

Midtown-St. Albans

Area Plan

Issues and Opportunities Report

May 2019

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1.1 Executive Summary

The Midtown-St. Albans study area serves a broad population of residents, workers, and visitors, and therefore, the challenges facing this district are varied. Different stakeholders have different needs, and larger-scale development over the past decades has brought both new opportunities and assets to the community while also exacerbating significant challenges. The analysis of the study area has identified several actions that will be addressed during the design and implementation phases of this plan. These actions are dictated by existing demographic and traffic data, observation of existing conditions, and input obtained via public workshops, stakeholder interviews, and surveys.

- **Expand choices.** In transportation, having more options increases resilience by reducing reliance on any particular type of transportation. Greater connectivity and continuity of streets, sidewalks, or greenways provides more route options, encourages alternatives to automobile travel, reduces traffic loads on major thoroughfares, and can improve transit access and efficiency. Having alternatives beyond the private automobile can increase opportunities for both employers and employees, as well as reduce living costs. In housing, it is important to provide choices across a broad range of incomes and stages of life in order to maintain a vibrant and sustainable community. Finally, another key aspect of expanding choices is to increase access to recreation, education, shopping, and services.
- **Increase health and safety.** Moderating traffic speeds and reducing points of conflict are critical to decreasing the number and severity of all crashes. These are especially important for crashes that involve pedestrians, which continue to grow in number each year. Providing a convenient, comfortable environment for walking and biking supports more than

transportation benefits - it encourages healthy activity. When combined with greenways and access to open spaces, the benefit is only compounded. With the presence of quality health care (Duke Raleigh Hospital and associated businesses) and high-quality grocers, residents need only safe connections to benefit from these two important community health markers.

- **Improve reliability.** Excessive and unpredictable traffic delays are not only frustrating to drivers; they impose real economic costs for businesses, customers, residents, and employees. Emergency services and transit are negatively affected, and shortcutting through neighborhoods becomes more common. Another concern in the Midtown-St. Albans study area is the unpredictable flooding that can be quite persistent and destructive. Devastating consequences include property damage, health and safety concerns, diminished access, and poor mobility.
- **Innovate and employ best practices.** Taking advantage of current technology to better manage transportation, stormwater, and development can reduce infrastructure costs, community disruption, and environmental degradation. Rapidly expanding datasets can be used for planning and design, real-time operations management, and performance monitoring. Best practices in stormwater management are evolving to combine environmental and aesthetic enhancements, and new zoning and urban design approaches offer greater flexibility, such as Accessory Dwelling Units. Finally, innovative funding techniques, such as Tax Increment Financing, Opportunity Zones, and Special Service Districts, as well as various forms of public-private partnerships, can provide additional revenues for improvement projects.

- **Preserve and enhance.** Existing communities, infrastructure, and natural resources have inherent value that should be documented, preserved and enhanced, rather than degraded or replaced. Innovation need not supplant what exists; it can help support, improve, and transform. Any recommendations should carefully assess existing systems—avoiding or mitigating negative effects—before considering replacement or elimination.
- **Integrate and adapt.** Given the complexity and constraints of the study area, there are few opportunities for true “standalone” solutions that address problems without affecting other systems. Land use, transportation, and stormwater management all interact, and recommendations should integrate benefits across multiple systems, tapping into multiple funding sources. Integration also applies to implementation, from existing conditions through interim phases to ultimate build-out. Given the associated costs and risks, any viable plan must be flexible enough to succeed at all stages of implementation, not only upon completion in some distant and uncertain future.

At the core of the study area’s most pressing challenges is growth, both within the study area and outside of it. As portions of the study area redevelop at higher density and with a mix of land uses, competition for increasingly valuable land escalates. The fact that this urbanization is occurring in a developed area surrounded by a growing city complicates the plan proposals. The Midtown-St. Albans area is a study in transitions—not only existing spatial transitions between lower-density residential and higher-density commercial mixed uses, but an uncertain transition over time from relatively stable, auto-oriented suburban development to a more dynamic multi-modal urban future, complete with the unknown impacts of evolving technologies.

The most obvious and problematic impact of this growth is an increase in traffic volumes, resulting in travel times that are not only longer, but less reliable. People can generally adapt to slower traffic speeds; unpredictable trip lengths are more frustrating. If

a trip to work or to pick up children from daycare typically takes fifteen minutes, but once or twice a month takes thirty minutes, people have to plan for a 30-minute trip, wasting more than an hour every week. However, this congestion problem is more complex than merely the number of vehicles on a particular road; this volume consists of trips through the area, trips to and from the area, and trips entirely within the area, each of which can require different sets of solutions. Some can be implemented entirely within the study area, while others require a broader regional approach. In any case, simply increasing roadway capacity (by widening/adding lanes) is not a viable solution to Midtown-St. Albans’ problems. Furthermore, the problem cannot be addressed solely through transportation improvements; coordinated land use and urban design strategies are also required.

The challenge of widening major thoroughfares through the Midtown-St. Albans study area is that any significant reduction in travel times would also attract additional through-traffic, offsetting much of the benefit to local residents and businesses. Additionally, extensive widening would be highly disruptive to existing and future development, and difficult and expensive to implement. It would also create even greater impediments to pedestrian and bicycle travel, increase impervious surface, threaten limited open space opportunities, and potentially increase noise and air pollution. For these reasons, a more balanced, integrated set of near-term and longer-range strategies is needed:

- Manage access along major thoroughfares to reduce conflicts and preserve capacity, balancing traffic throughput with local access.
- Apply available and developing technology (such as adaptive signal systems, ramp metering, connected vehicles, and dynamic speed limits) where appropriate to improve traffic operations, safety, reliability, and efficiency.
- Increase local network connectivity of streets, sidewalks, bike facilities, and multi-use pathways. Having alternate routes and being able to safely and conveniently cross

major roadways and other barriers at strategic locations can improve efficiency and capacity, not only for travel by individual modes, but for effective access between modes. East-west connectivity and better continuity parallel to major thoroughfares are priorities. Potential projects range from minor sidewalk connections to a new grade-separated Beltline crossing.

- Promote walkability in land use and transportation decisions. Given uncertainty about future modes and technologies, the one given is that people will still need to walk, regardless of mode or technology.
- Encourage transit use by optimizing existing routes and improving stops and pedestrian access. Develop efficient and reliable connections with future bus rapid transit (BRT) and regional rail services.
- Focus on moving people rather than automobiles. Emphasize accessibility over mobility.

As discussed above, public input combined with review of previous plans—plus observation and analysis of existing transportation and land use conditions—helped identify several fundamental issues or themes. These evolved into a set of Planning Principles that will guide the formation, evaluation, and prioritization of specific improvement options:

Midtown Moves: Healthy, Safe, and Reliable Transportation

- Ensure all Midtown destinations can be reached safely and comfortably by walking.
- Improve travel time reliability for cars and transit vehicles, with a focus on improved technology, demand management, and a better-connected street network.
- Provide more desirable options for travel within the area, including improved transit service and facilities.
- Ensure safe traffic speeds, both on major roads and on neighborhood streets.

Midtown Living: Residential Neighborhoods and Housing Choices

- Respect the existing scale of housing in established residential neighborhoods.
- Ensure a range of housing options for residents at various phases of life and at a range of income levels.

Midtown Green and Blue: Natural Systems: Parks, Trees, and Stormwater

- Improve stormwater infrastructure and incorporate it into a connected natural space network, including greenways and parks.
- Explore opportunities to create distinct places focused on water and natural spaces.
- Retain and enhance street trees and functional green spaces to improve the appearance of the area, provide greenway connections, and provide stormwater benefits.

Midtown Works: Innovation and Opportunity

- Support the adaptive reuse or redevelopment of aging/outdated uses to accommodate new employment and housing opportunities.
- Encourage innovation and entrepreneurship through land use and other policies and programs.

Beautiful Midtown: Design and Aesthetics

- Create attractive streetscapes and ensure the design of new development enhances the feel and appearance of streets and other public spaces.
- Ensure adequate transitions in building heights where a high-density or mixed-use area is adjacent to existing residential neighborhoods.

Midtown-St. Albans
Issues and Opportunities

1.2 About the Area Plan

The Midtown-St. Albans (MSA) area plan is a year-long multidisciplinary planning effort to create guidance for this dynamic commercial and residential district. Recommendations resulting from the plan will include multi-modal transportation, streetscape, urban design, land and use concepts, and will explore options to address issues related to the area's growth and development. In addition to traffic congestion and safety, the study will also look at opportunities to support the area's tree canopy, manage stormwater and flooding issues, promote open space, bolster housing affordability, improve pedestrian and bicyclist mobility, and support expanded transit. A primary objective of the MSA study is to consider the transportation impacts of recent land use and zoning changes on existing and proposed transportation infrastructure in this district.

The MSA study has several distinct phases. The first phase, Visioning, established the study's purpose and sought to engage the district's residents, employees, businesses, and other interested stakeholders in prioritizing issues, identifying assets, and mapping problematic areas. Transportation and transportation-related issues emerged as participants' core concerns about the area. The top five issues identified included:

- The effect of traffic on local streets
- Walking and bicycling
- Getting around on transit
- Housing (types, location, and affordability)
- Streetscape improvements

The Visioning phase was completed in summer 2018, and its findings set the stage for the next phase of analysis. The Discovery phase followed Visioning, wherein the Project Team collected and

analyzed data from a multitude of sources. These included a public survey, public workshops, review of transportation plans, traffic counts, speed studies, an economic and market analysis, land use plans, and much more. During the Discovery phase, the project team met several times with a Confirmation Group composed of stakeholders appointed by the City Council whose role was to confirm that the project reflected the needs and desires of area's stakeholders. Upcoming study phases include Improvement Options and Implementation, and will conclude with Final Recommendations.

1.2.1 Exploring the Study Area

The study area is an approximately 4.93 square mile area that is bounded by E. Millbrook Road to the north, Atlantic Avenue to the east, and Six Forks Road to the south and west (Figure 1). It features diverse destinations, employers, transportation options, and environmental assets such as North Hills, Duke Raleigh Hospital, I-440 Beltline, railroad, and Crabtree Creek. It is also a rich tapestry of ethnically and culturally diverse restaurants, grocery stores, and other businesses that are unique assets in the area.

The area is also a blend of commercial and residential land uses, with coexisting old, new, and transitioning development. Roughly 13,000 residents call the MSA area home, while the daytime population surges to 43,000 due to the area's over 2,000 employers. Three Citizens Advisory Councils (CACs), Midtown, Atlantic and North, cover the study area and serve as the connection points between the City and residents that allow for sharing of information and feedback.

1.2.2 Background of the Midtown-St. Albans Study Area

The story of the MSA study may be said to begin in 2003 with the redevelopment of an aging enclosed mall and strip center. That area, now known as North Hills, transformed into a nationally recognized mixed-use development featuring retail, office, hotel, and residential spaces. With the approval of the North Hills East Master Plan in 2007, the foundation had been laid for an even more significant transformation on the east side of Six Forks Road.

Several years later in 2012, the City began the Six Forks Corridor Study. That plan sought to create “a unique sense of place with enhanced fluidity of movement, environmental sensitivity, and connectivity for residents, workers, students, and visitors using transportation modes of all types.” While the plan was adopted in 2018, its recommendations explored increasing density along

the corridor and expanding the four-lane namesake roadway to six lanes. The City Council requested that a portion of the Six Forks Corridor Study that recommended additional building heights along the corridor undergo reevaluation so that additional stakeholder input and education could occur; this northern section of the corridor was added to the MSA study area.

The combination of previous recommendations, zoning changes, and anticipated development is projected to generate millions of square feet of new development in the MSA area. As of December 2018, planned (or under construction) new building supply was estimated to include:

- 1,764,000 square feet of office space
- 136,000 square feet of industrial and flex space
- 359,000 square feet of retail space
- 2,557 residential units
- 652 hotel rooms

While this area—and Raleigh overall—continues to grow and transform, the neighborhood residents perceive traffic spillover caused by increased trips to, through, and from the area. The MSA study seeks to address issues related to growth through the management of development, expansion of transportation options, and implementation of safety improvements with a coordinated and comprehensive planning process.

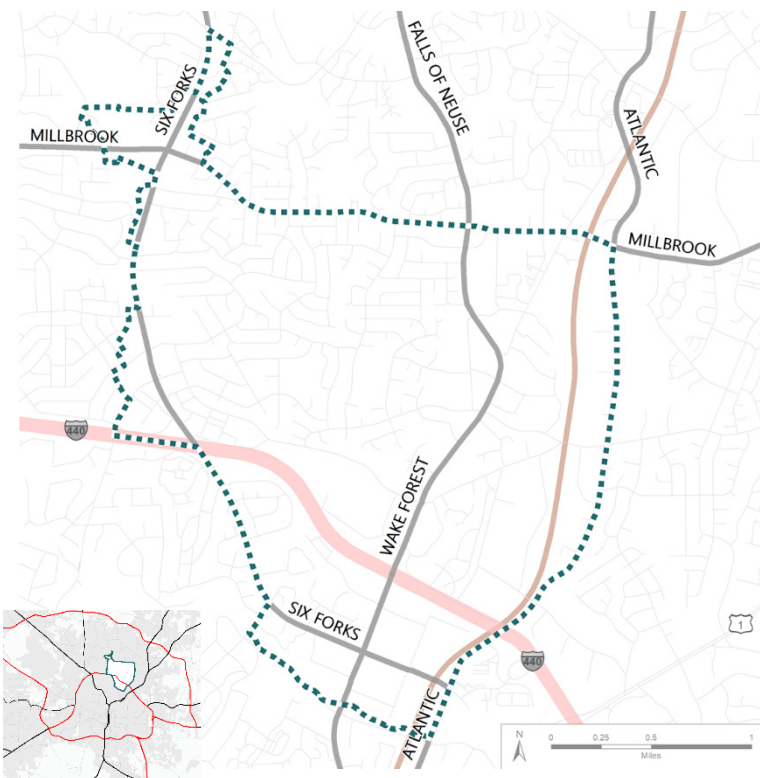


Figure 1. MSA Study Area

Midtown-St. Albans
Issues and Opportunities

1.3 Public Input Process

The MSA area plan includes a robust public engagement strategy. The Discovery phase of the project included a survey, three public workshops, two meetings with the Confirmation Group, and several stakeholder interviews conducted throughout the fall of 2018. The goal of this public process is to provide the design team with a much more nuanced and specific understanding of the area. Engagement activities were structured to encourage neighbors, employees, and visitors to respond to emerging analyses, gather feedback on existing conditions, identify resonating topics and issues, and set the framework for development of conceptual improvements.

