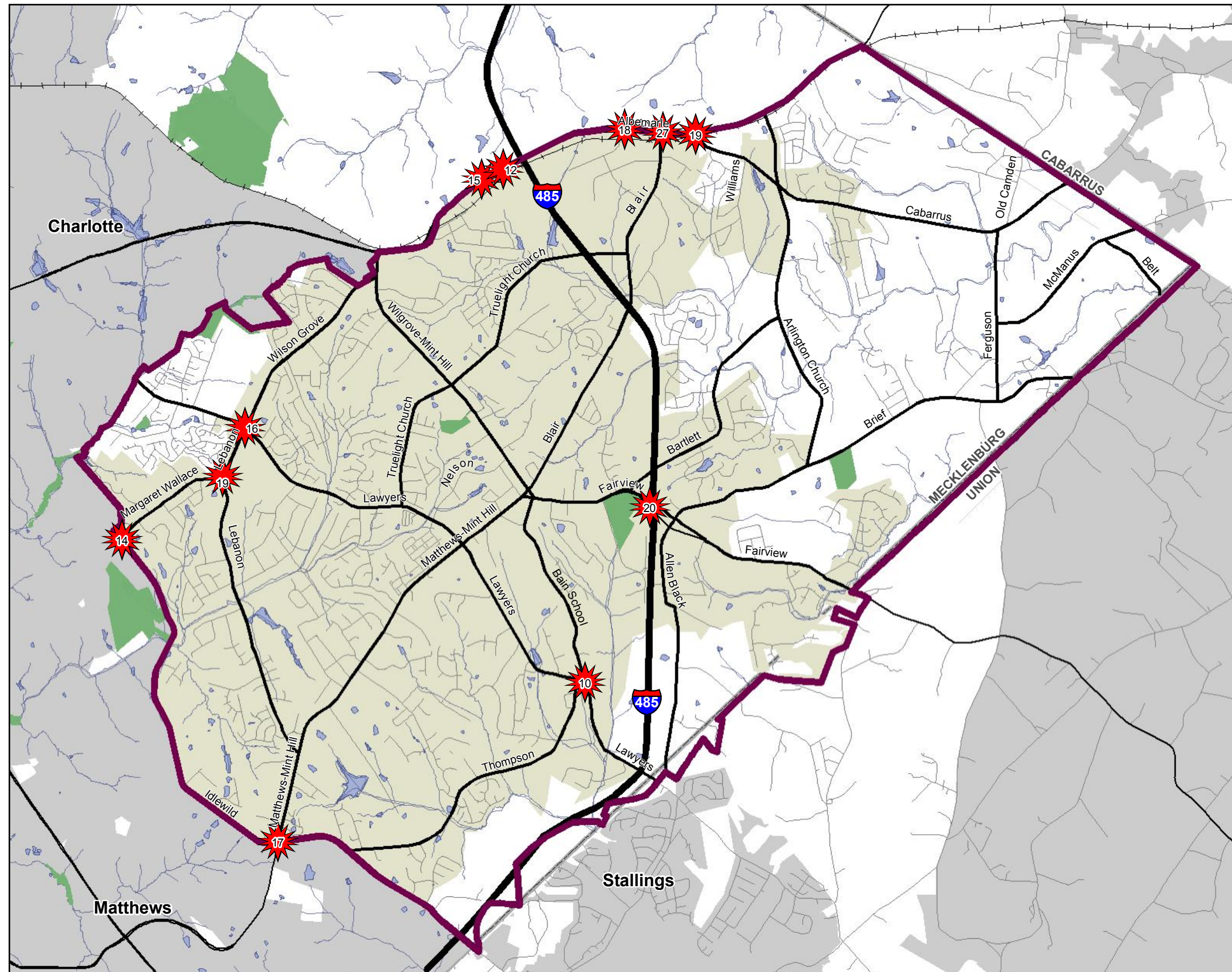
Intersection Priority Rankings Mint Hill CTP								
No.	Street 1	Street 2	Vehicles Entering	Total Crashes	EPDO Rate	Crash Rate (Per MVE)	Functional Classification	TIP
1	NC 24-Albemarle Road	Blair Road	25,700	27	183.88	0.959	Major Thoroughfare	No
2	NC 24-Albemarle Road	Rocky River Church Road	24,161	18	152.68	0.680	Major Thoroughfare	No
3	Lebanon Road	Margaret Wallace Road	20,000	19	221.76	0.868	Minor Thoroughfare	No
4	Idlewild Road	Interstate I-485	17,055	20	162.08	1.071	Major Thoroughfare	No
5	NC 24-Albemarle Road	Cabarrus Road	22,200	19	100.40	0.782	Major Thoroughfare	No
6	Idlewild Road	Matthew-Mint Hill Road	26,900	17	54.00	0.577	Major Thoroughfare	No
7	NC 24-Albemarle Road	Interstate I-485 NB Ramp	23,400	15	66.80	0.585	Major Thoroughfare	No
8	Idlewild Road	Margaret Wallace Road	26,100	14	65.80	0.490	Major Thoroughfare	No
9	Lebanon Road	Lawyers Road	17,600	16	30.80	0.830	Minor Thoroughfare	No
10	NC 24-Albemarle Road	Interstate I-485 SB Ramp	23,400	12	56.40	0.468	Major Thoroughfare	No
11	Lawyers Road	Bain School Road	20,800	10	122.48	0.439	Major Thoroughfare	No

¹ AADT taken from crash data provided by NCDOT Traffic Systems Safety Unit

² EDPO Rate = 76.8*(Fatal + Type A Injury) + 8.4*(Type B Injury +Type C Injury) + Property Damage Only Crashes

³ Crash Rate = (Total crashes*1,000,000)/(AADT*365 days per year*3 year analysis period); reported as crashes per million vehicles entering (MVE)

Figure 2.4
High Crash Locations



- Study Area Boundary
- County Boundary
- Town of Mint Hill
- Other Municipalities
- Bodies of Water
- Parks
- High Crash Occurrence

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0 0.45 0.9 1.8
Miles

N



Existing Conditions

Bicycle and Pedestrian Element

Transportation plans no longer focus solely on roadway solutions. In the pursuit for an improved quality of life, we now strive for livable communities that balance travel between modes. A common benchmark of any livable community is how well it accommodates pedestrians and cyclists.

Walking and bicycling have numerous benefits, including:

- **Personal** — Cardiovascular fitness and cost savings
- **Societal** — Reduced vehicle miles of travel, improved public health through a cleaner environment and healthier citizens and improved mobility for those without access to private automobiles
- **Environmental** — Reduced air and noise pollution and fewer parking lots/spaces/structures

Sidewalks

Travel by foot should be ordinary and commonplace. The Town of Mint Hill Subdivision Ordinance (Section 16E) requires sidewalks. However, like most other growing communities, gaps exist throughout the sidewalk network that need to be filled. As development intensity transitions from higher to relatively lower intensities, sidewalks become less frequent. **Figure 2.5** displays the existing sidewalk and bicycle facilities.

The Town's current Ordinance requires the following:

Nonresidential subdivisions: Sidewalks shall be constructed on both sides of existing arterial streets and secondary streets and extensions thereof. Sidewalks shall be required on one side of arterial and secondary streets where the street will not function at the time the subdivision is approved as an arterial or secondary street because of its lack of continuity.

Residential subdivisions: Sidewalks shall be constructed on both sides of existing arterial and secondary streets and extensions thereof. Sidewalks shall be constructed on one side of arterial and secondary streets where the street will not function at the time the subdivision is approved, as an arterial or secondary street because of its lack of continuity. Sidewalks shall be constructed on one side of all classes of streets with the exception of the cul-de-sac "bulb" provided that the sidewalk shall be located on the side of the street first subdivided. (The side of the street first subdivided shall mean that side of the street for which a Preliminary Subdivision Plan is first approved after the

effective date of this section). Sidewalks shall be constructed on both sides of the following streets:

- *Streets with such continuity through a subdivision or with such potential continuity through a subdivision and adjacent areas that they may serve as general traffic access streets for the neighborhood.*
- *Streets providing access to existing elementary schools, junior schools, high schools, colleges and official sites for such schools; and, streets that provide access to existing places of public assembly.*

The classification of streets in determining the requirement of sidewalks shall be subject to interpretation by the Planning Director or his/her designee and/or the Planning Board for the Town of Mint Hill.

Pedestrian crash reports from NCDOT indicate that nine (9) pedestrian crashes were reported between 1997 and 2005 in Mint Hill. The majority of these reportedly occurred on local streets and included no fatalities, one disabling injury, four evident injuries and four possible injuries.

Bikeways

Although Mint Hill does not have an extensive network of bicycle facilities and routes at this time, the existing sidewalk network and low volume streets provide opportunities for bicycle trips. **Figure 2.5** displays the existing sidewalk and bicycle facilities.

There are currently no bike lanes within the study area; however, for advanced and more experienced recreational cyclists, the extensive network of rural roads, with comparatively lower traffic volumes and moderate traffic speeds, provides opportunities for bicycles to mix with vehicular traffic. Although no facilities are designated in the rural areas surrounding Mint Hill, experienced cyclists routinely use the rural road network for bicycling.

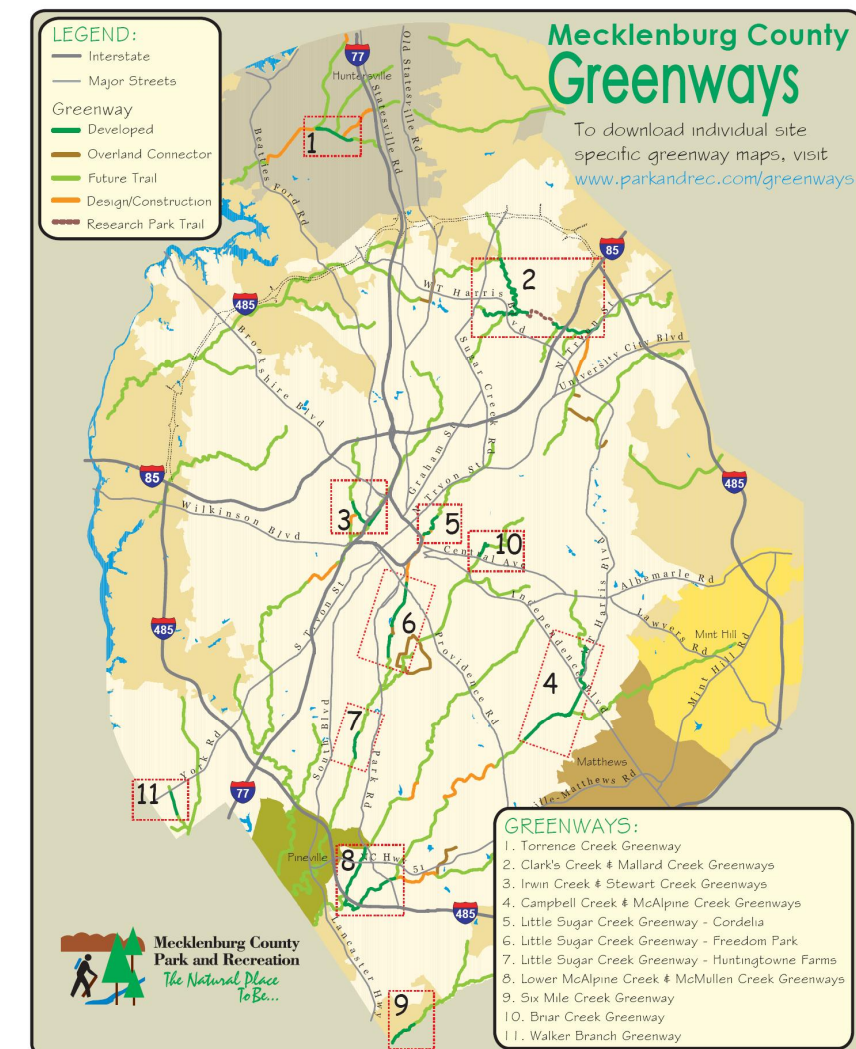
NCDOT reports indicate that six crashes involving bicyclists were reported in Mint Hill between 1997 and 2005, the majority of which did not involve severe injury to the bicyclist. The majority of these crashes were reported as having occurred on local streets and caused evident injury.

Existing Conditions

Greenways

Mint Hill currently does not have a greenway system; however, the Mecklenburg County Park and Recreation Department identifies a proposed greenway that will connect Mint Hill to the McAlpine Creek Greenway. Greenways, also called multi-use paths, generally are independent of the road network, but may run parallel to facilities carrying motorized traffic. They are different from sidewalks in that they typically do not share rights-of-way with streets.








Greenways can be paved or have a gravel surface but are generally designed in an environmentally sensitive and aesthetically pleasing fashion. Around the State, greenways have been designed along creeks, through utility easements or in 'rails-to-trails' conversions. As the Town of Mint Hill grows, greenways are an important element to preserve a positive attitude towards the environment and enable residents to enjoy these paths through nature on bikes or by foot. Greenways also are an ideal outlet for exercise trips and are commonly associated with community-building athletic events such as 5K and 10K runs.



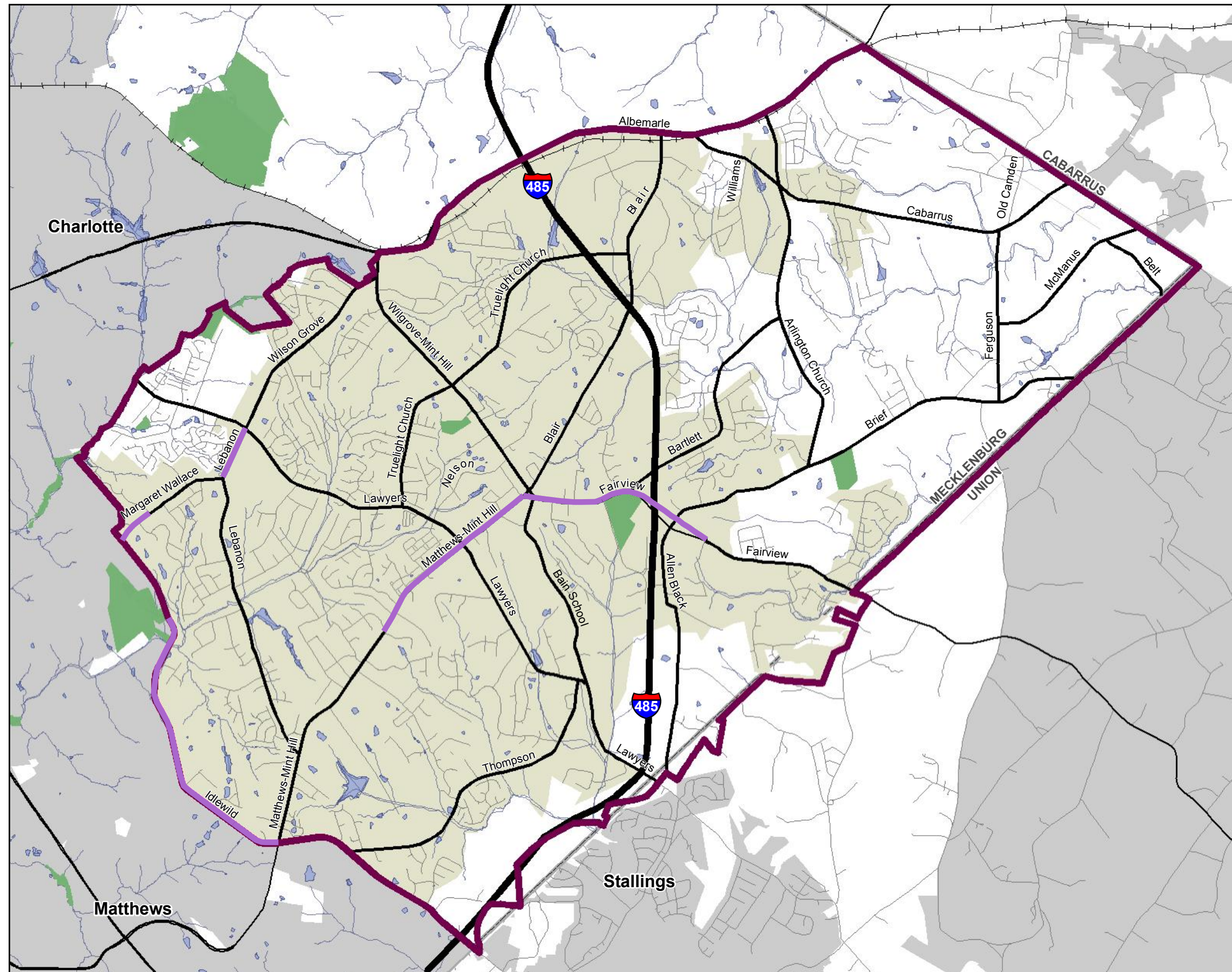
****Source**

Figure 2.5
Existing Bicycle and Pedestrian Facilities
(excluding local streets)



-  Study Area Boundary
-  County Boundary
-  Town of Mint Hill
-  Other Municipalities
-  Bodies of Water
-  Parks
-  Sidewalks One Side

*no existing bicycle facilities in the study area

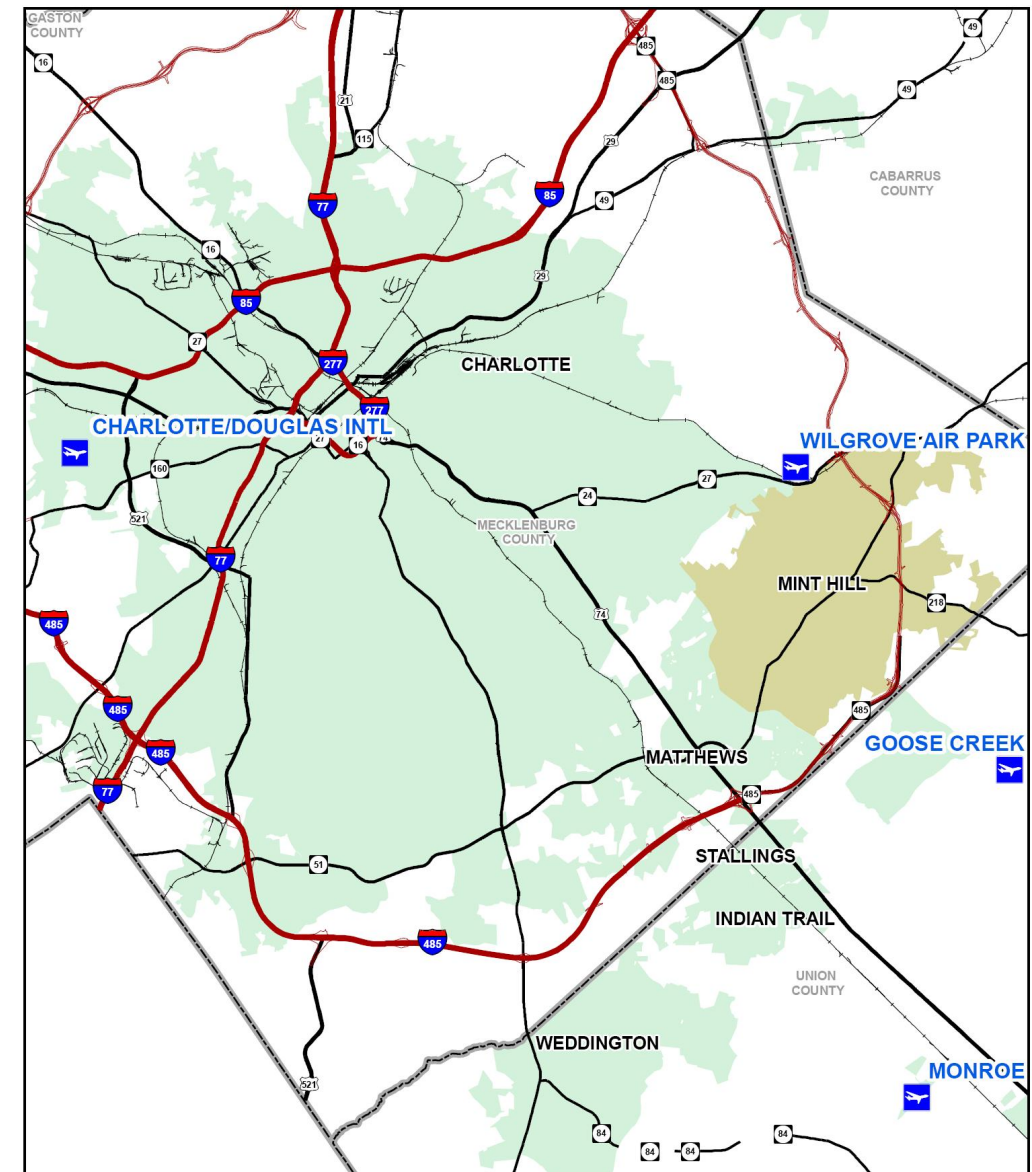


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0 0.45 0.9 1.8
Miles



Air travel is also a prevalent mode of transportation within the Mint Hill area. Four airports are located within proximity to the Town of Mint Hill as shown in the graphic to the right. Charlotte Douglas International Airport is located approximately 19 miles west of Mint Hill and services travel throughout the world. The Wilgrove Air Park is located approximately 2 miles north of Mint Hill. The Monroe Regional Airport is located 12 miles south of Mint Hill and Goose Creek Municipal Airport is located 8 miles southeast of Mint Hill.



Existing Conditions



Freight Element

The use of transportation to move goods through and between communities is often overlooked by the general public. Freight activities play a vital role in our economy, which is increasingly dependent on our ability to transfer goods to market efficiently. Identifying elements of the transportation system to facilitate safe and efficient movement of freight is an important activity within long-range transportation planning processes.

The movement of freight often occurs using different modes and transportation system elements that include:

- Highways (trucks, vans and cars)
- Railroads
- Airports (air transport)
- Maritime ports (ships)
- Pipelines

Historically, freight movement in the Mint Hill area has been by rail. A rail line which runs east/west exists to the north of the study area along its boundary.

Mint Hill is also serviced by highway and air transport. As more highway freight movement is used, Interstate I-485, Albemarle, Lawyers and Matthews-Mint Hill Roads are being established as the primary highway freight routes to and from Mint Hill. An increase in movement by highway freight will increase congestion on these facilities. Air transport is accessed at the Charlotte Douglas International Airport.

The Town of Mint Hill has a strong interest in improving the economic outlook of its citizens and businesses. A portion of the local economy already depends on access to a good transportation system, including local logistic companies, small and large manufacturers, industrial companies and local and national retailers. Continuing to provide a transportation system that is efficient and has the ability to move freight will be vital to the future success of the Town.

Highway and Rail Freight Trends

Trucks and rail account for 64% of the nation's domestic freight volume, up from 57% in 1960. The rest of the volume is carried by pipelines, waterways and air transport. Over the same period, the share of freight carried by rail has fallen minimally — from 38% to 37%. Meanwhile, the volume of freight carried by truck has increased from 19% to 28%.

In terms of total ton mileage, freight carried by railroads has increased more than other modes. In spite of this increase, freight railroads have been experiencing a decreasing market share for decades as a result of movement of freight by truck. The trend of freight movement by truck has facilitated “just in time” delivery; it has increased truck traffic and correspondingly worsened traffic congestion on many highways.

It is logical to assume that the continued loss of rail freight market share to movement of freight by truck will significantly impact many strategic and over-used highway corridors. The difficulty and continued scarcity of funding to improve many of these roadway corridors may mean that existing levels of congestion will increase the cost, in terms of both time and money, of moving goods by truck. The overall economic loss due to time in congestion will increase.










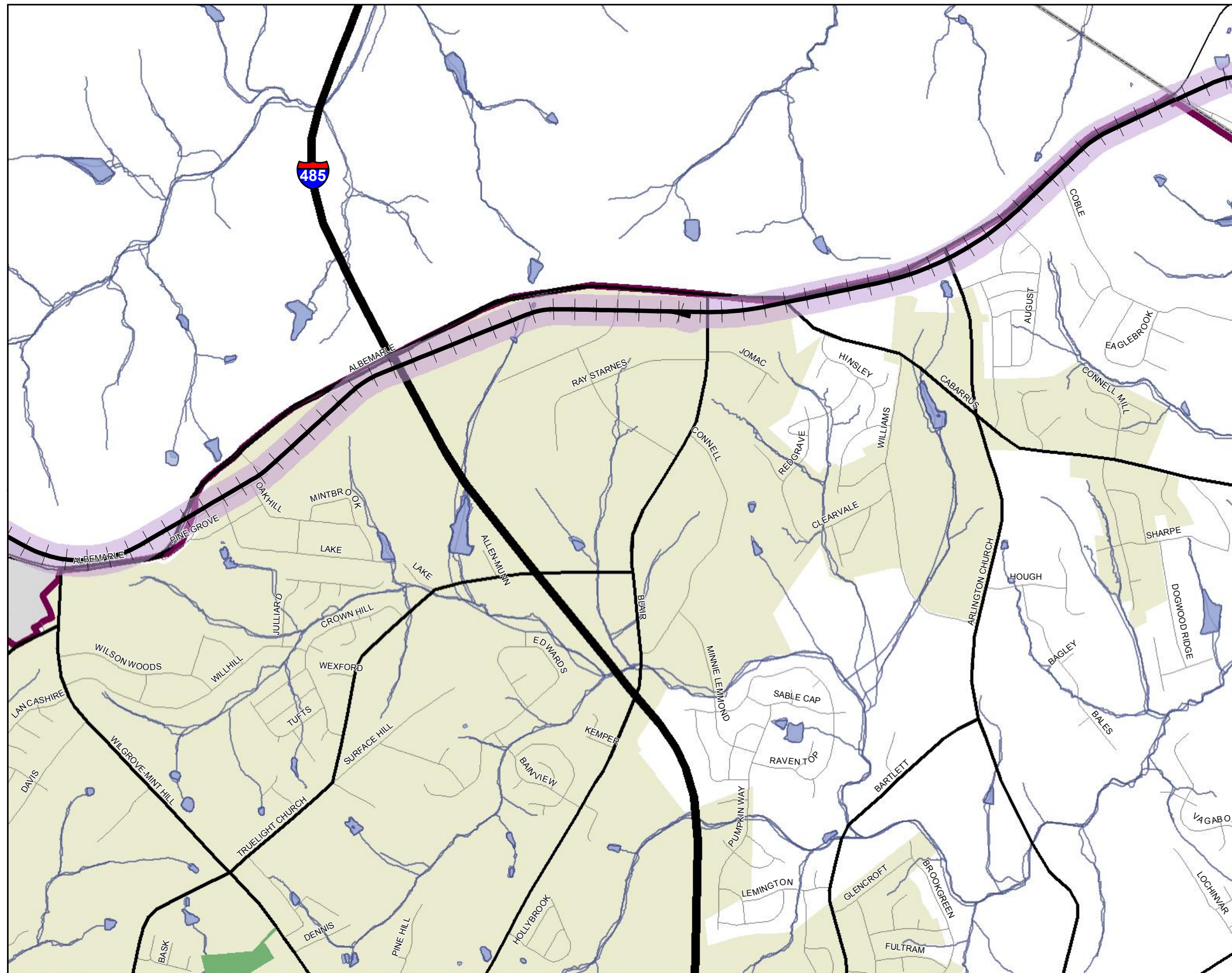
The movement of freight is primarily focused on the largest transportation arteries — interstates, freeways and major highways — many of which run through urban areas and have direct access to railroads. In Mint Hill, Interstate I-485, Albemarle and Fairview Roads serve as the primary highway routes for freight movement. Interstate I-485, while running north/south to the east of Mint Hill, ultimately loops around Charlotte and provides expedient travel to Interstates I-85 and I-77, both of which are major interstate facilities used for freight movement along the eastern United States. Albemarle Road runs predominantly east/west and connects Mint Hill with downtown Charlotte and Interstate I-485 to the north. Fairview Road runs predominantly east/west and connects downtown Mint Hill with Interstate I-485 and the counties to the east.

The rail line runs east/west and is located in the northern part of the study area. **Figure 2.6** shows the active rail lines within the study area. Approximately two trains a week utilize this portion of the railroad network.

Figure 2.6
Existing Rail Lines



-  Study Area Boundary
-  County Boundary
-  Town of Mint Hill
-  Other Municipalities
-  Bodies of Water
-  Parks
-  Railroads



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0 0.2 0.4 0.8
Miles

N

Existing Conditions

Environmental Impacts

The screening of potential environmental and community impacts at the system planning level is intended to identify potentially negative impacts at the earliest possible stage. Revisions to the Preliminary Plan can help minimize or even avoid impacts once they have been identified. If revisions are not feasible and the environmental or community impact is significant, a community may find it preferable to eliminate the proposed project. Because individual projects can significantly affect other projects, these issues must be resolved as early as possible to avoid wasting valuable time and resources. Considering these elements will result in a transportation plan that not only minimizes negative impacts on the natural and human environments, but also is timely and cost-effective in its implementation.

The overwhelming majority of environmental impacts are associated with roadway projects in the Transportation Plan. This is understandable when considering the extensive disruption caused by the construction of several permanent roadways. Sidewalks and bicycle facilities are much more limited in the magnitude of their impacts due to smaller cross sections and greater flexibility in being able to avoid problem areas. Furthermore, pedestrian and bicycle facilities are often built in conjunction with roadway facilities and have only marginal impacts, if any, beyond those of the roadway.

The vast majority of transit projects are associated with bus routes and service expansions, which typically involve no new construction and have minimal negative impacts on either the natural or manufactured environments. In general, transit impacts tend to be positive because increased service tends to reduce vehicle miles traveled (VMT) and improve accessibility in disadvantaged neighborhoods.

The Plan's environmental screening process is divided into two parts:

- Overall impacts on the natural and built environment.
- Specific issues related to environmental justice.

Natural and Built Environment

As the Mint Hill area continues to urbanize and grow, impacts to the environment are inevitable. Managing and minimizing impacts to the environment will be critical during the development of new infrastructure. Some natural features should be maintained, not only to satisfy residents' desire for a high quality of life that includes clean drinking water and open spaces, but also to satisfy State and Federal environmental policies and agencies. **Figure 2.7** depicts important environmental features within the Mint Hill area, including

wetlands, flood zones, bodies of water, historic sites, parks, schools, gamelands and hazardous waste sites. **Figure 2.8** depicts the slope intensity of the elevation change. This is useful when considering new location roadways or pedestrian facilities.

The study area includes a few wetlands and flood zones. These natural features should be preserved and were considered during this planning process.

Environmental Justice

Environmental justice describes practices intended to avoid the use of Federal funds for projects that generate disproportionate or discriminatory, adverse impacts on minority or low-income populations. This effort is consistent with Title IV of the 1964 Civil Rights Act and is promoted by the U.S. Department of Transportation (USDOT) as an integral part of the long-range transportation planning process, as well as individual project planning and design. The environmental justice assessment incorporated in the *Mint Hill Comprehensive Transportation Plan* was based on three basic principles, derived from guidance issued by the USDOT:

- The planning process should avoid, minimize or mitigate environmental impacts (including economic, social and human health impacts) that affect minority and low-income populations with disproportionate severity.
- Transportation benefits should not be delayed, reduced or denied to minority and low-income populations.
- Any community potentially affected by outcomes of the transportation planning process should be provided with the opportunity for complete and equitable participation in decision-making.

As part of the *Mint Hill CTP*, 2000 Census data was used to identify the geographic distribution of low-income and minority populations. This allowed the positive and negative effects of various transportation investments in the Transportation Plan to be assessed. **Figure 2.9** shows the population within the study area by ethnicity, which is defined by the Census Bureau as either Hispanic or Non-Hispanic. **Figure 2.10** shows the population by percent minorities (race). Census participants are presented with unlimited choices for race and the Census Bureau defines minorities as any race that is not White, including African-American, Asian, Native American or people who identify themselves as belonging to two or more races. **Figure 2.11** shows the percent of the population below the poverty level, which is determined by the Census

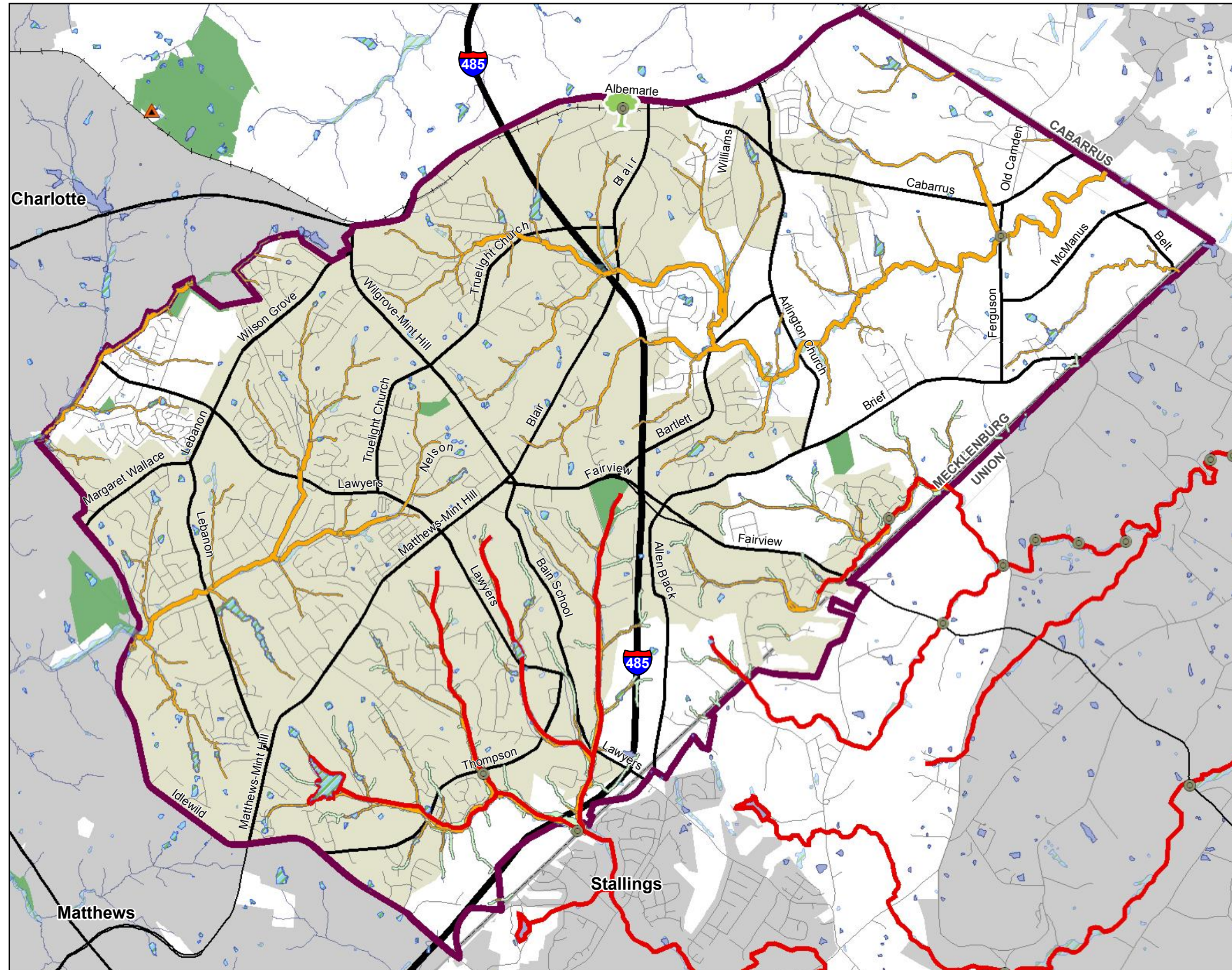
Existing Conditions

Bureau based on income versus a poverty threshold, which varies according to family size and ages of members.

While it is impossible to construct any type of infrastructure without any impacts, careful planning and early consideration will help implement the *Mint Hill CTP* to effectively manage community impacts as projects are developed. It is important to note that the environmental justice screening, conducted for this study, is not intended to quantify specific impacts. Instead, it is intended to provide guidance during Plan development to make sure it is equitable in terms of both costs and benefits.

In addition, this screening identifies projects in the Transportation Plan that, due to proximity, have the potential to affect communities of special interest. When individual studies begin as part of project implementation, a more detailed analysis, including field surveys, will be needed to identify and minimize specific community impacts on a project-by-project basis.

Figure 2.7
Environmental Features



- Study Area Boundary
- County Boundary
- Town of Mint Hill
- Other Municipalities
- Bodies of Water
- Parks
- Gamelands
- US Geological Survey Buffers
- Swim Buffers
- Wetlands
- Significant Aquatic Endangered Species
- Vascular Plant
- Hazardous Waste Facility
- Natural Heritage Element Occurrence

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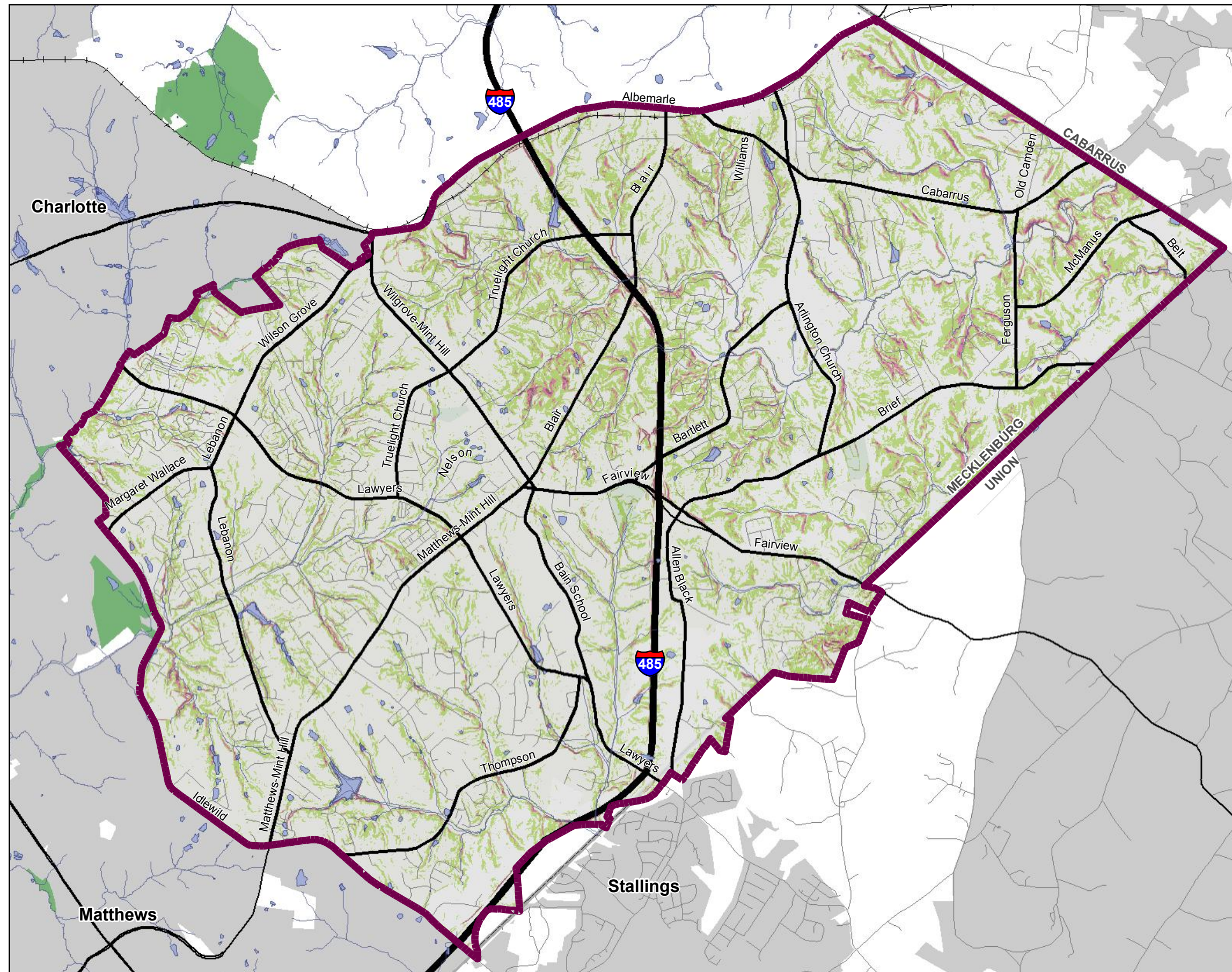
0 0.25 0.5 1
Miles

N



Figure 2.8

Slope Intensity



-
- Study Area Boundary
- County Boundary
- Town of Mint Hill
- Other Municipalities
- Bodies of Water
- Parks
- Slope Intensity**
- 0% - 5%
- 5.1% - 10%
- 10.1% - 15%
- 15.1% - Greater

Slope Intensity





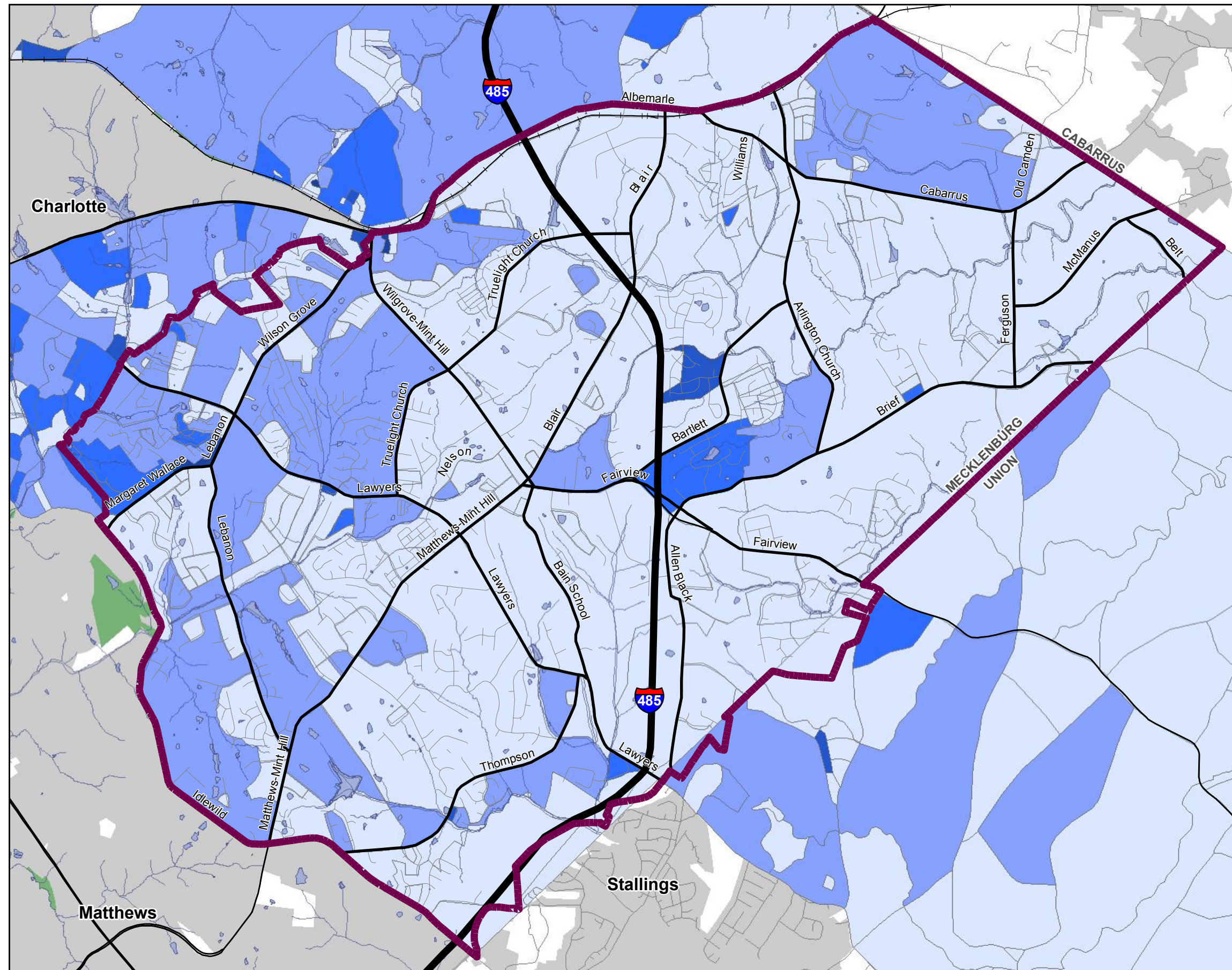
	0% - 5%
	5.1% - 10%
	10.1% - 15%
	15.1% - Greater