Three public workshops were held in early December 2018 at two locations in the study area. The content and format were repeated at all sessions. The workshops began with a short presentation led by the project team that was followed by five themed activity stations: Natural Systems, Transportation (Car and Non-Car), Land Use, and Visioning. Approximately 105 attendees participated and submitted 36 comment cards over the three meetings. The findings, comments, and discussions from each session were summarized for later analysis and comparison with the survey.

The survey was open from December 2018 through mid-January 2019 in both English and Spanish, and it collected 615 submissions and 1,520 comments. The City of Raleigh Planning Department conducted a targeted outreach campaign in the study area including:

- Survey distribution (in English and Spanish) to churches, schools, businesses, multifamily housing complexes, and through the Confirmation Group
- Staff distribution of surveys on transit vehicles and promotion of the study
- Emails through GovDelivery to 6,000 addresses sent four times
- Survey notice sent to swim and social clubs
- Targeted social media posts
- Mailing of 5,000 postcards
- Presentations to the Midtown and Atlantic CACs
- Coordination with the Midtown Raleigh Alliance

The survey was designed to assist in issue prioritization. Questions covered four themes: healthy and safe transportation, residential neighborhoods and housing choices, natural systems, and aesthetics of the built environment (referred to as "Beautiful Midtown"). Survey respondents indicated that their top three issues for the MSA area plan to address were safety and comfort for walking and bicycling, the effect of traffic on neighborhood streets, and preserving residential neighborhoods (Figure 2). Issues and opportunities identified during the first public input phase are below, and the survey's complete results are included in the Appendix.

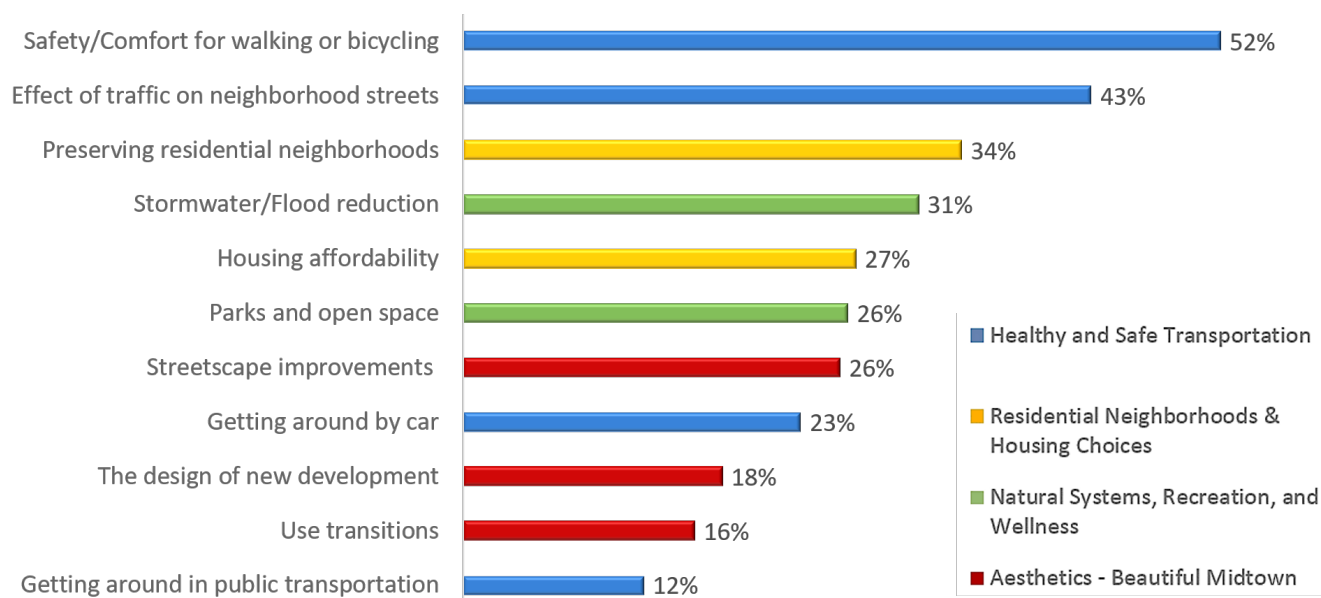


Figure 2. Survey Question: Of the following issues, which are the top three the Midtown plan should address?

Issues

Survey responses for transportation and natural systems issues largely confirmed the findings of existing conditions and provided some clarity on development preferences. For example, survey respondents identified intersections and corridors with vehicular and bicycle and pedestrian problems that were found to suffer low vehicular levels of service (a grade for traffic flow) and that the City had already identified for transportation improvements (Figure 3). When asked about their preferred solutions to traffic problems, respondents preferred a combination of options, followed by improving the efficiency of the existing network, creating new street connections, widening, and trailed by “not a priority.” Survey respondents also endorsed a balanced approach to improving the study area’s transportation network with tradeoffs between vehicle flow and making a safer environment for pedestrians.

Natural systems survey responses identified support for improving parks and confirmed problematic stormwater locations. A majority of

respondents indicated that they would support new parks and park improvements in the study area even if supported by higher taxes. With regard to flooding and stormwater, 35 percent of respondents had experienced stormwater and flooding problems; those submissions overlapped with known floodplain and drainage areas (Figure 4).

Survey responses for housing and development aesthetics illustrated complex relationships with the existing built environment and accommodating future growth. When asked about the status of existing building transitions in the study area (between taller mixed-use buildings and smaller residential buildings), a majority indicated transitions were working reasonably well. A majority of responses (72 percent) identified the ideal maximum height next to residential buildings as between three to five stories. The responses indicated an openness to residential-to-commercial building transitions that are both present and emerging along the perimeter of the study’s core neighborhood, but with a five story height limit.

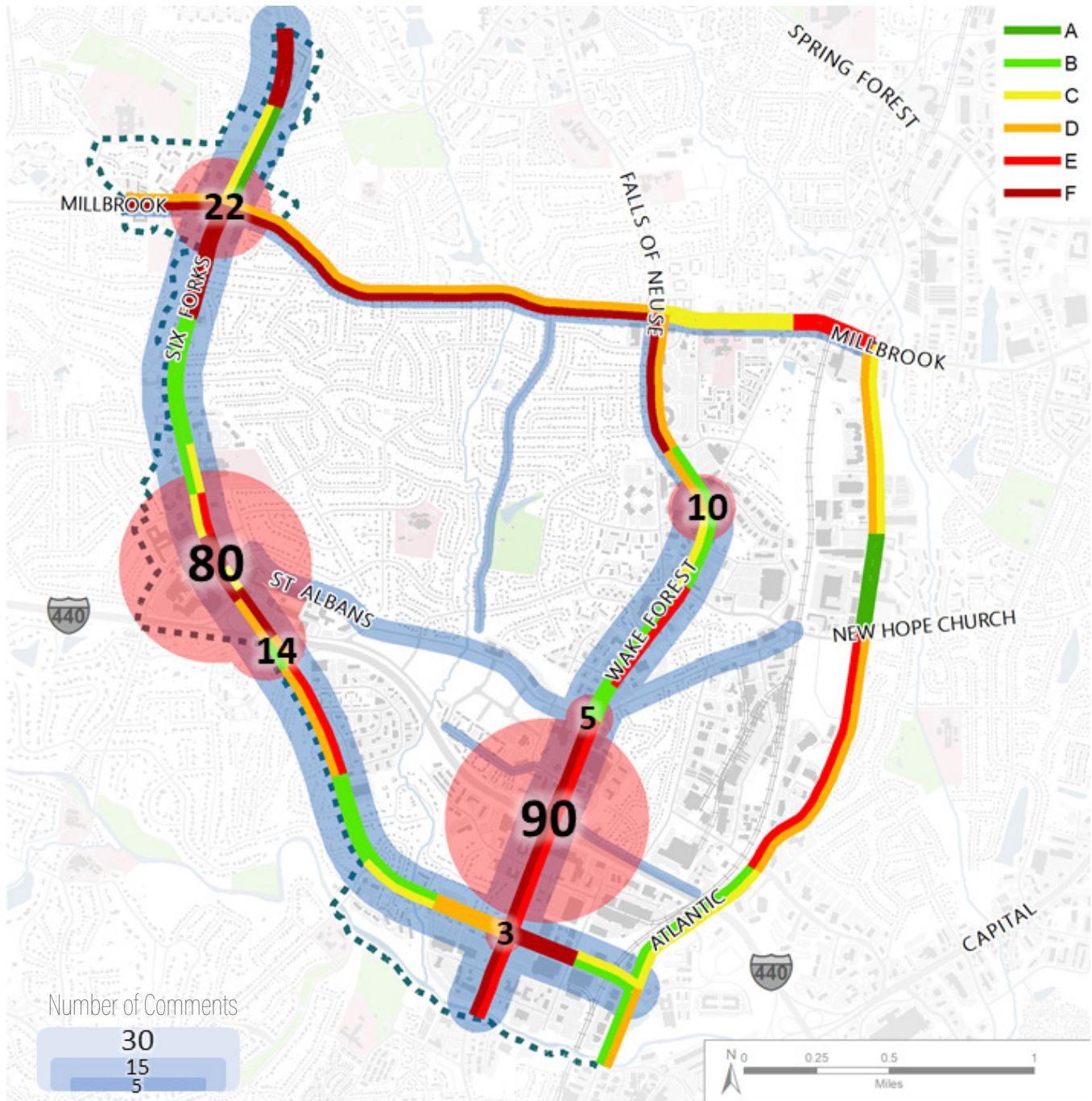


Figure 3. Comparison of 2018 Vehicular LOS and Traffic Problem Survey Responses

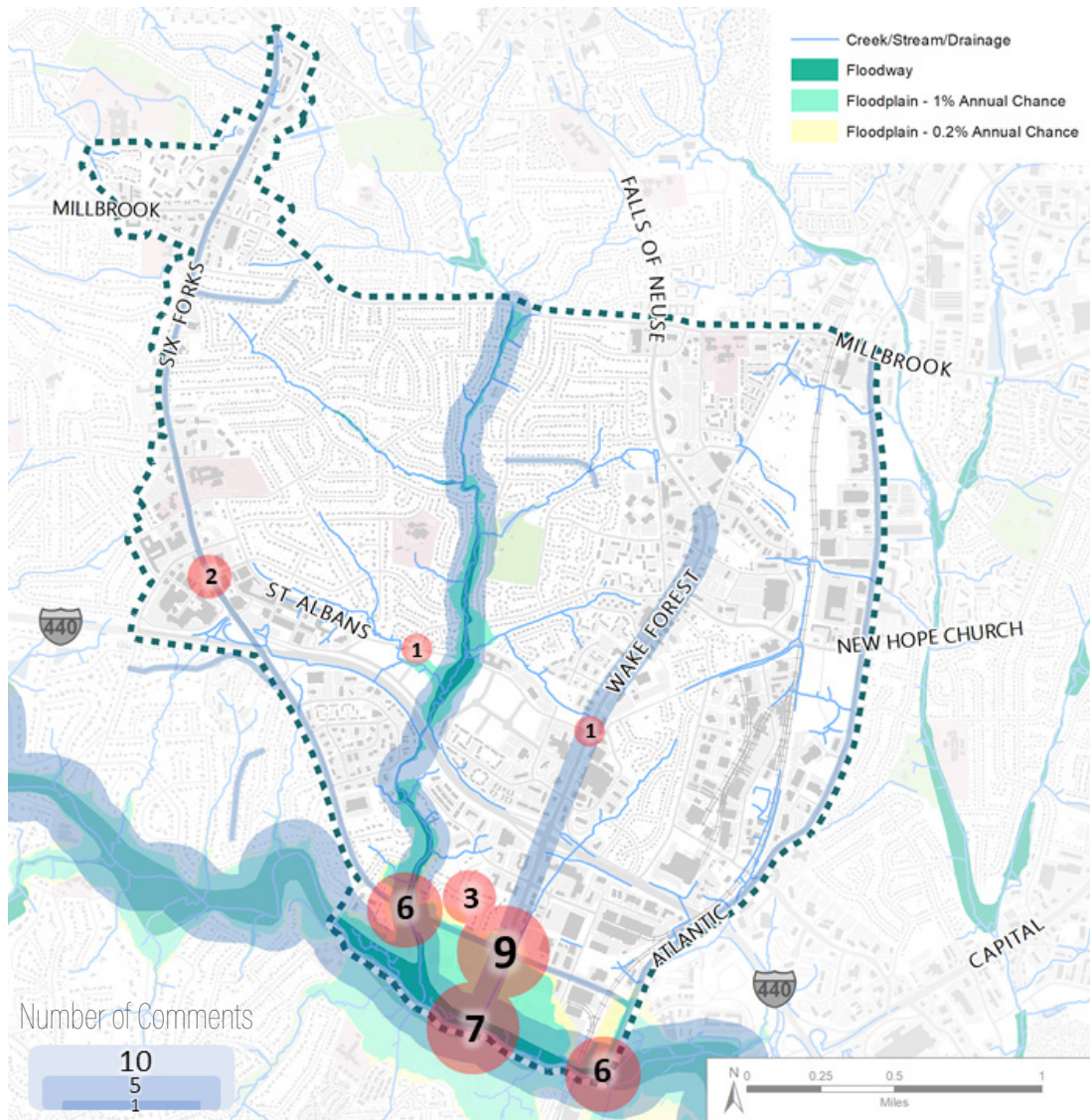


Figure 4. Comparison of Water Features and Survey Flooding Question

While survey responses on development aesthetics signaled acceptance of larger structures, housing responses illustrated a desire to maintain existing character. When asked how the study area should accommodate new residential growth, the most popular options were allowing backyard cottages, single family homes, and townhomes; 27 percent indicated that growth should be accommodated elsewhere (Figure 5). Survey respondents' views of the study area's future growth confirmed a preference for smaller residential structures that did not vary much from nearby houses.