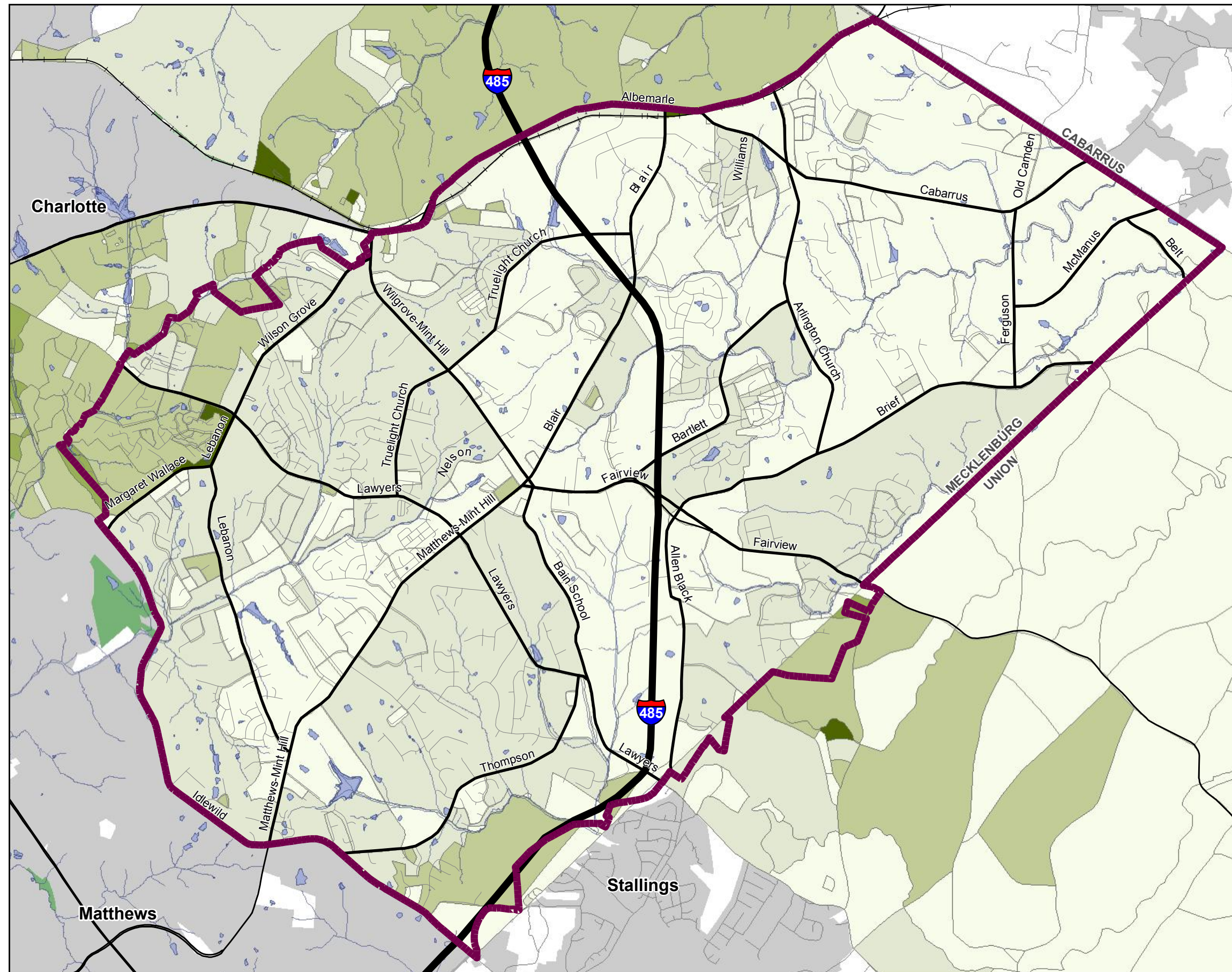
Figure 2.9
Ethnicity Population



- Study Area Boundary
 - County Boundary
 - Town of Mint Hill
 - Other Municipalities
 - Bodies of Water
 - Parks
- Percent Hispanic**
- < 2%
 - 2 - 8%
 - 9 - 20%
 - 21 - 50%
 - 51 - 90%



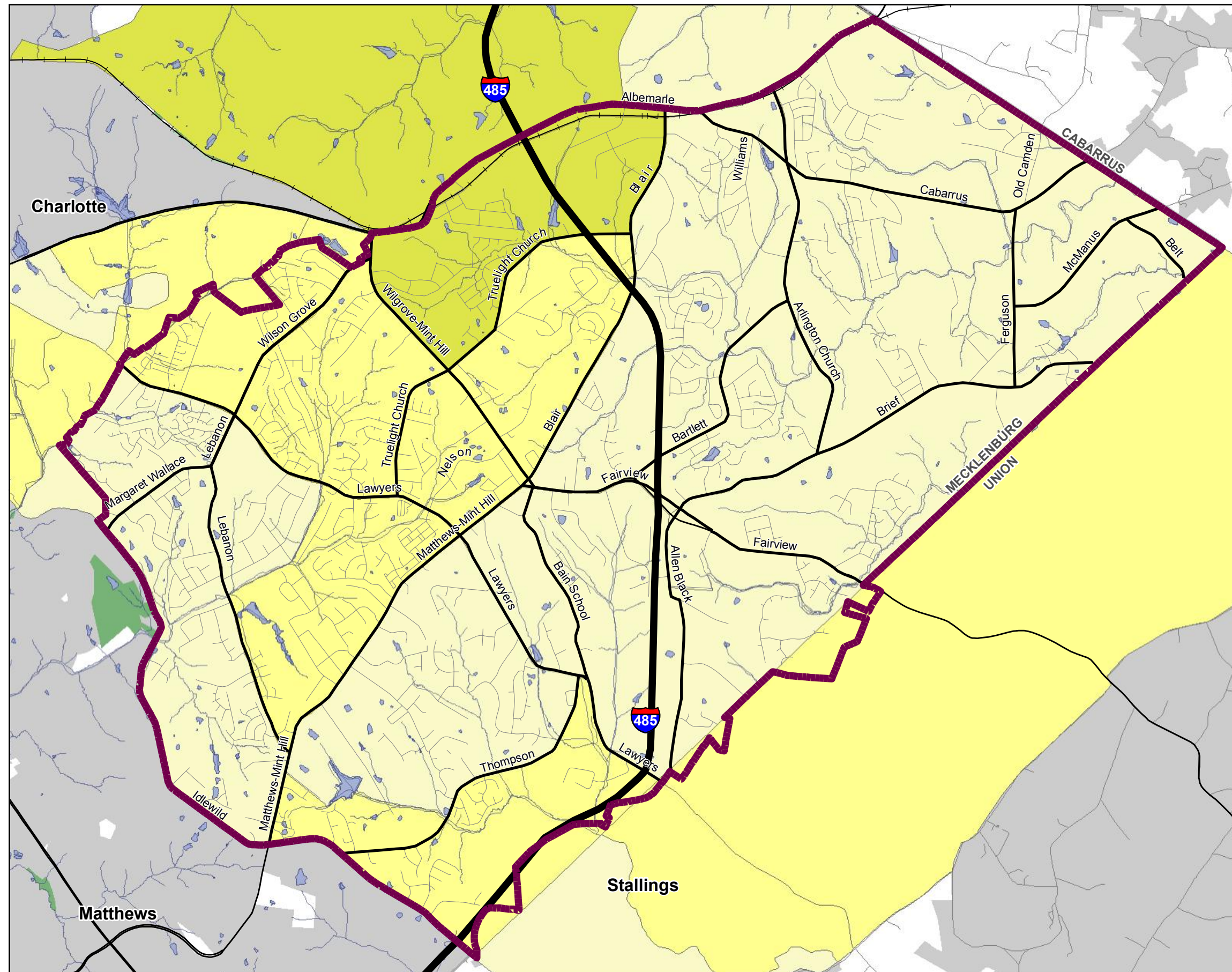
Figure 2.10
Percent Minority



- Study Area Boundary
 - County Boundary
 - Town of Mint Hill
 - Other Municipalities
 - Bodies of Water
 - Parks
- Percent Minority**
- < 5%
 - 6 - 20%
 - 21 - 50%
 - 50 - 75%
 - 75 - 100%



Figure 2.11
Percent Below Poverty



- Study Area Boundary
 - County Boundary
 - Town of Mint Hill
 - Other Municipalities
 - Bodies of Water
 - Parks
- Percent Poverty**
- < 0.5%
 - 0.6 - 1.5%
 - 1.6 - 3.5%



Existing Conditions

Planning Guidelines

During the Comprehensive Transportation Plan development, the project team used available data to avoid and minimize impacts to known environmental features. By collecting and considering this data early in the planning process, this CTP expects to lessen environmental impacts and reduce potential conflicts during the permitting process. In addition, when considering new roadway alignments and extensions, a guiding set of principles were used to make sure the following environmental considerations were adhered to:

- Avoid steep slopes and otherwise unsuitable topography
- Minimize impacts to the built environment
- Stay away from Federal Emergency Management Agency designated floodplains
- Minimize the number of wetland (National Wetland Inventory) impacts
- Minimize the amount of each wetland impact (e.g., do not cross a wide wetland when a narrower one can be crossed)
- Minimize the number and length of stream crossings
- Minimize impacts to school sites
- Minimize the number and size of impacts to historic features and districts
- Minimize the number and size of impacts to threatened and endangered species
- Minimize the number and size of impacts to hazardous waste sites
- Minimize the number and size of impacts to superfund sites
- Minimize/avoid impacts to neighborhoods
- Avoid unnecessary or disproportionate impacts to minority communities
- Do not impact parks and designated open spaces
- Minimize gameland impacts
- Minimize the number of new facilities in critical watershed areas
- Be aware of existing development patterns
- Look for existing stub streets

Existing Conditions

Existing Community Strategic Corridors

Based on demonstrated challenges as well as perceived congestion and safety problems, eleven community strategic corridors were identified as requiring closer consideration and study. The strategic corridors analyzed for potential improvements include:

- Blair Road.(Fairview Road to Albemarle Road)
- Matthews-Mint Hill Road.(Fairview Road to Idlewild Road)
- Lawyers Road.(Bain School Road to Lebanon Road/Wilson Grove Road)
- Idlewild Road.(Thompson Road to Margaret Wallace Road)
- Wilgrove-Mint Hill Road.(Blair Road to Albemarle Road)
- Lebanon Road/Wilson Grove Road/Margaret Wallace Road.(Study Area Boundary to Idlewild Road)
- Lebanon Road.(Matthews-Mint Hill Road to Margaret Wallace Road)
- Brief Road.(Fairview Road to Study Area Boundary)
- Bartlett Road.(Fairview Road to Arlington Church Road)
- Thompson Road.(Bain School Road to Idlewild Road)
- Bain School Road.(Interstate I-485 to Fairview Road)
- Fairview Road.(Matthews-Mint Hill Road/Blair Road to Union County line)

Existing Conditions

Members of the Citizen Transportation Committee were actively involved in defining and evaluating the community strategic transportation corridors in the study area. Through data collection efforts and creative input from these volunteers, it was possible to tailor the corridor vision statements to the needs in the community.

In the process of examining the transportation needs along the vision corridors, the volunteers from the Citizen Transportation Committee performed field visits, assessed the current conditions and took pictures of perceived deficiencies.

Figures 2.12–2.23 represent the existing conditions for each of the strategic corridors. Issues specific to each corridor have been identified, in addition to relevant challenges and potential impacts. Each figure shows a map outlining the corridor, existing cross-section, environmental features and intersection with high crash occurrences. The figures include pictures and a summary of issues identified during field visits.

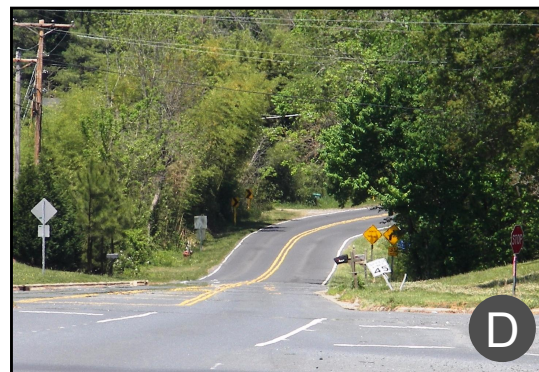
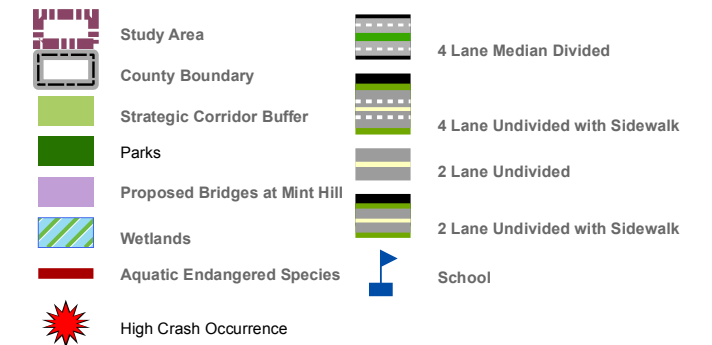
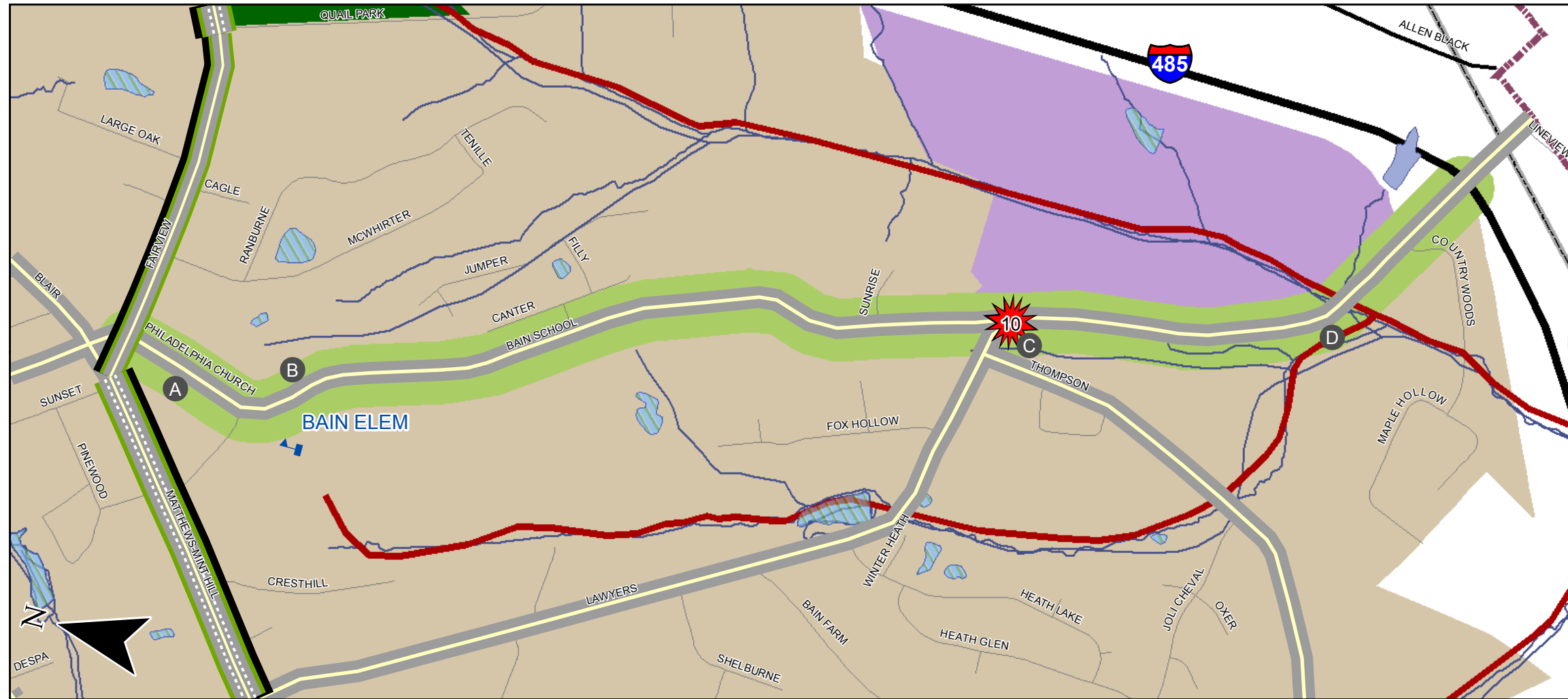
Sources:

*<http://www.ncdot.org/doh/preconstruct/traffic/safety/ses/costs/2003crashcosts.pdf>

***Mecklenburg County Park and Recreation Department*,
www.parkandrec.com/greenways

***<http://busexplorer.com>

Figure 2.12
Community Strategic Corridor
Bain School/Lawyers Road



Corridor Description and Issues Identified

- Existing two lane undivided facility
- Significant growth expected with the proposed Bridges at Mint Hill development
- Major roadway improvements expected with the proposed Bridges at Mint Hill development

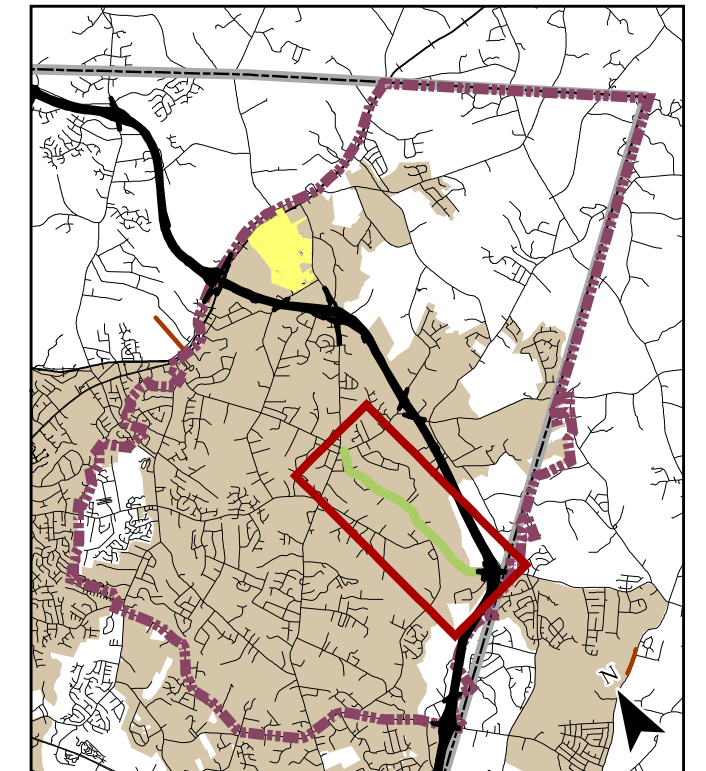
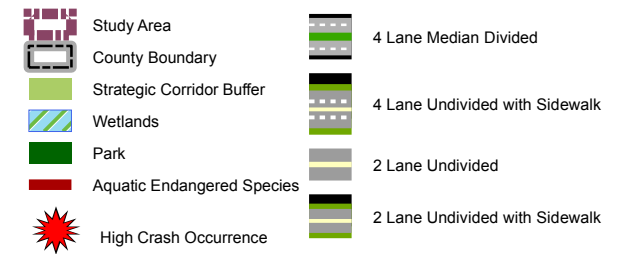
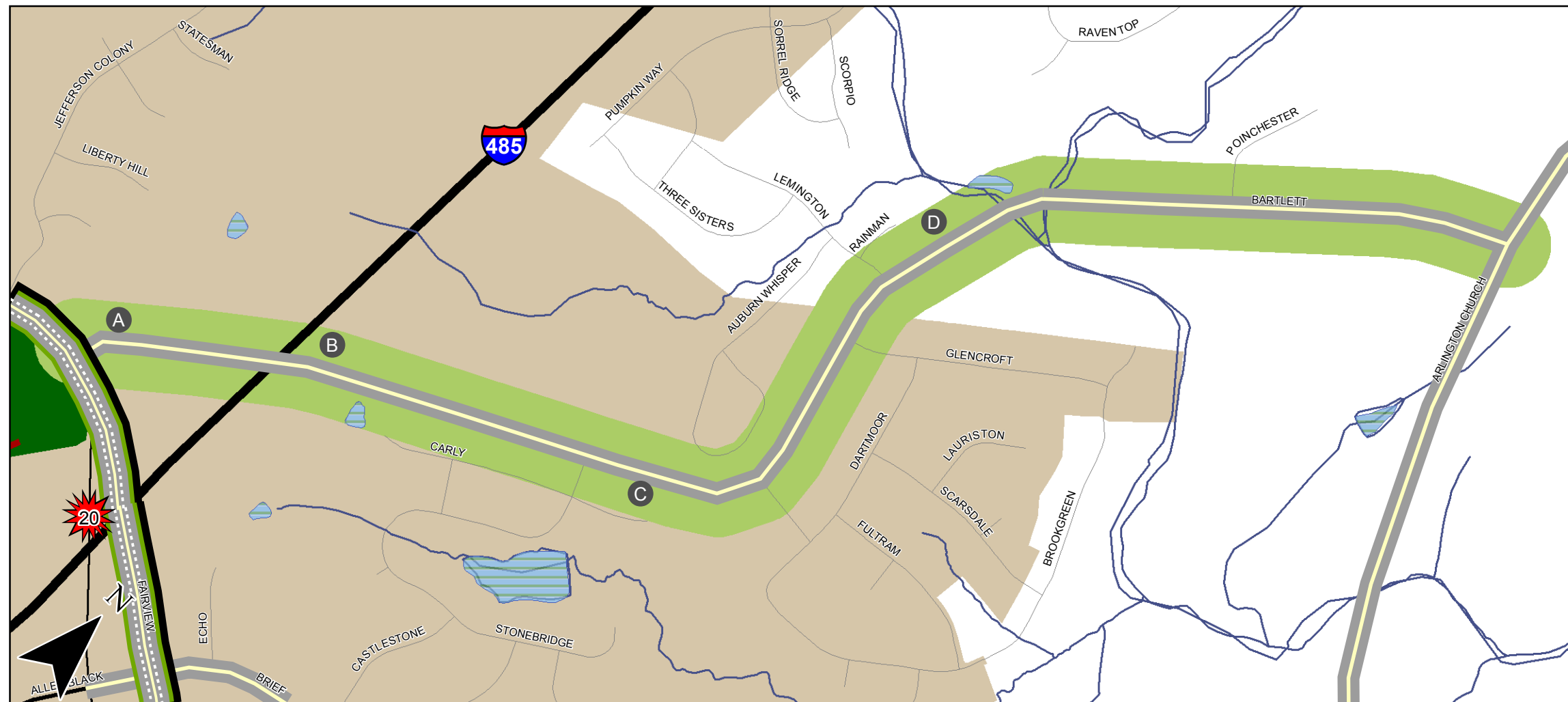


Figure 2.13
Community Strategic Corridor
Bartlett Road



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0 500 1,000 2,000
Feet



Corridor Description and Issues Identified

- There is a significant amount of development expected
- Construction traffic creates congestion

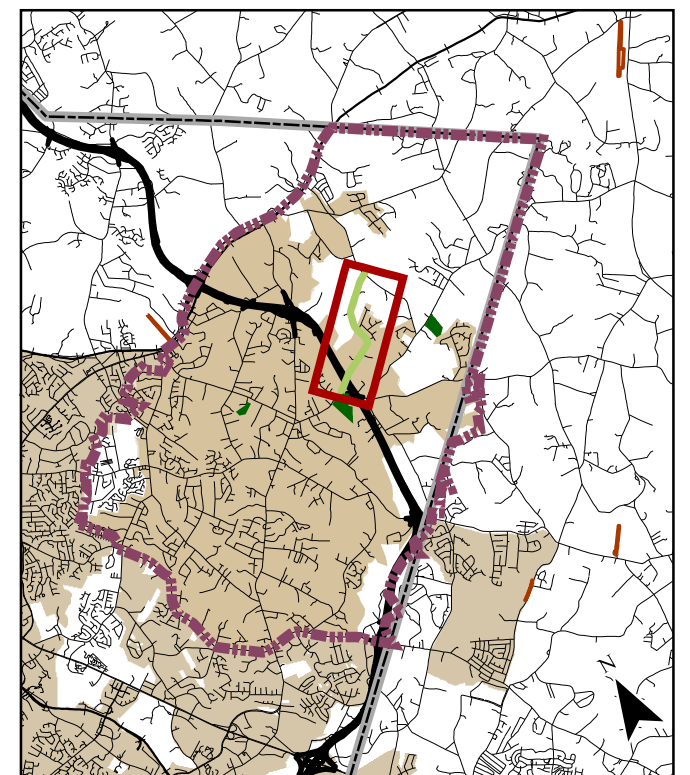
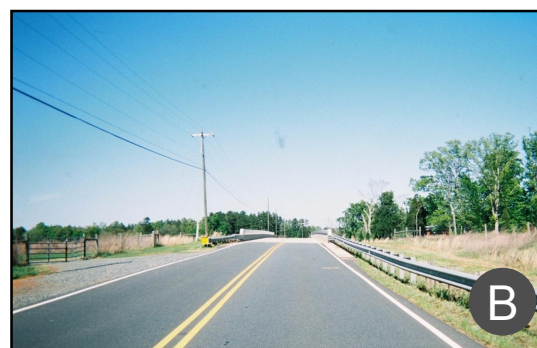
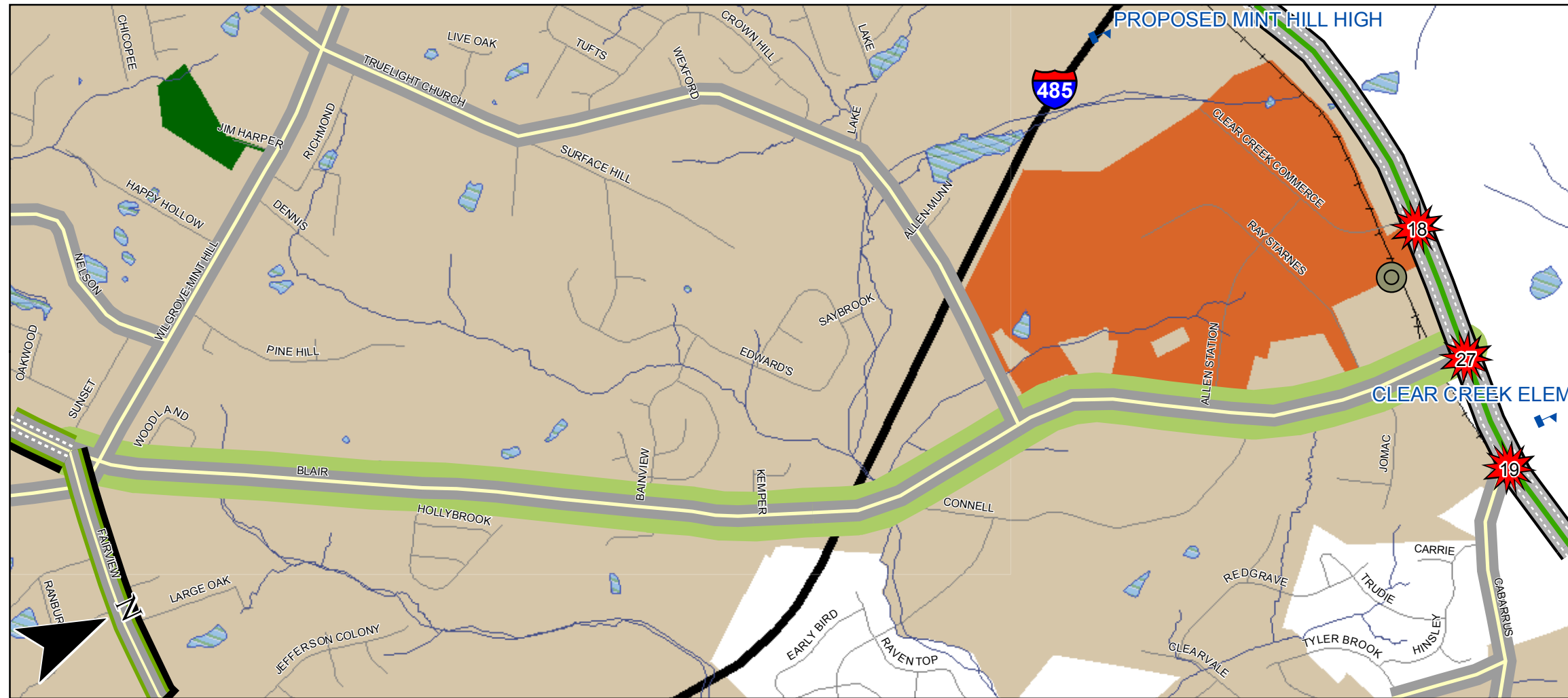


Figure 2.14
Community Strategic Corridor
Blair Road (HWY 51)



Corridor Description and Issues Identified

- Traffic flow is good today but will likely worsen over time
- Limited sight distance at subdivisions and intersections
- Road conditions are generally good
- Proposed Clear Creek Business Park and Carolinas Heath Care Campus
- Future Mint Hill High School

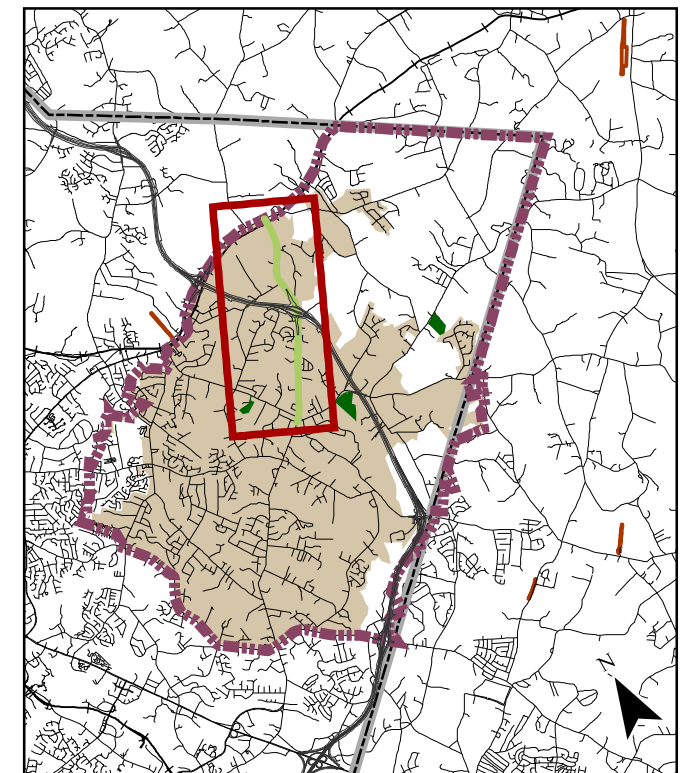
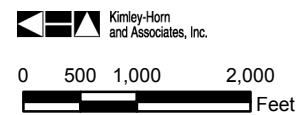
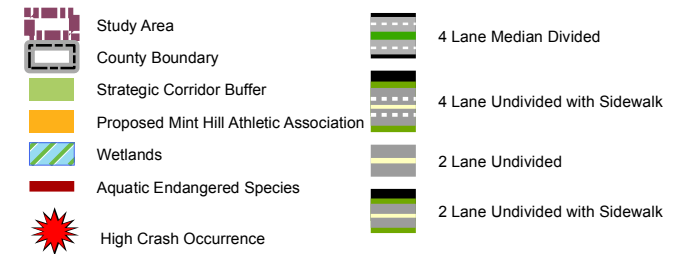
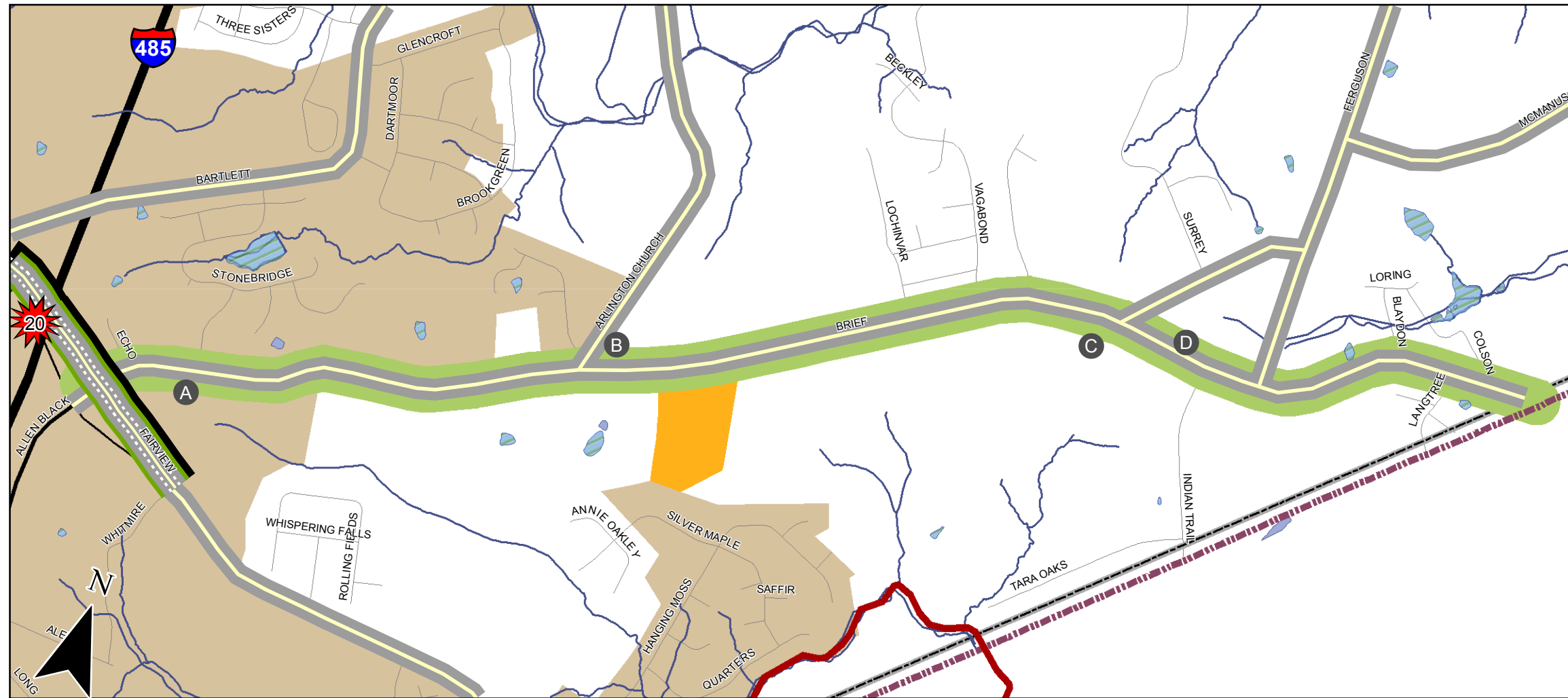


Figure 2.15
Community Strategic Corridor
Brief Road



Corridor Description and Issues Identified

- Popular route for bicyclists
- Some areas of roadway in poor condition
- Narrow road
- Proposed church and residential development
- Main road to I-485

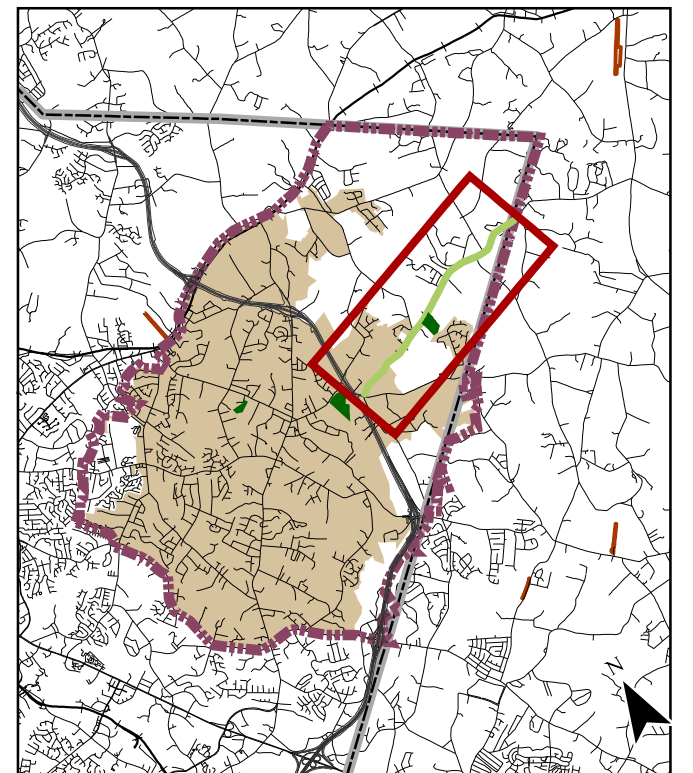
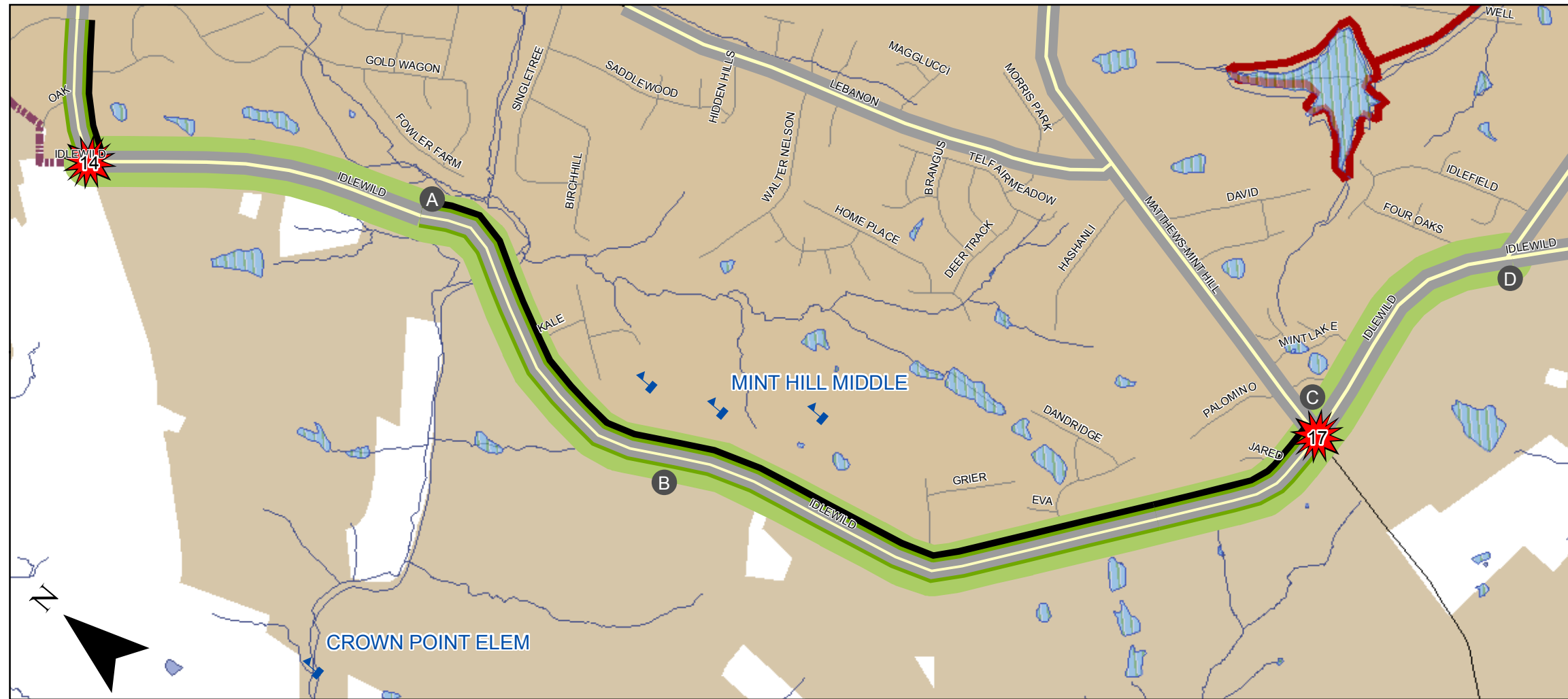
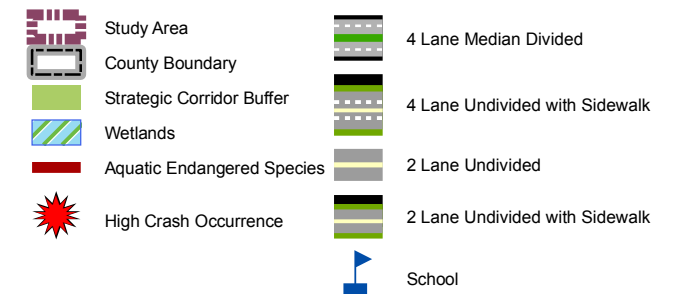


Figure 2.16
Community Strategic Corridor
Idlewild Road



Corridor Description and Issues Identified

- The intersection at NC 51 is constantly congested
- Commuter trips from Union County generate a lot of traffic
- The Middle School creates congestion in the afternoon
- Students have trouble walking to school because there is no sidewalk

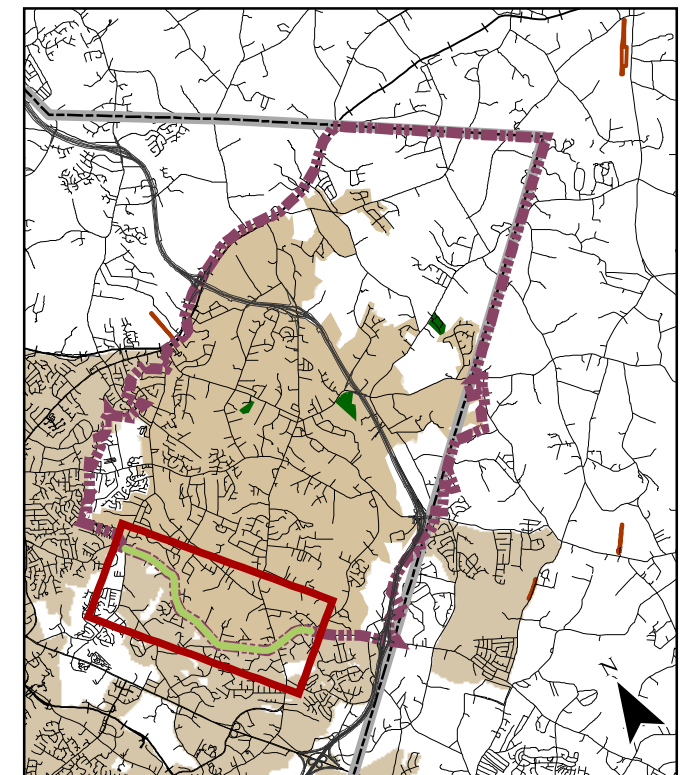
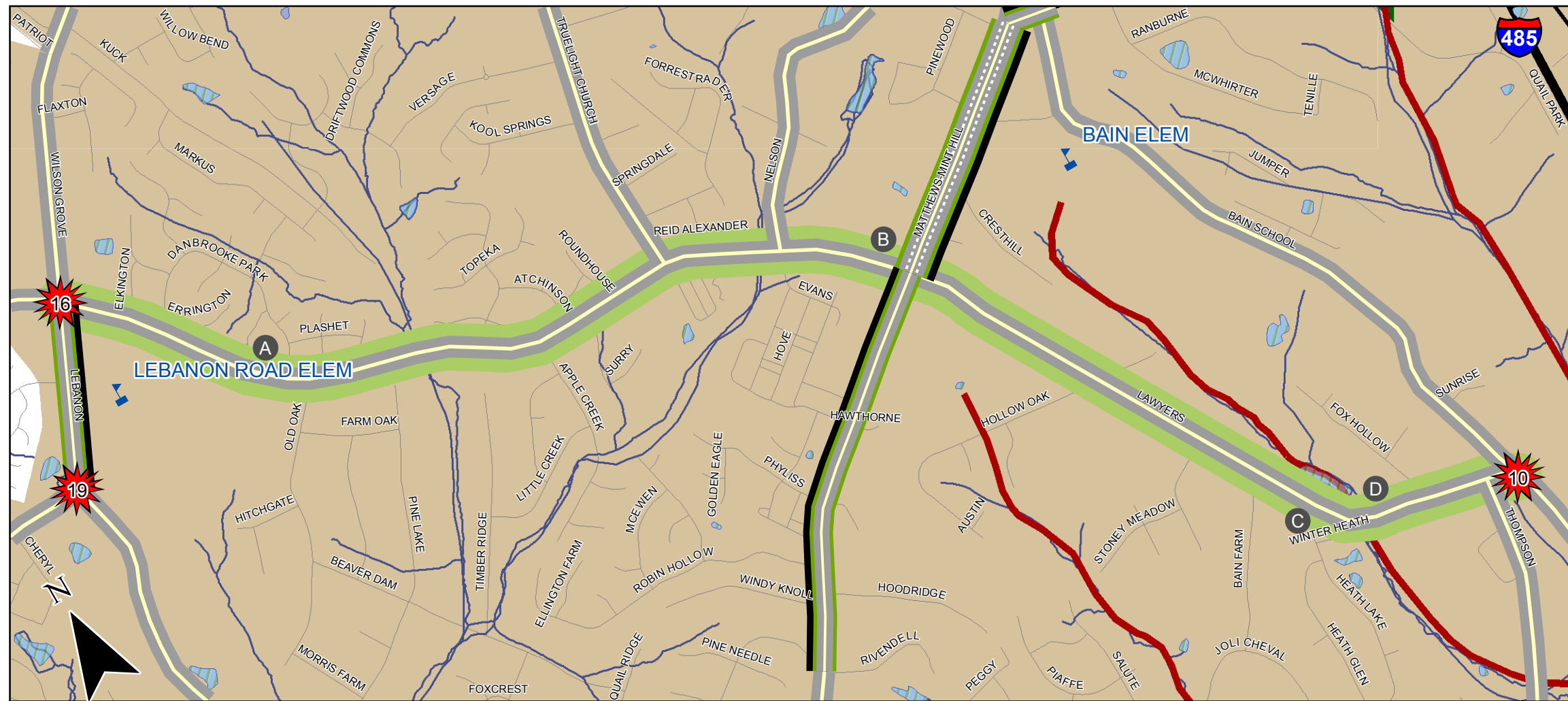
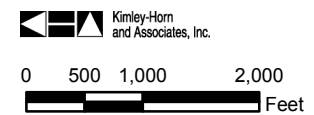
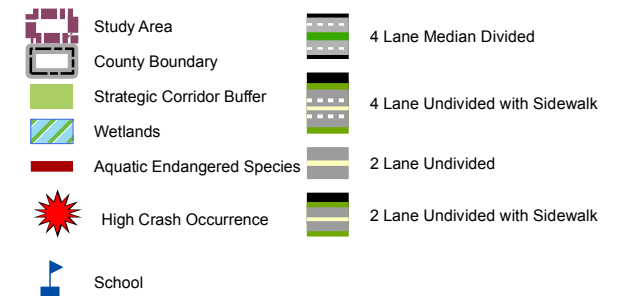


Figure 2.17
Community Strategic Corridor
Lawyers Road



Corridor Description and Issues Identified

- Dangerous curve presents safety hazard for motorists
- School within the vicinity creates peak hour traffic congestion
- Several large residential developments create commuter traffic congestion
- Absence of right turn lanes presents problems at intersections

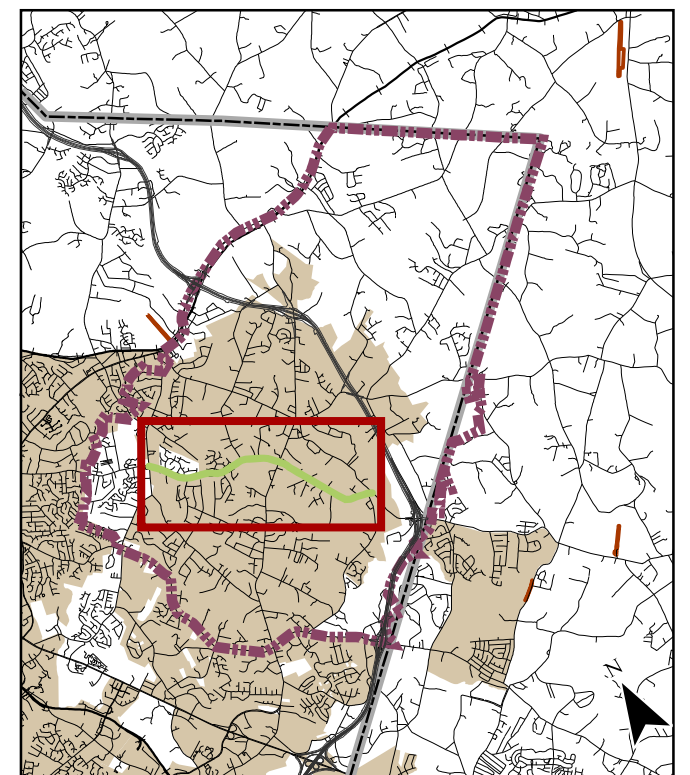
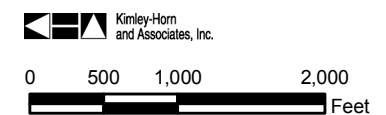
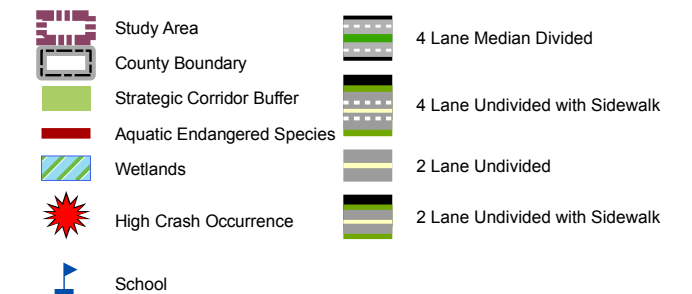
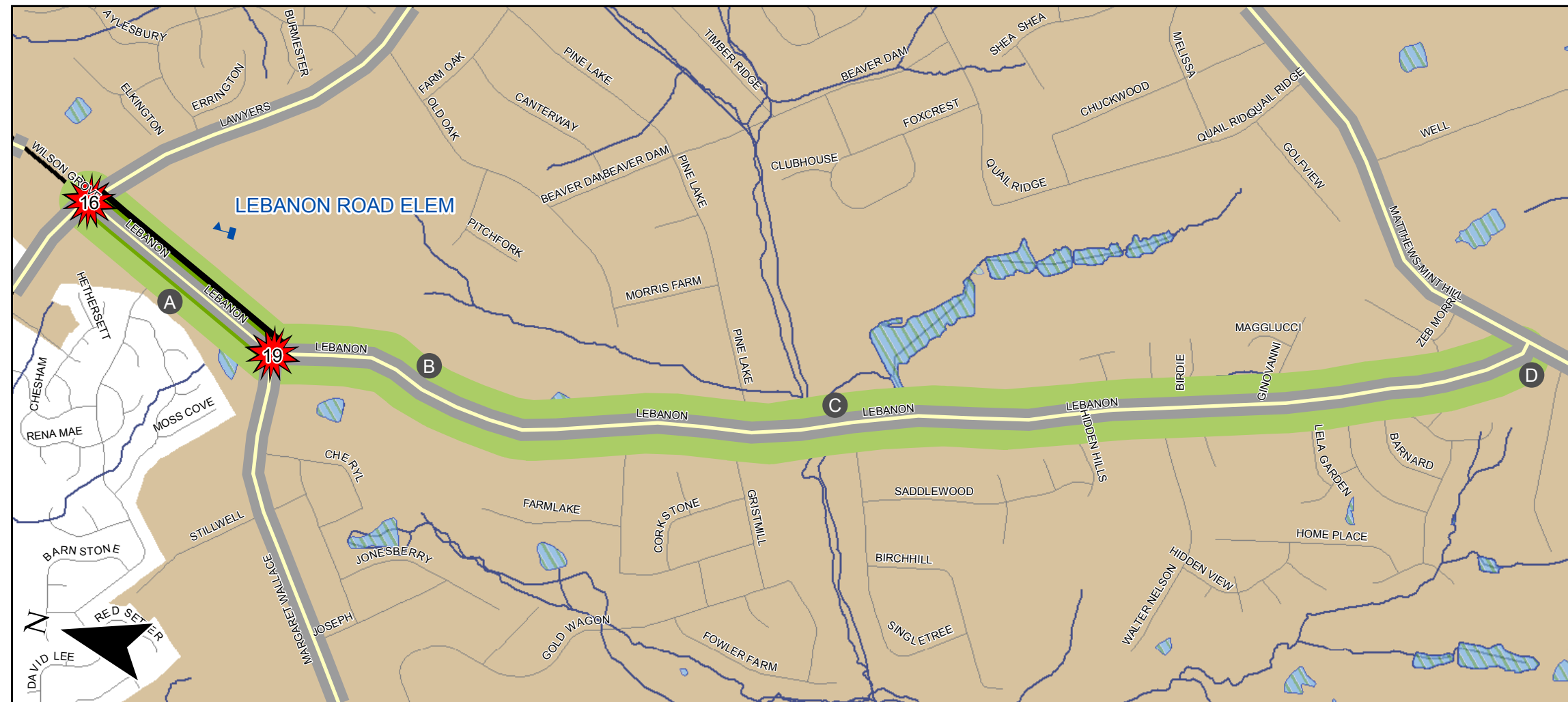


Figure 2.18
Community Strategic Corridor
Lebanon Road



Corridor Description and Issues Identified

- Picture (C) - Existing one-lane bridge (B-3677; Bridge replacement project)
- Congestion during peak hours of the day
- Need for traffic signal at Matthews-Mint Hill Road
- Need for dedicated turn lane at Margret Wallace Road to minimize congestion

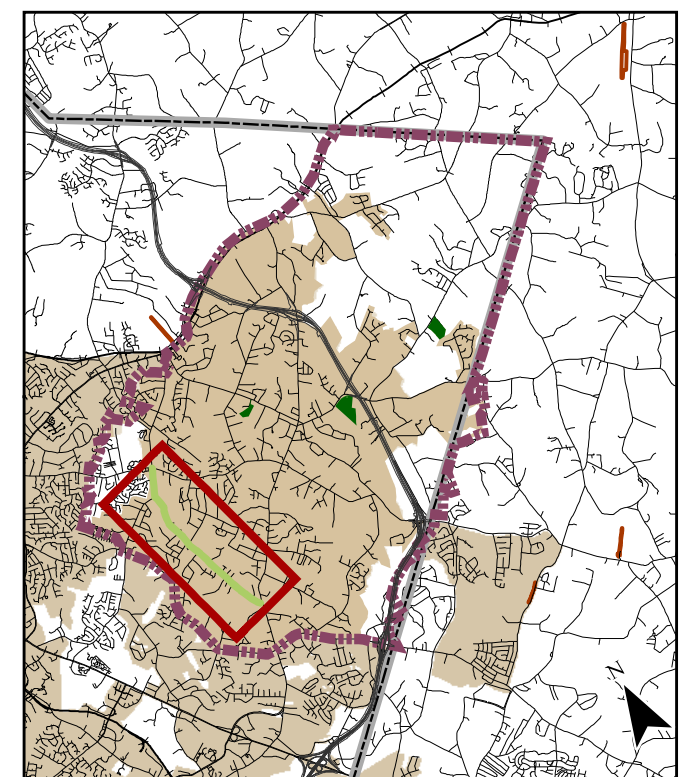
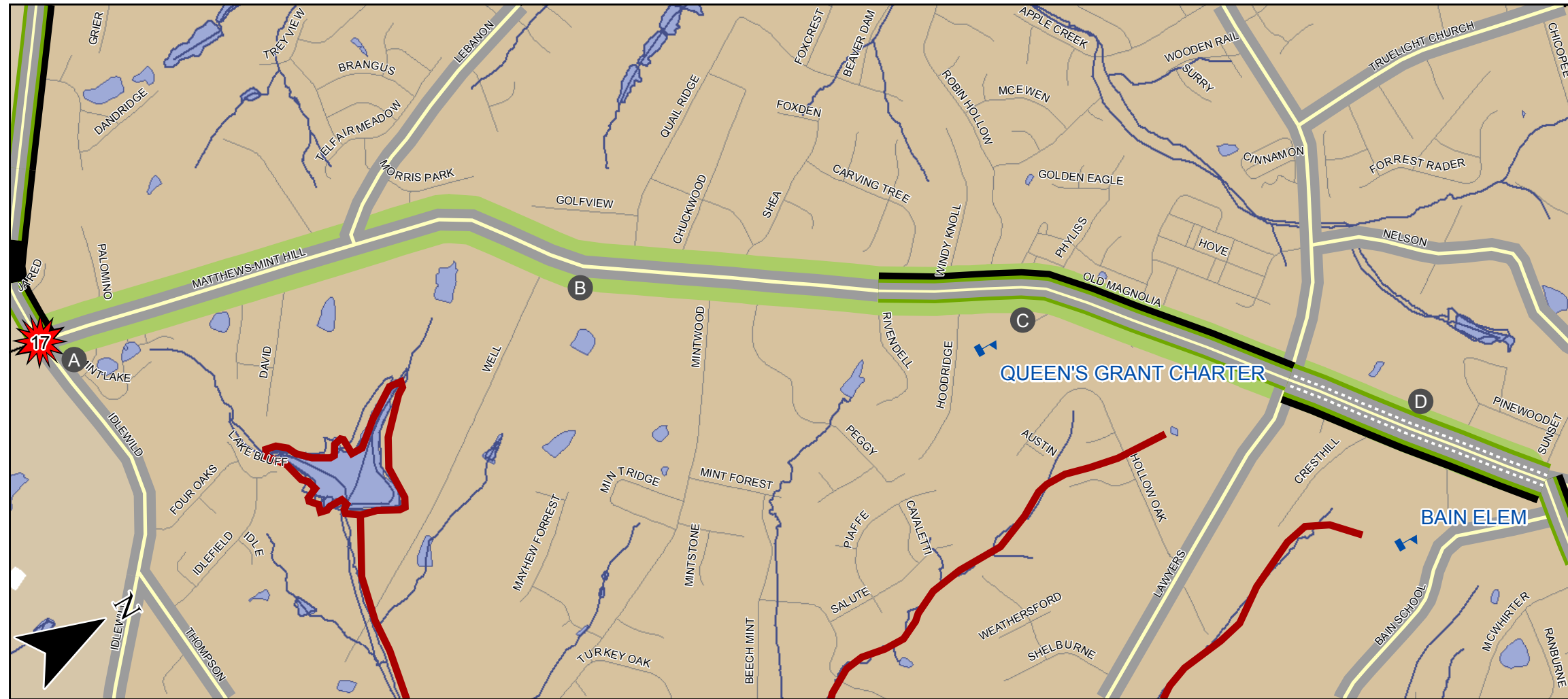
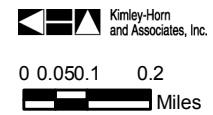
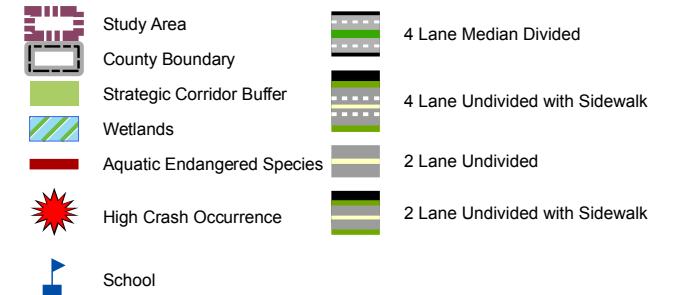


Figure 2.19
Community Strategic Corridor
Matthews-Mint Hill Road
(HWY 51)



Corridor Description and Issues Identified

- Congestion occurs at intersection with Idlewild Road during peak hours
- Gateway to Town
- Queen's Grant Charter school traffic creates congestion during the morning and afternoon

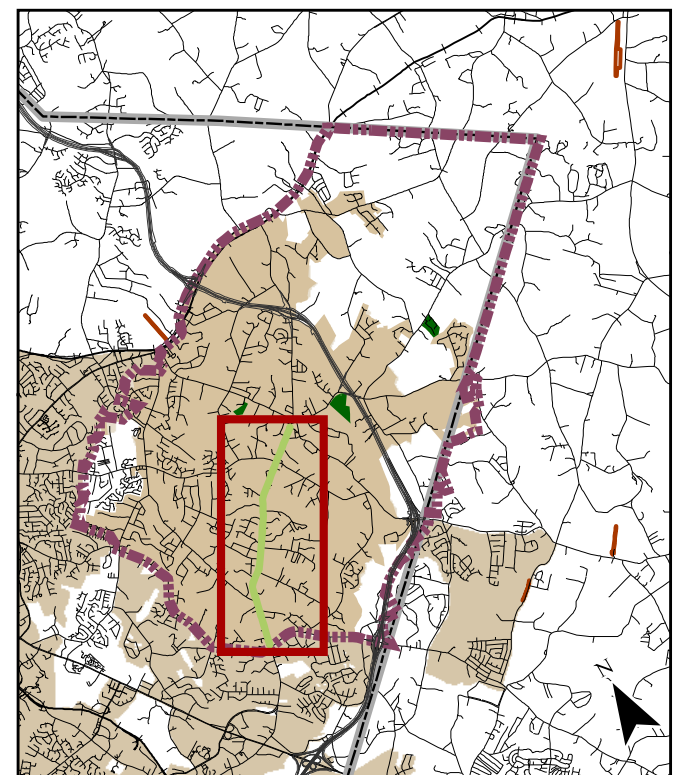
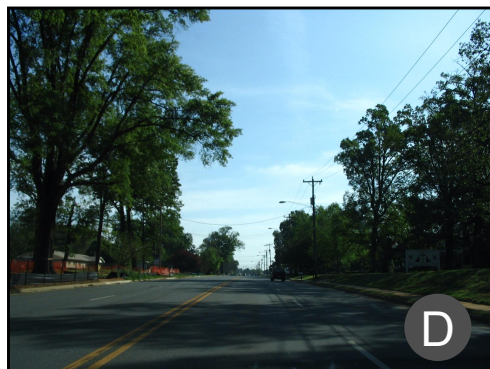
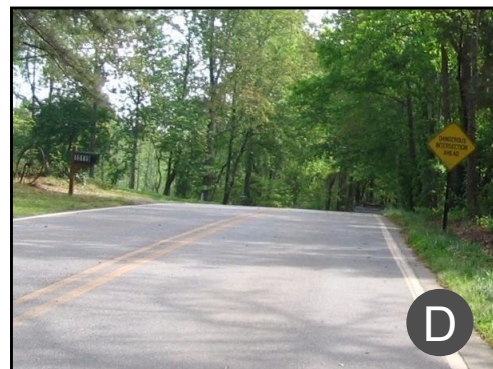
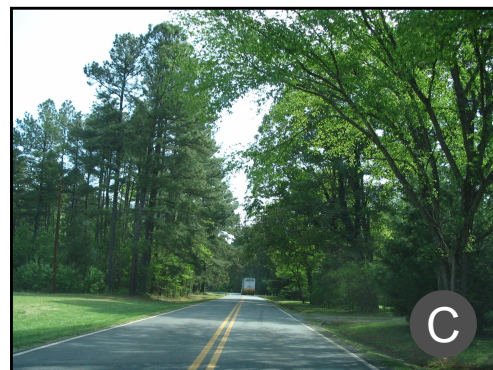
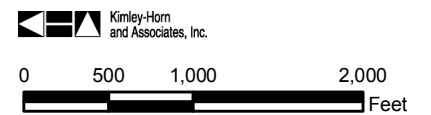
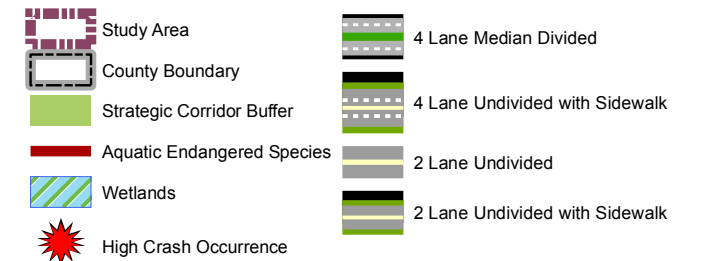
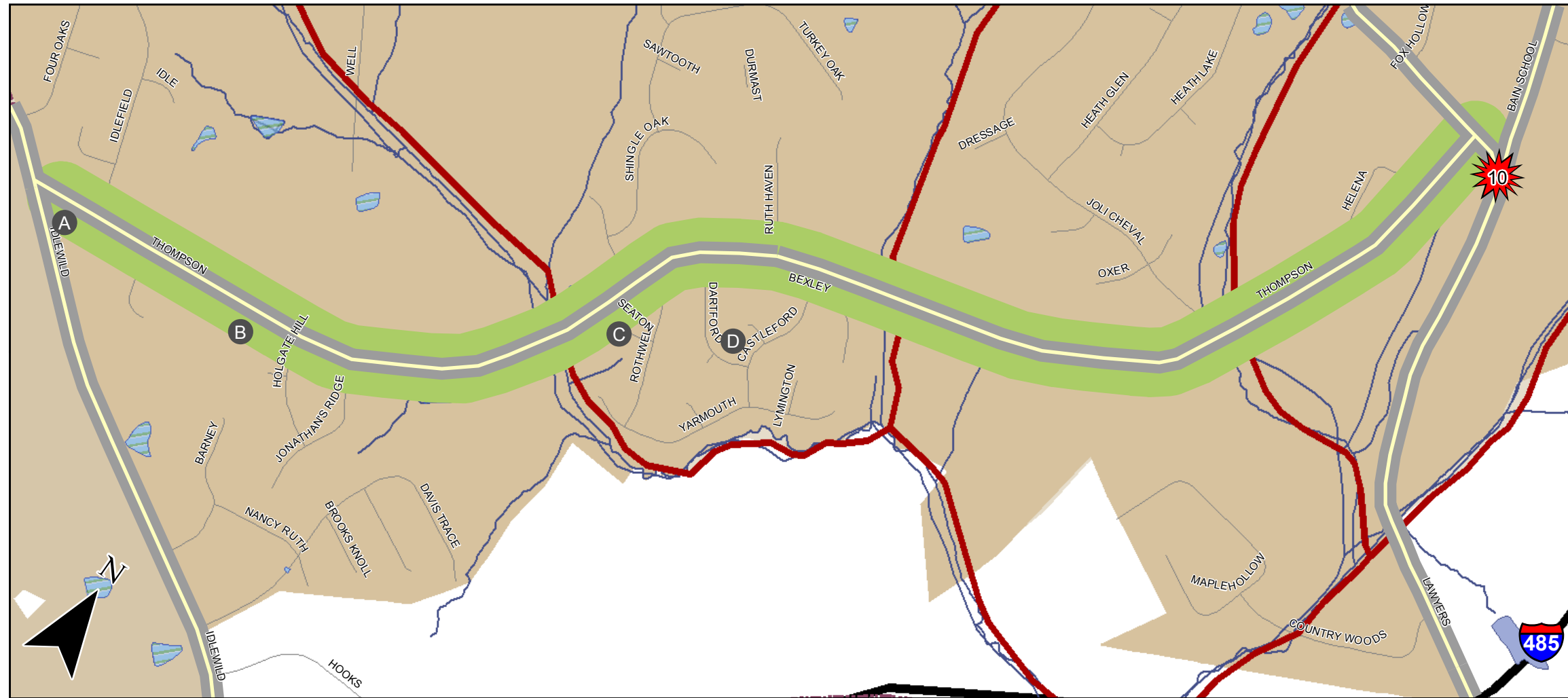


Figure 2.20
Community Strategic Corridor
Thompson Road



Corridor Description and Issues Identified

- Dangerous intersection and congestion at Thompson Road & Castleford Drive & Idlewild Road
- Currently traffic flows well
- Impact of Bridges at Mint Hill will be significant

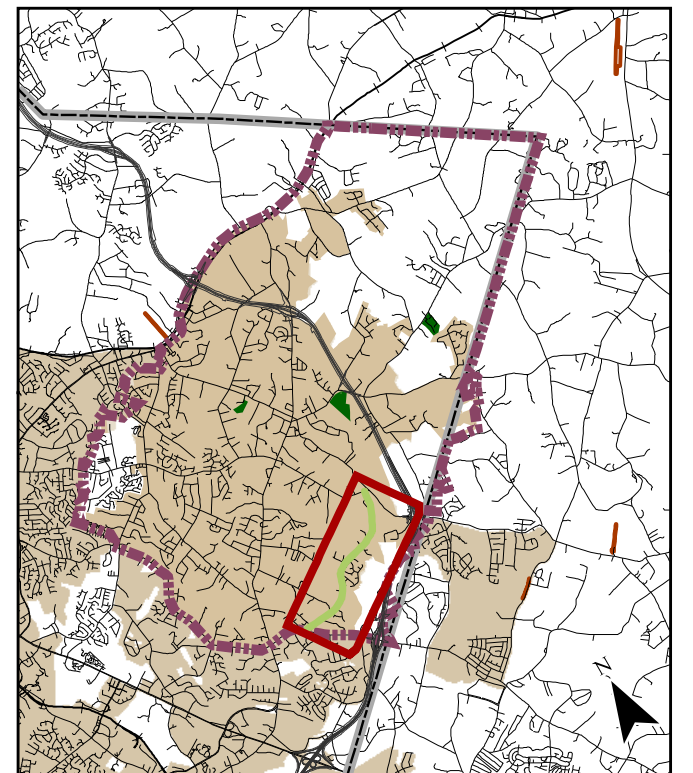
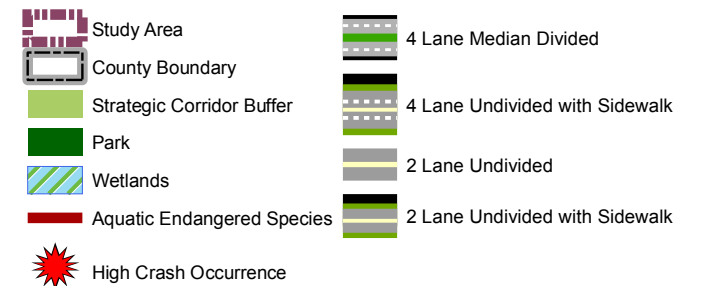
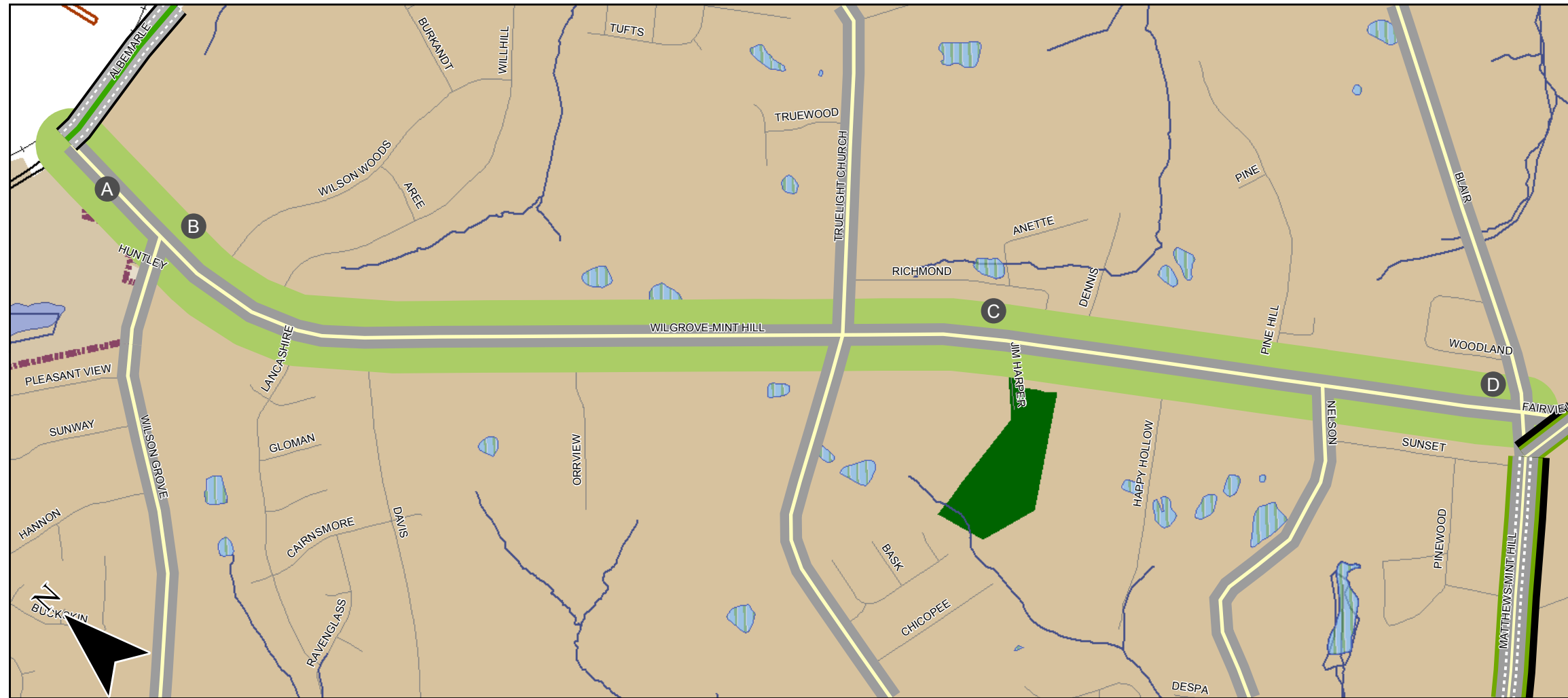


Figure 2.21
Community Strategic Corridor
Wilgrove-Mint Hill Road



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and Associates, Inc.

0 500 1,000 2,000
Feet



Corridor Description and Issues Identified

- School traffic is a problem
- There are two parks in this area
- Congestion is often present at Albemarle Road intersection
- Cut-thru at Nelson Road

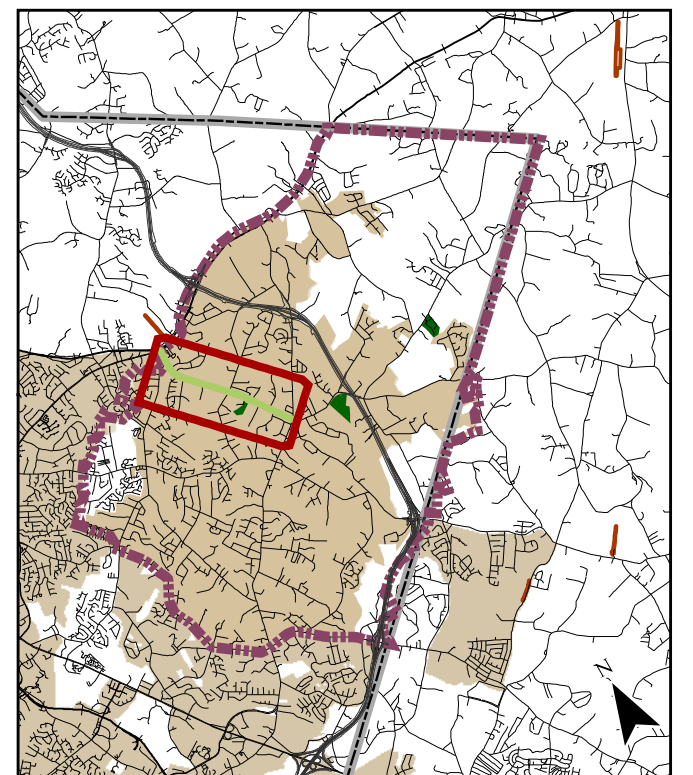
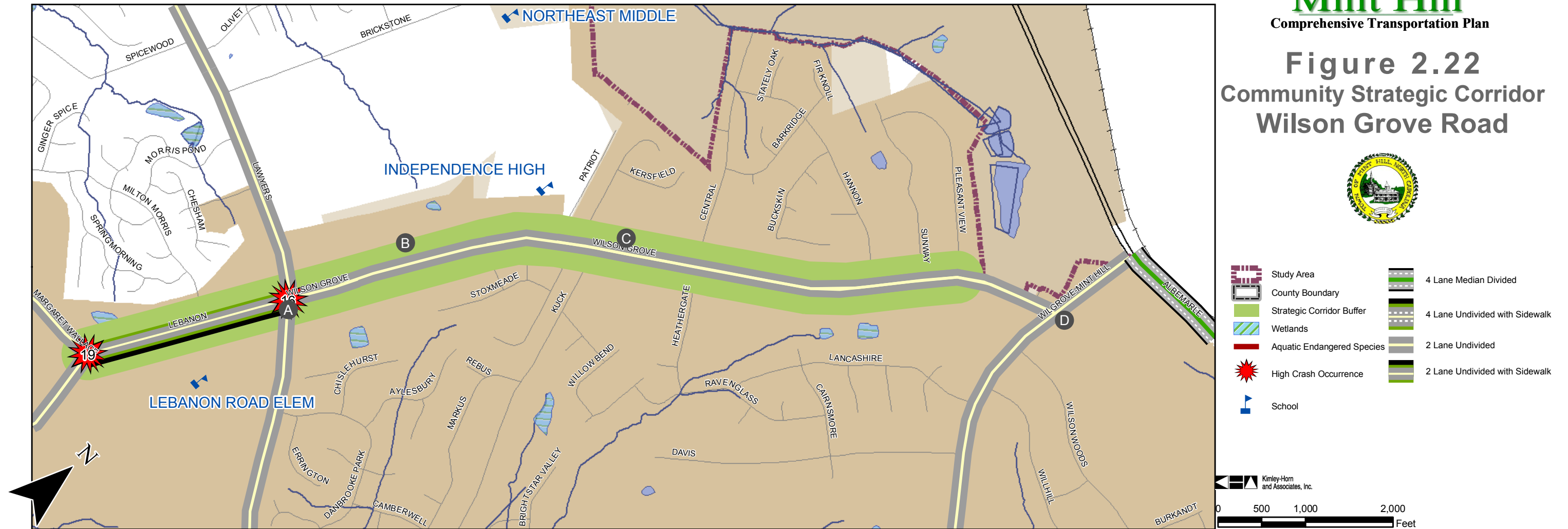


Figure 2.22
Community Strategic Corridor
Wilson Grove Road



Corridor Description and Issues Identified

- Heavy congestion at intersection of Lawyers Road & Wilson Grove Road
- Parking lots are often used to circumvent congested intersection
- No westbound right turn lane at Lawyers Road
- High School traffic creates significant congestion

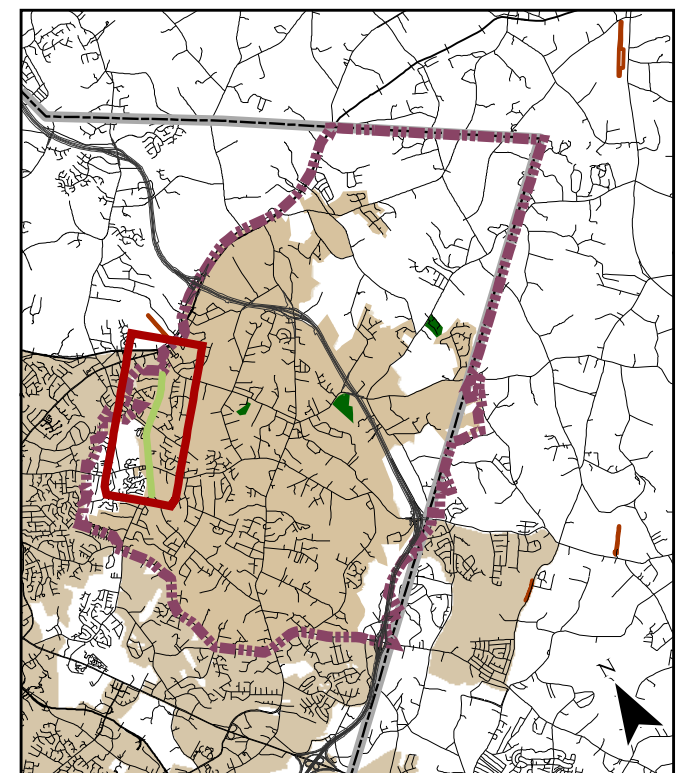
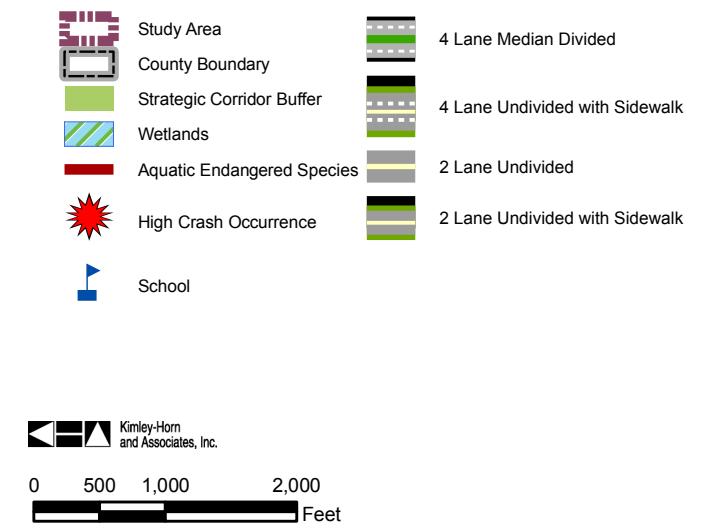
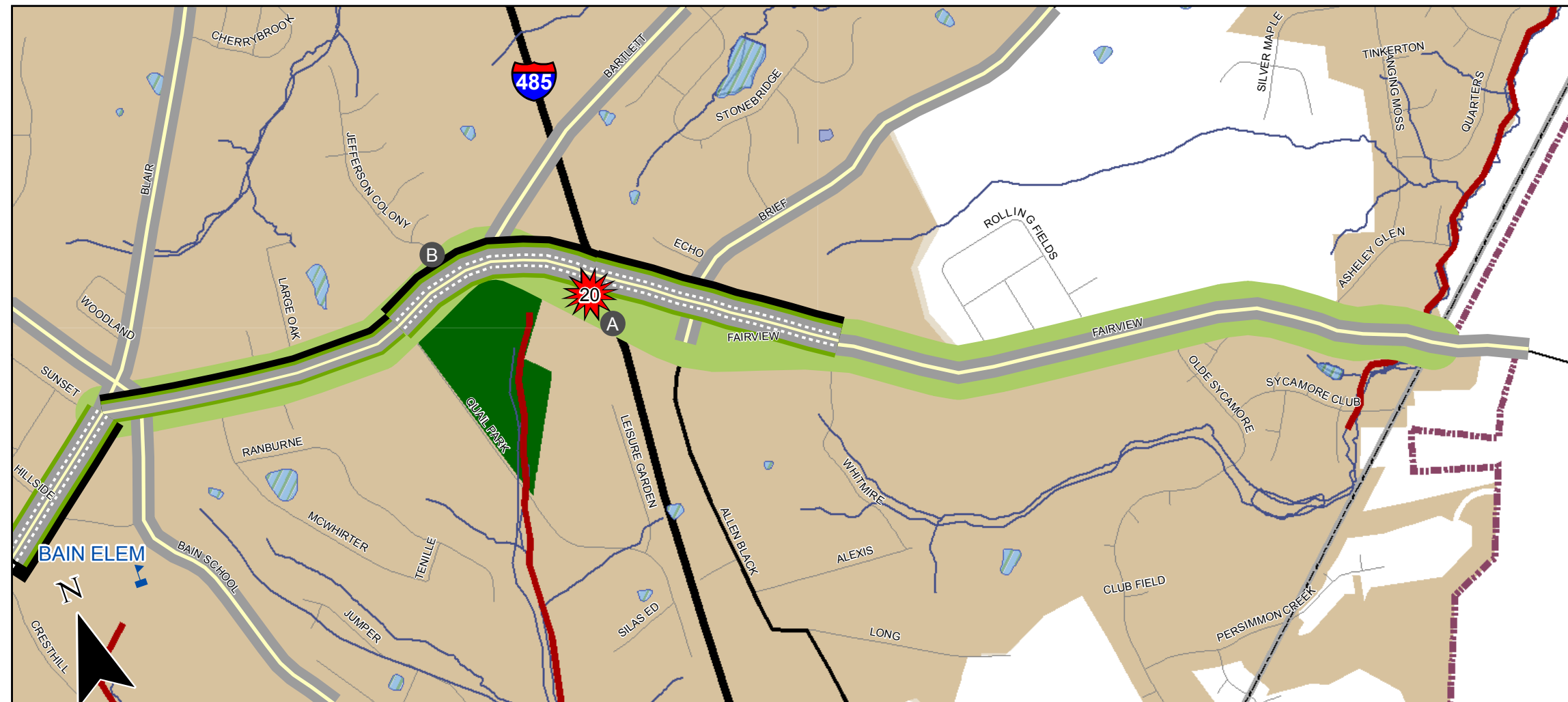
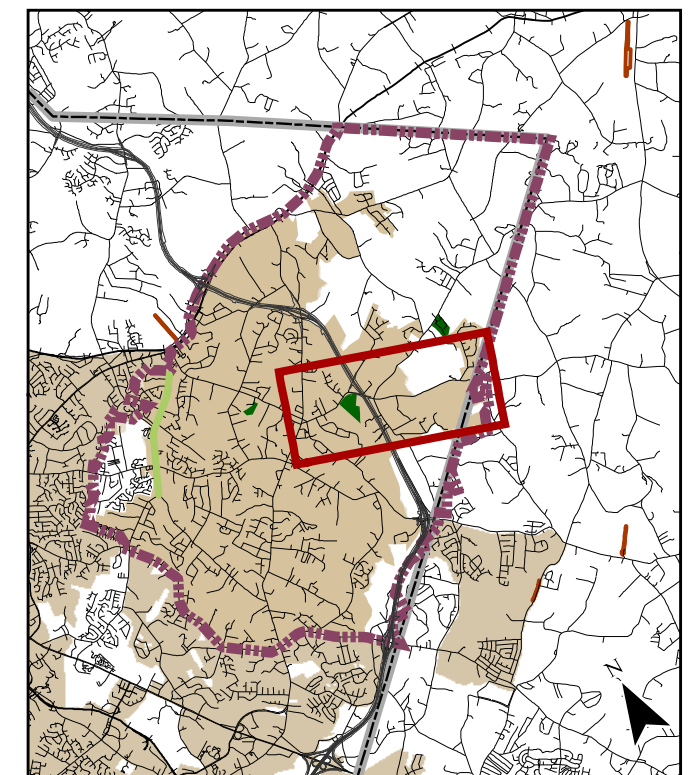
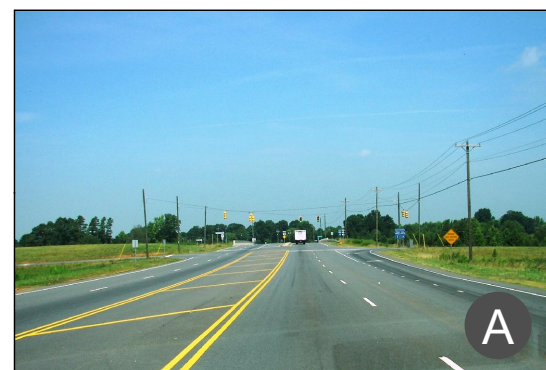
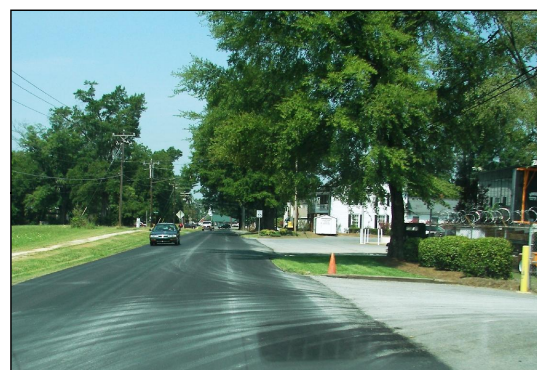


Figure 2.23
Community Strategic Corridor
Fairview Road (HWY 218)



Corridor Description and Issues Identified

- Access management strategies needed
- No defined ingress/egress points
- Curb and gutter needed within Downtown
- Sidewalk needed on both sides
- Town park in vicinity
- Obstructions within the right-of-way



Chapter 3 — Public Engagement and Vision

***“A Community with
Vision For The Future...
And Pride For The Past.”***

Introduction

A critical component of any successful plan is engaging members of the public who live, work and travel within the study area. These are the people who understand the transportation system as well as the shortcomings of the existing network. In addition to providing first-hand knowledge during the development of the plan and recommendations, it is ultimately these people who will live and work with the proposed future system. Therefore, they have a vested interest and responsibility to encourage their idea of the vision and function of their community for the future.