The survey presents another source of information from which to identify issues and opportunities

for improvements. However, the survey should not be viewed as definitive given that its respondents diverged from the study area's demographics. As compared to the U.S. Census's measures for the study area, survey respondents self-identified as older, whiter, with higher incomes, higher levels of education, and higher levels of homeownership. The survey's findings and comments were compared with contributions from the three public workshops. Here, as with the analysis of safety and traffic conditions, public comments confirmed issues with the transportation network, natural systems, preservation of neighborhood character, and a sensitivity for building transitions.

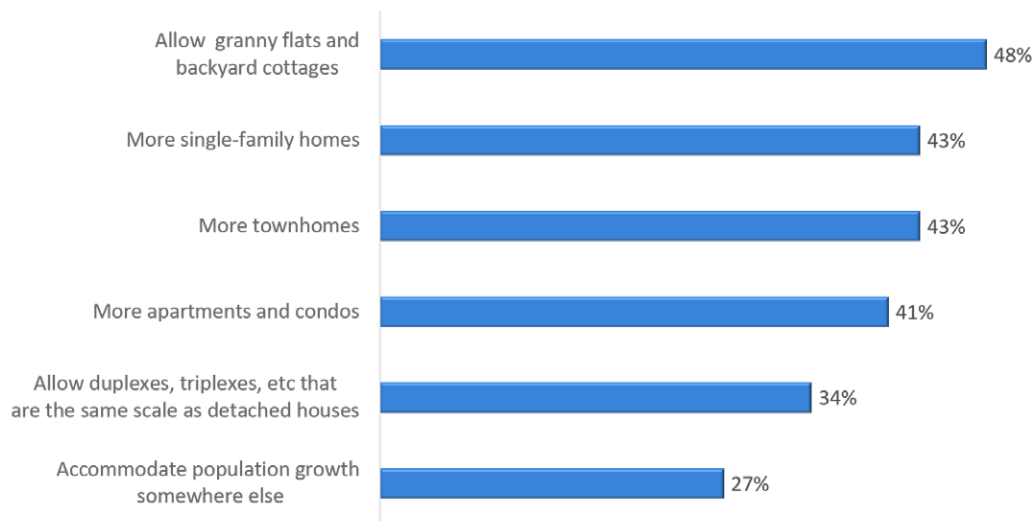


Figure 5. Survey Question: Midtown, like the rest of Raleigh, is experiencing population growth. Please check all options for accommodating new residents that you agree with

Opportunities

The first public input round, discovery phase, and preliminary transportation and land use analyses culminated in the development of five Planning Principles. The Planning Principles act as a foundation for the identification and development of improvement opportunities; they include conceptual infrastructure improvements and potential policy revisions. While these opportunities may lack the specificity of those described in other sections of this report, they serve to filter for improvement options that align with the City and public's vision for the study area.

Midtown Moves: Healthy, Safe, and Reliable Transportation

1. *Ensure all Midtown destinations can be reached safely and comfortably by walking.*
2. *Improve travel time reliability for cars and transit vehicles, with a focus on improved technology, demand management, and a better-connected street network.*
3. *Provide more desirable options for travel within the area, including improved transit service and facilities.*
4. *Ensure safe traffic speeds, both on major roads and on neighborhood streets.*

Midtown Lives: Residential Neighborhoods and Housing Choices

1. *Respect the existing scale of housing in established residential neighborhoods.*
2. *Promote a range of housing options for residents at various phases of life and at a range of income levels.*

Midtown Green and Blue: Parks, Trees, and Stormwater

1. *Improve stormwater infrastructure and incorporate it into a connected natural space network, including greenways and parks.*
2. *Explore opportunities to create distinct places focused on water and natural spaces.*
3. *Green: Retain and enhance street trees and functional green spaces to improve the appearance of the area, provide greenway connections, and provide stormwater benefits.*

Midtown Works: Innovation and Opportunity

1. *Support the adaptive reuse or redevelopment of aging/outdated uses to accommodate new employment and housing opportunities.*
2. *Encourage innovation and entrepreneurship through land use and other policies and programs.*

Beautiful Midtown: Aesthetics and Design

1. *Create attractive streetscapes and ensure the design of new development enhances the feel and appearance of streets and other public spaces*
2. *Ensure adequate transitions in building heights where a high-density or mixed-use area is adjacent to existing residential neighborhoods.*

Midtown-St. Albans
Issues and Opportunities

1.4 Transportation

1.4.1 Automobiles

1.4.1.1 Street Network

Six Forks Road, Wake Forest Road/Falls of Neuse Road and Atlantic Avenue are north-south roadways within the Midtown-St Albans study area that are classified as Minor Arterials (roadways that interconnect to higher level roads and provide intra-community continuity). Traffic counts collected by the North Carolina Department of Transportation (NCDOT) show that traffic volume is significantly higher north of the I-440 Beltline, with annual average daily traffic (AADT) as high as 54,000 and 58,000 vehicles per day on Six Forks Road and Wake Forest Road, respectively. The AADT along Atlantic Avenue stays uniform along the corridor with an average of 27,000 vehicles per day. Millbrook Road is a Minor Arterial providing east-west mobility through the study area. It currently serves an average of 16,000 vehicles per day.

Continuing regional and local development around the study area will combine with specific development inside the study area to generate continued growth in traffic volumes. Based on traffic impact studies and analysis of the Triangle Regional Travel Demand Model—the region’s approved long range travel forecasting tool—through the year 2045, a long-term growth rate of 1.5 percent per year is forecast along the main north-south corridors, with some locations reaching 2.0 percent annual growth. Future forecasts along Millbrook Road project a growth rate of 1.5 percent per year near the Six Forks Road corridor, while a 2.0 percent per year growth rate is projected in the vicinity of

Falls of Neuse Road.

While the study area is well-served by major north-south thoroughfares, there are fewer options for east-west travel. As a result, some east-west traffic must travel at least a short distance on major thoroughfares like Six Forks and Wake Forest Roads. This traffic (which may not even want to be on these major thoroughfares) adds volume and turning movements to the major roadway traffic that does not need to be on these facilities, leading to delays and congestion.

The study area is challenged by a number of significant barriers to new or expanded transportation facilities. In addition to existing development, creeks and floodways like Crabtree Creek and Big Branch Creek constrain options. Ironically, two critical transportation facilities, I-440 and the rail corridor, are also major barriers to trips, new roads, and pedestrian and bicycle facilities trying to get across them.

Although the I-440 Beltline provides valuable regional mobility, it does constrain north-south travel options. Even though Six Forks Road and Wake Forest Road cross I-440, the congestion at their interchanges generates considerable delay for through-traffic. The fact that Atlantic Avenue does not have an interchange with I-440 is an advantage in this regard, and another road crossing the Beltline without an interchange would be desirable

for local and non-vehicular traffic.

Although portions of the Midtown-St Albans study area are developing at a higher, more urban density, most of the area still reflects the suburban nature of its original development pattern. This dichotomy presents a transportation planning challenge: how to integrate the divergent land use patterns and transportation systems of adjacent (and transitioning) suburban and urban areas. The earlier suburban street networks typical of the existing residential neighborhoods lack connectivity and continuity. Cul-de-sacs are frequent, sidewalks inconsistent, and streets relatively wide. Block perimeters are long and irregular which makes connectivity a challenge. Traffic tends to be funneled onto a few collector streets (streets that gather traffic from local roads and funnels to Arterial streets), rather than being able to disperse through a grid with multiple travel options. The result makes walking less convenient and leads to inefficient routing of buses and other vehicles. This pattern functions much better at low densities, when travel by car is convenient and inexpensive, but traffic volumes are not excessive.

Denser, mixed-use development depends on a more regular, interconnected street network with smaller block sizes to better distribute traffic, while also promoting pedestrian circulation and access to transit. The conflict between these two patterns contributes to some of the study area's traffic problems. While better integration is possible, considerable time and disruption will be involved in making the necessary changes as new development occurs. Having a clear but adaptable plan that emphasizes walkability and multiple travel options will help greatly in this regard.

The basic cross-sections (i.e road layout of lanes) of major roadways serving the study area vary along their lengths. They are multilane roads, typically without medians, but frequently including a center two-way left-turn lane (TWLTL), with additional turn lanes at most signalized intersections.

Below are descriptions of the lane configurations and characteristics of the study area's main

roadways:

- South of I-440, **Six Forks Road** is basically a 5-lane section, with four through lanes and a TWLTL. North of I-440 to Rowan Street, the cross-section is primarily 6-lanes with either a narrow median or a TWLTL. It then transitions to 4-lanes with TWLTL, although there is an imbalanced segment with three southbound through-lanes and two northbound. This imbalance reverses orientation north of Windel Drive.
 - **Wake Forest Road** is primarily six lanes, most of which includes a TWLTL. The lanes are unusually narrow, however, often no more than nine feet wide. Falls of Neuse Road carries the same basic cross-section northward. These narrow lanes reduce capacity somewhat by slowing traffic and encouraging "staggering" of vehicles between lanes, possibly resulting in greater spacing between vehicles. This shifts the proportions of various crash types, and may reduce overall crash severity. For example, most crashes on Wake Forest Road were either sideswipe (30 percent) or rear-end (30 percent) collisions. This proportion of sideswipes is unusually high. During the same period on Six Forks Road and Atlantic Avenue, only 20 percent of crashes were sideswipes; however, 40 percent were rear-end. Millbrook Road experiences only 15 percent sideswipes, but 35 percent rear-end.
- Evidence is less conclusive regarding accident severity. The Crash Severity Index is a way of measuring and comparing the severity of crashes among different roads and time periods. It considers vehicle damage amounts, injury severities, and fatalities related to the volume of traffic carried. The higher the number, the more severe the crashes on that facility during the period investigated. Six Forks Road and Wake Forest Road have Crash Severity Index scores of around 2.7, significantly lower than the 3.0 - 3.5 scores for Millbrook Road and Atlantic Avenue.
- Within the study area, about half of **Atlantic Avenue's** 4-lane cross-section has a TWLTL;

the remainder does not.

- The westernmost quarter of the portion of **Millbrook Road** within the study area is a 4-lane road; the remainder is 4-lanes with a TWLTL.
- Most all other roads in the study area are variations of 2-lane cross-sections.

Planned Improvements

There are numerous planned transportation improvement projects in the study area. These projects vary in their type, funding status, anticipated completion year, and sponsor.

1. Wake Forest / I-440 Interchange Improvements

Project Sponsor: NCDOT

Year: 2020

Description: This TIP project (I-5709) is an interchange improvement of Wake Forest Road and I-440. Right-of-way acquisition was scheduled for 2018, and construction is anticipated in 2020. Current planning concepts include a Diverging Diamond Interchange (DDI).

2. New Hope Church Rail Crossing Grade Separation

Project Sponsor: NCDOT, CSX, US DOT

Year: 2020

Description: This TIP project (P-5715) is construction of grade separation of New Hope Church Road and the existing CSX rail S line.

3. Atlantic Avenue Widening

Project Sponsor: City of Raleigh

Year: 2025

Description: A widening of Atlantic Ave to a four-lane median divided roadway from Highwoods Boulevard to New Hope Church Road. Other improvements will include sidewalks, bicycle

facilities, streetlights, and landscaping.

4. Millbrook Road Rail Crossing Grade Separation

Project Sponsor: NCDOT, CSX, US DOT

Year: 2025

Description: This TIP project (P-5737) is construction of grade separation of Millbrook Road and the existing CSX rail S line.

5. Six Forks Road Widening

Project Sponsor: City of Raleigh, NCDOT

Year: 2025

Description: Widening of the existing four-lane cross section of Six Forks Road from Lynn Road to Lassiter Mill. Other improvements: enhanced sidewalk and bicycle facilities, streetlights, landscaping, and public art.

6. Six Forks Road Extension

Project Sponsor: Capital Area Metropolitan Planning Organization (CAMPO)

Year: 2035

Description: This Metropolitan Transportation Plan (MTP) project (A205) is a new-location four lane roadway that would extend Six Forks Road from Atlantic Avenue to Capital Boulevard.

7. Old Wake Forest Road Widening

Project Sponsor: CAMPO

Year: 2045

Description: This MTP project (A601) would widen the existing two-lane road to include a center median with a turn lane from Falls of Neuse Road to Atlantic Avenue.

8. Wolfpack Lane Rail Crossing Grade Separation

Project Sponsor: NCDOT, CSX, US DOT

Year: Not specified

Description: This CTP project (A655) is construction of grade separation of Wolf Pack Lane and the

existing CSX rail S line.

9. Six Forks Road Rail Crossing

Project Sponsor: CAMPO

Year: Not specified

Description: This CTP project (A654) includes improvements to the existing crossing of Six Forks Road and the CSX rail S line.

10. Raleigh Street Plan Improvements

Project Sponsor: City of Raleigh

Year: Not specified

Description: Proposed new roadways in the MSA area include:

- Two-lane undivided avenue from Barrett Drive to Wake Towne Drive
- Two-lane undivided avenue from Wake Towne Drive to Industrial Drive. This project is underway as part of the Wegman's/Midtown East development
- Two-lane undivided avenue from Pacific Drive across the CSX rail line to connect with Pacific Drive
- Two-lane undivided avenue from Craftsman Drive south to connect with Craftsman Drive
- Neighborhood street from Tralee Place to Windel Drive

Opportunities

Most of the planned projects listed above address specific challenges described earlier, and represent important opportunities to enhance accessibility, expand travel choices, improve capacity and safety, and support changing land uses. Other opportunities include:

- Extending and connecting roads—especially those serving east-west trips—to better balance the street network, reducing traffic volumes and conflicts on major north-south thoroughfares and potentially decreasing trip lengths and miles of travel for all modes.