Public engagement for the Mint Hill Comprehensive Transportation Plan began early and was continuous throughout the planning process. A project website (www.minthill.com/CTP) was maintained to inform the public regarding CTP progress and upcoming events. It opened up surveys to the public and gave them a chance for input. Approximately 170 citizens provided input which also helped identify current issues and concerns faced by Mint Hill citizens. Two public workshops were held. Information gathered during these events was summarized and used to guide the development of the CTP.



In addition, a Citizen Transportation Committee, comprised of local staff and Planning Board members, identified Town needs and interests during the development of the CTP. The committee contributed technical knowledge, institutional understanding, community familiarity and was heavily relied upon as the future transportation network policy issues were discussed.

Members of the Committee were also involved with the identification and evaluation of community strategic transportation corridors. These corridors are a central component of the CTP and the recommendations put forth in this document are based heavily on public input as well as the technical analysis conducted.

This extensive public engagement process was developed to gain valuable knowledge and input from the community as well as build awareness and support for the plan. It is hoped that the CTP will be supported and promoted by the public as a result of the input from knowledgeable members of the community.

Citizen Transportation Committee

The Citizen Transportation Committee consisted of volunteers who met on a regular basis to direct the development of the CTP. Their purpose was to guide the planning process to more accurately reflect the community's vision for Mint Hill. The Committee reviewed drafts and offered comments as recommendations and reports were developed in an effort to ensure consistency with Town objectives.

Issues Identified

The Committee identified issues they felt needed to be addressed during the development of the CTP and expressed concerns and considerations including:

- New interchanges will attract growth and change trip destinations
- Traffic will worsen with growth
- Traffic is particularly congested around schools
- The Bridges at Mint Hill – the 1.3 million square-foot open air retail and entertainment center will impact the Town
- Planning for alternative travel modes must occur
- Consider opportunities for walking within proximity to downtown and parks
- Safety concerns at specific intersections
- Environmental constraints due to the Carolina Heelsplitter
- Money/financing will present challenges

Public Engagement and Vision

Goals and Objectives

Based on the identified issues, the following goals and objectives were developed to help maintain focus during the CTP development.

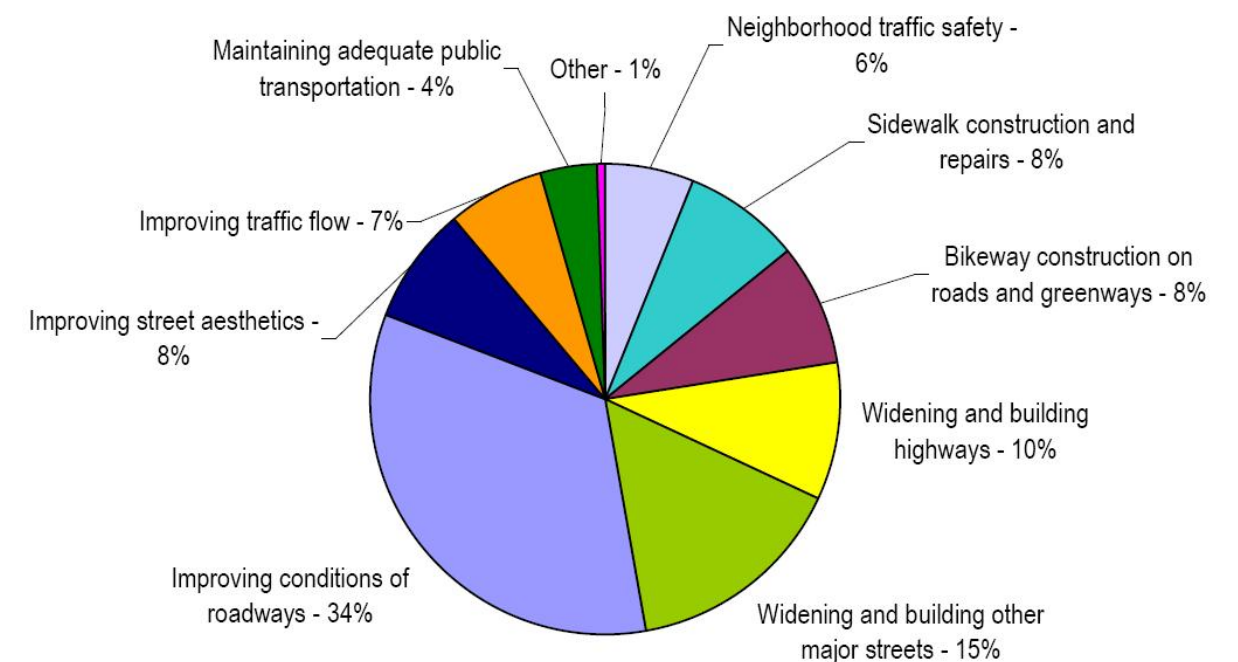
Planning Goals and Objectives:

- **Address Congestion** – The existing and expected future traffic congestion must be reviewed and considered as the CTP is developed and recommendations are identified
- **Multimodal** – Address automobile, bike, transit, pedestrian, rail and freight elements
- **Environmental Constraints, Good Stewards** – Environmental constraints must be considered and projects should be recommended that are cognizant of sensitive areas, specifically the Carolina Heelsplitter Mussell
- **Think Regionally, Act Locally** – This CTP needs to address regional challenges with local solutions wherever possible
- **Collaborative Approach/Intergovernmental Coordination** – In order to build a cohesive vision that can be implemented and supported by local decision-makers, this CTP needs to involve appropriate levels of government
- **Power to Enforce Context Based Solution** – The context of the issues specific to Mint Hill needs to be considered in order to provide solutions based on the community vision
- **Implementation** – The recommendations from this CTP must be able to be implemented
- **Education Through an Informative Document** – Members of the community reviewing this CTP should be educated and informed about the planning process and implementation recommendations relating to all modes of transportation

Committee Survey

To better identify the perceived needs in the community, a survey was presented to the Citizen Transportation Committee at the beginning of this planning process.

The Committee was presented with the following question: “If you had \$100 to spend on transportation improvements, how would you spend it?” Members allocated 38% of the money to improving the conditions of roadways, 17% to widening and building major streets, 11% to improving street aesthetics and 11% to widening and building highways. The remaining percentage of money is allocated based on the chart below.



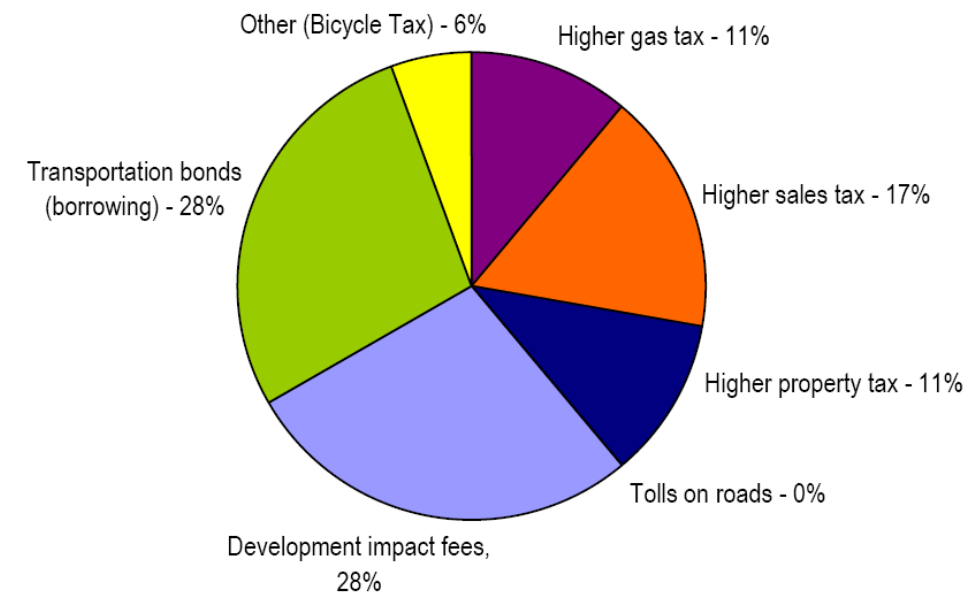
If you had \$100 to spend on transportation improvements, how would you spend it?

Public Engagement and Vision

The competition for traditional transportation funds remains fierce and coincides with continued increase in transportation needs. As a result, alternative funding sources may need to be carefully examined in order for Mint Hill to implement the recommendations of the CTP.

To gauge the Town's support for additional/alternative funding sources, the Committee was asked to identify additional funding mechanisms they would consider supporting. As shown in the chart below, the Committee indicated the most support for developer impact fees and transportation bonds with 28% of the total votes for each of them. 17% indicated support for higher sales tax, while higher property and gas taxes both received 11% of the votes and 6% supported other sources such as bicycle taxes.

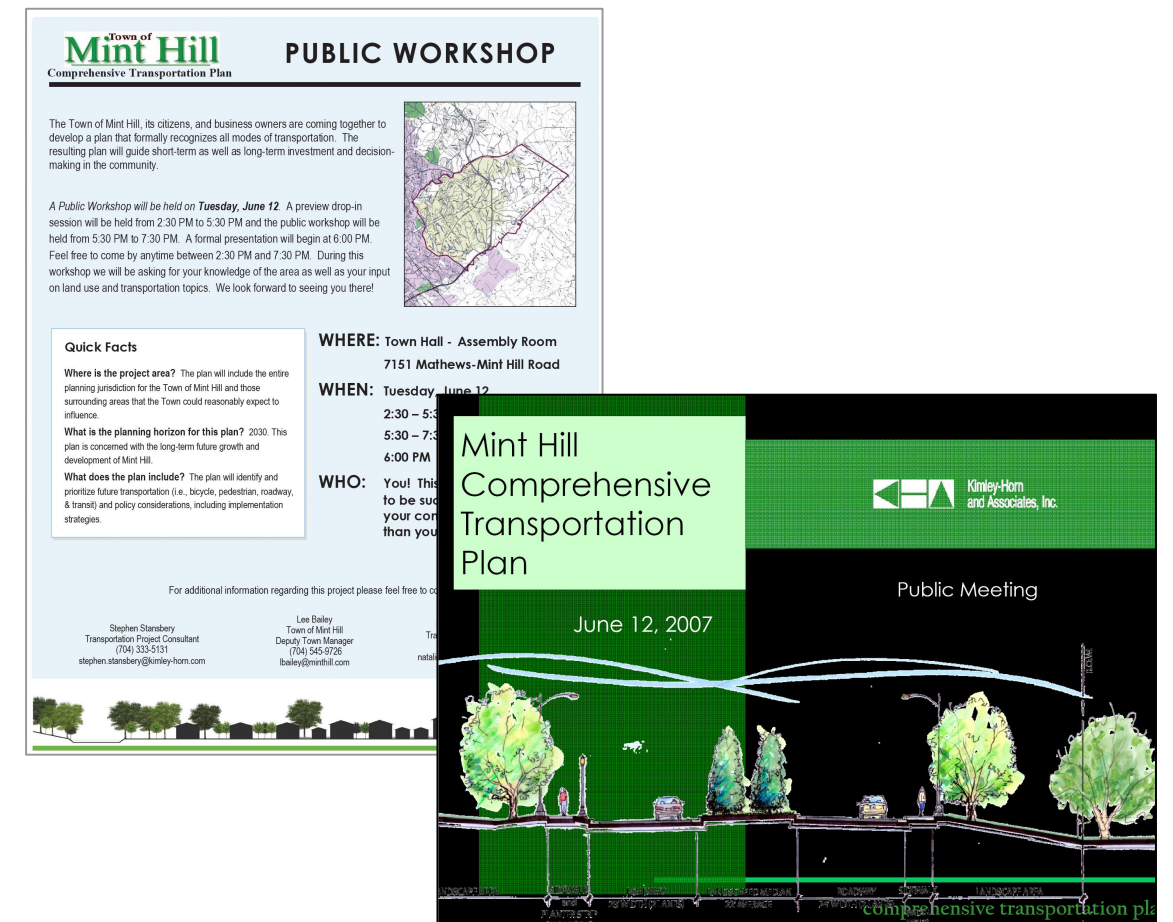
What additional transportation funding sources would you support? – Committee Response



Public Workshop #1

The first public workshop was held on June 12, 2007 from 5:30 to 7:30 PM (with a drop-in session starting at 2:30 PM) at the Mint Hill Town Hall. During this workshop, citizens offered their input on land use and transportation projects, identified issues and brainstormed possible solutions.

Each participant was given a handout explaining the planning process and schedule for the event and asked to complete a survey similar to the previously mentioned Committee survey. Next, they were asked to review the resource maps provided and offer any comments or identify issues prevalent in the community. The workshop concluded with a presentation of the general planning process and how their input would be considered when developing the recommendations of the CTP. The anticipated results and general schedule for completion were also discussed.

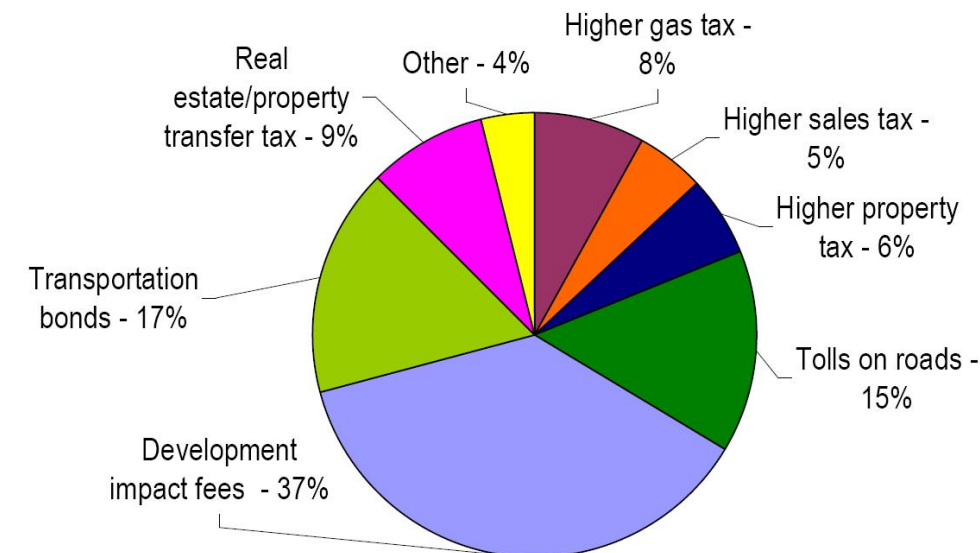


Public Engagement and Vision

Following the public workshop, the survey was uploaded on the internet and local citizens were asked to submit their opinions. In total, approximately 170 citizens offered input through surveys distributed at the public workshop and via the internet. Public response was found to loosely correlate with the Committee results, shown below. Although the percentages varied, both the Citizens' Transportation Committee and the general public participants identified developer impact fees and transportation bonds as their most preferred alternative transportation funding sources.

The workshop participants were asked to identify additional funding mechanisms they would consider supporting given the same categories presented to the Committee. As shown in the chart below, the public indicated the most support for developer impact fees with 37% of the total votes. Transportation bonds received 17% of the votes, a higher gas tax 8% of the votes, a higher sales tax 5% of the votes, 6% voted for a higher property tax, 15% of the votes indicated support for tolls on roads and 9% of the votes were for higher property taxes.

What additional transportation funding sources would you support? – Public Response



In addition, the surveys provided an opportunity for citizens to provide general comments and concerns relevant to transportation planning for the area. They confirmed the opinions expressed by the Citizens' Transportation Committee. Some of the public comments are listed below:

Community Vision:

- *"Mint Hill is a beautiful community that is on the brink of many important decisions as to its future....Downtown has an appealing 'small town' feel and this should be maintained."*
- *"Keep Mint Hill a small town atmosphere."*
- *"...I LOVE the square at Lawyers and Highway 51."*
- *"...Growth needs to contribute to overall good of the community..."*
- *"I would like to see Mint Hill maintain its small town charm, look upscale, and keep developing with higher-end housing."*

Roadway Network:

- *"The road system and schools can not keep up with the developers..."*
- *"Mint Hill needs roads, roads and roads."*
- *"I am in support of The Bridges at Mint Hill, but am concerned about the high traffic congestion."*
- *"Do not widen Wilgrove-Mint Hill Road."*
- *"Widen Highway 51."*
- *"Highway 51 and Idlewild Road need widening for several miles."*
- *"I would like to see more neighborhood connectivity and ways to get to Downtown Mint Hill besides a car..."*
- *"Connectivity is not a good idea. Small neighborhoods with family watch programs are turning [into] small towns."*
- *"Connectivity should be enforced between Fairington Oaks and Mintwood."*

Bicycle and Pedestrian Network:

- *"My dream for Mint Hill!!!!----Let's make Mint Hill FAMOUS and become the first 100% PEDESTRIAN FRIENDLY small town in the nation."*
- *"Would love to also see sidewalks on Truelight Church Road, Highway 51 to I-485, and Wilgrove-Mint Hill Road."*
- *"By improving sidewalks/bicycle lanes into/out of Town, this would decrease traffic flow through the center of Town. This would help maintain the quality of life here."*
- *"...More sidewalks, greenways, benches and trees!"*

Public Engagement and Vision

Bicycle and Pedestrian Network Continued:

- “Sidewalks around Mint Hill so we can walk, run and get around on our bicycles.”
- “...Would also love to see Mint Hill work on the proposed greenway that will connect Mint Hill with McAlpine Park.”
- “I favor greenway systems only to avoid high speed and/or limited access roads that are too dangerous for bicycle traffic.”

Policy Enforcement:

- “...We need to make sure our ordinances are consistent with ‘stated goals’ and do not create more problems than they solve.”
- “I’d like to see a few more restrictions upheld.”
- “...If we could have impact fees, this would help a lot of these problems...”
- “I think developers should be required to pay impact fees since they will be bringing even more students to an overcrowded school.”
- “Treat all the developers the same way...”

Transit:

- “More service for seniors.”
- Need “route to uptown Charlotte.”
- “Bus routes are inconvenient. Bus stops are inconvenient.”
- Need “extended hours [for the] bus system to uptown, University and Southpark area.”
- Need “downtown trolley...”
- Need “park and ride.”

See Appendix for complete summary of survey results.

Public Workshop #2

The second public workshop was held on October 30, 2007 from 5:30 to 7:30 PM (with a drop-in session starting at 2:30 PM) at the Mint Hill Town Hall. A drawing was advertised and held to give away two kid’s bikes to create excitement and help promote the public workshop. This was a way for the Citizen Transportation Committee and Town Staff to encourage alternative modes of transportation and show their commitment to creating a bicycle-friendly community. The drawing was a success and many people were excited to participate in the public workshop and earn the opportunity to win a bike.

During the public workshop, the draft CTP was presented and comments were received. A formal presentation was given to explain the process of the CTP, share and review the draft recommendations. Then, workshop participants were given the opportunity to ask questions.

Each participant was given a handout which displayed the draft Highway Map recommendations and were asked to review the systems level and community strategic corridor recommendation maps throughout the room. Participants were encouraged to make comments and suggestions to the draft recommendations. The overwhelming response was positive. The anticipated results and general schedule for completion were also discussed.

The evening concluded with the drawing for the kid’s bikes.



Chapter 4 – Transportation Recommendations

Introduction

Chapter 3 explained the role of the Citizen Transportation Committee to help identify transportation and land use issues in Mint Hill, as well as recognize and implement the community's vision for 2030. The following transportation recommendations were developed based on the established vision, public input and sound transportation planning principles.

The Citizen Transportation Committee and general public have expressed a desire for better pedestrian and bicycle facilities along with increased mobility and safety. Many citizens expressed concern about the rapid rate of growth in development the Town is experiencing and how that will impact the existing congested infrastructure. The recommendations in this CTP seek to address the needs and concerns in the Town of Mint Hill.

The following recommendations are segmented into transportation elements which represent different travel modes and hierarchies of roadways. The roadway recommendations are presented first and are organized by NCDOT standardized classifications. General congestion management policies and strategies are presented to be used in conjunction with the roadway recommendations. They are followed by the collector street element which identifies specific connections and general policy recommendations to improve connectivity and ease traffic congestion. Next, the pedestrian and bicycle elements present general recommendations at a systems level as well as general policy and guideline recommendations. Finally, the transit and freight elements provide specific route and general policy recommendations to improve the convenience and efficiencies in each respective network.



R5-2*

Roadway Recommendations

The recommended Highway Plan for the Mint Hill study area shown in **Figure 4.1** represents the results of an integrated planning process that considers the currently adopted Mecklenburg Union Metropolitan Planning Organization (MUMPO) Thoroughfare Plan, existing and planned land uses and development, environmental constraints, projected future travel demand and public input.

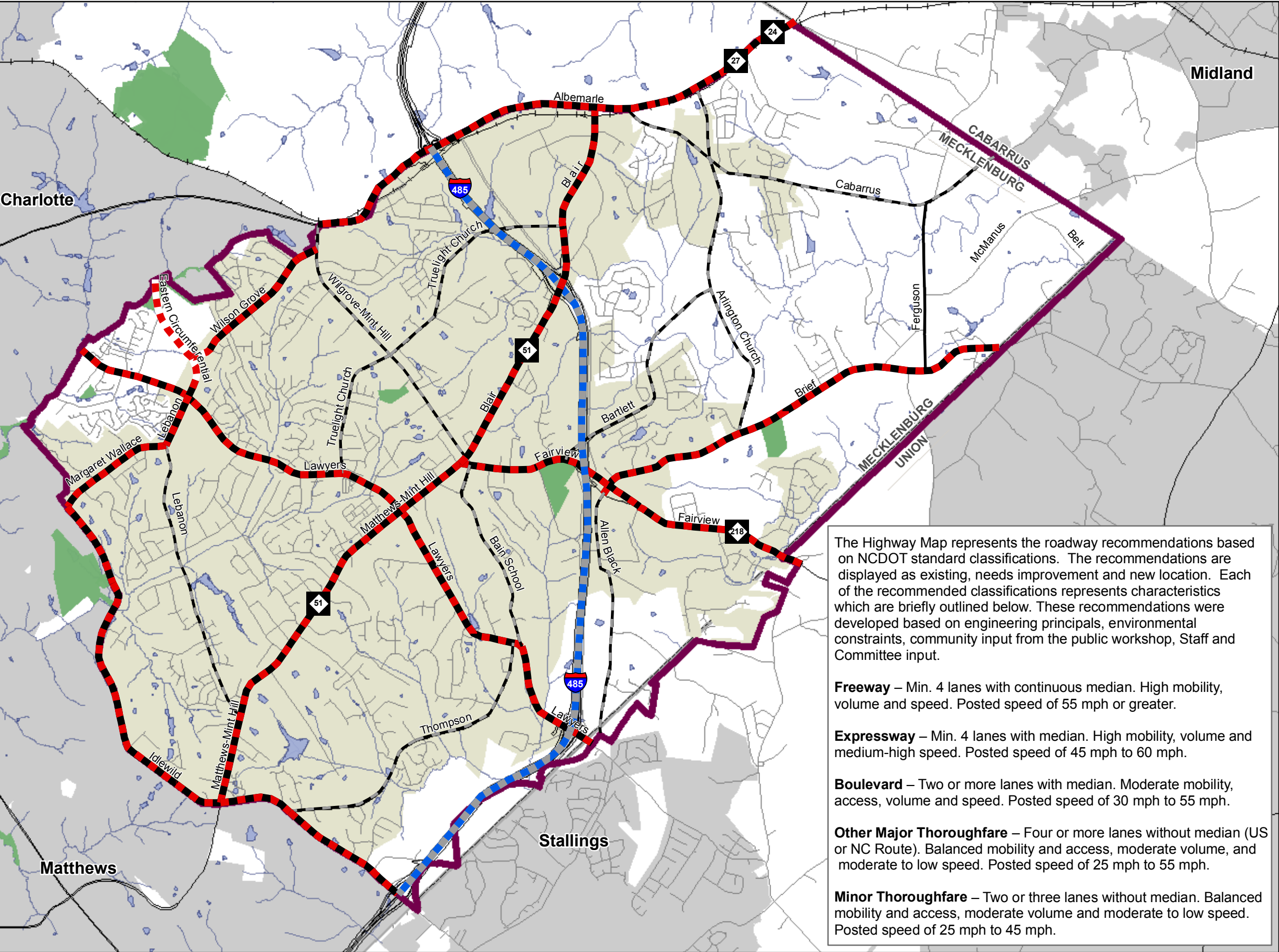
The Metrolina Travel Demand Model (MTDM) was used to consider the projected volumes on the existing roadway system. The MTDM shows new roadway facilities, existing roadway widening, intersection improvements and

corridor enhancements. The following recommendations are anticipated to address the future capacity and system deficiencies in 2030 and should be implemented incrementally as growth and opportunity occur.



Mint Hill Congestion

Figure 4.1
Highway Map



The Highway Map represents the roadway recommendations based on NCDOT standard classifications. The recommendations are displayed as existing, needs improvement and new location. Each of the recommended classifications represents characteristics which are briefly outlined below. These recommendations were developed based on engineering principals, environmental constraints, community input from the public workshop, Staff and Committee input.

Freeway – Min. 4 lanes with continuous median. High mobility, volume and speed. Posted speed of 55 mph or greater.

Expressway – Min. 4 lanes with median. High mobility, volume and medium-high speed. Posted speed of 45 mph to 60 mph.

Boulevard – Two or more lanes with median. Moderate mobility, access, volume and speed. Posted speed of 30 mph to 55 mph.

Other Major Thoroughfare – Four or more lanes without median (US or NC Route). Balanced mobility and access, moderate volume, and moderate to low speed. Posted speed of 25 mph to 55 mph.

Minor Thoroughfare – Two or three lanes without median. Balanced mobility and access, moderate volume and moderate to low speed. Posted speed of 25 mph to 45 mph.

- Study Area Boundary
- County Boundary
- Town of Mint Hill
- Other Municipalities
- Bodies of Water
- Parks
- Freeway
 - Existing
 - Needs Improvement
 - Recommended
- Expressway
 - Existing
 - Needs Improvement
 - Recommended
- Boulevard
 - Existing
 - Needs Improvement
 - Recommended
- Other Major Thoroughfare
 - Existing
 - Needs Improvement
 - Recommended
- Minor Thoroughfare
 - Existing
 - Needs Improvement
 - Recommended



Transportation Recommendations

Community Strategic Corridor Recommendations

The following corridor descriptions identify potential roadway recommendations for those corridors identified as community strategic corridors. These corridors were considered closely by the public, Citizen Transportation Committee and staff. They reflect the vision and goals identified by the community. They are shown collectively on the highway map in **Figure 4.1**. More detailed information for each of the community strategic corridors can be found in **Figures 4.2 – 4.13**.

Bain School Road (Figure 4.2) is classified as a proposed minor thoroughfare in need of improvements from Fairview Road to Lawyers Road. It is recommended that this facility be constructed with two lanes, no median, sidewalks and bike lanes on both sides and a 35 mph speed limit. It should be noted that the sidewalks will need to be a minimum of eight feet wide within the Downtown Overlay District to adhere to the adopted overlay code discussed later in this chapter. These improvements will help accommodate increased traffic from the proposed Bridges at Mint Hill development and Interstate I-485.

Lawyers Road (Figure 4.2), from Matthews-Mint Hill Road to Bain School Road is identified as a proposed boulevard in need of improvements. It is recommended that this road be widened to four lanes with a median with bike lanes and sidewalks on both sides of the facility. Lawyers Road from Bain School Road south to the study area boundary is also identified as a proposed boulevard in need of improvements. It is recommended that this road be widened to four lanes with a median and a multi-use path on one side of the road. It is also recommended that the existing CATS fixed-route service be extended along Lawyers Road to accommodate riders with a destination at the Bridges at Mint Hill.

Bartlett Road (Figure 4.3), which intersects Fairview Road to the west and continues east until it intersects Arlington Church Road, is classified as a proposed minor thoroughfare in need of improvements. Interstate I-485 crosses Bartlett Road near its western intersection with Fairview Road. Single-family residences are located off Glencroft Road which intersects Bartlett Road approximately halfway across its length. It is recommended that this road have two lanes, no median, four-foot wide bike lanes and sidewalks on both sides of the road, wider shoulders and a speed limit of 35 mph.

Blair Road / NC Highway 51 (Figure 4.4) is classified as a proposed boulevard in need of improvements; it runs roughly north to south ending at an intersection with Albemarle Road to the north and, to the south, ending Downtown at an intersection with Fairview and Matthews-Mint Hill Roads. As a boulevard, it is

recommended that Blair Road consist of four-lanes and be a median divided facility with bike lanes. Sidewalks are recommended on both sides of the road from Downtown to Truelight Church Road. To the south of Albemarle Road, is the proposed Clear Creek Business Park which is bounded by Blair Road, Interstate I-485 and Albemarle Road. Blair Road is a recommended truck route (as are Interstate I-485 and Albemarle Road). Blair Road is intersected by a proposed greenway to the south.

Brief Road (Figure 4.5) is identified as a proposed boulevard in need of improvements. This boulevard should be widened to a four lane median divided facility with bike lanes and sidewalks on both sides. Currently, no sidewalks or bike lanes exist on Brief Road. Bike lanes and sidewalks will help bicyclists and pedestrians travel to and from the Mint Hill Athletic Association Park which is located just east of its intersection with Arlington Church Road.

Idlewild Road (Figure 4.6), from Margaret Wallace Road to Thompson Road, is identified as a proposed boulevard in need of improvements. It is recommended that Idlewild Road be widened to four lanes with a median. The community's vision is to include sidewalks and bike lanes on both sides of the road (a sidewalk currently exists only on part of one side). A proposed greenway intersects Idlewild Road just north of Kale Road.

Lawyers Road (Figure 4.7), from the Charlotte City limits east of Wilson Grove Road to Matthews-Mint Hill Road, is identified as a proposed boulevard in need of improvements. It is recommended that this road be widened to four lanes with a median. The proposed speed limit for the road west of Truelight Church Road is 45 mph while the proposed speed limit for the road east of Truelight Church Road is 35 mph. The community's vision includes sidewalks from Truelight Church Road to Downtown. Sidewalks and bike lanes are recommended for the entire section and would help provide access to the existing park-and-ride lot near the intersection of Lawyers and Matthews-Mint Hill Roads; a proposed greenway that intersects Lawyers Road between Truelight Church and Matthews-Mint Hill Roads; Lebanon Elementary School near the intersection of Lawyers and Lebanon Roads; as well as numerous subdivisions and residences.

Lebanon Road (Figure 4.8) is designated as a boulevard in need of improvements for the section from Lawyers to Margaret Wallace Roads. It is recommended that this section be widened to four lanes and include a median. These improvements are also designated in the MUMPO 2030 Long Range Transportation Plan (LRTP) as part of the Eastern Circumferential Roadway alignment. As such, these improvements have been ranked 133 out of 221 within the 2030 horizon year. These improvements would help accommodate

Transportation Recommendations

traffic from Lawyers and Margaret Wallace Roads as well as vehicular and pedestrian traffic associated with Lebanon Road Elementary School. The section of Lebanon Road from Margaret Wallace to Matthews-Mint Hill Roads is classified as a minor thoroughfare in need of improvements; as such, it is recommended that this section consist of two lanes without a median. The community vision for both sections of Lebanon Road includes sidewalks and bike lanes. A proposed greenway (running roughly east and west) would intersect Lebanon Road between Pine Lake Lane and Singletree Road. In addition, it is recommended that the corridor maintain a speed limit of 35 mph.

Matthews-Mint Hill Road (Figure 4.9), from Idlewild Road to its intersection with Blair and Fairview Roads, is designated as a boulevard in need of improvements. It is recommended that this road be widened to four lanes and include a median. Sidewalks currently exist on one side of the facility in the northern portion of this road; however, sidewalks for both sides of the road as well as bike lanes, are recommended for the length of this section. A proposed greenway intersects the southern portion of Matthews-Mint Hill Road while the greenway runs roughly parallel to the northern portion. Sidewalks and bike lanes would increase access to this greenway, Bain Elementary School and existing and proposed CATS facilities. Additionally, wider 8-foot wide sidewalks are proposed for the Downtown Overlay District north of Phyliss Lane while the rest of the road would be served by 5-foot-wide sidewalks.

Thompson Road (Figure 4.10) is classified as a proposed minor thoroughfare in need of improvements. It is recommended that sidewalks and bike lanes be added to this two-lane road which connects Idlewild to Lawyers Roads. This would increase connectivity to a proposed greenway which intersects Thompson Road twice. This would be consistent with the community's vision of adding sidewalks to this road.

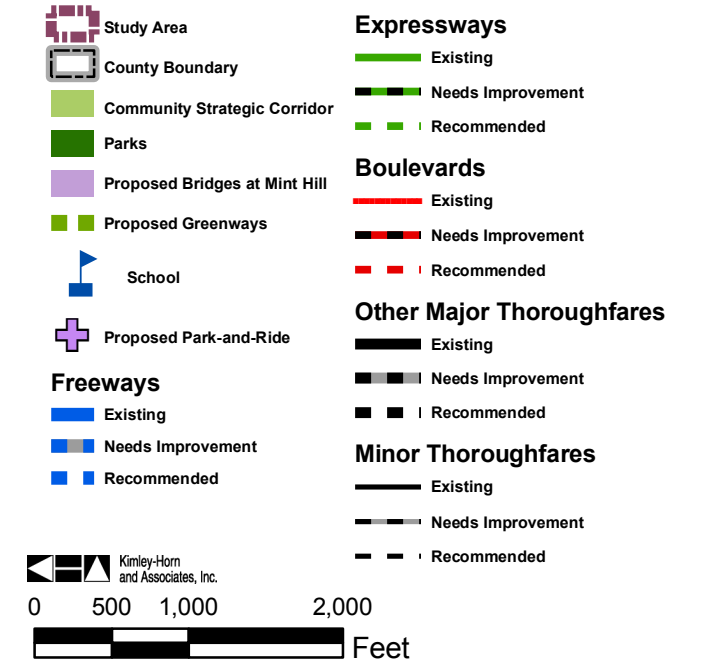
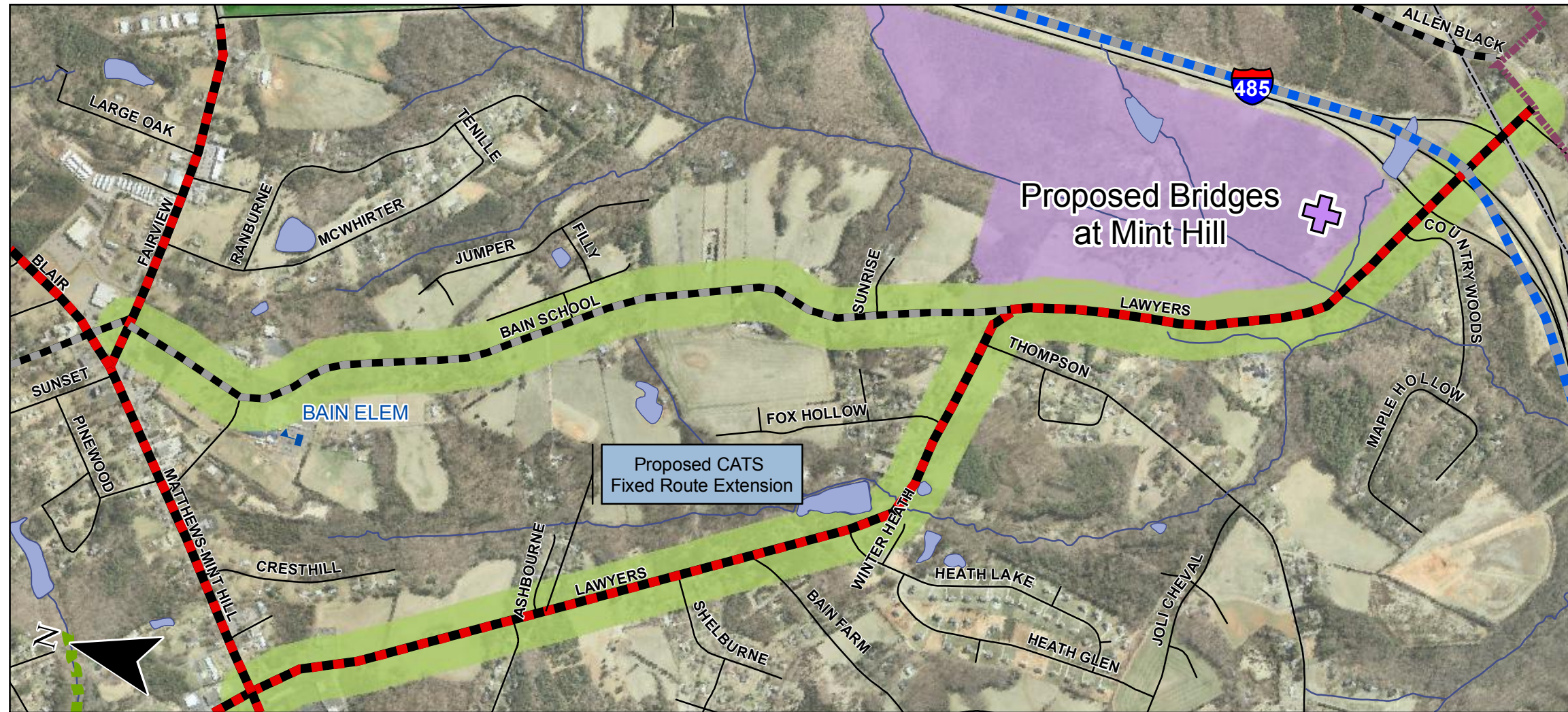
Wilgrove-Mint Hill Road (Figure 4.11), which intersects Albemarle Road to the north and Matthews-Mint Hill Road to the south, is classified as a proposed minor thoroughfare in need of improvements. It is recommended that sidewalks and bike lanes be added to this two-lane road. Sidewalks in the Downtown Overlay District, south of Nelson Road would be a minimum of eight feet wide while those north of Nelson Road would be a minimum of five feet wide. Sidewalks and bike lanes would provide greater access for bicyclists and pedestrians to Wilgrove Park, Downtown Mint Hill and a proposed greenway.

Wilson Grove Road (Figure 4.12), which intersects Lawyers Road to the south and Wilgrove-Mint Hill Road to the north, is classified as a proposed boulevard in need of improvements. It is recommended that this road be widened to four lanes and include a median. In conjunction with the community's vision, the

addition of sidewalks and bike lanes are also recommended in order to help facilitate pedestrian and non-motorized travel associated with Lebanon Road Elementary School and Independence High School, both of which are along this road.

Fairview Road (Figure 4.13), which intersects Blair Road to the west and continues east into Union County, is classified as a proposed boulevard in need of improvements. It is recommended that this road be widened to four lanes and include a median. Fairview Road provides access to Interstate I-485 and facilitates a significant amount of traffic. To the west of Interstate I-485, the speed limit for Fairview Road is recommended to be 35 mph and to the east of Interstate I-485, 45 mph. Sidewalks and bike lanes are recommended for this road as they would increase access to Quail Park Drive, Downtown Mint Hill and Bain Elementary School. Citizens echoed this recommendation when they suggested the addition of sidewalks to the Downtown area. A proposed greenway terminates at Quail Park Drive which is adjacent to Fairview Road.

Figure 4.2
Community Strategic Corridor
Bain School/Lawyers Road



2030 Recommendations

Bain School Road

NCDOT Classification: Minor Thoroughfare Needs Improvement

Number of Lanes: 2

Median Type: None

Proposed Speed Limit: 35 mph

Lawyers Road

NCDOT Classification: Boulevard Needs Improvement

Number of Lanes: 4

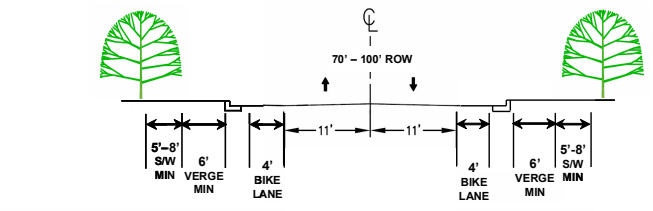
Median Type: Divided

Proposed Speed Limit: 35 mph

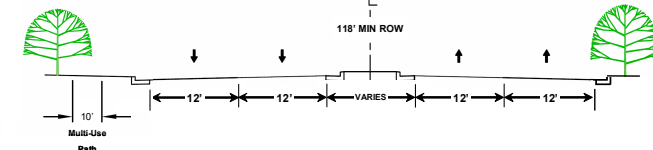
Community Vision - Widen road to accomodate increased traffic with Bridges at Mint Hill

Proposed Cross-Section

Bain School Road



Lawyers Road (South of Bain School Road)



Lawyers Road (North of Bain School Road)

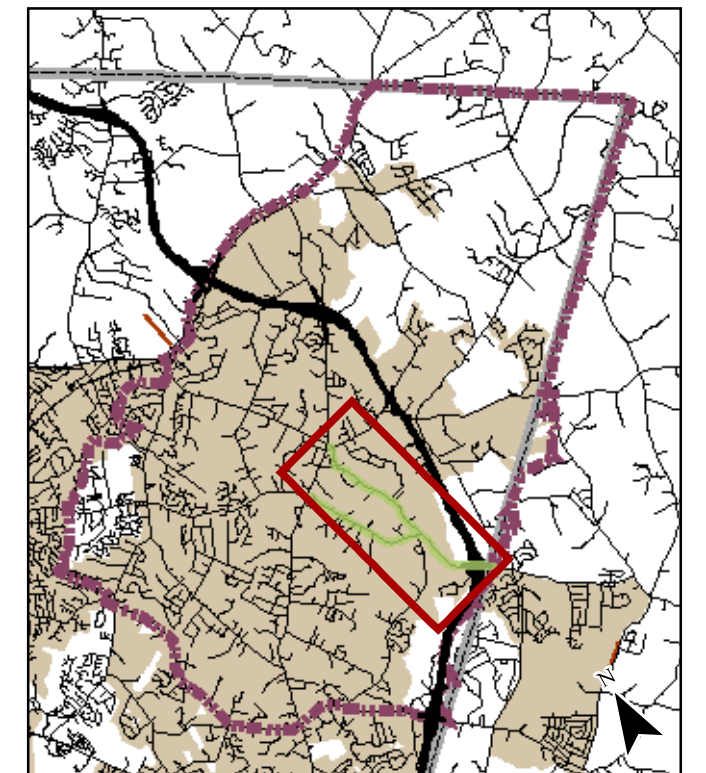
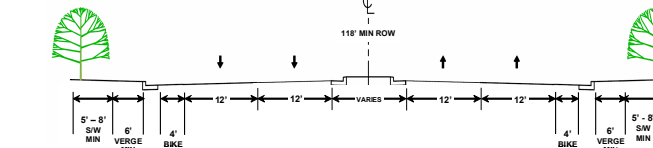
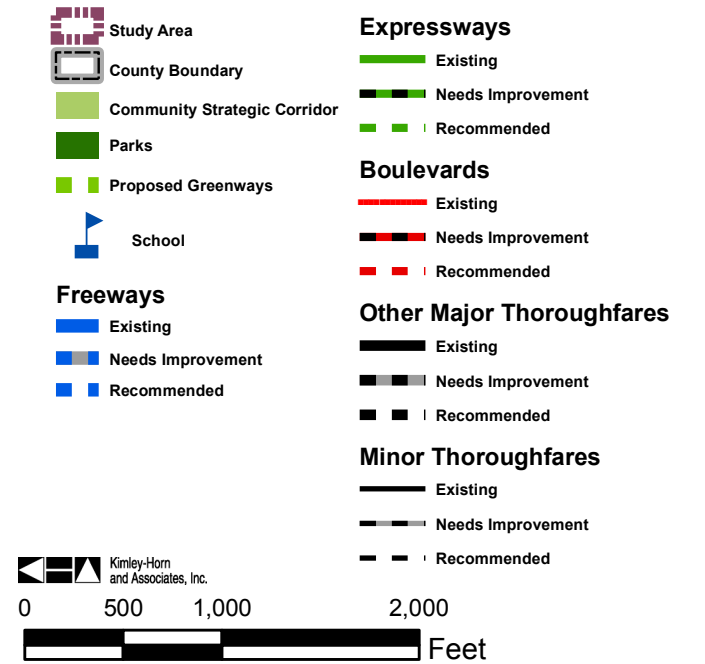
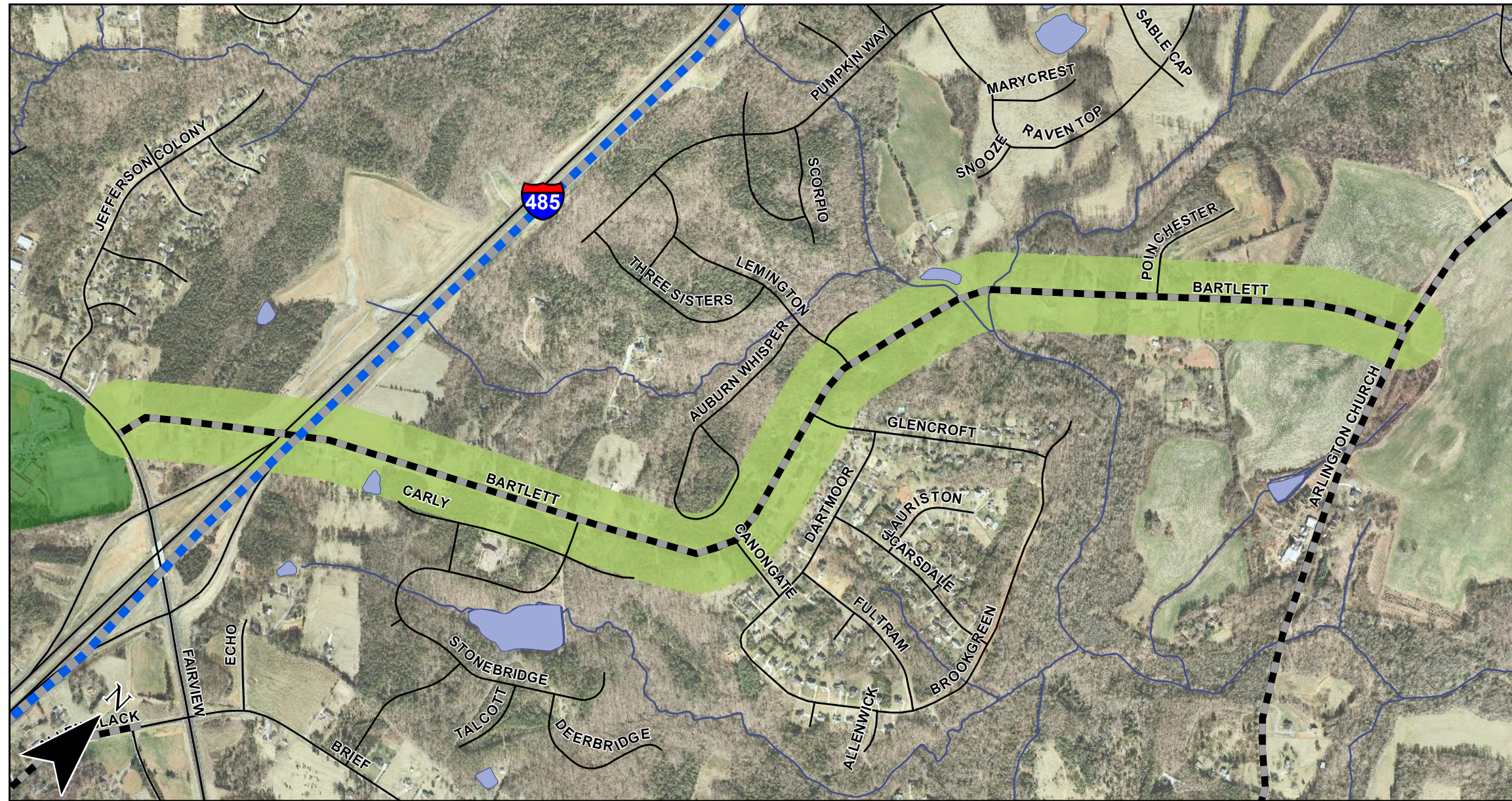


Figure 4.3
Community Strategic Corridor
Bartlett Road



2030 Recommendations

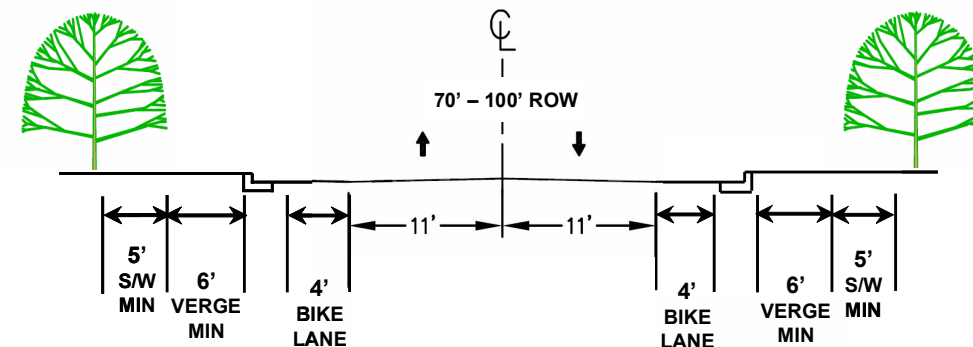
NCDOT Classification: Minor Thoroughfare
Needs Improvement

Number of Lanes: 2

Median Type: None

Proposed Speed Limit: 35 mph

Proposed Cross-Section



Community Vision - Lower speed limit, wider shoulders, bike lanes and sidewalks to the park on Fairview

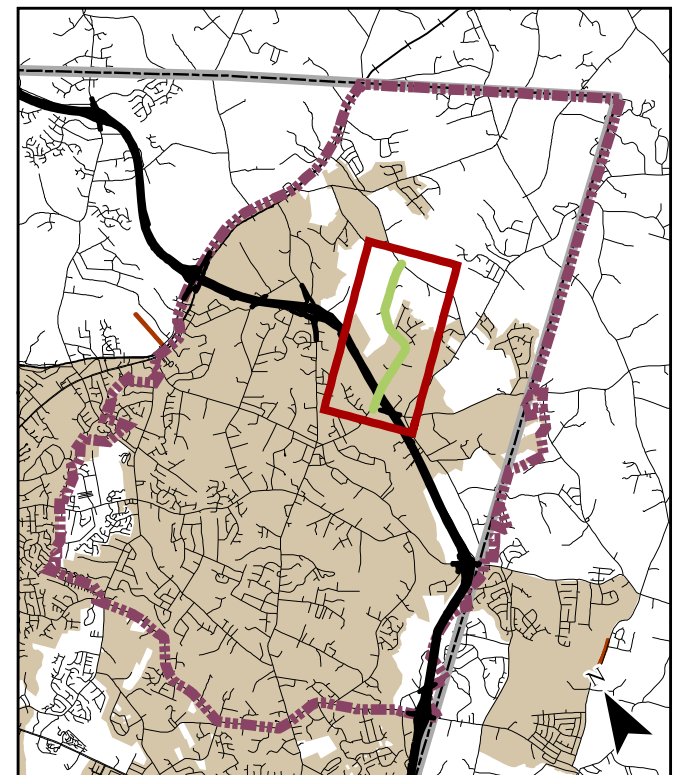
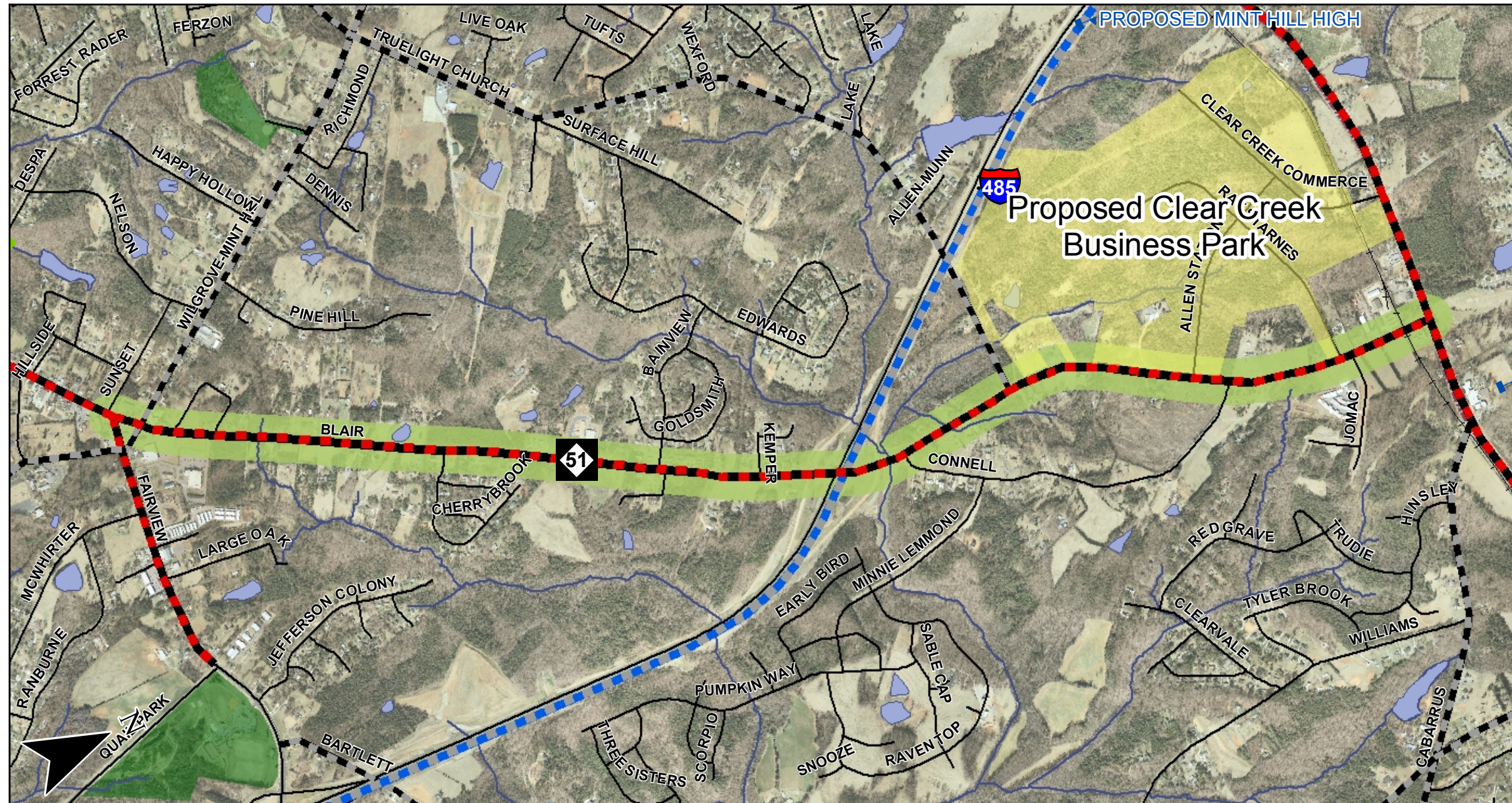


Figure 4.4
Community Strategic Corridor
Blair Road (NC Highway 51)



2030 Recommendations

NCDOT Classification: Boulevard Needs Improvement
Number of Lanes: 4
Median Type: Divided
Proposed Speed Limit: 45 mph

Community Vision - Widen road and add turn lanes

Proposed Cross-Section

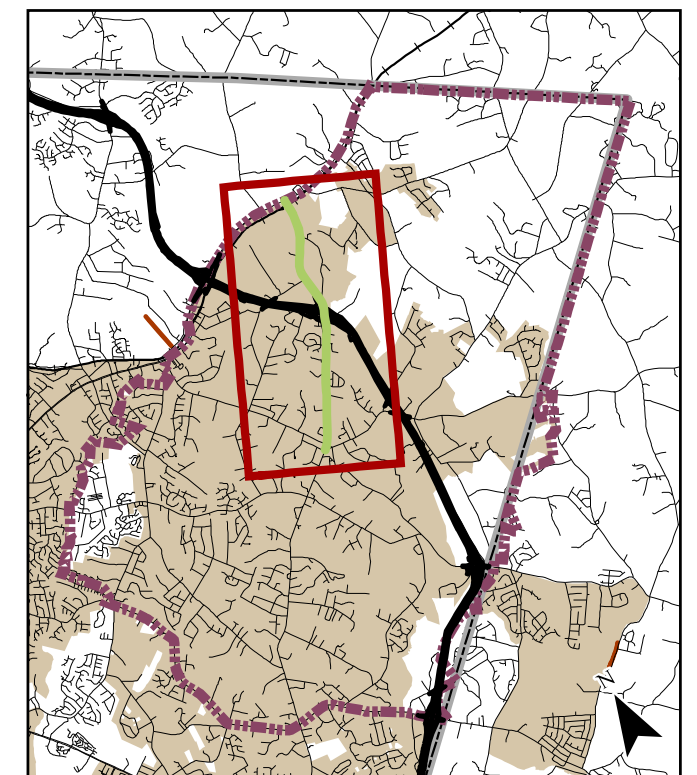
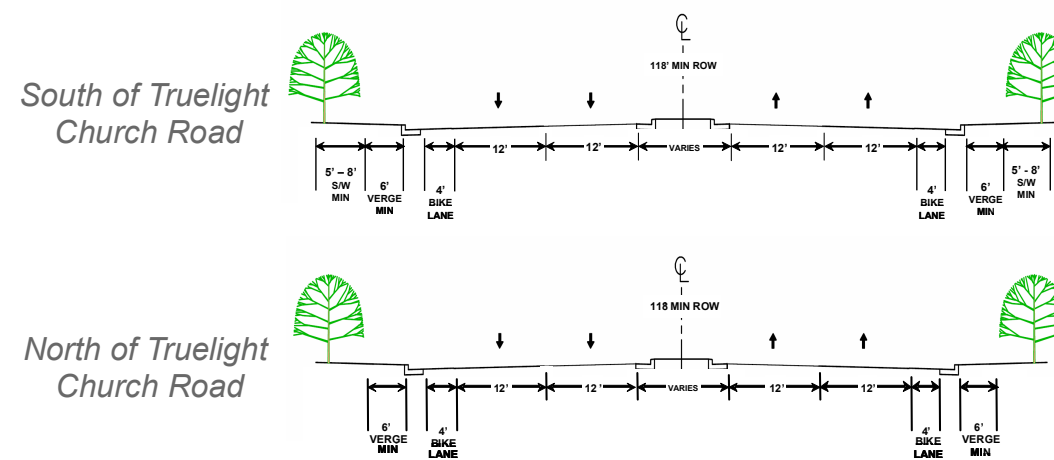
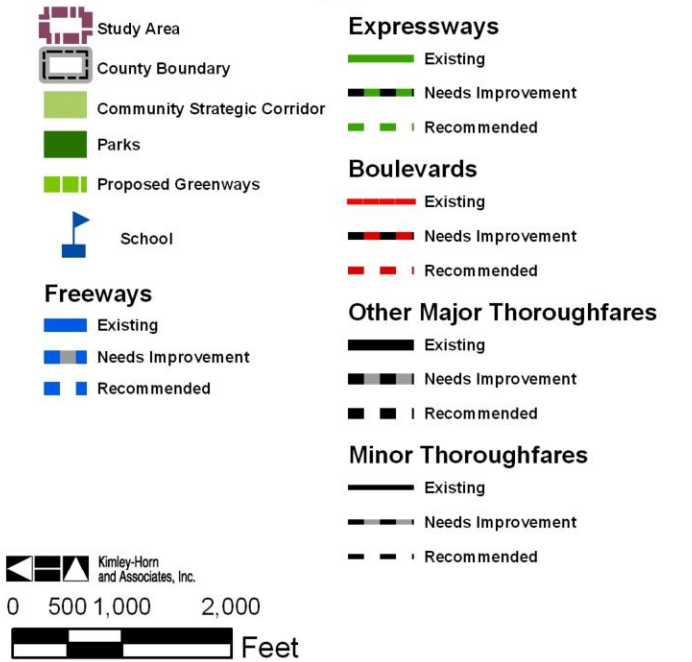
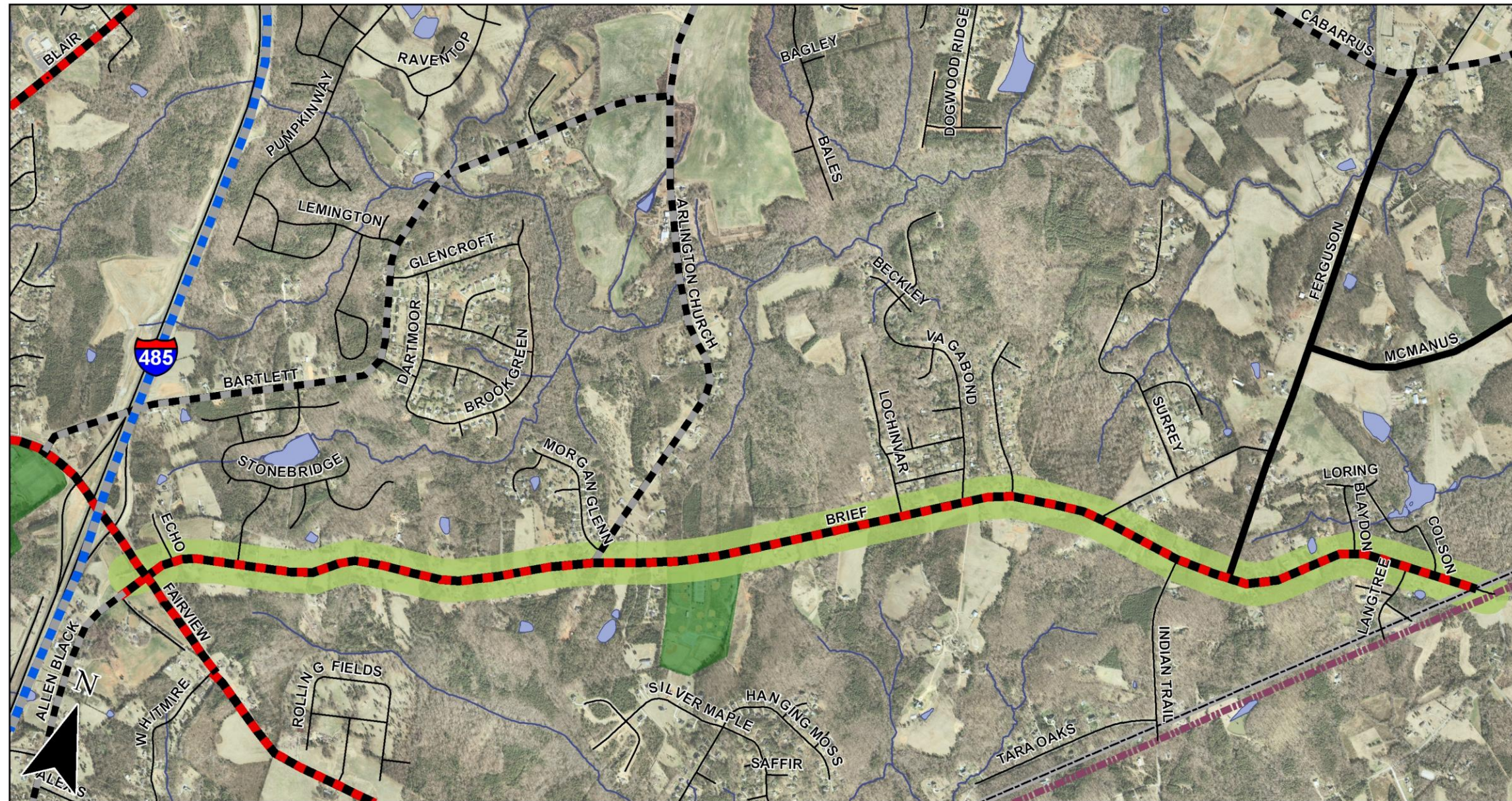


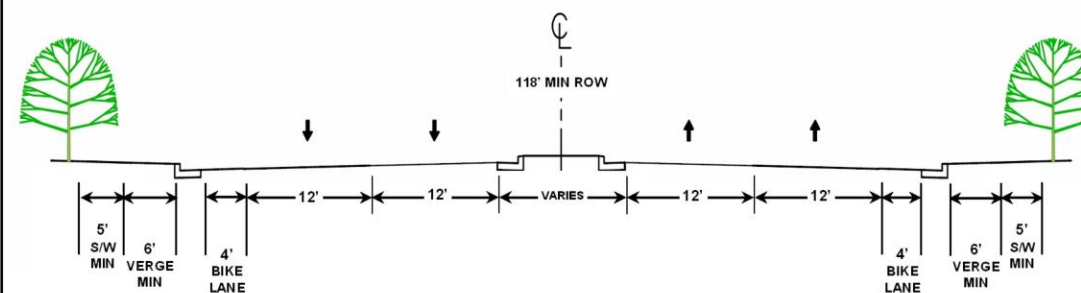
Figure 4.5
Community Strategic Corridor
Brief Road



2030 Recommendations

NCDOT Classification: Boulevard Needs Improvement
Number of Lanes: 4
Median Type: Divided
Proposed Speed Limit: 45 mph

Proposed Cross-Section



Community Vision - Widen road to accommodate increased traffic

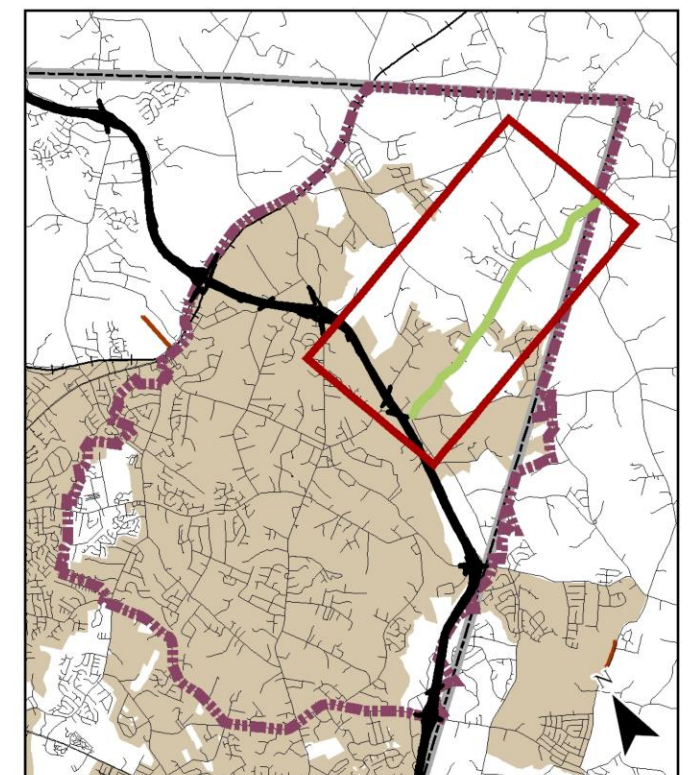
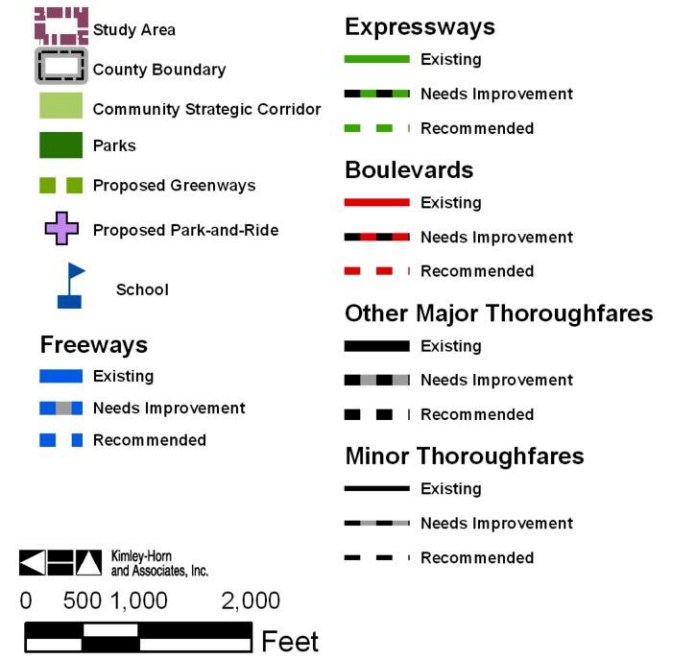
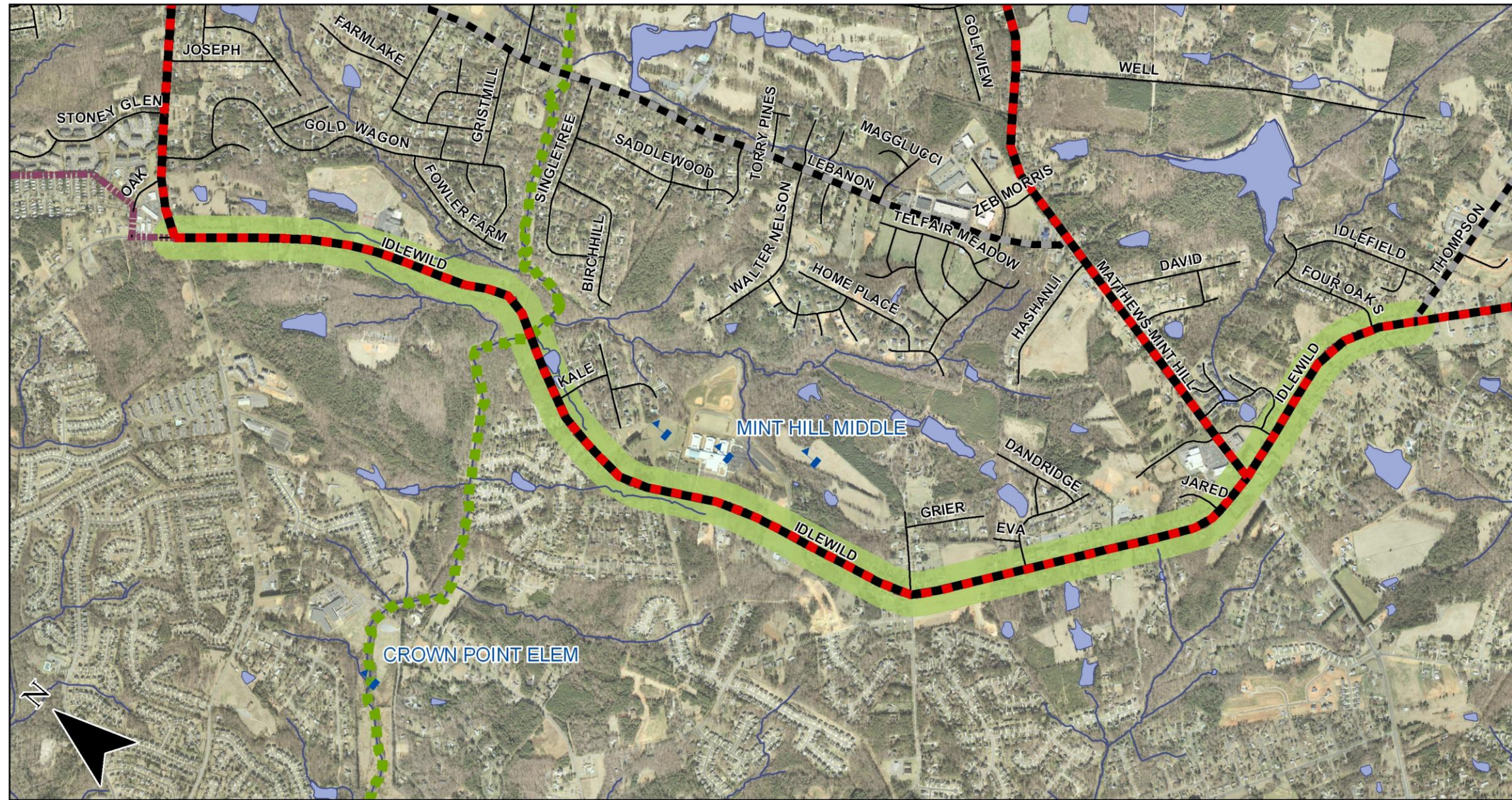


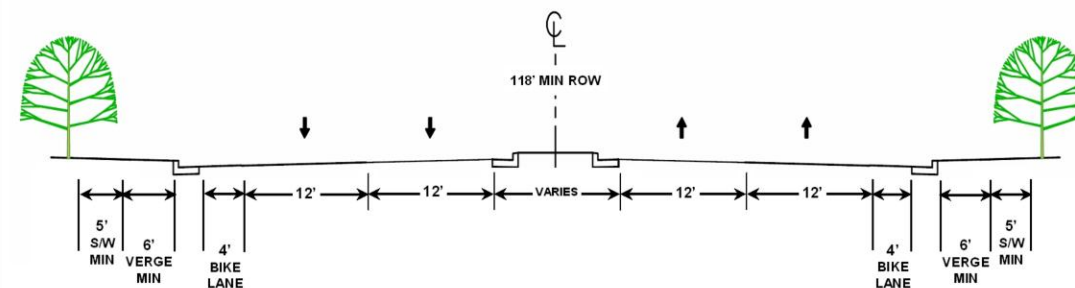
Figure 4.6
Community Strategic Corridor
Idlewild Road



2030 Recommendations

NCDOT Classification: Boulevard Needs Improvement
Number of Lanes: 4
Median Type: Divided
Proposed Speed Limit: 45 mph

Proposed Cross-Section



Community Vision - Add sidewalks to school

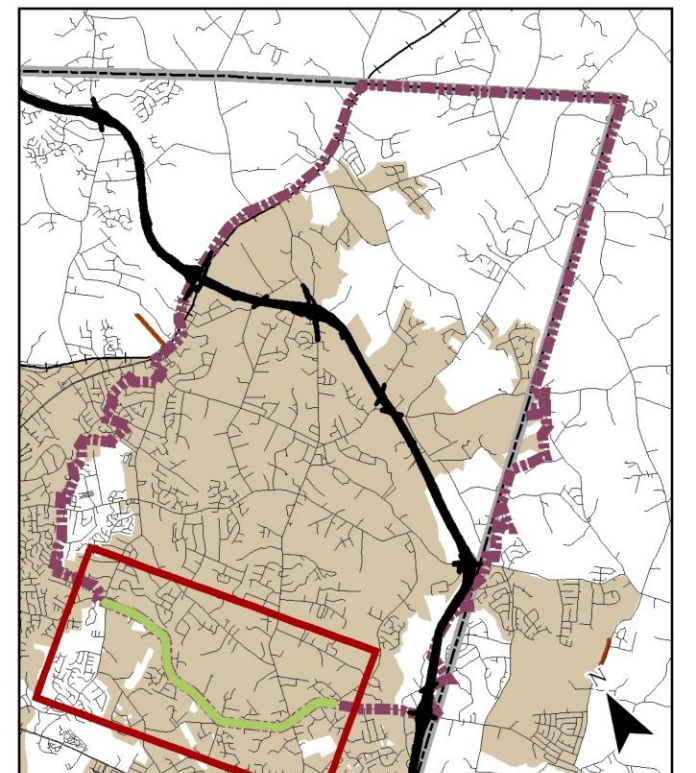
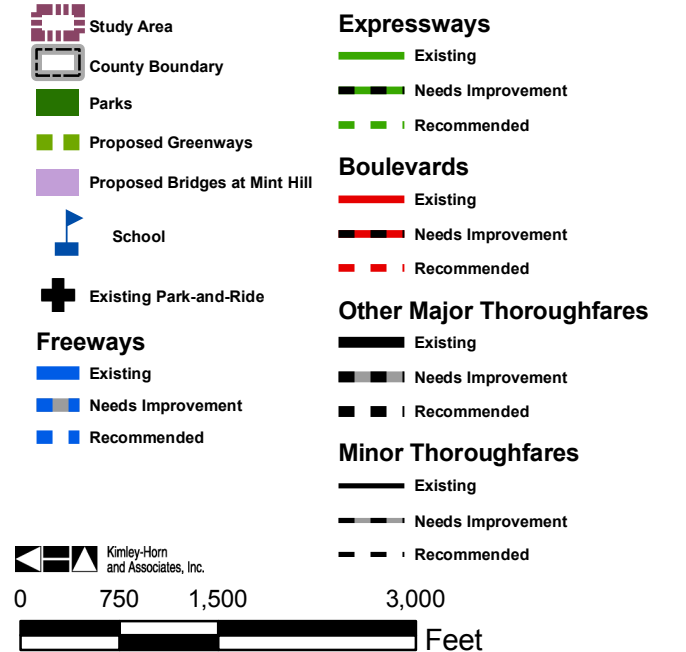
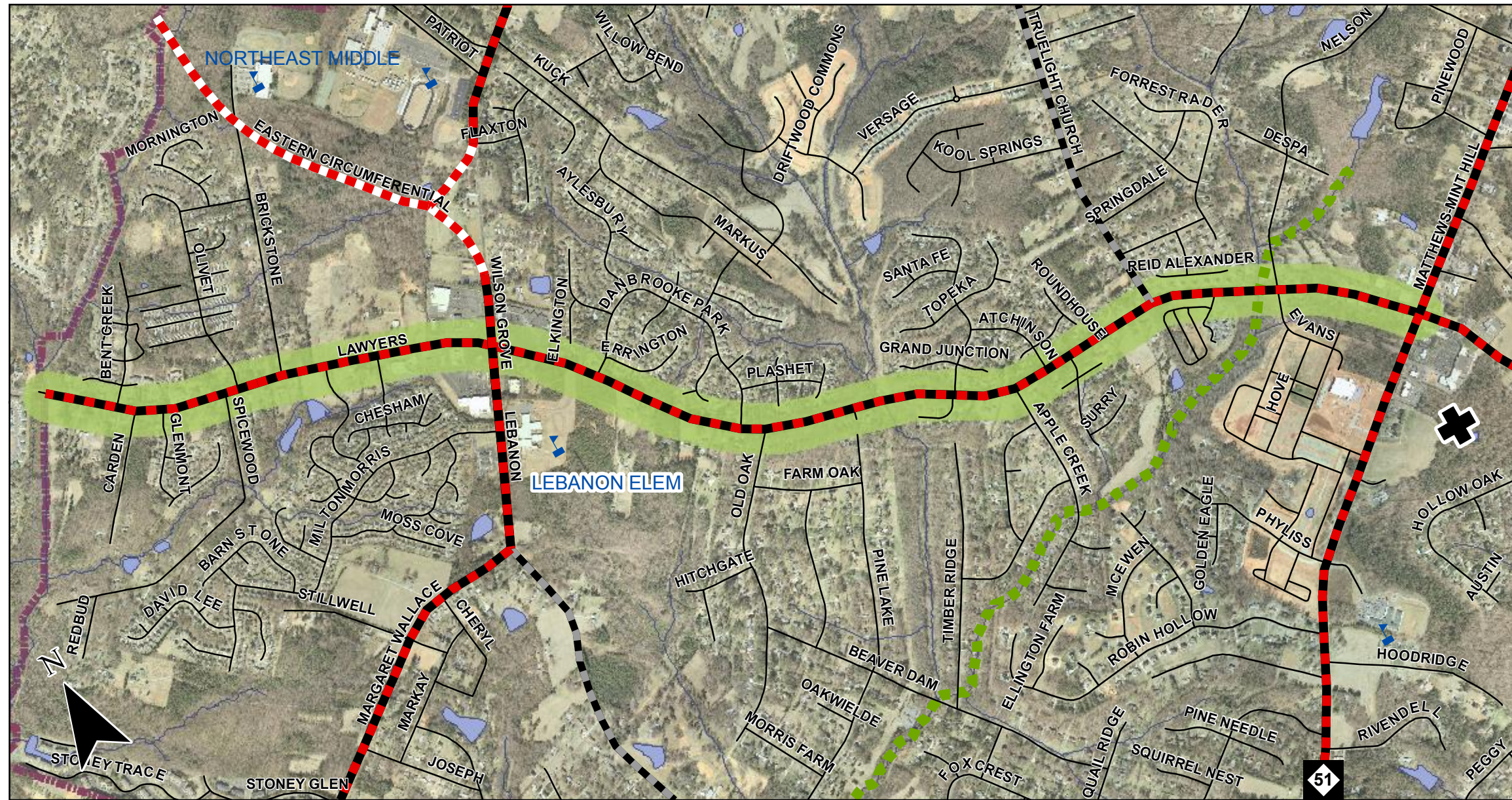


Figure 4.7
Community Strategic Corridor
Lawyers Road



2030 Recommendations

West of Truelight Church Road

NCDOT Classification: Boulevard Needs Improvement
Number of Lanes: 4
Median Type: Divided
Proposed Speed Limit: 45 mph

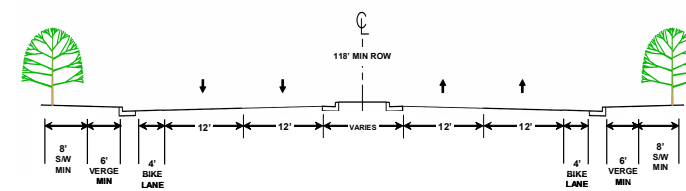
East of Truelight Church Road

NCDOT Classification: Boulevard Needs Improvement
Number of Lanes: 4
Median Type: Divided
Proposed Speed Limit: 35 mph

Community Vision - Sidewalks from Truelight Church Road to Downtown

Proposed Cross-Section

South of Nelson Road
(Downtown Overlay)



North of Nelson Road

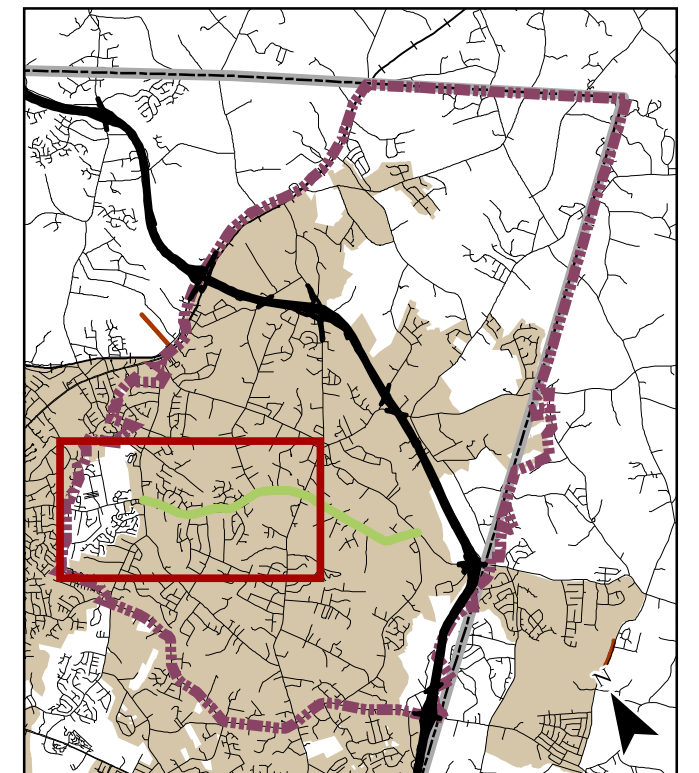
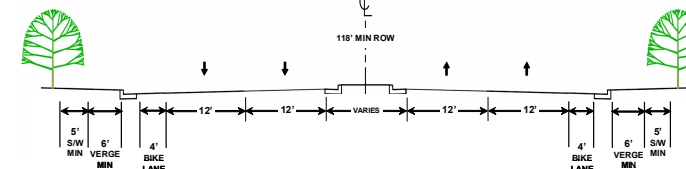
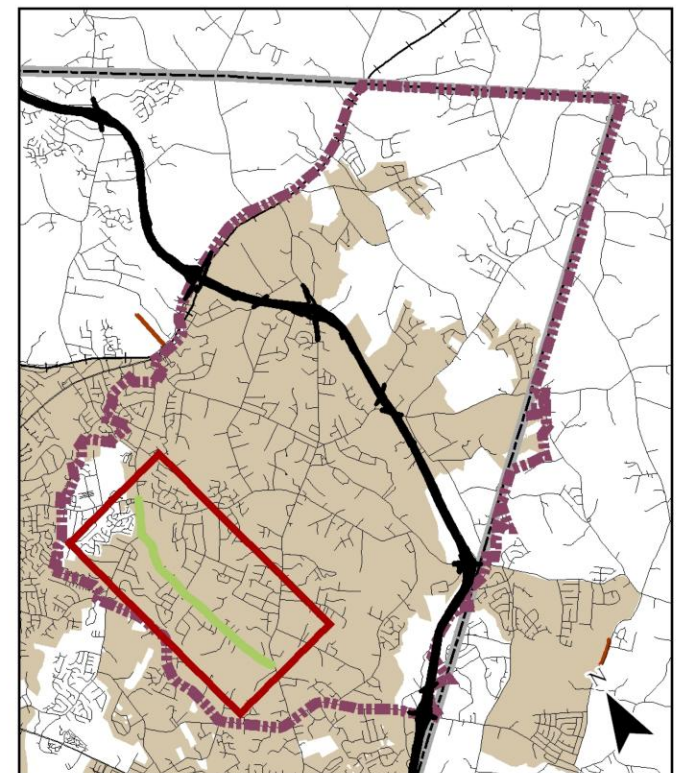
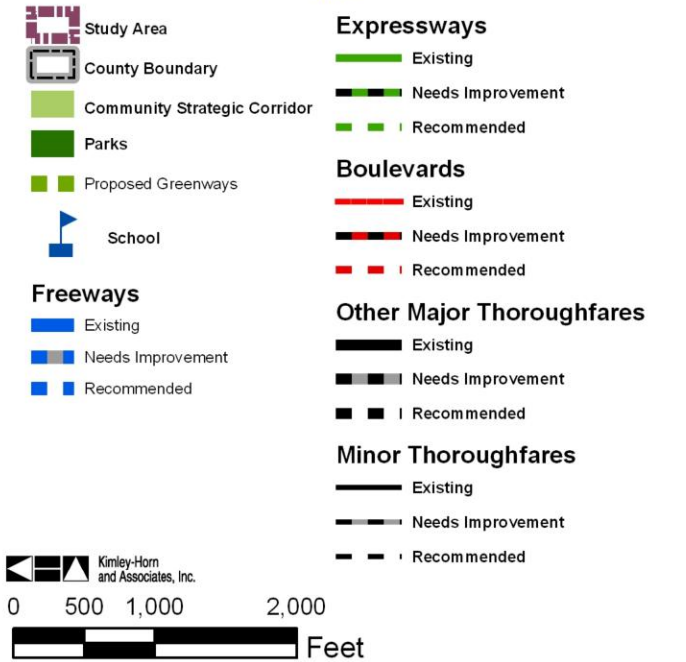
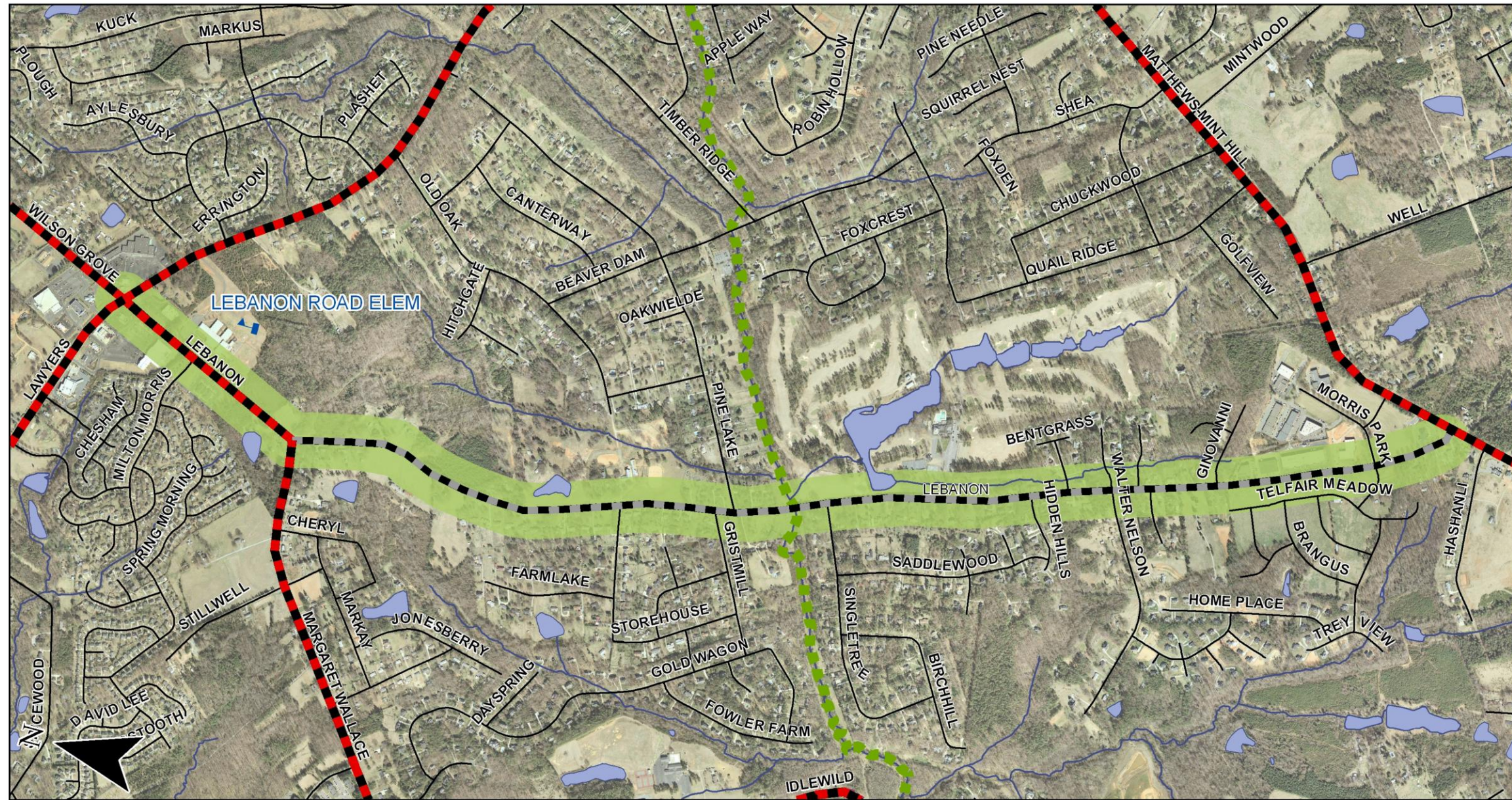