- Creating a continuous, interconnected network of local streets behind development facing or abutting major thoroughfares like Six Forks Road and Old Wake Forest Road, thereby reducing major roadway congestion and crashes.
- Constructing a grade-separated route across I-440 between Six Forks Road and Wake Forest Road (via tunnel or bridge) to:
 - Reduce traffic and turning conflicts on Six Forks and Wake Forest Roads
 - Provide more efficient transit access to major trip generators
 - Create a safe and convenient route for bicycles and pedestrians
 - Increase access options for a constrained area

1.4.1.2 Congestion

An existing conditions traffic analysis was performed for intersection and corridor operations along the main roads in the study area. Most of the intersections along Six Forks Road and Wake Forest Road/Falls of Neuse Road are operating at a Level of Service (LOS) F during afternoon peak periods, indicating unacceptable conditions. Due to the density of signals along these corridors, failures at key intersections can quickly grow to upstream intersections, expanding and prolonging congestion. The major operational issues in the Millbrook Road corridor are intersection operations at Six Forks Road and at Falls of Neuse Road. Both intersections operate at an unacceptable LOS F, since high traffic volumes on Six Forks Road and Falls of Neuse Road require so much green time that not enough is left for Millbrook Road traffic. There are also some minor problems associated with left turns onto/off of Millbrook Road, especially in the 4-lane segments without a center left-turn lane.

A travel time analysis was also performed to understand the reliability of corridor travel times. When travel times vary greatly and unpredictably, drivers must factor in the potential for “worst case” delay when planning their departure times, even if this delay occurs only about once a month. For

example, travel time between Atlantic Avenue and Lynn Road along Six Forks Road averages approximately 14 minutes during the afternoon peak period; however, on the worst day of the month this trip takes approximately 21 minutes, a 50 percent increase. Since drivers cannot know when this level of delay will occur, they have to assume the trip will always take 21 minutes if they don't want to risk being late. This wasted time and uncertainty generates more frustration than would a consistent travel time of 20 minutes. A similar example can be found on Wake Forest Road/Falls of Neuse Road between Six Forks Road and Spring Forest Road, a trip that typically takes 13 minutes, but about once a month takes at least 20 minutes.

Overall, the main corridors within the study area experience long delays and queues, with unreliable travel times resulting from limited capacity. Minor incidents can trigger disproportionately severe and persistent delays. Corridor improvements, including (but not limited to) widening and signal improvements are warranted based on existing and anticipated performance. The addition of new development, such as North Hills East and Midtown East, will further increase traffic strain on these corridors.

Opportunities

In the face of growing traffic and limited right-of-way, increasing roadway capacity by widening (adding lanes) is an expensive and highly disruptive solution. Given right-of-way constraints, numerous businesses, institutions, and residents would be displaced or otherwise impacted, and such a project would take many years. Furthermore, there is a point of diminishing returns in adding lanes to arterials with so many closely-spaced intersections. Wider intersections require more time for vehicles to "clear" or exit the intersection, resulting in longer yellow change or yellow change plus all red clearance intervals (i.e. when all vehicles are stopped and no vehicles are in the intersection). This additional "lost" time reduces the time available for green phases, lowering intersection efficiency, decreasing capacity and increasing traffic delays.

The impact of wider intersections can be even greater when pedestrian crossing signals are involved. Pedestrian green phases can become much longer, often exceeding the time needed to clear vehicular traffic. In other words, pedestrian crossing time controls the minimum length of the cross-street green phase, increasing delay for traffic on the main street. Higher volumes of traffic weaving among multiple lanes also reduce efficiency, and the resulting conflicts generate more crashes.

Advances in signal and vehicle technology should ultimately offer some relief, as signal systems become more sophisticated and responsive, and connected vehicles provide more real-time information for use in network-wide routing and speed optimization. Access management (see below) can help preserve and maximize the rate of vehicles passing through a corridor, while maintaining adequate access to adjacent land uses. An ambitious access management program would entail increasing interconnectivity between parcels, through shared parking and front or rear "service" roads.

In such an environment, strategies for more effectively managing traffic demand become more feasible and financially palatable. Travel Demand Management (TDM) can maintain or improve traffic level-of-service by reducing peak demand, rather than expanding capacity for a limited peak period. Techniques include spreading demand via staggered or flexible work hours or reducing demand by encouraging/subsidizing ridesharing and alternative modes, and by promoting working from home. Parking policy can be an important TDM tool, especially when tied to dynamic pricing and flexible transportation benefits.

1.4.1.3 Access Management

The density of driveways along arterials in the study area, especially high-volume segments of Six Forks and Wake Forest Roads, reduces both capacity and safety. Not only vehicular traffic is affected by traffic turning in and out of driveways (especially left turns); pedestrians and cyclists are especially vulnerable when crossing driveways. The problem

is exacerbated by the lack of overall connectivity in the street network. With so few options to avoid using the major north-south arterials (even when attempting east-west travel), traffic volumes and turning movements along them are increased.

Opportunities

Access management limits traffic conflicts by optimizing the number and location of driveways and limiting certain turning movements. This preserves capacity and reduces crash potential. Shared and interconnected parking can be an important element of access management. A continuous network of local streets (frontage or backage roads) can help distribute traffic to various destinations without affecting mainline traffic.

Any transportation improvement project should consider access management policies to reduce traffic conflicts while maintaining access. Driveway elimination/ consolidation and local connectivity should be addressed as part of development approval.

1.4.1.4 Crashes

The crash history for the study area is typical for the types of facilities and land uses represented (Figure 6). While the crash rates, types, and severities may not be unusual, the total number of crashes on arterials is very high due to high traffic volumes and numerous conflict points. These crashes impose a significant cost and injury toll, and even minor fender-benders reduce effective roadway capacity, generating substantial traffic congestion and delay given their frequency.

Crashes on collectors (roads that gather traffic from local roads and funnel to arterial roads) and local neighborhood streets tend to be less frequent and less severe, due to lower speeds, lower volumes, and fewer potential conflicts.

Crashes involving pedestrians and bicycles are of particular concern. Injuries tend to be more severe, and vulnerable populations (including aging and physically, visually, and hearing impaired) are increasing along with traffic volumes. Due to their greater weight and grill height, SUV collisions

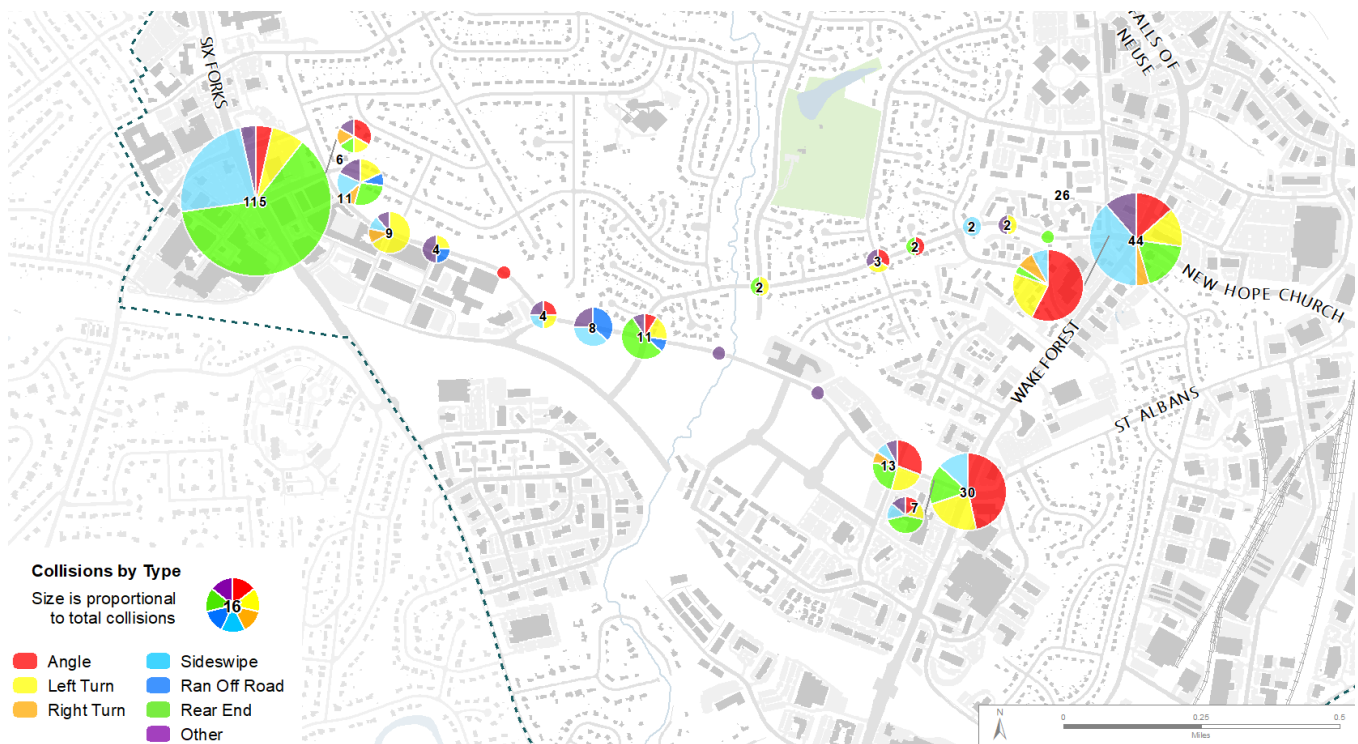


Figure 6. Crashes, October 2013 through September 2018

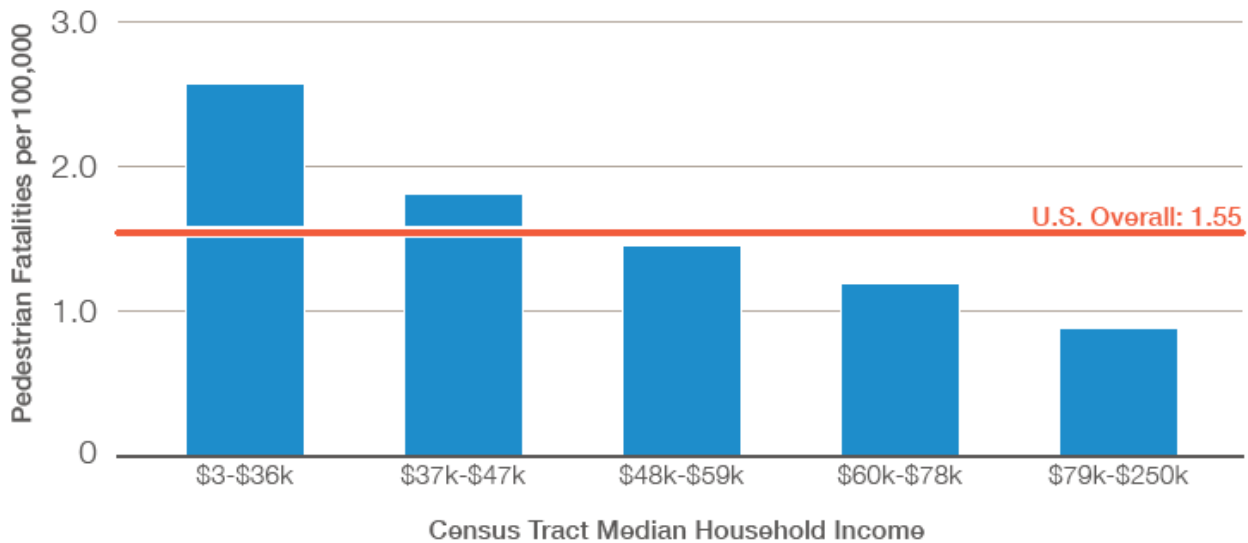


Figure 7 - Pedestrian Fatalities by Neighborhood Income

are more likely to result in pedestrian/bicyclist death or serious injury than similar collisions with smaller passenger vehicles. Apparent increases in distracted driving (combined with distracted pedestrians and cyclists) are also contributing to a rise in crashes. Furthermore, cars overall are becoming more crashworthy, reducing severe injury and fatality rates for drivers and passengers. As a consequence, severe injuries and fatalities among pedestrians and cyclists are growing as a share of totals for all crashes.

Analysis of ten years of pedestrian and bicycle crashes along the study's major arterials (Six Forks Road, Wake Forest Road, Atlantic Avenue, and Millbrook Road) reveals 74 crashes, several involving multiple pedestrians, and 17 involving bicycles. The worst crashes have occurred since 2015, a span that included four severe injuries and one fatality.

The number of crashes attributable to driver error appears roughly comparable to the share caused by pedestrian or cyclist error; in many cases, the cause is not clearly attributable. However, the large number of pedestrians struck while in crosswalks (regardless of signal status) suggests problems with signal timing or phasing, and/or inadequate education or compliance for both drivers and pedestrians.

A substantial number of pedestrians were struck while attempting mid-block crossings. This can occur when pedestrian signals are spaced too far apart, at inconvenient locations, or when time spent waiting for a walk signal becomes excessive. Long waiting times for pedestrians have been reported for Six Forks and Wake Forest Road. This problem can be especially bad when bus stops are not located near adequate crosswalks.

Five pedestrians were struck crossing driveways, when vehicles should have yielded the right-of-way. Three pedestrians were visually or physically impaired, and two were intoxicated.

It must be emphasized that reacting to such crashes after they occur or reach a certain magnitude or frequency is not an acceptable response. Given human error and mechanical failures, crashes are probabilistic events that can be minimized/mitigated through careful design and diligent education and enforcement. Many of the crashes in this report were foreseeable; however there has been a tendency to accept a certain level of such incidents as the price we pay for efficient, convenient automobile travel.

What these data do not reveal is the degree to which the hazardous and unpleasant nature of walking or biking along or across these roadways discourages such travel. It is not known how many

pedestrian and bicycle trips would have occurred given safer and more comfortable conditions, but public feedback suggest this is a major factor in people's decisions not to walk somewhere in the study area, even on some lower-volume streets that do not have high crash histories. A lack of crashes does not necessarily indicate a safe situation.

The cost of these deterred trips can be considerable. There is a lost opportunity for physical activity, and some desired trips may simply not occur. Poor walk access reduces transit use. Many potential walk, bike, or transit trips may instead be made by car, using limited roadway capacity, consuming fuel, and generating pollution, as well as adding to operating, parking, and maintenance costs for the user. At the extreme, a lack of walkability could force a household to invest in an additional vehicle they have been able to do without, effectively increasing their cost of living by a sizeable margin. For those without access to a car, such constraints on walkability can represent a severe constriction/curtailing of options and opportunities to access employment, health care, education, recreation, social activities, and other goods and services.

Several recent studies suggest that low-income communities experience higher pedestrian fatality rates than higher-income neighborhoods (Figure 7). This may be due to a combination of higher proportions of walking trips, combined with lack of adequate sidewalks, marked/signalized crosswalks, and other features designed to "calm" traffic and protect pedestrians. Hispanic and African American pedestrians suffer injuries and death at higher rates than white pedestrians. The risk of pedestrian injury or death increases significantly with age, a major concern given the aging of the American population.¹

Opportunities

Specific recommendations to mitigate potential crash hazards require specialized studies, such as road safety audits. Such studies should be performed not only at critical locations, but as part of a comprehensive, ongoing crash reduction

program. Safety concerns should be considered as part of any transportation improvement project. Access management techniques should be employed to reduce conflict points along major roads, whether in conjunction with transportation improvement projects or redevelopment site plans.

Opportunities to improve and expand the pedestrian, bicycle, and transit systems also present valuable opportunities to enhance safety. New development should integrate and facilitate safe and convenient pedestrian and bicycle access and circulation. With respect to pedestrian and bicycle safety, enhancing roadway crossings should be a priority. In addition to new or improved signals, signage, and pavement markings, grade-separated crossings should be considered where appropriate. Both on-street and off-street pedestrian and bicycle networks can be extended, gaps and barriers eliminated, and deficient facilities improved. Users of various ages and abilities should be accommodated beyond recreational purposes.

1.4.1.5 Speeding

Concerns about excessive traffic speeds have been expressed by many residents. Generally, the major roads are too congested during peak periods for widespread speeding, although speeding can be more noticeable during off-peak periods. Certain locations, especially downhill grades as are found on Millbrook Road, can also encourage speeding. The speeding problems generating the greatest community concern are those reported on neighborhood and collector streets, especially those with wider lanes (Figure 8).

Several different measures can be used to identify speeding problems. The most common and reliable is the 85th-percentile speed, or the speed below which 85 percent of traffic is traveling at a given location. This indicator is useful because it captures both the proportion of speeding traffic and the degree to which the posted speed is being exceeded. Ideally, the 85th percentile speed should be at or below the posted speed. Analysis of 85th percentile speed data from approximately 60 studies

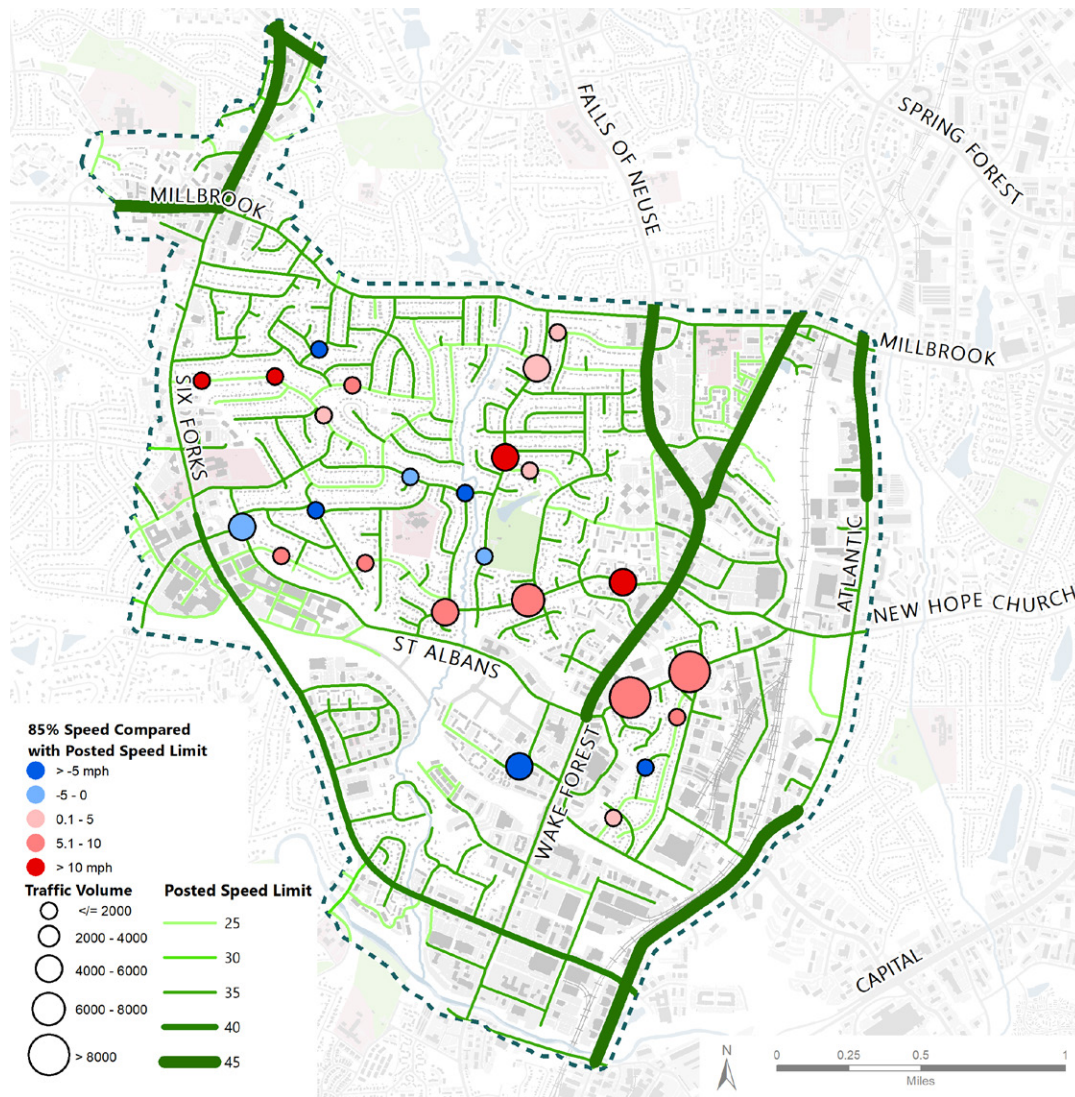


Figure 8. Relative Speed and Traffic Volumes

since 2015 confirms excessive speed problems on portions of the following streets:

- St Albans Drive
- Hardimont Road
- Dartmouth Road
- Quail Hollow Drive
- Northwood Drive

In most cases, the 85th percentile speeds on these streets exceeded posted speeds by 5-10 mph. Greater exceedances were observed at several locations, although such incidences appear to have decreased over time.

Opportunities

In some cases, very specific steps can be taken to mitigate speeding problems, especially on neighborhood streets. More detailed studies will be needed to identify and implement the most appropriate package of measures. However, a number of potential options exist.

- Road diets can reduce traffic speeds by narrowing travel lanes and/or perceived roadway width. They can also provide additional benefits in the form of on-street parking, bicycle lanes, or (if curbs are moved), wider sidewalks and/or planting areas.
- Traffic-calming measures such as speed tables, chicanes (i.e. curb bump outs that create lateral shifts in the travel lane), mini-roundabouts, and curb-bump outs can be effective, and can be relatively easy to implement (and to remove). However, they are not appropriate for

all situations, may generate complaints from residents, as well as raising concerns related to buses, emergency vehicles, drainage, and maintenance.

- Increased enforcement and radar-speed signs tend to have localized benefits when present, but may not be cost-effective.

1.4.1.6 Non-Local Traffic

Neighborhood complaints about non-local traffic using local streets to avoid delays on major arterials are often linked to speeding problems. However, the root cause is typically traffic congestion on major arterials in a network with limited connectivity or route options. An analysis of traffic travelling through the residential neighborhoods bounded by

I-440, Millbrook Road, Six Forks Road, and Wake Forest Road was conducted using a dataset from StreetLight InSight. This anonymized dataset is derived from processed geospatial location records created by mobile phones, GPS devices, connected cars and commercial trucks, fitness trackers, smartphone apps, and other devices when they ping cell towers and satellites. Although only a portion of all traffic is captured, traffic counts were used to expand and validate this data.

For this analysis, Monday through Thursday traffic from March, April, September, and October of 2017 was used. A boundary was established around the neighborhoods, with traffic intercepted as it entered/exited at nine origin/destination “gates”:

1. Quail Hollow Drive (south of Millbrook Road)

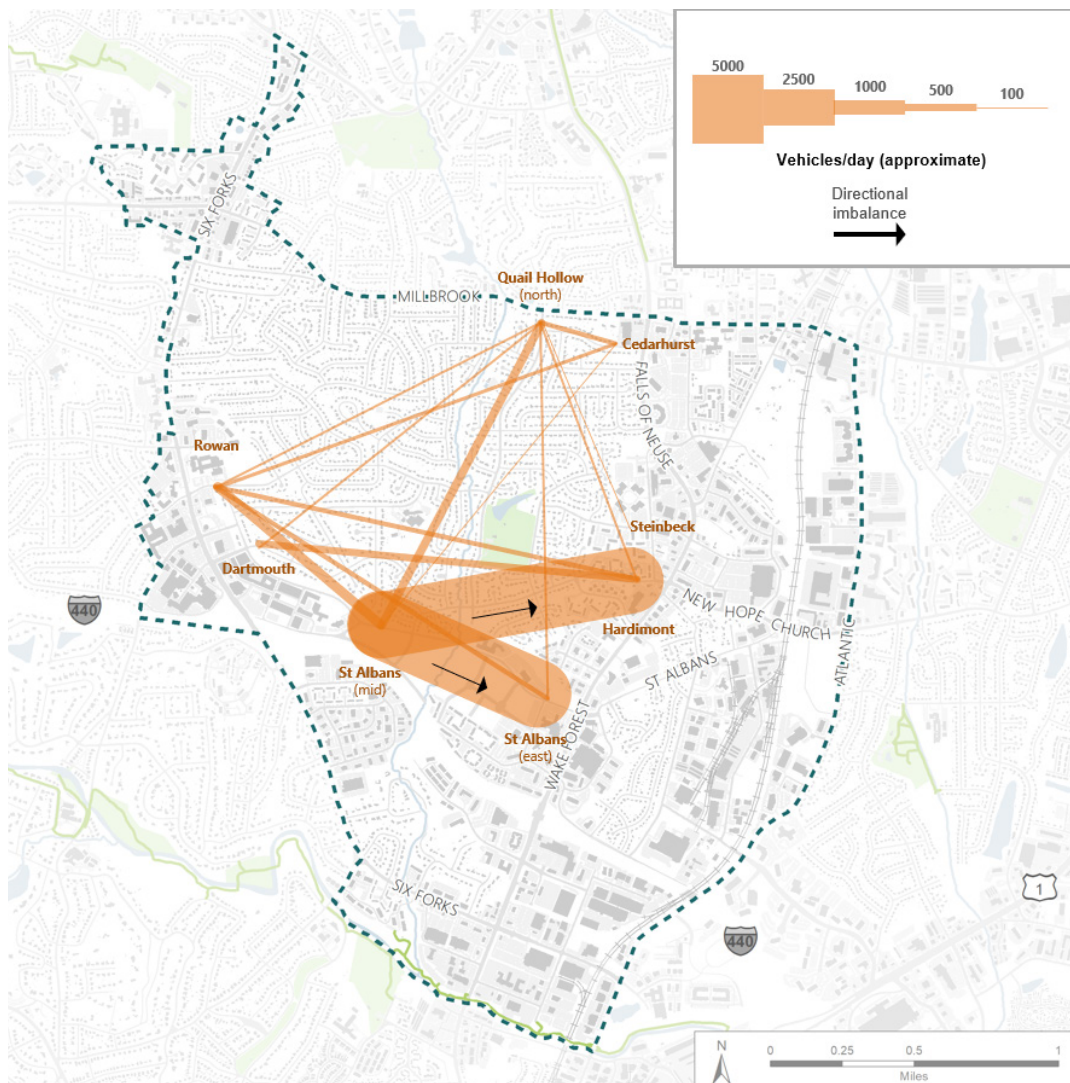


Figure 9. Study Area Desire Lines

2. Cedarhurst Drive (west of Falls of Neuse Road)
3. Steinbeck Drive (east of Hickory Ridge Drive)
4. Hardimont Road (west of Bland Road)
5. St. Albans Drive (west of Benson Drive)
6. St. Albans Drive (west of Hardimont Road)
7. Dartmouth Road (east of St. Albans Drive)
8. East Rowan Street (west of Camelot Drive)
9. Northwood Drive (east of Six Forks Road)

Through trips are defined as trips traversing the area via two different gates without stopping for five or more minutes. Five additional internal “traps” were established to better identify traffic routing and volumes:

1. Quail Hollow Drive (north of Compton Road)
2. Compton Road (west of Quail Hollow Drive)
3. Converse Drive (north of Hardimont Road)
4. Quail Hollow Drive (north of Hardimont Road)
5. Hardimont Road (north of St Albans Drive)

Analysis of these data reveals several findings that help quantify (and largely confirm) community perceptions:

- St. Albans Drive and Hardimont Road carry most of the east-west through traffic, by a large margin.
 - Over 40 percent of traffic on these roads consists of through-trips, and they carry far higher volumes of traffic than any other roads within the area analyzed.
 - Eastbound through-traffic volumes are significantly higher than westbound, suggesting a specific directional bottleneck or delay.
- While no single origin/destination pair dominates interior through-traffic volumes, the nature of the street network routes most trips with a northward origin or destination onto at least a portion of Quail Hollow Road (Figure 9)
- Through-trips comprised approximately 40 percent of all traffic on Quail Hollow Road (indicated in orange, see Figure 10)

- 50 percent of traffic at the southern end of Converse Drive is traveling through the cordoned area
- 30 percent of traffic at the eastern end of Compton Road is traveling through the cordoned area

Opportunities

A number of strategies are used to reduce the volume of traffic traveling through a neighborhood. Not all are effective or even desirable. Since each situation is unique, a combination of appropriate, customized solutions is needed to address this problem.

- Reducing traffic speeds on problem routes (see section on “Speeding,” above) can make them less attractive options. However, care must be exercised to avoid shifting the problem to other streets.
- Improving traffic flow on major arterials can reduce or eliminate the travel-time advantages of attractive alternate routes. However, opportunities for substantial improvements in this case are limited and expensive.
- Better street connectivity can provide more route options, spreading traffic more evenly among multiple streets at more consistent speeds.
- Restricting access via turn restrictions or one-way street segments can eliminate through trips, as can terminating or barricading streets to create dead ends. However, these treatments also reduce accessibility for residents, visitors, and service vehicles and emergency vehicles. Such measures can also generate unintended consequences, such as raising traffic volumes on other streets, creating inefficient bus routes, or increasing total vehicle-miles of travel and travel times.