Figure 4.8
Community Strategic Corridor
Lebanon Road



2030 Recommendations

(North of Margaret Wallace Road)

NCDOT Classification: Boulevard Needs Improvement
Number of Lanes: 4
Median Type: Divided
Proposed Speed Limit: 35 mph

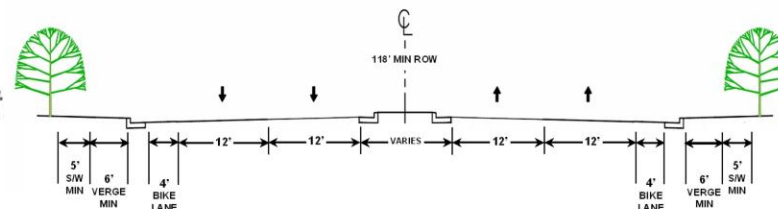
(South of Margaret Wallace Road)

NCDOT Classification: Minor Thoroughfare Needs Improvement
Number of Lanes: 2
Median Type: None
Proposed Speed Limit: 35 mph

Community Vision - Needs bike lanes and sidewalks

Proposed Cross-Section

North of Margaret
Wallace Road



South of Margaret
Wallace Road

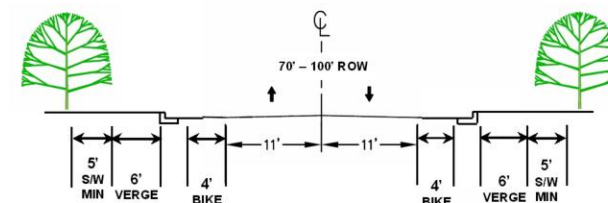
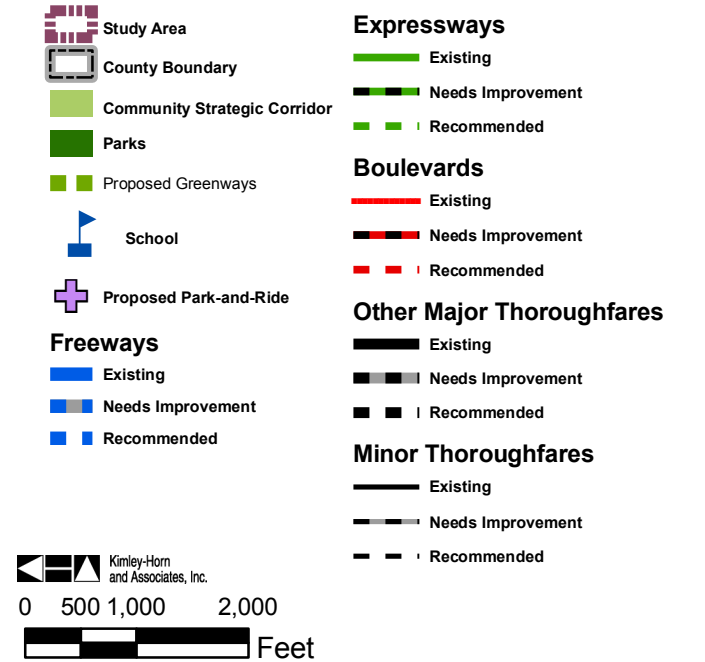
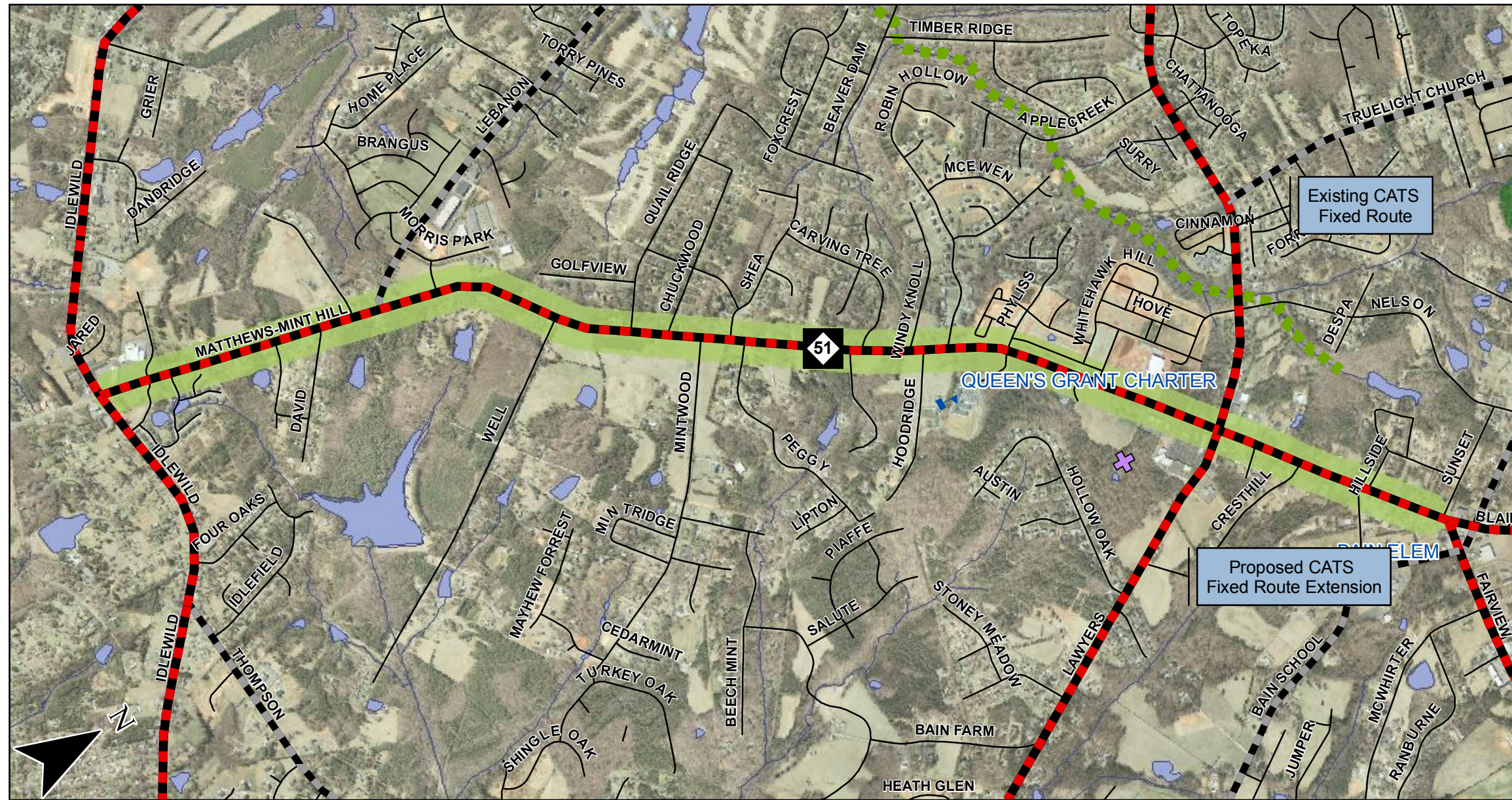


Figure 4.9
Community Strategic Corridor
Matthews-Mint Hill Road



2030 Recommendations

NCDOT Classification: Boulevard Needs Improvement

Number of Lanes: 4

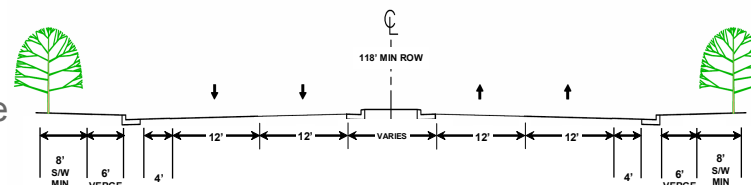
Median Type: Divided

Proposed Speed Limit: 35 mph

Community Vision - Add sidewalks and bike lanes

Proposed Cross-Section

North of Phylliss Lane
(Downtown Overlay)



South of Phylliss Lane

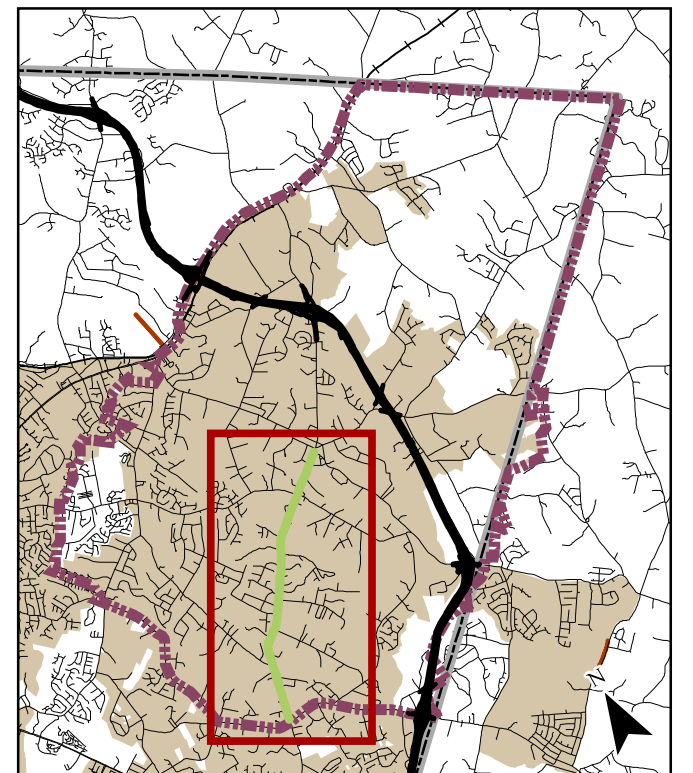
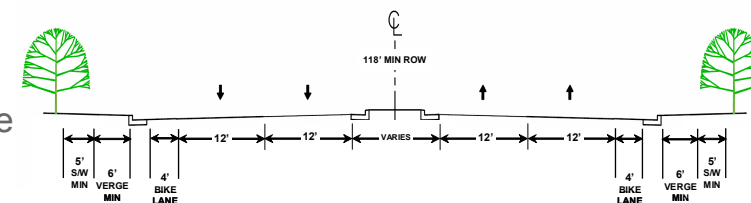
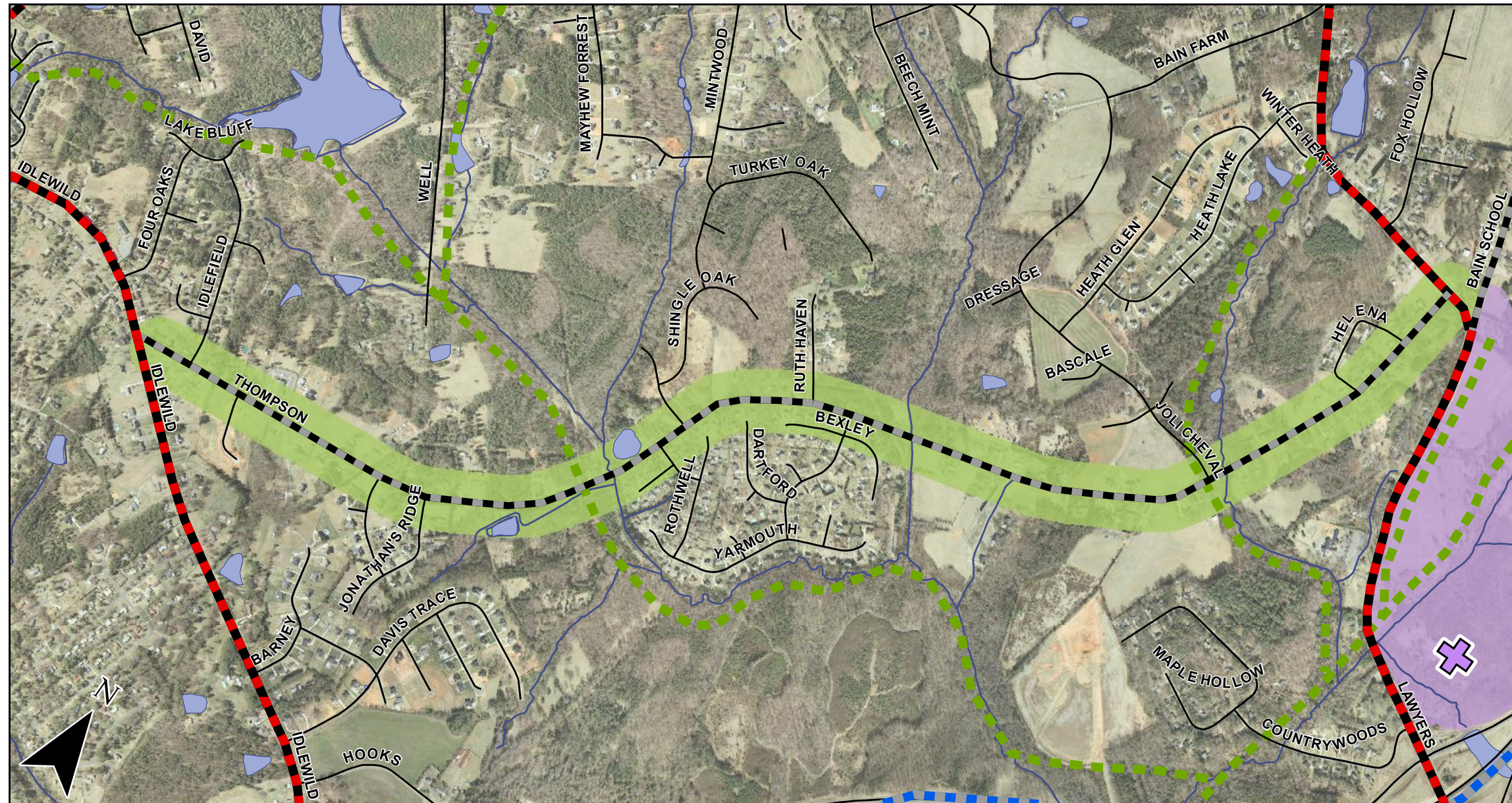


Figure 4.10

Community Strategic Corridor

Thompson Road



2030 Recommendations

NCDOT Classification:	Minor Thoroughfare Needs Improvement
Number of Lanes:	2
Median Type:	None
Proposed Speed Limit:	35 mph

Community Vision - Add sidewalks

Proposed Cross-Section

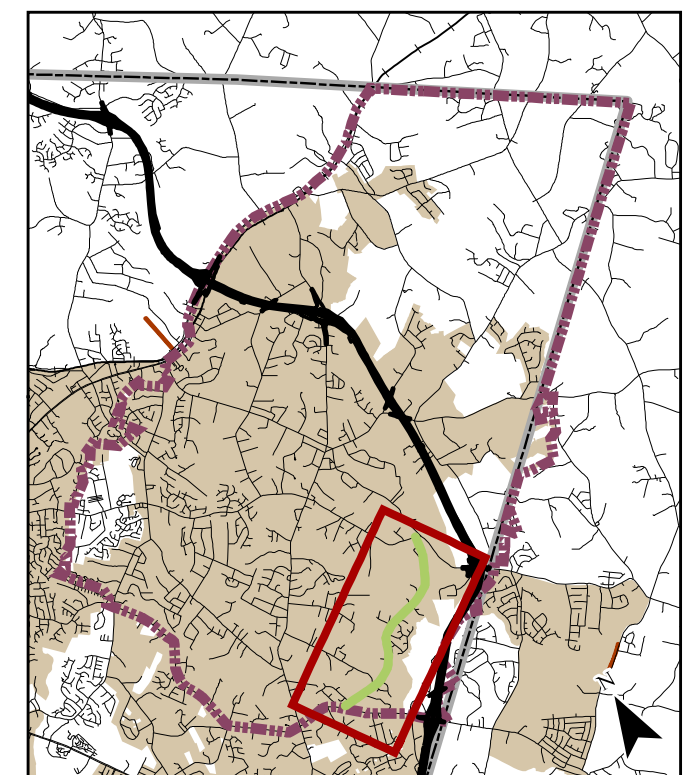
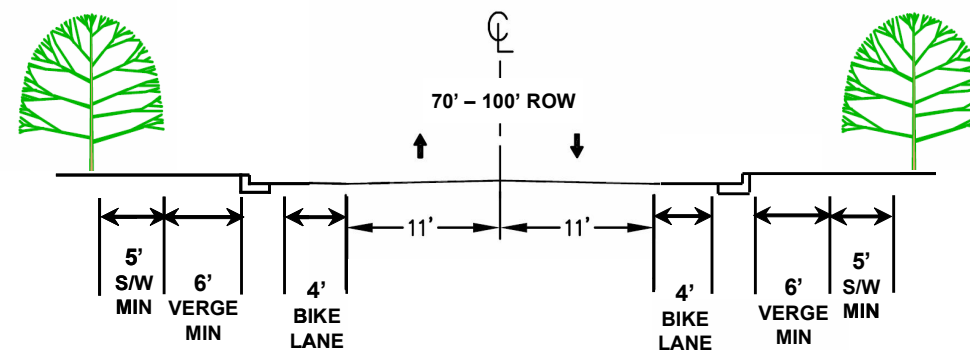
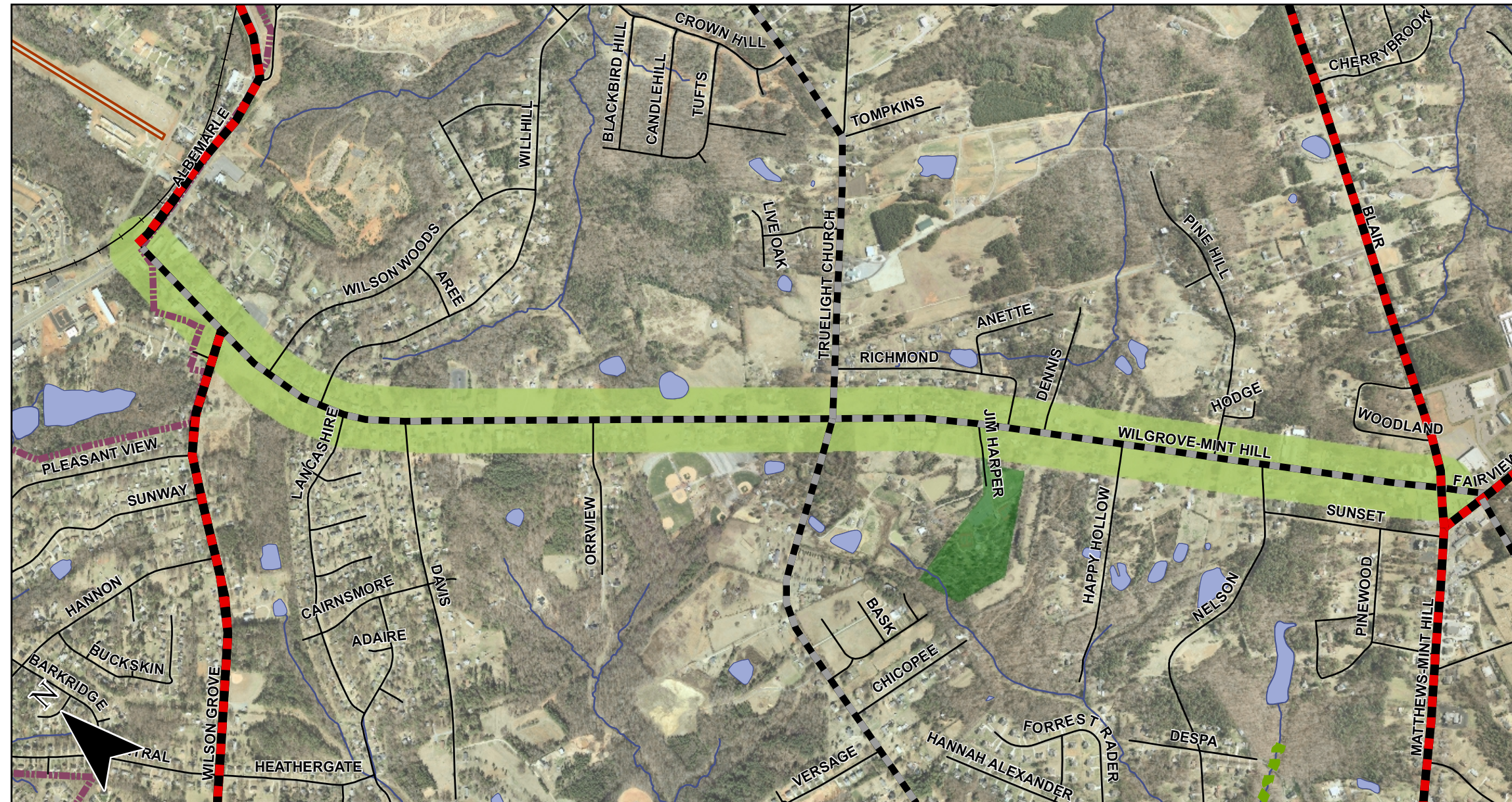


Figure 4.11
Community Strategic Corridor
Wilgrove-Mint Hill Road



2030 Recommendations

NCDOT Classification: Minor Thoroughfare
Needs Improvement

Number of Lanes: 2

Median Type: None

Proposed Speed Limit: 35 mph

Community Vision - Add sidewalks and bike lanes

Proposed Cross-Section

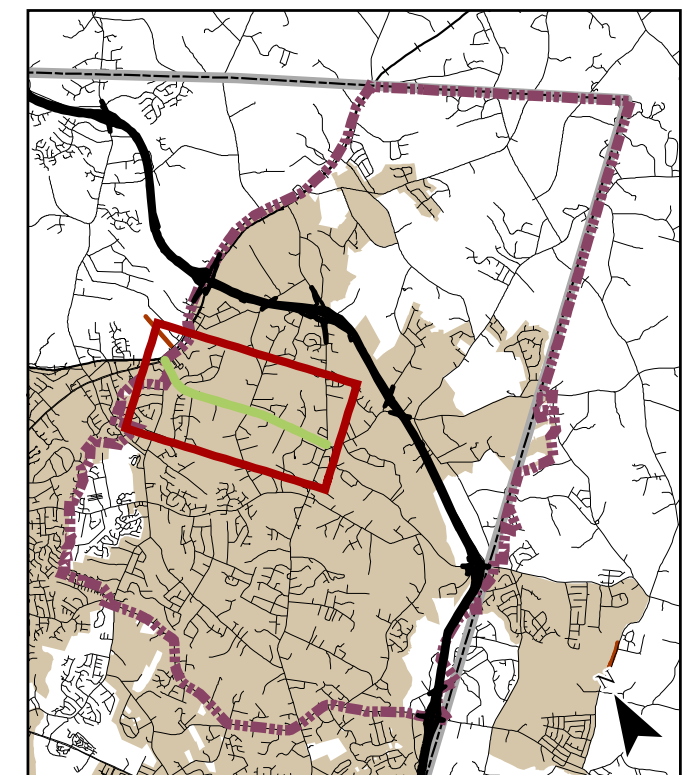
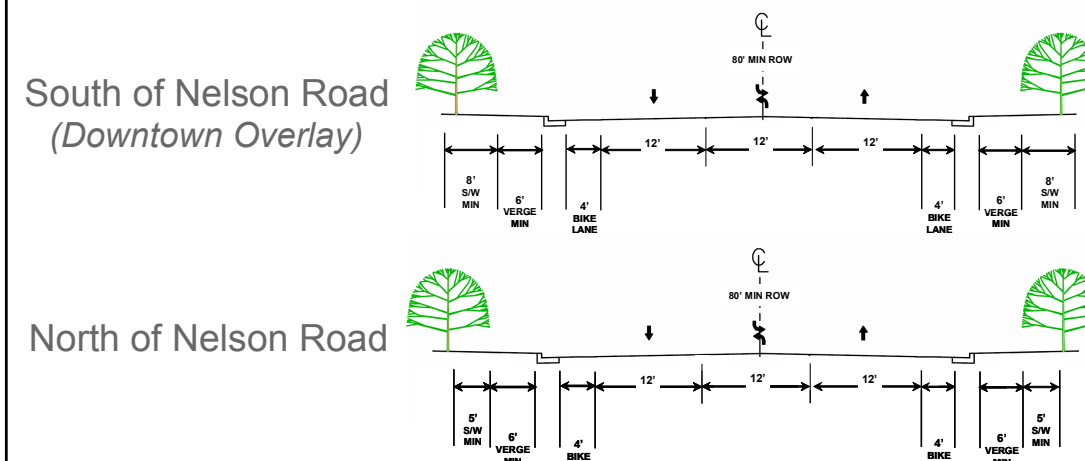
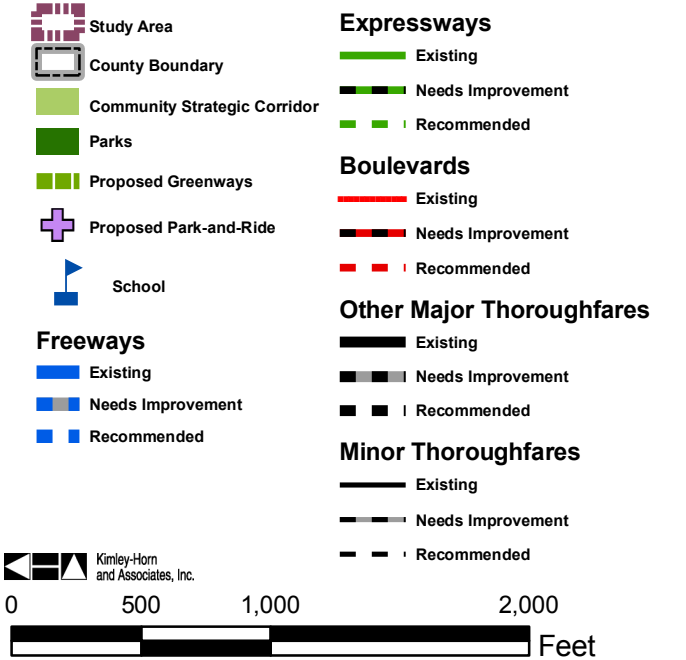
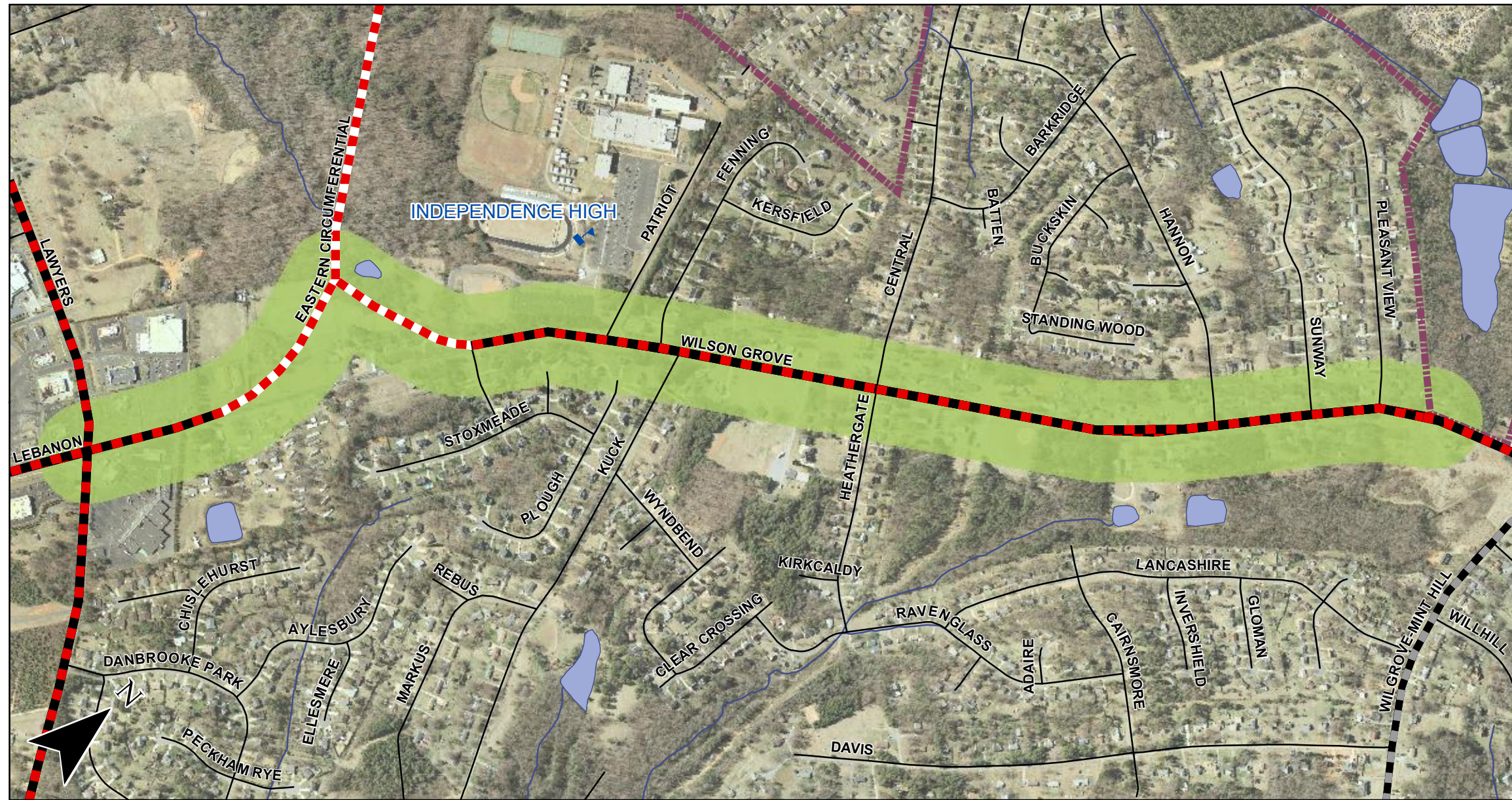


Figure 4.12
Community Strategic Corridor
Wilson Grove Road



2030 Recommendations

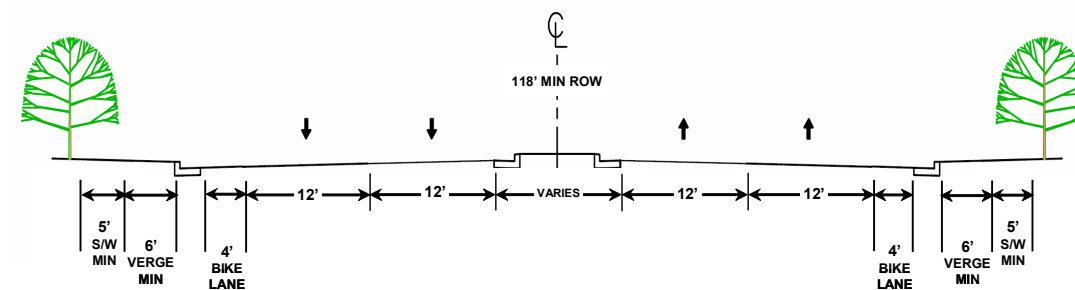
(East of Central Drive)

NCDOT Classification: Boulevard Needs Improvement
Number of Lanes: 4
Median Type: Divided
Proposed Speed Limit: 35 mph

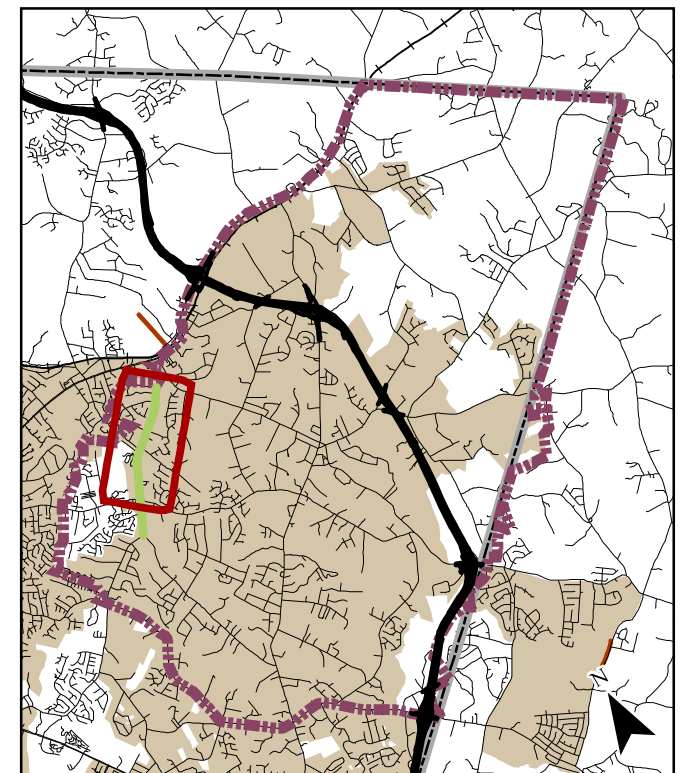
(West of Central Drive)

NCDOT Classification: Boulevard Needs Improvement
Number of Lanes: 4
Median Type: Divided
Proposed Speed Limit: 45 mph

Proposed Cross-Section



Community Vision - Add sidewalks and bike lanes



Study Area

County Boundary

Community Strategic Corridor

Parks

Proposed Greenways

School

Proposed Park-and-Ride

Freeways

Existing

Needs Improvement

Recommended

Expressways

Existing

Needs Improvement

Recommended

Boulevards

Existing

Needs Improvement

Recommended

Other Major Thoroughfares

Existing

Needs Improvement

Recommended

Minor Thoroughfares

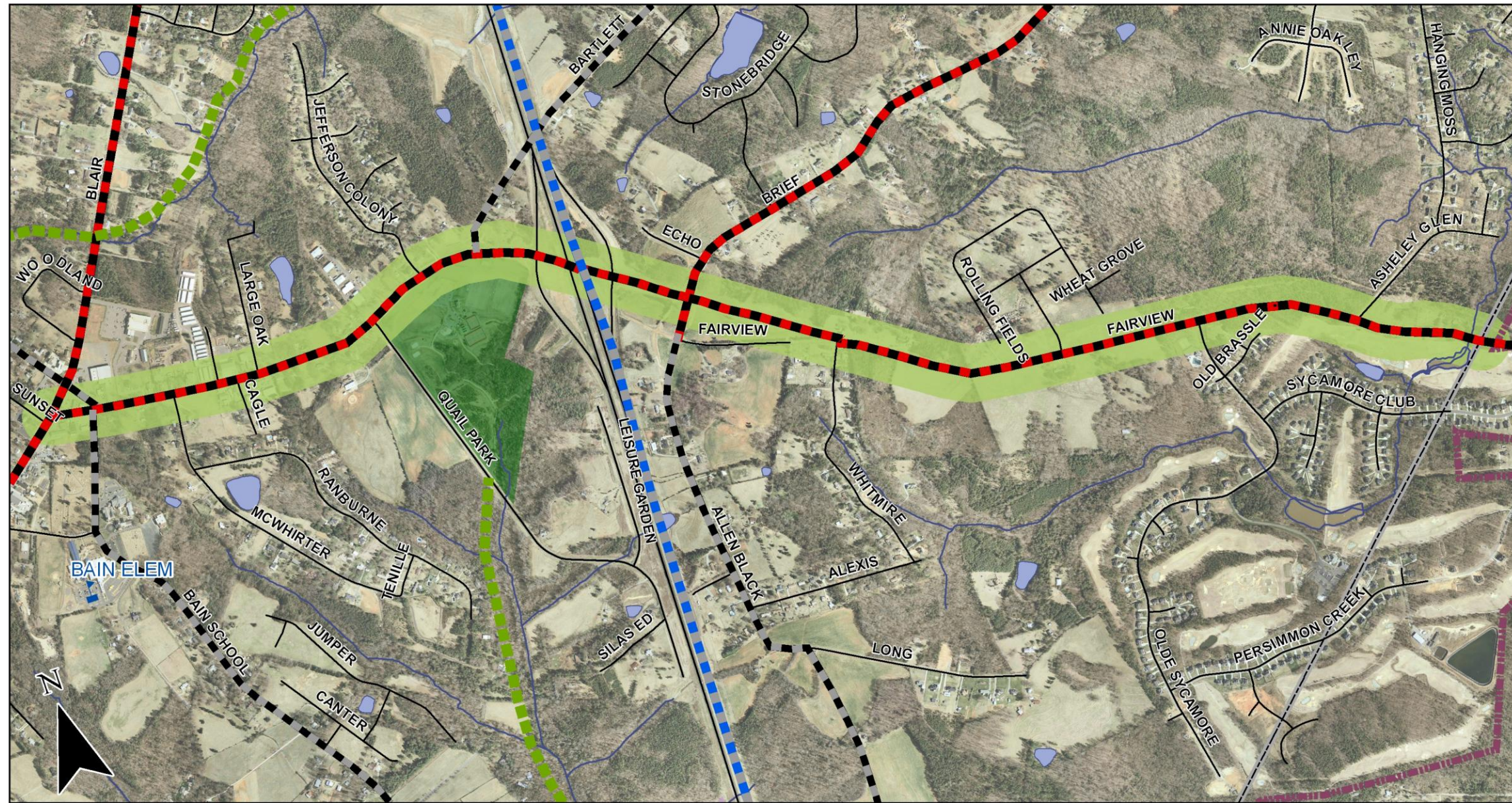
Existing

Needs Improvement

Recommended

Scale: 0 500 1,000 2,000 Feet

Kimley-Horn and Associates, Inc.

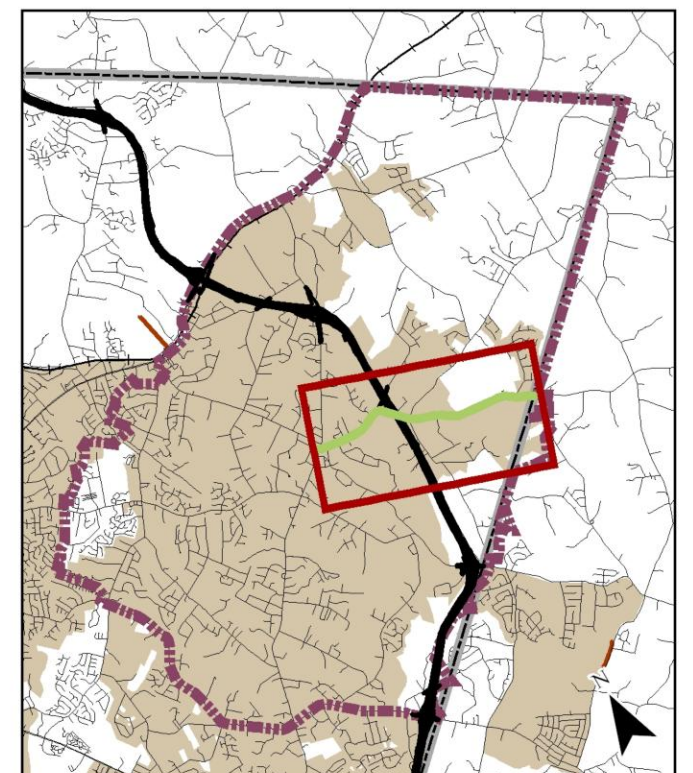


NCDOT Classification:	Boulevard Needs Improvement
Number of Lanes:	4
Median Type:	None
Proposed Speed Limit:	45 mph

Diagram illustrating the proposed 118' MIN ROW (Right-of-Way) for a four-lane road with a center turn lane. The layout includes:

- 5' S/W MIN (Shoulder/Right-of-Way Minimum)
- 6' VERGE MIN (Verge Minimum)
- 4' BIKE LANE
- 12' Travel Lane
- 12' Travel Lane
- VARIES (Center Turn Lane)
- 12' Travel Lane
- 12' Travel Lane
- 4' BIKE LANE
- 6' VERGE MIN (Verge Minimum)
- 5' S/W MIN (Shoulder/Right-of-Way Minimum)

Community Vision - Add sidewalks to downtown



Transportation Recommendations

Other Corridor Recommendations

The following corridor descriptions identify specific roadway recommendations for those corridors not identified as community strategic corridors. These recommendations are shown on the highway map in **Figure 4.1** and represent ideas that were presented throughout this planning process as potential solutions to ease congestion and increase safety. The functional classifications identified follow NCDOT's current *Comprehensive Transportation Plan* (CTP) criteria, discussed in Chapter 2.