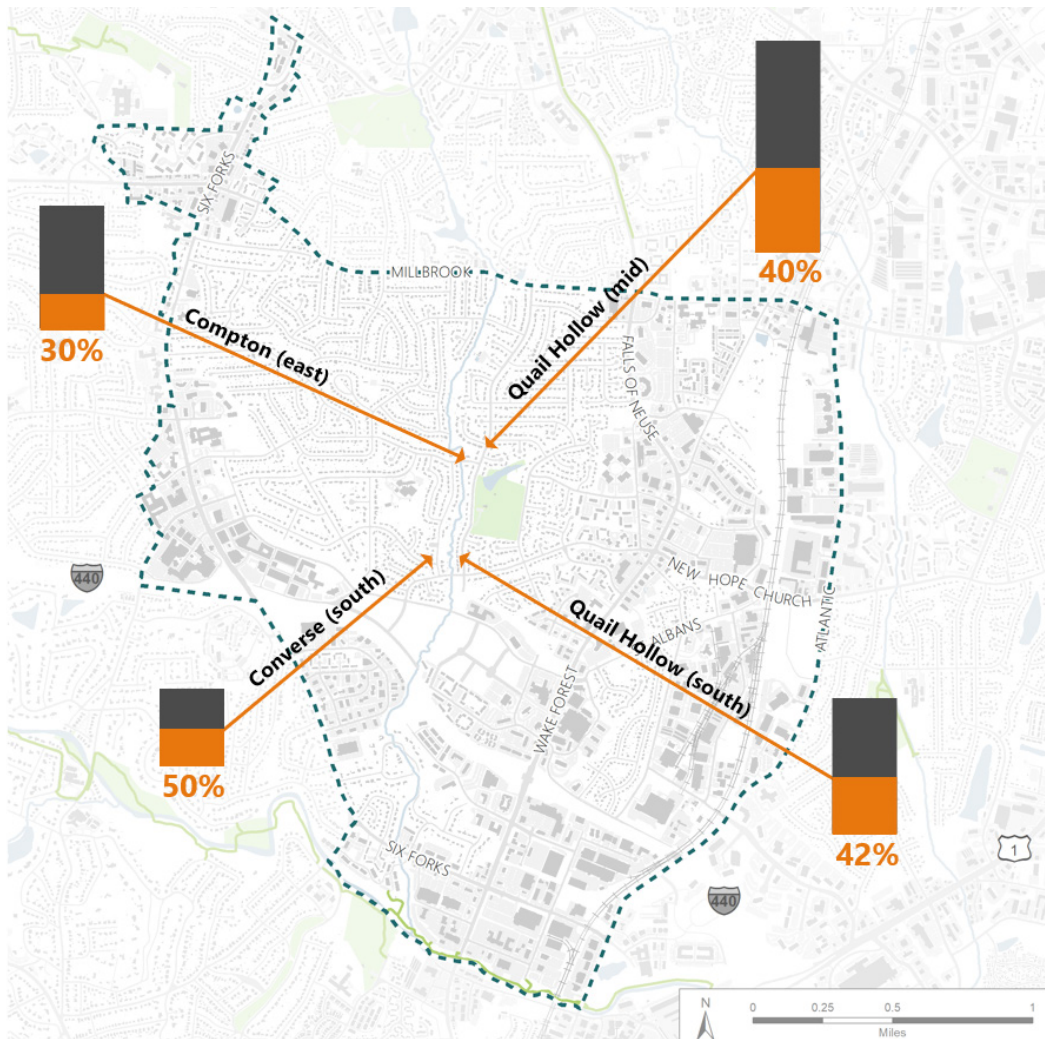


Figure 10. Through Traffic

1.4.2 Pedestrians

Issues

The study area's existing pedestrian network has a moderate degree of connectivity between its major destinations and across intersections. Sidewalks are located along the major commercial segments of Wake Forest Road, Six Forks Road, and Millbrook Road and as well along a minority of the study area's internal neighborhood streets (Figure 11). However, during the public outreach phase, commenters noted that despite the existing sidewalks along locations like Six Forks Road, there remained a high level of pedestrian discomfort for walking outside of the primarily residential areas.

This may indicate the role that high vehicle volumes and turning vehicle conflicts have in suppressing walking trips despite the presence of sidewalks. The continuation of sidewalks along lower volume roads or alternative corridors (such as greenways) could support expanded pedestrian mobility.

Commenters during the public outreach phase also indicated pedestrian discomfort and safety concerns at major intersections. While many of the study area's multilane intersections feature pedestrian crash countermeasures such as warning signage and high visibility crosswalks, challenges remain crossing wide roadways with high vehicle volumes and left turning vehicles. Thus, despite the provision of sidewalks and crosswalk markings, pedestrians may still view major intersections as barriers to travel to, through, or from the study area.

Planned Improvements

There is one planned pedestrian transportation improvement project in the study area. The type, funding status, anticipated completion year, and sponsor are noted below.

1. Navaho Drive Sidewalk

Project Sponsor: City of Raleigh

Year: 2020

Description: Construction and improvement of sidewalk on Navaho Drive from Bush Street to Executive Drive.

(Greenway improvements are noted below in the Bicycle section)

Opportunities

There are several strategies that could result in increased pedestrian connectivity by overcoming safety concerns and physical barriers.

- Incorporate pedestrian crossing improvements at key intersections with high volumes and turning vehicle conflicts. Such opportunities could involve protected walk signal phasing, pedestrian refuge islands, and high visibility crosswalk markings. Improvements could also include pedestrian grade separation in some locations.
- Improve pedestrian network across I-440 through the addition of a roadway with pedestrian facilities or a dedicated pedestrian facility (i.e. bridge, tunnel). Such an improvement would also allow for the connection of the Big Branch greenway to the existing Crabtree Creek greenway.
- Locate new and improved pedestrian facilities away from high-volume roadways to lower volume roadways that follow similar routes, such as an expanded shared use path and green-street concept along Quail Hollow Road.

1.4.3 Bicycles

Issues

The study area's existing bicycle network features high levels of facility discontinuity and substandard intersection crossings. There are few on-street bicycle facilities (notably the buffered bike lane along St. Albans Drive and the bike lane along Lassiter Mill Road), and those existing facilities lack connection to a broader network (Figure 11 below). Currently there is no route continuity in any direction or between major destinations. This presents a challenge for the approximately 10,000 residents of the study area to access the grocery store, work, or other destinations, or engage in recreation without the use of a vehicle or relying solely on pedestrian-oriented sidewalks.

Plans for expanded bicycle facilities and improvements could also address access management and intersection crossings. Implementing dedicated on-street bicycle facilities along high activity areas like the commercial corridor of Six Forks Road with many driveways would necessitate reducing turning to reduce conflicts between bicycles and vehicles entering and exiting businesses. Also, the existing intersections lack crossing features that would connect bicycle routes across barriers (perceived or real) such as Dartmouth Road at Six Forks Road and Wake Forest Road at the I-440 interchange. While the study area has incorporated the use of high visibility crosswalks and other pedestrian visibility enhancements at major intersections, it lacks bike boxes, intersection crossing markings, through bike lanes and other bicycle-specific improvements that would both reduce bicycle discomfort and increase visibility to motorists.

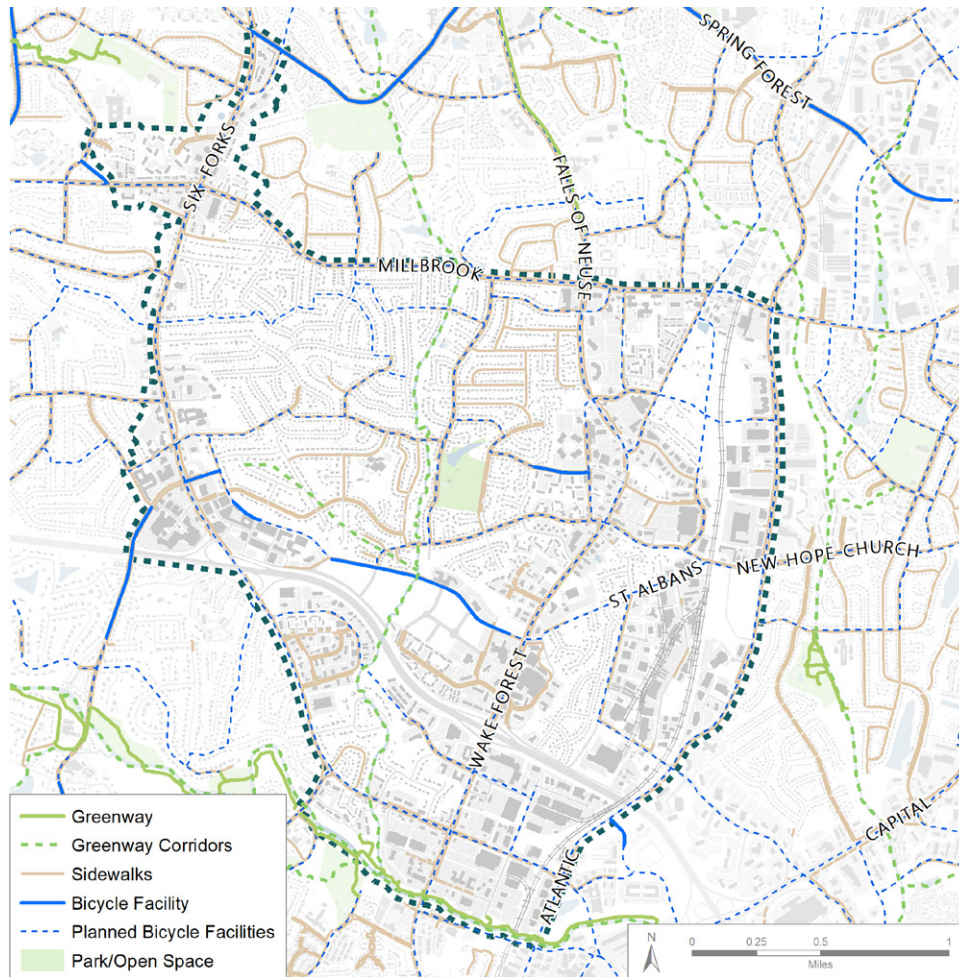


Figure 11. Existing and Planned Non-Motorized Facilities

Planned Improvements

There are numerous planned transportation improvement projects in the study area. These projects vary in their type, funding status, anticipated completion year, and sponsor.

1. Raleigh Bicycle Network Improvements

Project Sponsor: City of Raleigh

Year: 2025

Description: Ten-year priority plan for bicycle network improvements that includes two projects in the study area: a protected bikeway on Six Forks Road from Ramblewood Drive to Lynn Road and a protected bikeway on Atlantic Avenue from Brookside Drive to New Hope Church Road.

2. Raleigh Bicycle Network Improvements

Project Sponsor: City of Raleigh

Year: Not specified

Description: The long-term plan for bicycle network improvements includes numerous facility types across the MSA area:

- Neighborhood bikeways throughout the core of the MSA's residential single-family home neighborhoods
- Bicycle lanes along Millbrook Road, Quail Hollow Drive, Old Wake Forest Road, Wake Forest Road, Computer Drive, Wake Towne Drive, Bush Street, and Wolfpack Lane, among others
- Greenway trail extending from Cedar Hills Park along Big Branch Creek to the existing Crabtree Creek Greenway south of I-440.

Opportunities

The series of planned near-term and long-term bicycle improvements in the Raleigh Bike Plan would create an extensive network of interconnected facilities. Looking at a near to mid-term implementation timeframe, there are several opportunities to promote connectivity that also align with non-bicycle projects.

- Identify and improve parallel corridors for bicycle facilities that follow or connect users to the destinations that are also reached by higher volume—and higher stress—roads such as Wake Forest Road and Six Forks Road.
- Incorporate a bicycle facility that creates a north-south connection for the center of the study area. A central north-south facility could be collocated with the green street concept on Quail Hollow Road.

- Reduce user discomfort and safety concerns at major intersections with inclusion of bicycle crash countermeasures and pavement markings.

1.4.4 Transit

Providing convenient, cost-effective transit service to the Midtown-St Albans area presents several challenges. As discussed previously, the underlying suburban land use and street network pattern makes the area difficult to serve efficiently, even with growing concentrations of mixed-use development. The lack of network connectivity results in long, circuitous bus routes through less-productive, lower-density neighborhoods. As a result, service is infrequent, travel times are long, operating expenses/passenger are high, and schedule adherence suffers. Congestion on major thoroughfares further lengthens travel times, and