Freeway

Interstate I-485 is classified as a proposed freeway in need of improvements. Although this facility has recently been built, it is anticipated that significant growth will occur over the next twenty to thirty years along this roadway causing congestion and maintenance issues needing to be addressed. Therefore, it is recommended that this facility be widened to accommodate future growth as it occurs. If growth does not continue as anticipated, this recommendation should be considered further in the future when appropriate.

Boulevards

Margaret Wallace Road is classified as a proposed boulevard in need of improvements. These improvements are also designated in the MUMPO 2030 LRTP as part of the Eastern Circumferential Roadway alignment. As such, these improvements have been ranked 133 out of 221 within the 2030 horizon year. Its southern end intersects Idlewild Road while the northern end intersects Lebanon Road. It is recommended that Margaret Wallace Road be widened to a four lane, median divided facility with sidewalks and bike lanes on both sides. These improvements are ranked 133 by MUMPO in the 2030 phase of the LRTP, as Margaret Wallace Road will be part of the Eastern Circumferential Roadway.

Albemarle Road is classified as a proposed boulevard in need of improvements. Running in a southwest to northeast fashion, it makes part of the northwestern border of the study area. Its southern end intersects Wilgrove-Mint Hill Road while its northern end terminates at the Cabarrus County line. The southern half of Albemarle Road is intersected by Interstate I-485 while its northern section is intersected by Blair, Williams and Arlington Church Roads. It is recommended that Albemarle Road be widened to a four lane, median divided facility, with sidewalks in the vicinity of Clear Creek Elementary.

Eastern Circumferential Roadway New Alignment is classified as a recommended boulevard that is designated in the MUMPO 2030 LRTP as part of the Eastern Circumferential Roadway alignment. As such these improvements have been ranked 169 out of 221 within the 2030 horizon year. This roadway construction is designated on new location from Albemarle Road to Wilson Grove Road which will provide a North/South connection within this area. This roadway will be a four lane, median divided facility with bike lanes on both sides.

Minor Thoroughfare

Truelight Church Road is classified as a proposed minor thoroughfare in need of improvements. It runs roughly north to south, intersecting Blair Road to the north and Lawyers Road to the south. It is recommended that Truelight Church Road remain two lanes with no median and that sidewalks and bike lanes be constructed for the length of the corridor.

Allen Black Road is classified as a minor thoroughfare in need of improvements. It runs roughly north to south, intersecting Fairview Road to the north and the Union County line, to the south. It is recommended that Allen Black Road remain two lanes with no median. However, it is recommended that the facility be improved to accommodate an increase in truck traffic if the area continues to develop industrial land uses.

Arlington Church Road is classified as a proposed minor thoroughfare in need of improvements. It runs roughly north to south, intersecting Albemarle Road to the north and Brief Road to the south. It is recommended that Arlington Church Road remain two lanes with no median and that bike lanes be constructed the length of the corridor.

Cabarrus Road is classified as a proposed minor thoroughfare in need of improvements. It runs roughly east to west, intersecting the study area boundary to the east at the Cabarrus County line and Arlington Church Road to the west. It is recommended that Cabarrus Road remain two lanes with no median and that bike lanes be constructed along the length of the corridor.

Ferguson Road is classified as an existing minor thoroughfare; no improvements are recommended. No schools, Park-and Rides, or other facilities are located along the road.

Transportation Recommendations

Spot Safety Recommendations

Chapter 2 discussed the crash statistics within the study area and ranked the top eleven priority intersections. The top three priority intersections were determined to be NC 24/Albemarle and Blair Roads (1st), NC 24/Albemarle and Rocky River Church Roads (2nd), and Lebanon and Margaret Wallace Roads (3rd). The following section offers recommendations at each of these three intersections to increase safety.

NC 24/Albemarle and Blair Roads

The intersection of NC 24/Albemarle and Blair Roads experienced 27 total crashes during the three year analysis period. Of these, 12 involved some type of injury. The overall crash rate for this location is 0.959 crashes per million vehicles entering the intersection.

Twenty-three crashes occurred during the analysis period. The predominant movement causing this type of crash was vehicles turning left from westbound Albemarle Road onto Blair Road being struck by vehicles traveling through on eastbound Albemarle Road. Currently the traffic signal at this location allows for protected/permitted turning movements. One possible solution to mitigate these crashes would be modification of the existing signal phasing to “protected only” for the left turning movement. This will alleviate the need to judge the distance of on-coming vehicles and simply allow the left-turning vehicles an opportunity to turn unobstructed.



Intersection of NC 24/Albemarle and Blair Roads



Transportation Recommendations

NC 24/Albemarle and Rocky River Church Roads

The intersection of NC 24/Albemarle and Rocky River Church Roads experienced 18 total crashes during the three year analysis period. Of these, 9 involved some type of injury. The overall crash rate for this location is 0.680 crashes per million vehicles entering the intersection.

Sixteen crashes of this nature occurred during the analysis period. The predominant movement causing these types of crashes is vehicles turning left from eastbound Albemarle onto Rocky River Church Roads being struck by vehicles traveling through on westbound Albemarle Road. Currently the traffic signal at this location allows for permitted turning movements only. One possible solution to mitigate these crashes would be modification to the existing signal phasing to add a “protected plus permitted” phase for the left turning movement. If the crash pattern continues, the phasing may need to be reduced to “protected only.”



Intersection of NC 24/Albemarle and Rocky River Church Roads



Transportation Recommendations

Lebanon /Margaret Wallace Roads

The intersection of Lebanon and Margaret Wallace Roads experienced 19 total crashes during the three year analysis period, 8 involved some type of injury. The overall crash rate for this location is 0.868 crashes per million vehicles entering the intersection.

The predominant crash type at this location is run off the road collisions. Fifteen crashes of this nature occurred during the analysis period. The predominant movement causing this type of crash was vehicles traveling through on Lebanon Road at the intersection. The through movement at this intersection is a slight right veer, which may be problematic for vehicles traveling at high speeds, especially at night. Upgrades to intersection level lighting and/or retro reflective pavement markings may provide a reduction in this type of crash. Additional signage approaching the intersection, warning the motorist of the approaching curve, may also provide a reduction in this type of crash.



Intersection of Lebanon and Margaret Wallace Roads



Transportation Recommendations

General Congestion Management Strategies

Aside from the inconvenience of added travel delay, traffic congestion can have many negative impacts on a community. As levels of service worsen, congestion causes traffic to divert onto nearby neighborhood roads, which are not designed to handle large volumes of traffic. Excessive speeds and high traffic volumes on local streets may impede travel safety and “cut-through” traffic. Roadways that operate near capacity generally lead to a hazardous environment for drivers, bicyclists and pedestrians.

Congestion also can hinder economic growth. The proximity of an area to a safe and efficient roadway network is crucial for local companies considering an expansion of their business and the attraction of new industries to the region. Congestion slows the movement of goods and services, which hinders economic development and productivity.

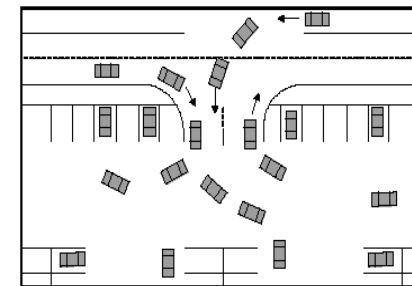
Additionally, congestion is often associated with the deteriorating vitality of an area. Many people who move into the suburbs do so in order to escape the congestion of an urban region. As the congestion moves into the suburbs, it brings with it a declining quality of life. The excessive pollution created by stop-and-go traffic is detrimental to air quality and increases noise levels.

Congestion has a negative impact on highway safety, noise and air quality. Albemarle Road is an example of what happens in the absence of coordinated access management. However, numerous cost effective strategies (e.g., congestion management, access management, intelligent transportation systems (ITS) and signal systems) are available to assist communities in reducing congestion and its effects. Depending on the causes of congestion, various strategies are available to mitigate it and its effects.

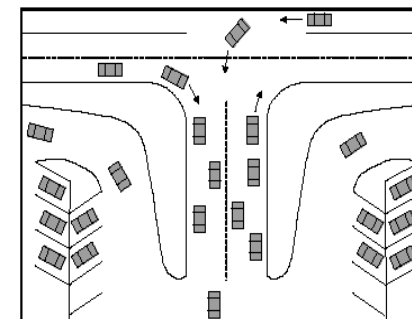
Municipalities have the option of using NCDOT’s *Policy on Street and Driveway Access to North Carolina Highways* for guidance and reference. However, it is recommended that the Town of Mint Hill develop a specific access management policy to appropriately accommodate the vision and goals of the community.

Traffic Signal Coordination

Coordination involves synchronizing traffic signals on a corridor to minimize through traffic delay. Signal coordination can be accomplished either using time-based signal plans or by interconnecting the signals in a system. Coordination can improve both the operations and safety of a corridor. (Approximate cost: \$4,000,000-\$4,700,000 per 100 signals in system)



Before traffic circulation improvements



After traffic circulation improvements

On-Site Traffic Circulation

One way to reduce traffic congestion is to promote on-site traffic circulation. Pushing back the throat of an entrance, as shown in the figures to the left, helps to avoid spillback onto the arterial. This measure improves both the safety and efficiency of the roadway. Another aspect involves limiting access points into a development by considering developments with multiple lots and land uses as one property for the purpose of access regulation.

Only the minimum number of connections necessary to provide reasonable access should be permitted. For those situations where outparcels are under separate ownership, easements for shared access can be used to reduce the number of necessary connections. Reducing the number of access points also decreases the number of conflict points, making the arterial safer and more efficient. (Approximate cost: \$150,000 per application)

Non-Traversable Median Treatment

One of the recurring suggestions for improving Town roads expressed by the public was the need for medians. A non-traversable median treatment is a raised or depressed barrier that physically separates opposing traffic flows. Advantages include increased safety due to separation of opposing flows, pedestrian refuge and restricting left turns to designated locations. Where sufficient storage bays are provided, the removal of left-turning vehicles from through lanes can increase safety and reduce delay to through vehicles. Disadvantages include slowed response time for emergency vehicles, increased travel distance for left turns and public opposition due to the possibility of detrimental effects on the business community.



A non-traversable median

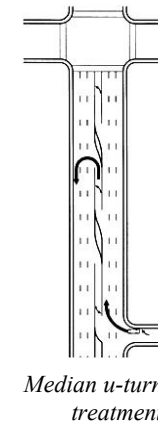
Non-traversable median treatments should be considered for multi-lane urban arterials with average daily traffic (ADT) volumes greater than 20,000 and all multi-lane roadways with high pedestrian volumes, high collision rates, or where aesthetics are a priority. Consideration should be given to providing sufficient space for u-turning vehicles at median openings when non-traversable median

Transportation Recommendations

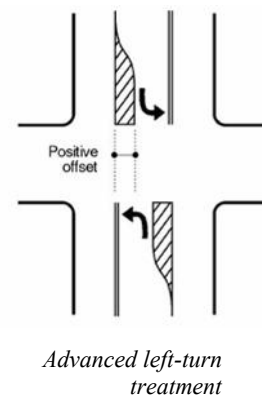
treatments are used. Divided roadway facilities are generally safer than undivided facilities or roadways with a two way left-turn lane (TWLTL). (Approximate cost: \$600,000 per mile.)

Median U-Turn Treatment

Median u-turn treatments involve the prohibition of minor street direct left turns at signalized intersections in favor of right turns followed by median u-turns, as shown in the figure to the right. Advantages of this treatment include reduced delay, improved progression and fewer stops for through traffic as well as fewer and more separated conflict points for vehicles and pedestrians along the arterial. Disadvantages include increased delay, travel distances and stops for left-turning traffic as well as the potential for driver confusion. These treatments can increase the safety and efficiency of arterials with high through volumes. However, they should only be used where sufficient space is available for u-turning maneuvers at median openings.



Installing median u-turn treatments at multiple locations along a corridor can help alleviate driver confusion. Much consideration should be given to locations of median openings in order to provide adequate weaving space without creating excessive travel distances for left-turning vehicles. (Approximate cost: \$50,000 per median opening.)



Advanced Left-Turn Treatment

Traditional exclusive left-turn lanes at signalized intersections are usually aligned to the left of one another, so the vision of a left-turning vehicle is obstructed by vehicles in the opposing left-turn lane. Advanced left-turn treatment, also known as positive offset left-turn treatment, involves shifting exclusive left-turn lanes toward the center of the intersection and past the opposing left-turn lane to provide better sight lines. Where permissive left-turn phasing is used, this treatment can improve the efficiency of an intersection by reducing the crossing time for left-turning vehicles and allowing them to see and take advantage of all adequate gaps in the opposing traffic stream. The disadvantage of this treatment is that, where existing median widths are not sufficient, the roadway may need to be widened and additional right-of-way may need to be acquired. (Approximate cost: \$250,000 per mile.)

Consolidated Driveways

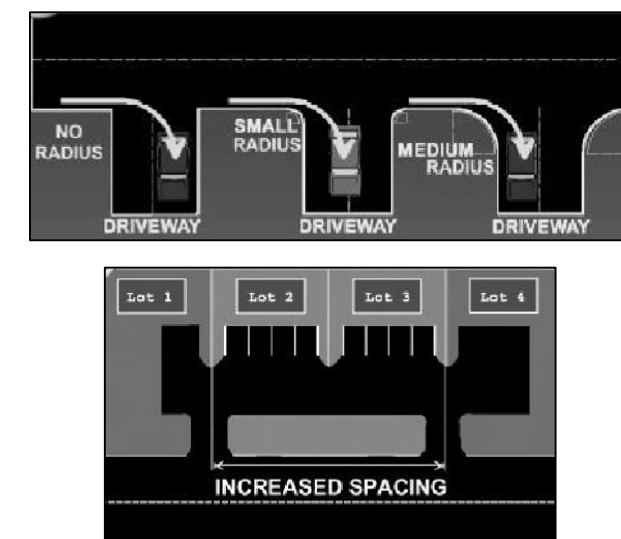
Consolidating adjacent driveways using shared access easements can increase safety and efficiency of corridors by reducing the number of access points and thus conflict points. Additionally, trips between adjacent land uses are then possible without using the arterial.

Relocated Driveways

Driveways located too close to an intersection can cause operational, safety and capacity problems resulting from traffic backing up across the driveway entrance or into the intersection from the driveway. Additionally, the distance between the driveway and the intersection may not provide a sufficient weaving distance. Relocating driveways which are too close to intersections can improve safety and efficiency of the intersection by separating conflict points and lengthening weaving distances.

Improved Intersection Turning Radii at Intersection/Driveways

Driveways with short turning radii force vehicles to encroach on adjacent lanes when entering or exiting the driveway. Intersections with short radii also force vehicles onto the roadside, causing potential damage to curb-and-gutter and sidewalks. Long turning radii allow drivers to make turning maneuvers more easily, which enhances the operations and safety of the roadway.



Transportation Recommendations

Signalize Retail Driveway Leg at Existing Signalized T-Intersection

For high volume retail driveways, a signal head may improve operations and safety of the minor street turning maneuvers. There may be some increase in delay to major street through traffic as well as an increase in rear-end collisions. However, it is likely a signal would greatly reduce minor street delay as well as angle collisions. *(Approximate Cost: \$10,000.)*

Left Turn Storage Bays at Major Driveways

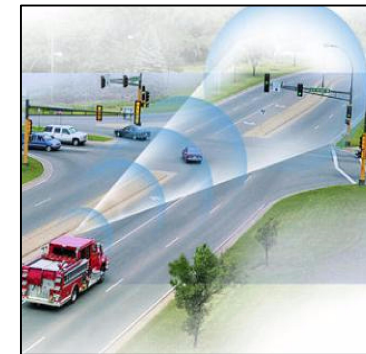
Left turn storage bays can be used at high volume retail driveways in order to remove left-turning vehicles from the through lanes. Adequate storage bays enhance the safety of a corridor and decrease delay to through vehicles. Additional right-of-way and roadway widening may be needed in order to provide storage bays.

Exclusive Left-Turn Lane on Minor Approach

At signalized intersections where left turns from a minor approach are significant, an exclusive left-turn lane can promote optimal signal phasing.

Emergency Vehicle Preemption

Emergency vehicle preemption involves changing the indication at traffic signals to favor the direction of detected emergency vehicles. Preemption improves emergency vehicle response time and the safety of the responders by stopping conflicting movements. *(Approximate Cost: \$10,000 per application.)*



Transportation Recommendations

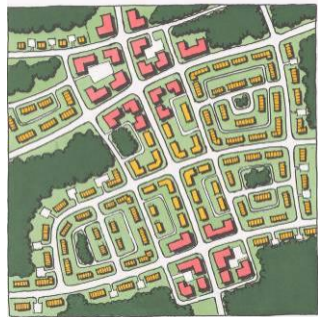
Collector Street Spacing



Low Intensity Land Use
Street Spacing
3,000' to 6,000'



Medium Intensity Land Use
Street Spacing
1,500' to 3,000'



High Intensity Land Use
Street Spacing
750' to 1,500'

Collector Street Recommendations

Expanding Mint Hill's transportation system with an increased number of collector streets will enhance travel between local streets and arterials. As discussed in Chapter 2, the primary purpose of the collector street system is to collect traffic from neighborhoods and distribute it to the system of major and minor thoroughfares throughout an area. In general, collector streets have two lanes and often have exclusive left-turn lanes at intersections with major and minor thoroughfares and less frequently at intersections with other collectors. Collector streets rarely are constructed and funded by the state. Responsibility for collector streets usually falls to the local government and developers for funding, design and construction. A properly implemented system improves accessibility to higher intensity residential areas and activity centers, while minimizing impacts to sensitive natural areas. As a result, local and through traffic will benefit from the reduced reliance on the town's major roadways: Matthews-Mint Hill, Wilgrove-Mint Hill, Lawyers, Blair, and Fairview Roads.

Natural Environment

Mint Hill is located within the Goose Creek Basin and maintains a natural habitat for the Carolina Heelsplitter Mussell. Which is a registered endangered species and hence, requires protection. Wetlands are also prevalent throughout Mint Hill and are regulated as well. These features affect how the community develops, where streets can be constructed and maintained and where connections between streets can be made.

Assessment of Collector Street Spacing Needs

It is important to determine an appropriate set of collector street spacing guidelines for this plan. It has been theorized that 1,500 to 3,000 feet is an appropriate spacing for collector streets in a suburban setting; unincorporated and incorporated areas tend to have different development potential. This difference is mostly due to environmental constraints and the availability of municipal water and sewer service.

Different spacing standards are necessary for different development types and intensities. Understanding this principle, Kimley-Horn developed a theoretical model largely influenced by land use intensity ranges that shows the desired collector street spacing for different intensities.

Land Use/Type of Collector Street	Intensity	Access Function	Approximate Street Spacing
Very Low Intensity Residential	Less than 2 dwelling units per acre	High	3,000 to 6,000 ft
Low Intensity Residential	2 to 4 dwelling units per acre	High	1,500 to 3,000 ft
Medium and High Intensity Residential	More than 4 dwelling units per acre	High	750 to 1,500 ft
Activity Center	Mixed-use residential/commercial	Medium	750 to 1,500 ft

Recommendations — For local and collector streets, recommendations include:

- **Local Streets** — One connection along a collector should be in place every 750 to 1,500 feet. There are cases that will necessitate a variation in this guideline. Approval for these cases will be the responsibility of the Town Engineer and State Division Engineer who will consider traffic impacts, land access, property rights and environmental conditions.
- **Collector Streets** — One public street intersection along a collector or an arterial should be in place every 1,200 to 2,000 feet in a suburban context and every 500 to 1,000 feet in the context of heavily developed areas or the central business district. As determined by the Town Engineer, variations in spacing requirements will depend on traffic impacts, land access, property rights and environmental conditions.

Identifying Future Collector Street Connectors

The following guidelines were used to develop the Mint Hill collector street network:

- Avoid steep slopes and otherwise unsuitable topography.
- Minimize impact to the built environment.
- Avoid FEMA designated floodplains.
- Minimize the number of wetland (National Wetland Inventory) impacts.
- Minimize the amount of each wetland impact (e.g., don't cross a wide wetland when a narrower one can be crossed).
- Minimize the frequency of stream crossings.
- Minimize the number of high-quality (larger) stream crossings.
- Minimize the length of stream crossings.
- Minimize school impacts.

Transportation Recommendations

- Minimize the number and size of each impact to other environmental features, such as historic features and districts, threatened and endangered species, hazardous waste sites and superfund sites.
- Avoid impacts to parks and designated open spaces.
- Minimize the number of new facilities in critical watershed areas.
- Be responsive to existing and planned development patterns.
- Look for existing stub streets.
- Develop feasible connections.
- Consider Land Use Plan goals for area development.
- Consider land use potential and plan collectors according to established spacing guidelines.

Design Guidelines

Designing a street with appropriate horizontal and vertical alignment is important. The following horizontal and vertical design features — based on standards published in *A Policy on Geometric Design of Highways and Streets, 2001*, by American Association of State Highway and Transportation Officials (AASHTO) — are recommended for the design of future collector streets. Design speed should be 35 mph and the maximum recommended grade is 8%. The maximum degree of horizontal curvature is 10 degrees ($R_{\min} = 573$ feet).

Future Collector Street Network

A future collector street network (**Figure 4.14**) was developed using the guidelines discussed above. Key goals of this network included improving accessibility to higher intensity residential areas and activity centers and avoiding or minimizing impacts to sensitive areas for the preservation of the natural environment. Although environmental and built constraints (such as the Goose Creek Basin, Carolina Heelsplitter Mussell and Interstate I-485) limited the number of collector streets that could be identified, the general policy recommendations will provide our Staff with the ability to encourage connectivity as future development occurs. It is important to note that the future collector street network does not reflect exact alignments of a proposed facility. The exact location will be decided during the development review process based on development design, traffic impacts and environmental factors. Ultimately, the future collector street network will provide a greater level of connectivity and mobility to the residents of Mint Hill by reducing the travel time between local streets and arterials.

General Policy Recommendations

The following general policy recommendations are offered for consideration in an effort to increase the number of collector streets to better facilitate travel between local streets and arterials:

- Use the future collector street network as a tool to review proposed development projects and plans as they locate and design future collector streets.
- Amend the future collector street network as necessary to include new streets as they are identified during the development review process.
- Work with the development and real estate community to increase public awareness of future collector street connections through enhanced signage.
- Provide temporary turnaround accommodations for collector street stub-outs to allow access by maintenance and emergency vehicles; right-of-way needed for these turnarounds would revert back to property owners once the connection is made.
- Require that new developments reserve right-of-way for and in some cases construct, future collector streets.
- Consider adopting policies and dedicating funding to help construct traffic calming measures on existing collector streets that become connected to new collector streets.
- Require subdivisions larger than 100 dwelling units to provide connections or stub-out streets in each of the four cardinal directions (where applicable).

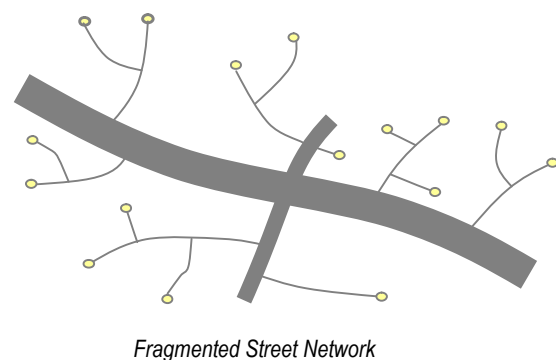
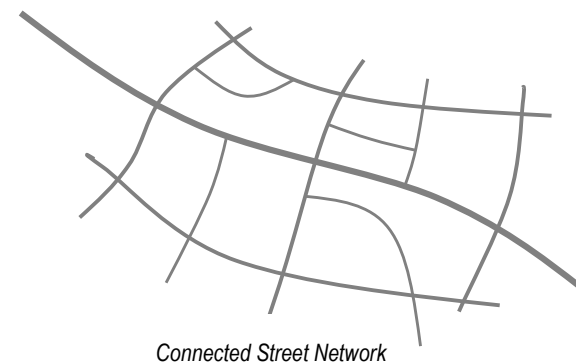


Figure 4.14
Future Collector
Street Network



- Schools
- Study Area Boundary
- Existing Collector Street
- Proposed Collector Street
- Higher Facility
- Wetlands
- US Geological Survey Buffers
- Swim Buffers
- Bodies of Water
- Parks
- Town of Mint Hill
- Other Municipalities
- County Boundary

Expanding Mint Hill's transportation system with an increased number of collector streets will enhance travel between local streets and arterials. The Collector Street Network recommendations are based on engineering principals, environmental constraints, community input from the public workshop, Staff and Committee input. General collector street spacing guidelines were used based on surrounding land use intensity. Recommendations were field verified for basic feasibility; the maps are not precise and do not reflect the actual location or alignment of a proposed facility. The map is intended to identify the general location of future collector streets and the desired level of connectivity as development or redevelopment occurs. The Town of Mint Hill does not intend to build collector streets, but does intend to require that developers build collector streets should their development be of a scale to warrant this construction.



Transportation Recommendations

Example Cross Sections

Figure 4.15 to the right shows plan and section views of a typical residential collector street. This collector is designed to limit automobile travel speeds to 25 mph. It provides two travel lanes with on-street bicycle lanes and trees along both sides of the street. Sidewalks are preferred for both sides of the street in more urban areas; however, a 10 foot, multi-use path on one side of the street is acceptable in less dense areas. A natural buffer extends from the back of the sidewalk to the private property line along the entire corridor. Context-sensitive design considerations should include:

- Striped crosswalks
- Drainage (curb and gutter)
- Street trees (formal or random plantings)
- Pedestrian circulation (sidewalk or multi-use path)
- Street lighting (pedestrian scale)

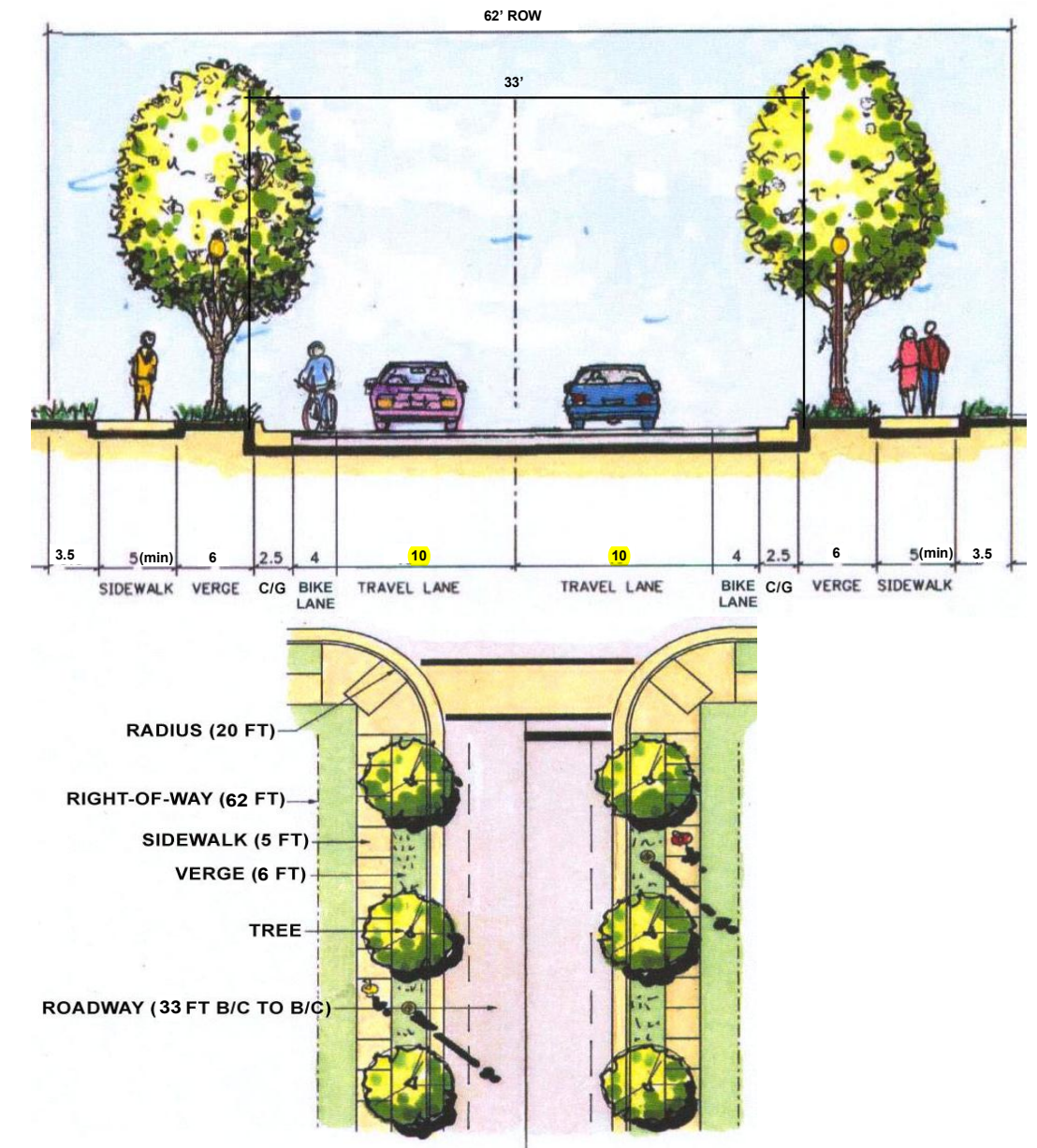


Figure 4.15 Typical Cross-Section

Transportation Recommendations

Downtown Mint Hill Master Plan Summary

In the development of the Comprehensive Transportation Plan, special care was taken to incorporate and integrate the *Downtown Mint Hill Overlay Code* as well as the recommendations made in the *Downtown Mint Hill Master Plan*, developed by The Lawrence Group and the Town of Mint Hill.

The *Downtown Mint Hill Master Plan* makes recommendations related to green infrastructure, a downtown boundary revision, tree preservation, residential and commercial construction, redevelopment, pedestrian amenities, streetscape improvements, increased spatial connectivity and architectural recommendations that hearken to earlier designs consistent with the area. The *Master Plan* relies on the decisions of private developers and is intended to work in conjunction with the *Downtown Mint Hill Overlay Code*.

The *Downtown Mint Hill Overlay Code* seeks to codify the major goals as identified in the *Master Plan*. Those goals are:

- To encourage and promote the Mint Hill Downtown area as a pedestrian-friendly, retail center of the Town, which also offers medium density housing alternatives to residents and encourages mixed-use developments.
- To encourage and promote appropriate amounts and types of commercial and office development to meet the shopping, service and to an extent, employment needs of the area residents.
- To protect and promote continued quality of life, amenities and services which influence the Town's positive image.

The ultimate goal of this codification is the implementation of the *Master Plan*. As such, the *Overlay Code* specifies standards that address such transportation issues as:

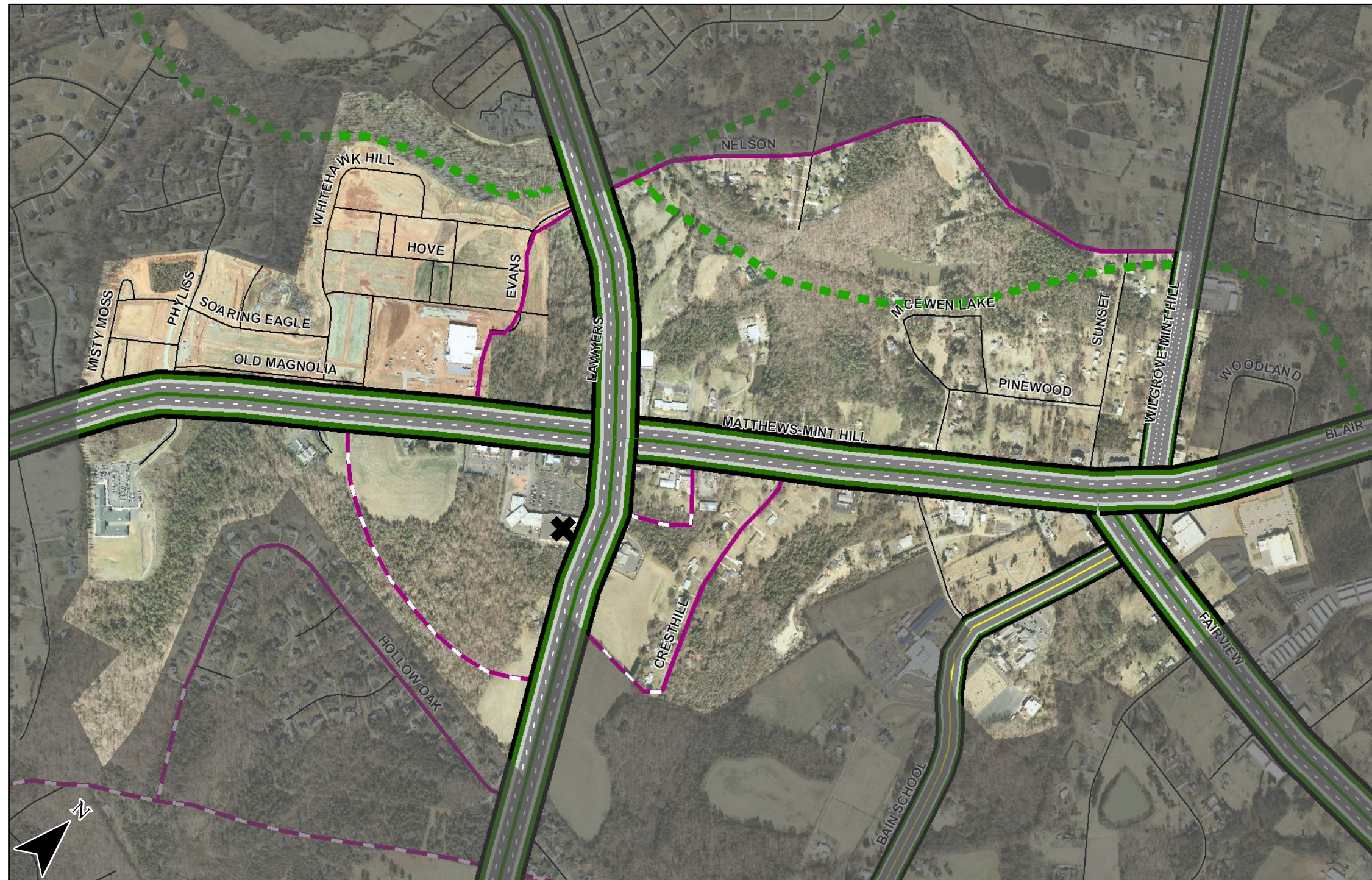
- Interconnecting streets within developments and adjoining developments
- Streets as public space
- Traffic calming
- The use of sidewalks on both sides of streets with preferred widths for both residential and commercial areas (5 and 8 feet respectively)
- Street types
- Parking (oriented to be pedestrian-friendly)
- Shared parking



THE LAWRENCE GROUP
TOWN PLANNERS & ARCHITECTS

DOWNTOWN MINT HILL MASTER PLAN

Figure 4.16
Downtown Master
Plan Coordination



- Proposed Boulevard; Sidewalk with Bicycle Lanes; Both Sides
- Minor Thoroughfare, Sidewalk with Bicycle Lanes; Both Sides
- Minor Thoroughfare; Sidewalk with Bicycle Lanes; Both Sides; Center Turn Lane
- Existing Collector Street
- Proposed Collector Street
- Proposed Greenway
- Existing Park and Ride Location

Kimley-Horn
and Associates, Inc.

0 500 1,000 2,000
Feet



Transportation Recommendations

*“more sidewalks heading
downtown; more bike
routes everywhere”
— Mint Hill Citizen*

Bicycle and Pedestrian Recommendations

The community of Mint Hill recognizes the importance of providing bicycle and pedestrian facilities throughout the Town to create a safe and enjoyable environment to the many citizens wishing to be active. Many citizens expressed their desire for these facilities throughout the public involvement phase of this plan. As a result, the following bicycle and pedestrian recommendations provide an extensive systems level network of on and off-road facilities throughout the study area. These bicycle and pedestrian facilities can be constructed as stand-alone enhancement projects. They are often more effectively implemented as components of public and private infrastructure projects, such as roadway widenings, regular street maintenance, utility line replacements and new road construction. The subsequent sections suggest systems level bicycle and pedestrian recommendations that should be considered as opportunities arise. However, the Town also is encouraged to complete comprehensive bicycle and pedestrian plans based on the strong feedback from local citizens and the established vision for the Town.

General Recommendations

In general, three steps can be taken to provide an improved bicycle and pedestrian environment:

1. Integrate land use and transportation to create communities and neighborhoods designed for walking and bicycling.
2. Adopt pedestrian and bicycle-friendly development standards, policies and guidelines.
3. Develop a proactive attitude toward change.

Step 3 is a critical step. *Bicycling & Walking in North Carolina, A Long-Range Transportation Plan* conceives the following vision for the future:

“All citizens of North Carolina and visitors to the state will be able to walk and bicycle safely and conveniently to their desired destinations, with reasonable access to all roadways.”

The fulfillment of this vision of bicycle and pedestrian-accessible communities requires a “can-do” attitude. Mint Hill can build on the current excitement of this plan and use the support of the citizens in applying for the NCDOT grant initiatives. Capitalizing on this willingness to accommodate multimodal facilities can ensure that as Mint Hill experiences growth, pedestrian and bicyclist issues will be given appropriate consideration. Below are four important components

that contribute to the success of non-motorized transportation systems and programs:

1. **Engineering** — Before the Town can have facilities for walking and riding bicycles, a network of pathways must be planned and designed. Good design and route choices are essential parts of a successful pathway network. In addition, ancillary facilities such as bike racks, crosswalks, curb ramps and pedestrian signals should be planned and designed in order to create a more user-friendly system.
2. **Education** — When pathway systems are developed, new and experienced cyclists should be made aware of where these systems are and what destinations can be accessed. Motorists, pedestrians and cyclists must understand the “rules of the road” to keep themselves safe while operating on and near these facilities. School programs are an excellent medium to expose children to bicycle and pedestrian safety. Public service messages using local media are an effective tool to educate adult pedestrians, bicyclists and motorists about their responsibilities and safety techniques.

Mint Hill should participate in the Safe Routes to School program to encourage and provide a safe environment for children and educators to walk or bike to school. More information on this program can be found at safety.fhwa.dot.gov/saferoutes. A workshop should be conducted to educate Town officials on safe practices and laws regarding bicyclists, walkers and drivers.

3. **Encouragement** — The more desirable Mint Hill becomes for pedestrians and bicyclists (by providing more destinations oriented for them), the more successful these modes of transportation will become. Setting a Town goal to be widely recognized as bicycle friendly is a worthy idea.

Mint Hill should publicize and participate in National Walk to School Day in October each year. This program encourages children, parents, faculty and staff to walk to school and provides an opportunity to educate students about safe practices and the benefits of walking.

The Town could initiate annual community events such as rideabouts and bike rodeos to help children and adults learn the “Rules of the Road” and helmet safety laws, as well as encourage healthy lifestyles.



Transportation Recommendations



4. **Enforcement** — To ensure safety, everyone should heed laws that pertain to the interaction between motorists, pedestrians and cyclists. Local enforcement agencies should monitor driving speeds on local roads and actively ticket speeders.

Also, Mint Hill should participate in the North Carolina School Crossing Guard Training Program to properly train law enforcement officers.

Bicycle Facilities

Chapter 3 discussed the public engagement process and summarized those transportation elements that stood out to the citizens of Mint Hill. Bicycle facilities were identified as a strong need within the community to promote bicycling as a mode of transportation and a form of recreation. **Figure 4.17** displays the proposed greenways, bike lanes and bike routes at a systems level. During the planning process the public, Citizen Transportation Committee and Town Staff expressed a strong desire for enhanced bicycle mobility. The resulting recommendations include an extensive system of future bike routes, on-street bike lanes and multi-use paths. These bicycle recommendations reflect the commitment and vision of the planning participants to the goal of creating a bicycle friendly community. Future implementation of these facilities will provide the citizens with a network of bicycle lanes and greenways to parks, schools, downtown and various other destinations throughout the community.

In addition to the systems level plan recommended in this CTP, it is recommended that the Town apply for a NCDOT comprehensive bicycle planning grant. Through this planning process the Town will closely consider bicycle facilities in a more detailed manner; including recommended policies related to the design, construction and funding of future bicycle facilities. It will prioritize these projects and provide a general cost estimate for each as well as include recommendations for ancillary amenities, such as bike racks, signage, etc.

Another important aspect of bicycle planning includes policy and design recommendations. The following section offers guidelines that should be incorporated into the Town's ordinances and standards. In general, bikeways in Mint Hill should have the following considerations:

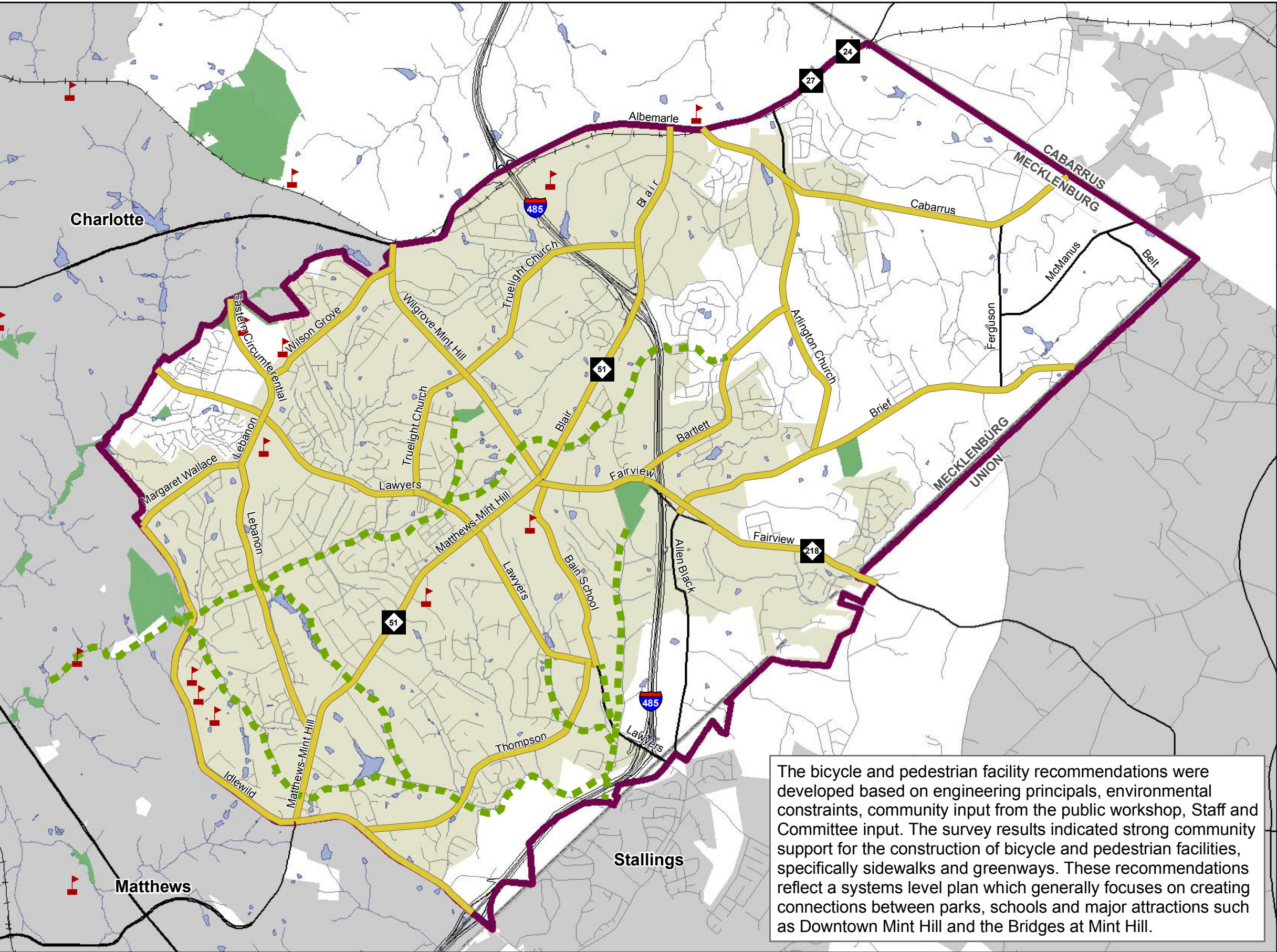
- Developers should be required to anticipate the construction of bikeways through right-of-way dedication. In addition, if other improvements are required along a facility that has proposed bike lanes the developer should be responsible for making those improvements as well.