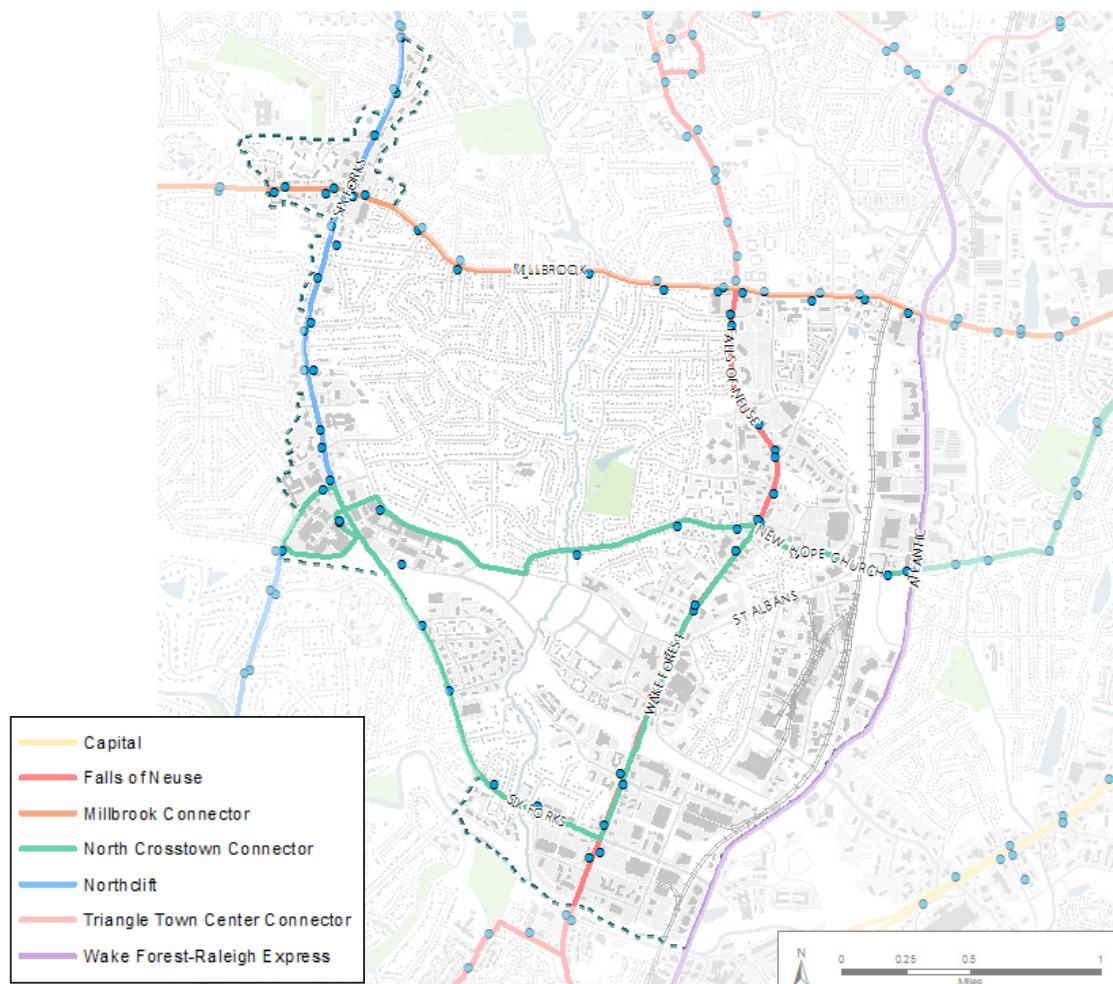


Figure 12. Existing Transit Network

harms schedule reliability. Finally, an incomplete sidewalk network and difficulties crossing major thoroughfares create barriers to accessing transit stops, some of which lack appropriate amenities and are not ideally located. The primary deterrents to transit use, according to public input, are:

- Inconvenient access
- Long/unreliable travel times
- Long headways/limited service hours
- Desired destinations are not served

The study area is currently served by four GoRaleigh routes (Figure 12). GoTriangle Route WRX (Wake Forest Express), which is operated by GoRaleigh, travels along Atlantic Avenue through the eastern portion of the study area but does not stop within the study area. Two of the GoRaleigh Routes (8 – Six Forks and 2 – Falls of Neuse) are radial routes emanating from Downtown Raleigh. The other two GoRaleigh Routes (23L – Millbrook Connector and 24L – North Crosstown Connector) are crosstown coverage routes that operate east-west through the study area.

Route 2 – Falls of Neuse

Route 2 – Falls of Neuse has the highest ridership of the four routes in the study area, with 1,174 average riders per day in 2017. The route operates north-south along Wake Forest Road through the study area with stops in downtown Raleigh and Bent Tree Plaza in North Raleigh. Boardings and departures were highest at the stop located along Wake Forest Road at Navaho Drive. This stop serves the major employment center at Duke Raleigh Hospital and the Wake Tech Beltline Education Center.

Route 8 – Six Forks

Route 8 – Six Forks had an average of 744 riders per day in 2017. The Route operates north-south along Six Forks Road and Lassiter Mill Road with stops in downtown Raleigh and Six Forks Station shopping center. Boardings and departures were highest at the stop located at North Hills Mall at North

State Bank/Bank of America. This stop serves the high-density commercial district of North Hills.

Route 23L – Millbrook Connector

Route 23L – Millbrook Connector provides east-west coverage service along Millbrook Road. Ridership averaged 324 riders per day in 2017. This route provides access to lower density neighborhoods along Millbrook Road ending at Crabtree Valley Mall and Mini City shopping center along Capital Boulevard.

Route 24L – North Crosstown Connector

Similar to Route 23L, Route 24L – North Crosstown Connector provides east-west coverage service and operates along St. Albans Drive, Six Forks Road, Wake Forest Road, and New Hope Church Road within the study area. Ridership averaged 336 riders per day in 2017. The route ends are at North Hills and Capital Boulevard at Spring Forest Road. The North Hills Mall at North State Bank stop location experienced the most boardings and departures along the route within the study area.

Planned Improvements

In November 2016, Wake County voters approved a transit-dedicated half-cent sales tax investment to expand and better connect the public transit network throughout Wake County. Implementation of the Wake Transit Plan has led to several recommended improvements in the study area (Figure 13).

Fiscal Year 2023

In fiscal year 2023, Route 2 – Falls of Neuse is recommended to be split into two routes, the 2 and 2L, which will allow for service to be extended even further north and east. Route 2 will operate between downtown Raleigh and WakeMed North, while Route 2L will operate between WakeMed North and downtown Wake Forest.

Fiscal Year 2024

In fiscal year 2024, Route 8 is recommended to be split into two routes, the 8 and 8L. The 8 will operate between North Hills and downtown Raleigh with

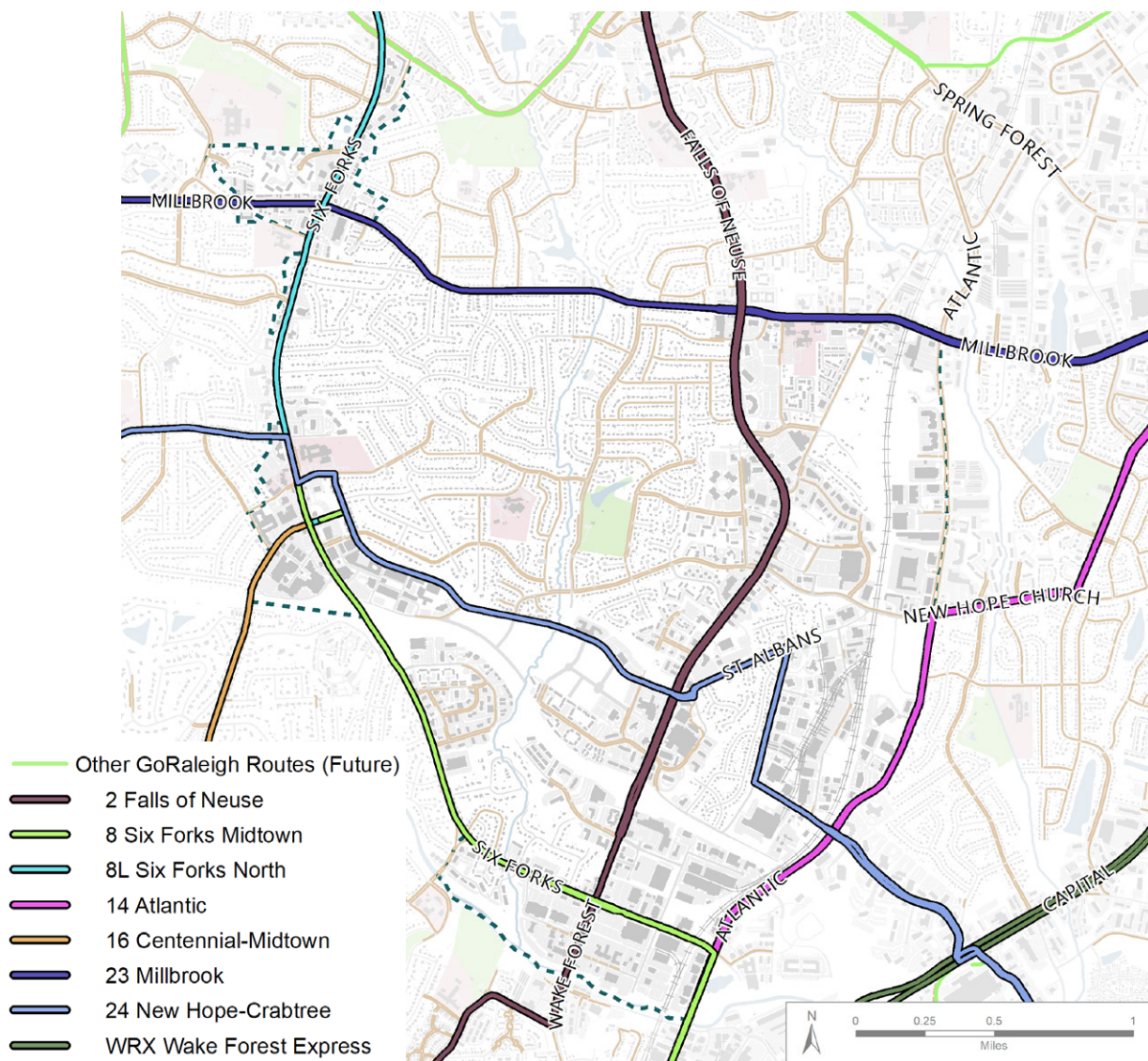


Figure 13. Future Transit Network

the alignment being shifted to operate along Six Forks Road and Atlantic Avenue. This route will also become part of the frequent network with 15-minute headways. The 8L will operate between North Hills and Six Forks Station. Route 16 is recommended to operate along Lassiter Mill Road and Oberlin Road between North Hills and Centennial Campus. Route 16 will also be part of the 15-minute frequent network.

Beyond Fiscal Year 2024

Beyond fiscal year 2024, Route 24L is recommended to become Route 24 which will be part of the 15-minute frequent network. This route will now connect Crabtree with North Hills and the East Raleigh Transit Center following a routing that parallels I-440.

Capital Improvements

In addition to the recommended service improvements in the study area, a Midtown transit center is recommended to be constructed at North Hills to accommodate increased services. A feasibility study and initial design for the transit center is programmed in the Draft FY 2020 Wake Transit Work Plan. The Wake Transit Plan also allocates money for bus stop improvements throughout Wake County.

Bus Rapid Transit

The Wake Transit Plan identified four corridors for Bus Rapid Transit (BRT) implementation. BRT, which consists of dedicated bus lanes, traffic signal priority, and off-board fare payment, is proposed along Capital Boulevard and would run between Downtown Raleigh and Crabtree Boulevard, just southeast of the study area. The BRT corridors

are currently being studied in the National Environmental Policy Act (NEPA) design process and are planned to be operational by 2027. The 2045 MTP includes an extension of BRT service to Midtown, scheduled for the latter part of the 2026-2035 time frame of the plan.

Wake Forest to Raleigh Commuter Rail Conceptual Infrastructure Analysis

The NCDOT Rail Division and GoTriangle completed the Wake Forest to Raleigh Commuter Rail Conceptual Infrastructure Analysis to study the possible scope and cost of infrastructure improvements that would support commuter rail service along the existing CSX S Line between Wake Forest and Raleigh. The study identified one possible station location in the southeastern portion of the study area at Six Forks Road near Atlantic Avenue.

Opportunities

The combination of planned transit projects listed above and mixed-use development of the type and magnitude approved or anticipated suggests transit could play a much more significant transportation role in the study area. Analysis of regional vehicle-trip origins and destinations (from StreetLight InSight dataset) suggests several destinations that could increase as transit markets, including Downtown, NCSU/Cameron Village, and other points farther west (via US 70 and I-40) and south (via US 401 and I-440).

Opportunities to promote the success of transit (in terms of higher ridership, larger mode share, and more efficient service) follow.

- Enhance walk access to transit, both as part of development site planning and transportation project design

- Modify routes and services
 - Shorter, more direct routes
 - More frequent service
 - Some route and service modifications are dependent on new road connections, such as a crossing of I-440, or extension of Six Forks Road to Capitol Boulevard. Staged implementation will probably be required.
 - High-frequency routes can be configured to function as a “circulator” service, allowing passengers to travel between major destinations within the study area, whether they are residents, employees, or visitors, and regardless of how they arrived in the area.
- Design routes to have quick access to the future BRT guideway (i.e. dedicated lane or corridor), employing treatments such as queue-jumps that allow the BRT vehicle to pass in front of vehicles waiting at an intersection for the signal and traffic signal priority to minimize delays due to congestion. Certain new connections (such as the extension of Six Forks Road to Capitol Boulevard) may incorporate busway elements.
- Improve bus stop facilities, such as benches and shelters
- Plan for efficient bus access to future regional rail station
- Strategically locate a transit center (or centers) to maximize convenience
- Improve transit stop locations and amenities
- Employ technology to improve bus service and user experience
- Adopt parking policies that encourage transit use

1.5 Land Use

1.5.1 Zoning

The study area has zoning patterns that are predominately developed with low density residential neighborhoods, surrounded by denser commercial mixed-use and industrial development along its primary corridors (Figure 14).

The 2030 Comprehensive Plan guides future growth. The Comprehensive Plan was adopted by City Council in October 2009, with 2014 updates and implementation through 2018 (Figure 15). Future growth within the study area focuses on mixed-use development (Land Use A.6 of Comprehensive Plan) along its major corridors: St. Albans Drive, Wake Forest Drive, and Atlantic Avenue. Economic Development Priority Areas that “present opportunity for or demonstrate a need for economic development intervention” are found along the eastern and southern portions of the study area.

The Comprehensive Plan’s Future Land Use Map (a policy document that guides the location of growth and development throughout the city) supports regional mixed use adjacent to low density residential. During the public outreach phase, a majority of commenters indicated that present day building transitions (single story residential that transitioned to six-story tiered buildings) were working well in the study area. As building intensity increases, transitions of a greater scale may create aesthetic and use conflicts.

The study area’s land uses serve three primary constituents or stakeholders which influence the market, land use, and transportation policies (Table 1). Understanding the context of how residents, businesses, and visitors currently experience—and will experience—the study area provides guidance in modifying existing land use plans, such as the Future Land Use Map. Existing land uses and their associated markets and anticipated demand are explored in greater detail in the report section “Development and Market Analysis” below.