- Shared lane facilities on roadways without curb-and-gutter should consist of a paved shoulder approximately 4 feet in width. On two-lane roadways with curb-and-gutter, shared lane facilities should require a travel lane width of 15 feet, excluding curb-and-gutter. On multi-lane roadways with curb-and-gutter, these facilities should require a total outside lane of 14 feet (excluding curb-and-gutter), with an adjacent lane width of 12 feet.
- Designated bike lanes on roadways with curb-and-gutter should be striped a minimum 4 feet wide, on roadways with shoulder they should only be 5 feet wide.
- Greenways/multi-use paths should have a minimum 10 foot wide off-street network.

Figure 4.17
Proposed Bicycle Facilities



- Schools
- Proposed Greenway
- Proposed Bicycle Lanes
- Study Area Boundary
- Higher Facility
- Parks
- Bodies of Water
- Town of Mint Hill
- Other Municipalities
- County Boundary



Transportation Recommendations



Pedestrian Facilities

Figure 4.18 illustrates the existing and proposed sidewalks for the Town of Mint Hill. The Citizen Transportation Committee and the general public expressed strong interest in “closing the gaps” in the sidewalk network and improving connections to existing activity nodes, such as shopping centers, schools, Town parks and Downtown. Multi-use trails also are shown in the figure to fully illustrate potential network connections. These facilities supplement the sidewalk network by providing additional connectivity to destinations.

The Town is currently in the process of submitting a grant application to NCDOT to obtain funds to complete a Comprehensive Pedestrian Plan. During the second public workshop, many citizens chose to show their support for pedestrian planning by writing letters of support that will be submitted with the grant application. The Town has also provided citizens the opportunity to go online and learn about the pedestrian planning process and offer their support.

It is recommended that the Comprehensive Pedestrian Plan be completed to focus efforts purely on sidewalks, greenways and ancillary facilities that would support safe walking within Mint Hill. Priority should be given to those activity nodes throughout the Town in most need of pedestrian facilities based on public use and safety.

Although the Comprehensive Pedestrian Plan will address general policy and standard guidelines, prior to the completion of the plan, it is recommended that sidewalks in Mint Hill adhere to the following guidelines:

- **Width** — Sidewalks should be a minimum of 5 feet in width in suburban locations and sized appropriately to complement/support the streetscape in urban areas. Within the Downtown Overlay District, it is recommended that the sidewalks should be a minimum of 8 feet in width.
- **Set-back** — In areas where curb-and-gutter exists, sidewalks should be set-back from the street a minimum of 6 feet (using planted or “hardscaped” land). In areas where curb-and-gutter does not exist, sidewalks should be located with the open drainage channel between the roadway and the sidewalk.
- **Material** — Generally, sidewalks should be concrete. Other decorative materials, however, should be permitted in areas as dictated by streetscape designs. These decorative materials must be level and smooth.

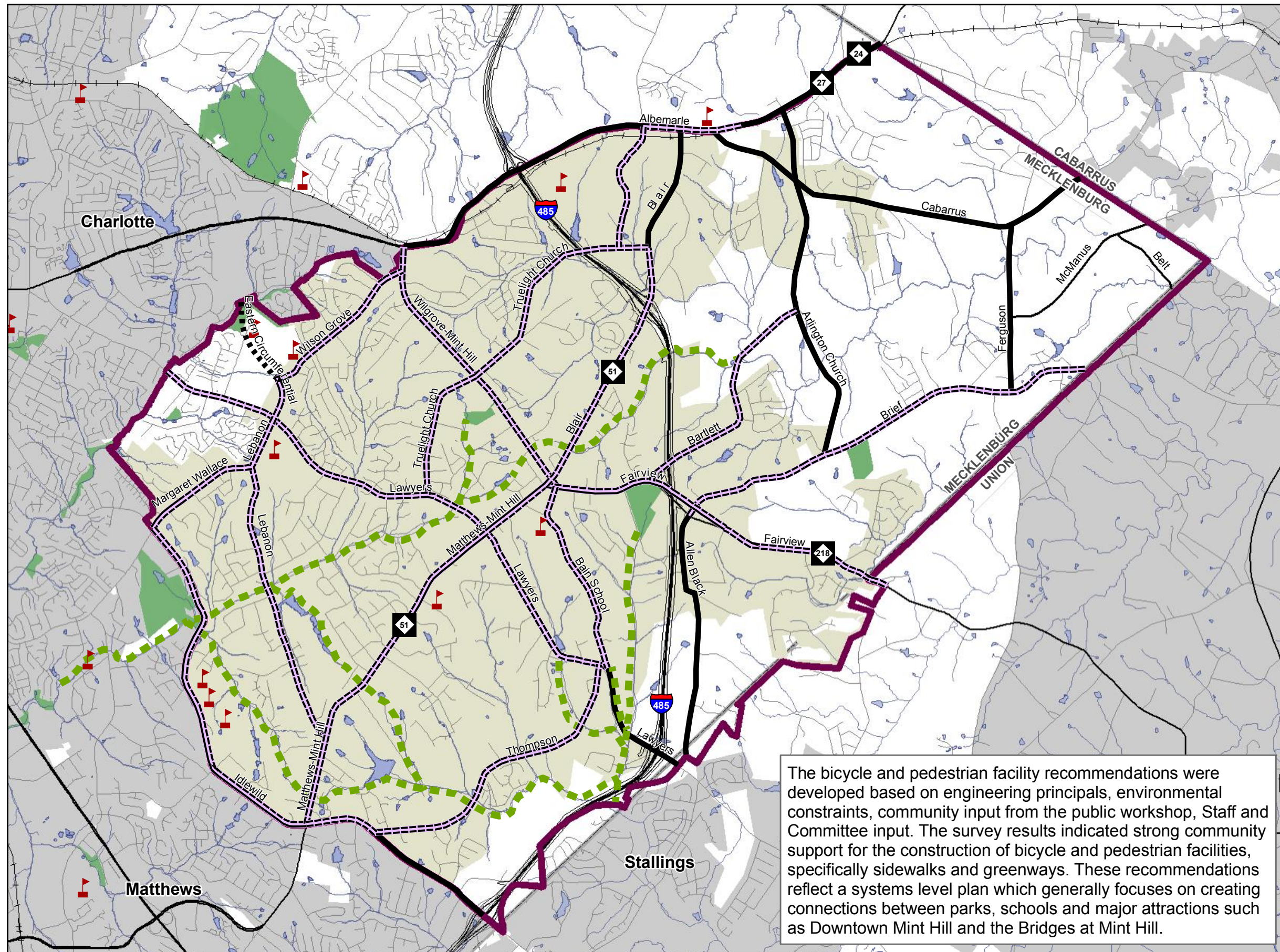
- **Location** — Sidewalks should be located in accordance with Mint Hill’s ordinances and constructed on both sides of major/minor thoroughfares and collector streets. In instances where a greenway is shown for a corridor, the greenway takes the place of a sidewalk on one side of the street and a sidewalk may or may not be required on the opposite side of the street.

In addition, it is recommended that the following policy guidelines be used to create a unified network of pedestrian facilities in concert with new pedestrian development throughout the Town of Mint Hill are listed below:

- Orient new commercial development to the pedestrian with accessible pedestrian walkways.
- Construct new residential development to be pedestrian friendly, with interconnected, grid-like street patterns and block lengths less than 660 feet in distance.
- Provide adequate pedestrian connectivity between new and existing developments.
- New residential, commercial and mixed-use developments should provide sidewalks on both sides of the street, plant trees that shade sidewalks and ensure an adequate buffer distance between traffic and off-street parking lots.
- Enact a policy to create pedestrian-friendly parking lots by encouraging shared parking between businesses and constructing sidewalks that provide safe routes from the parking lot to the commercial development.
- Create pedestrian linkages to existing and future transit operations.



Figure 4.18
Proposed Pedestrian Facilities



- Study Area Boundary
- County Boundary
- Town of Mint Hill
- Other Municipalities
- Parks
- Proposed Greenway
- Recommended Sidewalk**
 - Existing One Side, Proposed Both Sides
 - Proposed Both Sides
- Schools

The bicycle and pedestrian facility recommendations were developed based on engineering principals, environmental constraints, community input from the public workshop, Staff and Committee input. The survey results indicated strong community support for the construction of bicycle and pedestrian facilities, specifically sidewalks and greenways. These recommendations reflect a systems level plan which generally focuses on creating connections between parks, schools and major attractions such as Downtown Mint Hill and the Bridges at Mint Hill.

Transportation Recommendations

Transit Recommendations

As the Town's population continues to increase, it is important to look beyond the passenger vehicle when planning future transportation services. While the private vehicle will remain the predominant means of transportation for the majority of citizens, the need for quality alternative modes of transportation will increase with community growth. The recommendations presented in this section aim to provide improved alternatives for both commuters traveling to and from the Town and travelers whose origin and destination is within Town limits.

Chapter 2 of this document inventoried the existing transit facilities within the study area and summarized issues important to the community. The existing transit services include taxi, dial-a-ride and limited fixed-route bus service through the Charlotte Area Transit System (CATS). The following recommendations build on the existing services to provide a greater level of mobility for transit riders:

Fixed-Route Service

CATS operates a single fixed-route public transit service to and from Downtown Charlotte. The Albemarle Road Express operates Monday through Friday from 6:15 a.m. to 6:20 p.m. (to Charlotte) and from 6:15 a.m. to 6:55 p.m. (from Charlotte). The service makes one stop inside the town limits, at Lawyers Road and Highway 51 intersection. One-way fares for the service are currently as follows:

- \$1.75 for Express routes within Mecklenburg County
- \$2.60 for Express Plus routes to neighboring Counties

Figure 4.19 shows the recommended fixed route extension and additional park-and-ride locations. The route extension is recommended to continue on Lawyers Road to the proposed Bridges at Mint Hill development and then south along Interstate I-485 to the existing Independence Boulevard service. This extension would allow access to the Bridges at Mint Hill and provide service between Mint Hill and Matthews. It is suggested that the Town coordinate with the Bridges at Mint Hill developer, CATS and the Town of Matthews to best establish service schedule and route extension.

In addition, it is recommended based on public input, that the existing service be extended an hour later in the evening to accommodate those who work Downtown and may have slightly irregular business hours. Several citizens expressed an interest in utilizing the existing service, however, were unable to because of the time the final service is provided.

Telecommuting

Telecommuting is a work arrangement between an employee and an employer in which the daily commute is replaced by use of telecommunication links. In short, it is the process of working from home in lieu of commuting to and from the office on a daily basis. This arrangement requires some flexibility between employee and employer, and the management style has to be tempered to be based on results instead of close scrutiny of the employee. If this arrangement can be successfully incorporated into several employer work programs, congestion levels along major corridors could be affected.

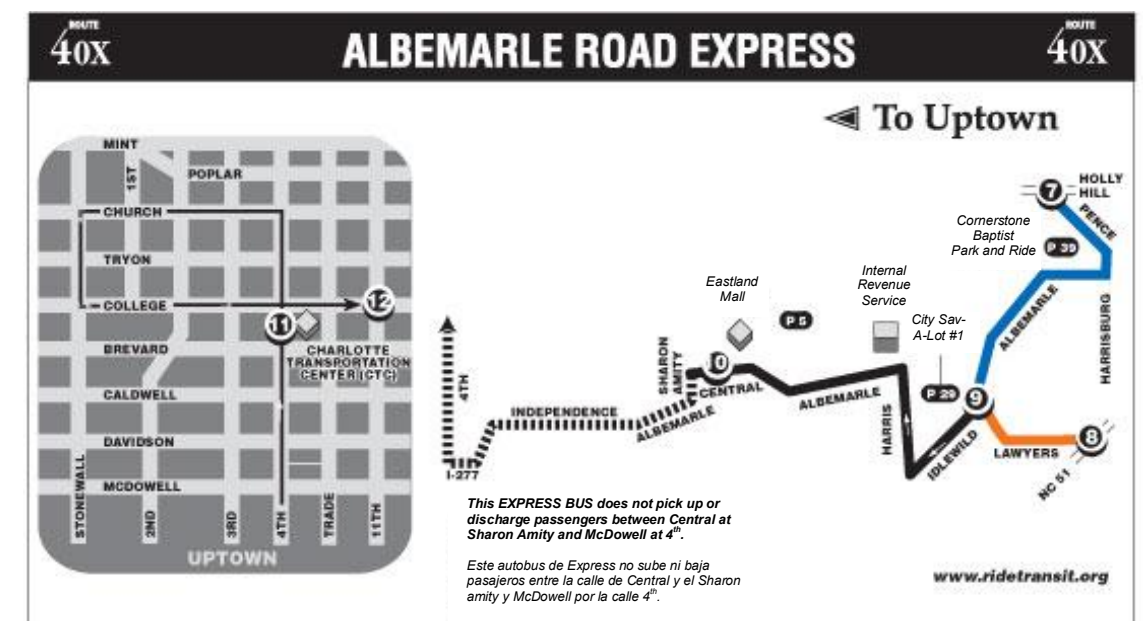
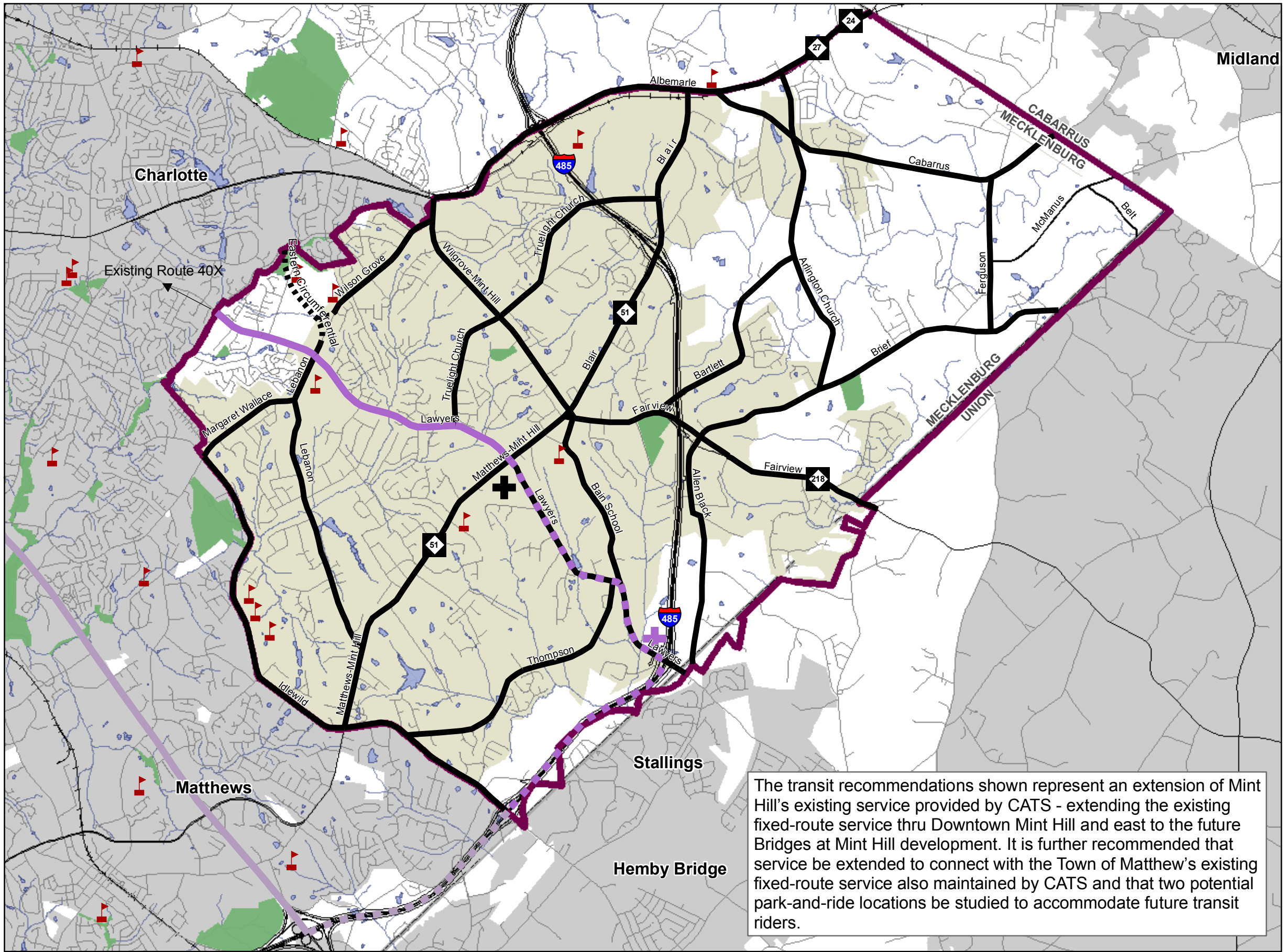


Figure 4.19
Public Transportation
and Rail Map



- Study Area Boundary
- County Boundary
- Town of Mint Hill
- Other Municipalities
- Parks
- Railroad
- Higher Facility
- Existing Fixed Route (CATS)
- Proposed Fixed Route
- Existing Fixed Route (CATS) (Outside Study Area Boundary)
- Proposed Fixed Route (Outside Study Area Boundary)
- Existing Park and Ride Location
- Proposed Park and Ride Location
- Schools

The transit recommendations shown represent an extension of Mint Hill's existing service provided by CATS - extending the existing fixed-route service thru Downtown Mint Hill and east to the future Bridges at Mint Hill development. It is further recommended that service be extended to connect with the Town of Matthew's existing fixed-route service also maintained by CATS and that two potential park-and-ride locations be studied to accommodate future transit riders.

Transportation Recommendations

Freight Recommendations

The Town's freight movements will likely increase with the completion of the proposed Bridges at Mint Hill and potential industrial area just to the west of Allen Black Road. It is recommended that in addition to Interstate I-485, Blair Road from Interstate I-485 and Albemarle Road within the study area be designated as truck routes. It is recommended that these facilities be improved to safely accommodate truck routes.

Figure 4.20 identifies these truck route recommendations. Special attention should be given to the downtown core, where truck traffic should be restricted only to those vehicles making local deliveries. The following recommendations apply to those facilities designated as truck routes.

Truck Route Recommendations

As Mint Hill and surrounding areas continue to grow and more businesses locate within the community, the volume of truck traffic is likely to increase. Mint Hill should work with NCDOT to designate local and through truck routes. During this process, the following recommendations should be considered:

- **Truck definition** — Currently, trucks are defined as vehicles with a manufacturer's gross vehicle weight of 33,000 pounds or more. This definition excludes most single-unit, panel and delivery trucks and public service vehicles, such as garbage collection trucks. It includes trucks with more than two axles, such as tractor-trailers and tandem axle dump trucks. The Town should review its truck definition to determine if changes might restrict more heavy vehicles, thereby protecting and maintaining the integrity of its streets.
- **Signage** — Designated truck routes should be clearly marked at and within (as appropriate) Town limits, as well as major highway intersections, interchanges and other appropriate locations directing heavy vehicle operators to permitted routes. This may include limiting travel to US and NC routes and other designated routes throughout the Town. Within the Town limits, consideration should be given to amending the local ordinance to specifically prohibit through trucks on local streets. Prohibition of trucks on any segment of state-maintained roadways, requires approval from NCDOT.
- **Routes** — Truck route designations should be sought for major routes and industrial streets. The previously mentioned Blair Road and Albemarle Road corridor between should be considered for this designation.



Designated truck route sign

Additional tasks associated with establishing truck routes through the urban area include:

- Working with NCDOT to prioritize resurfacing on designated routes to reduce noise and vibration from trucks.
- Adjusting signal timing (coordination) along high priority routes to reduce vehicle delay and maintain vehicle speeds within an acceptable range of the posted speed limit. Impacts of the adjusted timing could include travel time (and reliability), reduced noise (from accelerating and braking vehicles) and air pollution.
- Publishing and distributing educational materials to businesses and industries concerning truck routes.
- Working with NCDOT to make improvements to critical intersections on truck routes to more easily facilitate large vehicle movements and encourage their use by truckers. Improvements include providing adequate curb radii, lane width and exclusive turn lanes.

Figure 4.20

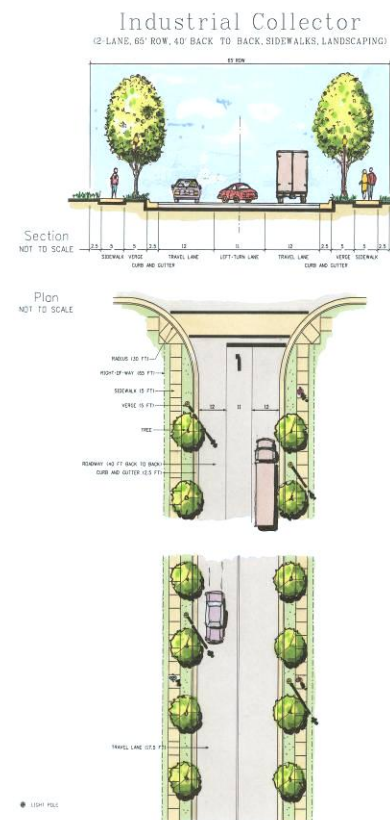
Freight
Recommendations



- Study Area Boundary
- County Boundary
- Town of Mint Hill
- Other Municipalities
- Parks
- Railroad
- Recommended Truck Routes

Freight movement within Mint Hill is predominately along Interstate I-485. However, Fairview Road/NC Highway 218 and Albemarle Road/NC Highway 24 facilitate freight movement locally and to the East. It is recommended that these routes be designated truck routes and consideration during design should be implemented such as adequate lane width, turning radii, horizontal and vertical transitions and adequate space between the edge of the traveled way and adjacent pedestrian facilities.

Transportation Recommendations



**Sample industrial collector
street cross section**

Street Design Considerations

The design of all roadways should be consistent with their intended function and be responsive to the environments and land uses through which they pass. Streets serving as truck routes are not an exception. Common high priority design elements include adequate lane width, turning radii, horizontal and vertical transitions and adequate space between the edge of the traveled way and adjacent pedestrian facilities. A general set of design considerations for truck routes and industrial streets include:

- **Edge Treatment** — Curb and gutter preferred in incorporated areas and a ditch or swale in unincorporated areas
- **Median** — Paved, flush with travel lanes
- **Lane Widths** — 12 feet
- **Bike/Pedestrian Accommodations** — 5 foot sidewalks (minimum) and 6-foot verge (minimum)
- **Design/Posted Speed** — 30-55 mph
- **Curb Radius** — 40 feet (minimum)
- **On-Street Parking** — Prohibited

Chapter 5 – Implementation Plan

Introduction

Planning, design, and implementation are all critical components of a successful plan. The citizens of Mint Hill have expressed a desire to implement a Comprehensive Transportation Plan that will add to the quality of life and unique character of the Town. However, with limited funding, implementation can be challenging and time-consuming. With this in mind, policy recommendations and an action plan have been developed to help Town Staff focus their efforts and seek strategic opportunities to expedite the implementation of the Mint Hill CTP.

Completion of the Town's CTP represents an important step toward implementing multimodal improvements that affect travel safety, mobility, development patterns and the aesthetics of Mint Hill. Some of the recommended improvements will be implemented through the development review process. Major infrastructure improvements most likely will be a product of State and Federal funding; however, transportation improvement funds are limited and competition for them is great.

This chapter provides general policy recommendations, reviews funding opportunities and presents an action plan to assist local decision-makers and Planning Staff in the implementation of the CTP.

Responsible Agencies

To successfully implement this CTP, responsible agencies have been identified that can influence and authorize recommendations. Policy and program initiatives will, for the most part, occur at the local level. Some improvements will occur as a result of development and redevelopment opportunities. The majority of responsibility for implementing these recommendations will be a coordinated effort between NCDOT, Mecklenburg County and the Town of Mint Hill.

Funding Opportunities

The construction of a comprehensive and connected transportation network can occur through incremental adoption of local policies and programs and State programs, as well as through the receipt of private contributions. With this in mind, it will be important for the Town of Mint Hill to identify funding sources to implement the recommendations of this CTP. While some projects and programs will be funded by the Town, alternatives are available to provide financial support for improving the local transportation network.

Local Programs

Local funds should be used for strategic projects identified by the community as being necessary to improve the transportation network in Mint Hill. Usually these projects are most successful when additional funding can be secured to help lessen the burden to the Town. Local funding sources tend to be flexible and include general revenue expenditures and in some communities local bond programs as well as proceeds from bond programs. An exception to this policy may include high priority connections along roads unlikely to be developed.

Powell Bill

Powell Bill funds are collected by the State in the form of a gasoline tax. The amount of these funds distributed to a municipality is based on the number of street miles to be maintained and the Town's population.

Transportation Bonds

Transportation bonds have been instrumental in the strategic implementation of local roadways, transit, and non-motorized travel throughout North Carolina. Voters in communities both large and small regularly approve the use of bonds in order to improve their transportation system. Some improvements identified in this CTP could be candidates funding via a future transportation bond program.

Mecklenburg Union Metropolitan Planning Organization (MUMPO)

Mint Hill is a member of the Mecklenburg Union Metropolitan Planning Organization (MUMPO), which is one of 17 Metropolitan Planning Organizations (MPO) designated by NCDOT. The MPO aids local planning efforts and provides services and guidance in coordinating with NCDOT.

State and Federal Programs

In comparison with local funds, State and Federal funds are not as flexible in terms of their use. Projects funded by these programs usually focus on the needs required by vehicles, either in terms of capacity or safety — for example, widening projects. It can be difficult to secure these funds for alternative transportation projects.

The 1998 Transportation Equity Act for the Twenty-First Century (TEA-21) required NCDOT to set aside Federal funds from eligible categories for the construction of bicycle and pedestrian transportation facilities. On August 10,

Implementation Plan

2005, the President signed into law the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). With guaranteed funding for highways, highway safety and public transportation totaling \$244.1 billion, SAFETEA-LU represents the largest surface transportation investment in our nation's history. Provisions address specific safety issues, including pedestrian and bicycle safety.

Funds for pedestrian and bicycle projects come from several different sources that are described in this section; however, allocation of those funds depends on the type of project or program and other criteria. The information provided in this section presents a basic overview of the process.

Transportation Improvement Program (TIP)

The State's Transportation Improvement Program (TIP) supports communities through an array of funding resources including Federal Aid Construction Funds and State Construction Funds. As part of the application process, strict criteria must be met before project selection. Criteria include providing right-of-way information, meeting a set of design standards, showing a need for a project, local support of the project and the inclusion of the project in the community's planning processes. See the following site for more information: www.ncdot.org/transit/bicycle/funding/funding_criteria.html.

Hazard Elimination and Railway-Highway Crossing Programs

These funds are a subset of the State Transportation Improvement Program (STIP) funding, constituting 10% of a state's funds. This program is intended to inventory and correct the safety concerns of all travel modes.

NCDOT Division Funds

NCDOT separates the state into 14 divisions. All of the area covered by MUMPO is located in Division 10. Division funds are another resource that provides allocations or discretionary funding for special projects within each division.

North Carolina's Clean Water Management Trust Fund (CWMTF)

At the end of each fiscal year, 6.5% (or a minimum of \$30 million) of the unreserved credit balance in North Carolina's General Fund is placed in the CWMTF. The revenue of this fund is allocated as grants to local governments, state agencies, and conservation non-profits to help finance projects that specifically address water pollution problems. CWMTF funds may be used to

establish a network of riparian buffers and greenways for environmental, educational and recreational benefits.

Governor's Highway Safety Program (GHSP)

The Governor's Highway Safety Program is committed to enhancing the safety of North Carolina roadways. To achieve this, the GHSP funding is provided through an annual program, upon approval of specific project requests, to undertake a variety of safety initiatives. Communities may apply for a GHSP grant to be used as seed money to start a program to enhance highway safety. Once a grant is awarded, funding is provided on a reimbursement basis and evidence of reductions in crashes, injuries and fatalities is required. More information about the program can be found at www.ncdot.org/secretary/GHSP.

Public/Private Initiatives

Developer Contributions

Through diligent planning and early project identification, regulations, policies and procedures could be developed to protect future transportation corridors and require contributions from developers when property is subdivided and/or developed. Mint Hill currently uses this approach to secure funds such as with the Bridges at Mint Hill development. To accomplish this goal on all proposed projects within the Mint Hill jurisdiction, it will take a cooperative effort between Town Planning Staff, NCDOT Planning Staff, and the development community.

Impact Fees

Developer impact fees and system development charges are another funding option for communities looking for ways to pay for transportation infrastructure. They are used most commonly for water and wastewater system connections or police and fire protection services, but they have been used recently to fund school systems and pay for the impacts of increased traffic on existing roads. Impact fees place the costs of new development directly on developers and indirectly on those who buy property in the new developments. Impact fees free other taxpayers from the obligation to fund costly new public services that do not directly benefit them. Although other states in the country use impact fees, they have been controversial in North Carolina and only a handful of communities have approved the use of impact fees. The use of impact fees requires special authorization by the North Carolina General Assembly.

Implementation Plan

Active Living by Design (ALbD)

Active Living by Design is a program sponsored by the Robert Wood Johnson Foundation. ALbD seeks to bring together the health care and transportation communities to create an environment that encourages residents to pursue active forms of transportation such as walking and bicycling. Grants are awarded each year to a selected number of communities that are then required to produce a local match. These grants can be used to create plans, change land use policies, institute education policies and develop pilot projects. For more information, visit www.activelivingbydesign.org.

Fit Together

Fit Together is a partnership of the North Carolina Health and Wellness Trust Fund and Blue Cross and Blue Shield of North Carolina. The grant initiative “recognizes and rewards North Carolina communities’ efforts to support physical activity and healthy eating initiatives in the community, schools and workplaces, as well as tobacco-free school environments.” This program awards as many as nine partnerships with up to \$30,000 annually for a two-year period. For more information, visit www.healthwellNC.com.

The Trust for Public Land (TPL)

Founded in 1972, the Trust for Public Land is the only national nonprofit organization working exclusively to protect land to enhance the health and quality of life in American communities. TPL works with landowners, government agencies and community groups to create urban parks and greenways, as well as to conserve land for watershed protection. For more information, visit www.tpl.org.

Action Plan

This section discusses the appropriate steps for local leaders to implement the recommendations of this Action Plan and key agencies that should be involved with the task. It is not expected that all of the listed items would be completed over the next several years; however, the process should be initiated to best take advantage of the momentum gained with the development of this Action Plan. Table 5.1 identifies a summary of the short and long-term action items that should be considered to implement this Action Plan.

Beyond the tasks listed below, it is vital to the success of this Action Plan for the Town to continue working with and educating local citizens and businesses. While public support can encourage implementation, opposition can significantly delay a project.

Safety

The Town and NCDOT should secure funding to implement safety countermeasures at the high-crash locations in the study area. Chapter 2 describes crash analysis performed for the heaviest traveled segments and for the 10 worst intersections over the three-year period from January 1, 2004 to December 31, 2006. Chapter 4 offered specific recommendations to the worst three intersections within the study area.

Thoroughfare Plan Refinement

The Town should review the current Thoroughfare Plan for consistency with the Highway Plan depicted in **Figure 4.1**, and any changes in alignment or classification should be noted. Most of the changes result from informal environmental review, feasibility study and phase one environmental scans and new development that has occurred since the last update to the plan. Projects constructed since the last Plan update should be coded to reflect current conditions. A small number of projects have been removed from the Plan for one of the following reasons: either the connection/alignment is no longer feasible due to new development and no other alternative exists, the project has been downgraded from a thoroughfare to collector street status, or a lack of clearly defined transportation benefits has resulted in reduced support for the project. Any differences should be coordinated through MUMPO so that a consistent Plan will represent Mint Hill during their pursuit for funds.

Policy Measures

The Town should work with MUMPO and Mecklenburg County to ensure that roadway corridors are preserved as development applications are considered. The Town should work cooperatively with the MPO and the County by providing review and comment on proposed development applications. Where corridor preservation isn’t feasible, reasonable alternatives should be sought. In an effort to improve corridor protection, copies of the adopted CTP should be forwarded to MUMPO, County, Board of Realtors, Chamber of Commerce and Economic Development Departments. Additional copies should be made available for public review in the Town of Mint Hill Planning Department, local library, and on the MPO and County web pages.

Implementation Plan

Highway Improvements

The Town and NCDOT should conduct necessary studies and secure funding to implement the recommended Highway Map for the Mint Hill area shown in **Figure 4.1**. The CTP shows roadway widenings, intersection improvements and corridor enhancements. Future corridors shown on the map do not represent specific alignments, but rather a series of connections. See Chapter 4, for detailed roadway recommendations.

Collector Streets

The Collector Street Plan discussed in Chapter 4, should be used by local staff and developers to ensure adequate connectivity as development and redevelopment occurs. By expanding Mint Hill's transportation system through increasing the number of collector streets, traveling between local streets and arterials is enhanced. Key outcome goals of the Collector Street Plan include improved accessibility to higher intensity residential areas and activity centers while avoiding or minimizing impacts to sensitive areas for the preservation of the natural environment.

It is recommended to use the guidelines in Chapter 4 when requiring collector street network improvements. Research indicates that a 3,000 foot grid is typically the most appropriate for the mixed suburban and rural development pattern that prevails throughout most of the study area. For more intense development, a 750 foot grid proves optimal, but this is independent of the costs that would be incurred to build a network of such intensity. The draft collector street plan is shown in **Figure 4.14**.

Collector Street Implementation Policies

- Seek to incorporate the Collector Street Plan and associated roadway design standards and policy requirements within development ordinances of the County and the Town
- Use the Collector Street Plan as a tool to communicate desired roadway connectivity as development projects are proposed
- Review all development proposals for consistency with the approved Collector Street Plan and place an emphasis on connections rather than alignments
- Require new developments to reserve right-of-way for and construct future collector streets
- Integrate future bikeway, greenway, and trail networks with the Collector Street Plan to improve access and enhance connectivity between systems

- Amend the Collector Street Plan as necessary to include new streets as they are identified during the development review process

Sidewalks, Bikeways and Greenways (SBG)

Figures 4.17 and 4.18 show the systems level bicycle and pedestrian recommendations developed as part of this CTP. It is recommended that NCDOT funds be secured to complete Comprehensive Bicycle and Pedestrian Plans (CBPP). Upon completion of the CBPP, the systems level recommendations should be updated to include the policy and network recommendations. Non-vehicular facilities can be constructed as stand-alone enhancement projects; however, they often are implemented more effectively when incorporated into public and private infrastructure projects such as roadway widenings, regular street maintenance, utility line replacements and new road construction. The networks represented in each of these SBG plans should not be implemented alone, but in conjunction with them, so as to realize the maximum benefit of the network which currently exists, will exist in interim periods and will ultimately result.

In general, sidewalks in the Mint Hill area are recommended to have the following characteristics:

- **Width** — 5 feet minimum in suburban locations and sized to complement/support the streetscape in urban areas (8 feet minimum in Downtown Overlay).
- **Set-back** — In areas where curb and gutter exists, sidewalks should be set back from the street by a minimum of 6 feet (planted or hardscaped). In areas where there is not curb and gutter, sidewalks should be located with the open drainage channel between the traveled way and the sidewalk.
- **Material** — Generally, sidewalks should be concrete; however, other decorative materials (if level and smooth) should be permitted in areas where streetscape designs designate other materials.
- **Location** — Sidewalks should be located in accordance with Mint Hill ordinances and generally on both sides of all collector streets, minor and major thoroughfares. In the case that a greenway is shown for a corridor, the greenway takes the place of a sidewalk on one side of the street and a sidewalk may or may not be required on the opposite side of the street (at the Town's discretion).

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Transit

The existing transit services in the Mint Hill area include taxicab, dial-a-ride and limited fixed-routes through the Charlotte Area Transit System (CATS).

The existing fixed route service provides transportation to people traveling to uptown Charlotte, but is not extensive enough to serve the greater community. CATS riders in the Mint Hill area currently are served by a single park-and-ride lot. With the rapid growth in Mint Hill and the soaring gas prices, the need for additional park-and-ride lots might arise. In addition, telecommuting is a promising arrangement that could affect congestion levels along major corridors in the area.

Freight

With the completion of Interstate I-485 and possible industrial growth to the west of Allen Black Road, truck traffic is likely to increase. Prior to this type of traffic becoming a large source of citizen concern, Mint Hill should work with NCDOT to designate local and through truck routes. During this process, the following recommendations should be considered.

- **Truck Definition** — Currently, trucks are defined as vehicles with a manufacturer's gross vehicle weight of 33,000 pounds or more. This definition excludes most single-unit trucks, panel and delivery trucks, as well as public service vehicles like garbage collection trucks. It includes larger trucks, with more than two axles, such as tractor-trailers and tandem axle dump trucks. The Town should review its truck definition to determine if changes might restrict more heavy vehicles, thereby protecting and maintaining the integrity of its streets.
- **Signage** — Designated routes should be marked clearly at and within (as appropriate) Town limits, major highway intersections, interchanges and other appropriate locations directing truck drivers to permitted routes. This may include limiting travel to US and NC routes and other designated routes through the Town. Within the Town limits, consideration could be given to amending the local ordinance to specifically prohibit through trucks on local streets. Prohibition of trucks on any segment of State maintained roadways requires approval from NCDOT.
- **Routes** — Truck route designations should be sought for major routes and industrial streets. The Blair Road and Albemarle Road corridors should be examined for truck route designation eligibility.

- **Industrial Use Areas** — In the potential industrial use area between Interstate I-485 and Allen Black Road, efficient truck access should be planned and provided to allow unimpeded movement of freight without creating unwanted cut-through traffic.

Additional tasks associated with the establishment of truck routes through the urban area include:

- Working with NCDOT to prioritize resurfacing on designated routes in an effort to reduce noise and vibration from trucks.
- Adjusting signal timing (coordination) along high priority routes to reduce vehicle delay and maintain vehicle speeds within an acceptable range of the posted speed limit. Impacts of the adjusted timing could include travel time (and reliability), reduced noise (from accelerating and braking vehicles) and air pollution.
- Publishing and distributing educational materials to businesses and industries concerning truck routes.
- Working with NCDOT to make improvements to critical intersections on truck routes to more easily facilitate large vehicle movements and encourage their use by truckers. Improvements include providing adequate curb radii, lane width and exclusive turn lanes.

Truck Route Design Standards

The design of all roadways should be consistent with their intended function and be responsive to the environment through which they pass. Streets serving as truck routes are not an exception. Common high priority design elements include adequate lane width, turning radii, horizontal and vertical transitions and adequate space between the edge of the traveled way and adjacent pedestrian facilities.

Environmental Issues

When considering new roadway alignments and extensions, planners and engineers should use a guiding set of principles to make sure the following environmental considerations are adhered to:

- Avoid steep slopes and otherwise unsuitable topography.
- Minimize impacts to the built environment.
- Stay away from FEMA designated floodplains.
- Minimize the number of wetland (National Wetland Inventory) impacts.

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- Minimize the amount of each wetland impact (e.g., don't cross a wide wetland when a narrower one can be crossed).
- Minimize the number of stream crossings.
- Minimize the length of stream crossings.
- Minimize impacts to school sites.
- Minimize the number and size of impacts to historic features and districts.
- Minimize the number and size of impacts to threatened and endangered species.
- Minimize the number and size of impacts to hazardous waste sites.
- Minimize the number and size of impacts to superfund sites.
- Minimize/avoid impacts to neighborhoods.
- Avoid unnecessary or disproportionate impacts to minority communities.
- Do not impact parks and designated open spaces.
- Minimize gameland impacts.
- Minimize the number of new facilities in critical watershed areas.
- Be aware of existing development patterns.
- Look for existing stub streets.

Congestion Management

Consider each of the strategies described in Chapter 4 to manage traffic congestion in the Mint Hill area. These strategies should be used as a guide while considering roadway improvements and development.

Action Plan Matrix

The Action Plan was developed in an effort to consolidate recommendations and provide direction and focus to key stakeholders. By implementing this Action Plan, the established vision and goals for the *Mint Hill Comprehensive Transportation Plan* will, in-turn, be accomplished.

The Action Plan Matrix shown in **Table 5.1** clearly defines action items to be accomplished and identifies key stakeholders as well as the lead party for each action item. The Matrix designates recommended priorities for each action item based on feasible expectations of when they could reasonably be accomplished. The priorities are listed as short, mid and long-term and represent approximate time spans of 0 to 10 years, 10 to 20 years and longer than 20 years, respectively. The Town of Mint Hill should use this Action Plan Matrix as a guide in implementing the CTP.

Table 5.1 — Action Plan Matrix							
Priority	Action Items	Town	County	NCDOT	MUMPO	CATS	Developers
Short-Term	Adopt the <i>Mint Hill Comprehensive Transportation Plan</i>	★					
Short-Term	Coordinate to secure spot safety funding to implement safety countermeasures mentioned in Chapter 4			★			
Short-Term	Coordinate to ensure roadway corridors are preserved as development applications are considered	★	★				
Short-Term	Increase transportation connectivity by implementing the recommended collector street network incrementally as development occurs	★					
Short-Term	Coordinate multi-modal planning between NCDOT, Mecklenburg County, MUMPO, CATS and nearby communities	★	★	★	★	★	
Short-Term	Enhance existing sidewalk policy to ensure consistent implementation of pedestrian facilities	★					
Short-Term	Secure funding to complete NCDOT Comprehensive Bicycle and Pedestrian Plans	★					
Short-Term	Coordinate with CATS to extend existing fixed-route service to Bridges at Mint Hill and South to Independence Boulevard					★	
Short-Term	Coordinate with CATS and the Bridges at Mint Hill developers to provide an additional park-and-ride facility at Bridges at Mint Hill					★	
Short-Term	Coordinate with NCDOT to designate Albemarle Road and Blair Road as a truck route	★		★			
Short-Term	Implement Lawyers Road recommendations	★		★			
Short-Term	Implement Blair Road/NC Highway 51 recommendations	★		★			
Short-Term	Implement Matthews-Mint Hill Road recommendations	★		★			
Short-Term	Implement Wilgrove-Mint Hill Road recommendations	★		★			
Short-Term	Implement Fairview Road recommendations	★		★			
Mid-Term	Implement Bain School Road recommendations	★		★			
Mid-Term	Implement Bartlett Road recommendations	★		★			
Mid-Term	Implement Brief Road recommendations	★		★			
Mid-Term	Implement Idlewild Road recommendations	★		★			
Mid-Term	Implement Lebanon Road recommendations	★		★			
Mid-Term	Implement Thompson Road recommendations	★		★			
Mid-Term	Implement Wilson Grove Road recommendations	★		★			
Mid-Term	Update this CTP to reflect recommendations provided from the upcoming Comprehensive Bicycle and Pedestrian Plans	★					
Long-Term	Implement the long-term projects identified in Figure 4.1 as opportunities arise	★					
Lead		★					
Joint Lead							
Affected parties							