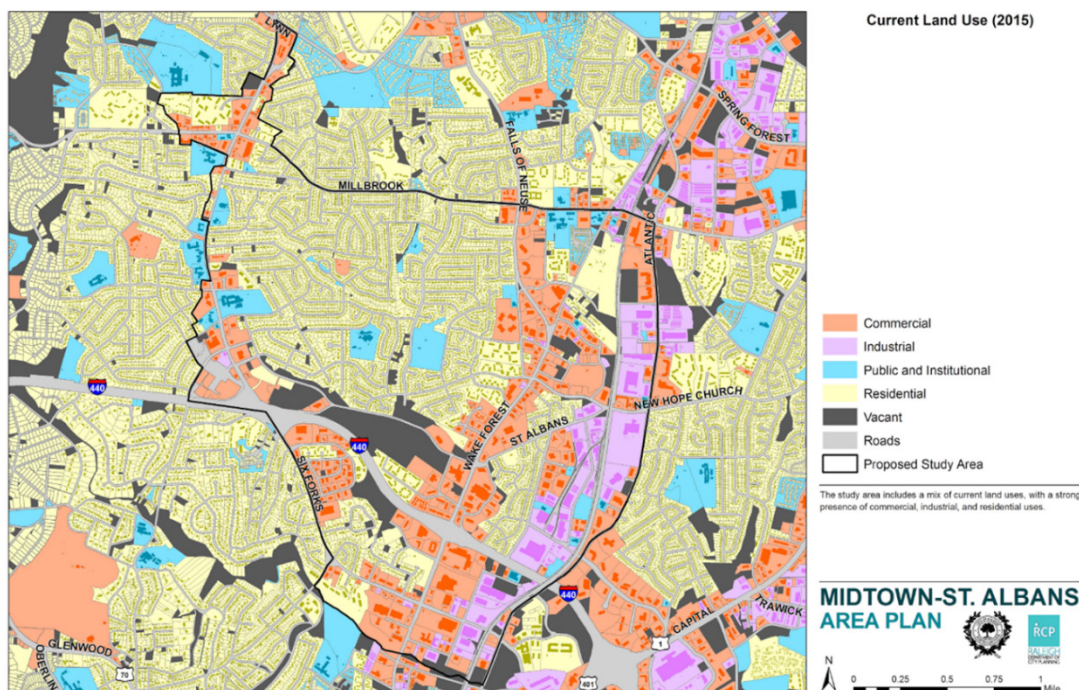


Figure 14. Midtown-St. Albans Current Land Use Data

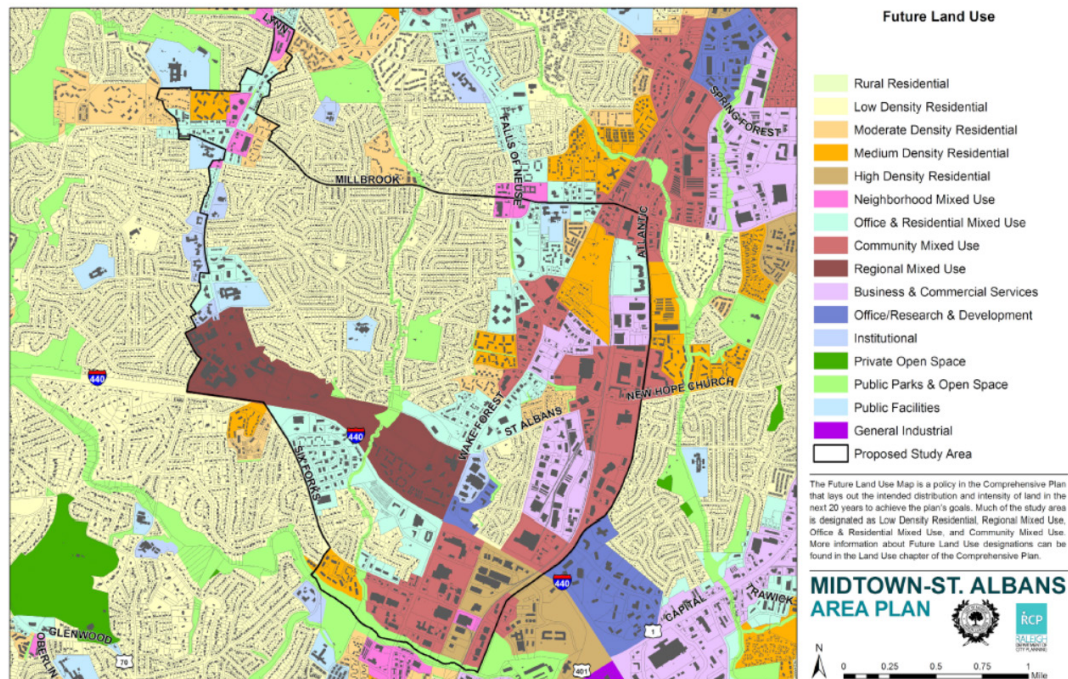


Figure 15. Midtown-St. Albans Future Land Use Plan

Opportunities

The study area's growth projections, future land use plans, and market development highlight opportunities to update zoning determinations to promote a unified vision.

- Increase residential density in targeted locations and in ways that respect the scale of the surroundings, such as through Accessory Dwelling Units (ADUs, which are small units that can often be located in the rear of an existing property), townhomes, and other low density housing types.
- Encourage moderate building transitions between taller mixed use and office locations and low-to-medium residential land uses.
- Modify zoning or land-use guidance in areas designated Economic Development Priority Areas and Opportunity Zones to align with desired employment and housing outcomes.
- Explore upzoning of parcels near areas with transformational transportation investments, such as those located near a new I-440 crossing, the Wake Forest Road/I-440 interchange, and the Six Forks/Wake Forest Road and Atlantic Avenue areas.

1.5.2 Open Space

Issues

While the study area has experienced residential and employment growth, it has not seen commensurate increases in dedicated open space. This is further exacerbated by the conversion of undeveloped (and under-developed) parcels and the loss of associated greenspace and tree canopy. Participants from the public outreach phase requested several actions to preserve and increase open space and improve accessibility to open space outside the study area. These included updating the existing park (Eastgate Park), securing new land for smaller parks, extending the greenway system into the study area, and providing access to existing park and open space amenities (both inside and outside the study area). Challenges to expanding open space are driven by development pressures in an urbanizing area.

Residents	Employers & Employees	Visitors
<p>The study area includes several neighborhoods which form the bulk of the land area within the Area Plan.</p> <p>The issues and concerns expressed during the Visioning process include accessibility, traffic congestion and providing amenities to include public space and transportation alternatives (e.g. pedestrian, bike, mass transit) for improved connectivity.</p> <p>With rising home prices and development pressures that come with exponential growth, maintaining affordability and providing a variety of housing choices were paramount.</p> <p>Housing and convenience to retail/services are most important for this group.</p>	<p>The study area is host to approximately 2,039 businesses which are situated in and around the commercial corridors. The daytime population in the study area swells to 43,806 people, more than three times the number of area residents.</p> <p>Transportation and safety are key concerns for this group as they attract the local workforce, which also provides opportunities for local services, restaurants and retail.</p> <p>Nearly 72 percent of these workers are in white collar professions, followed by 19 percent in the Services Sector. Only 9 percent of workers in the study area are in blue collar professions.</p>	<p>Two regional destinations bring visitors to the area: North Hills (retail mixed-use) on Six Forks Road and Duke-Raleigh Hospital on Wake Forest Road.</p> <p>Additionally, other large employers bring visitors to the area which drive overnight stays in the twelve hotels that are in the Study Area.</p> <p>Demographic (e.g. hotel and area workers) and economic factors include overnight stays, hotel performance and tourism spending.</p> <p>These influence land uses such as hotels and retail, as visitors will shop and dine out during their stay.</p>
<p>Performance Metrics:</p> <ul style="list-style-type: none"> • Population & Household Growth • Income & Lifestyle • Trade Areas (locations of employment, goods, and services) 	<p>Performance Metrics:</p> <ul style="list-style-type: none"> • Employment Trends • Daytime Population • Commuting Patterns 	<p>Performance Metrics:</p> <ul style="list-style-type: none"> • Visitor Traffic • Tourism Spending • Hotel Performance

Table 1. Land Use Stakeholders

Opportunities

- Establish a pedestrian-accessible I-440 crossing and other roadway improvements to increase access to parks outside the study area.
- Develop a linear park through the transformation of Quail Hollow Drive into a green street concept with connection to the Crabtree Creek greenway system.
- Refresh Eastgate Park to include updated amenities and a connection to the greenway system.
- Seek redevelopment of parcels in flood-prone areas to incorporate publicly accessible open space that is both welcoming and accessible.
- Acquisition of flood-prone parcels along Crabtree Creek.
- Review the study area's urban canopy cover status in relation to historical levels.

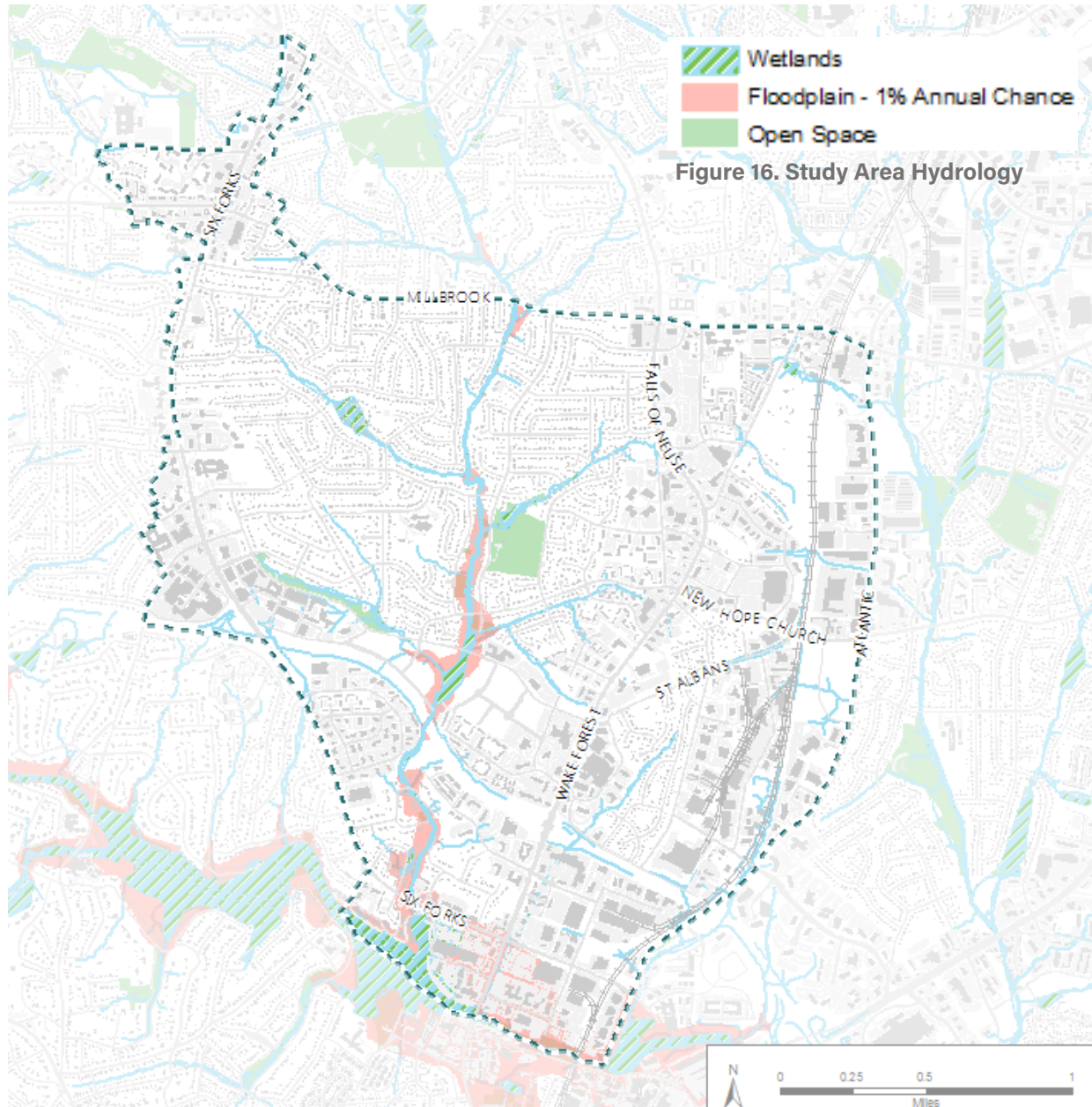


Figure 16. Study Area Hydrology

1.5.3 Stormwater

Issues

Stormwater and flooding are well-known issues in the study area that affect land use planning for all categories of stakeholders. Creeks branch across the study area before flowing in to Crabtree Creek in the southern edge of the study area (Figure 16). During periods of moderate to heavy precipitation,

the neighborhoods and commercial districts along these creeks experience flooding, and residents reported more frequent and expansive occurrences than the published 1 percent floodplain maps identify. As impervious surface increases and tree canopy is lost both upstream and in the study area, flooding and stormwater issues will likely be exacerbated. The capacity and age of existing stormwater infrastructure are also concerning

during periods of high precipitation and from intensifying development. While the adoption of the Unified Development Ordinance (UDO) in 2016 has led to improvements in how new development addresses stormwater, the pre-UDO housing and commercial developments are more likely to include out-of-date or incompatible stormwater features given current conditions.

Opportunities

There are several opportunities to mitigate the effects of stormwater and flooding in the study. These include updating stormwater infrastructure, concurrent development of stormwater best management practices (BMPs) and transportation improvements, and shifting land use development.

- Review of the City of Raleigh’s stormwater capital improvement plan with updated impervious surface levels and flood maps to reevaluate prioritization of upgrading stormwater facilities.
- Installation of stormwater BMPs during construction of new sidewalks, roadway widening, and streetscape improvements. This could involve implementing tree wells and bio retention facilities with the installation of a shared use path on the Quail Hollow Road green street concept. Streetscape improvements concurrent with the widening of Six Forks Road present another opportunity to improve stormwater infiltration through street tree and grass plantings.
- Focus the redevelopment of buildings near the end of their life cycles in frequently flooded parcels for managed land use transitions. In

the Crabtree Creek area towards the southern edge of the study area, redevelopment could be shifted towards new parks space and high density housing (potentially below market rate) that would be designed for flood resiliency.

1.5.4 Development and Market Analysis

This section summarizes the data, dynamics, issues and opportunities identified in the study area.

Demographic and Economic Summary

The evaluation of the market to determine land uses and a viable area plan strategy begins with understanding the demographic and economic dynamics from a macro-to-micro viewpoint. Baseline demographic and economic data were collected and reviewed to determine the characteristics of the study area and its relationship to, and differences between, the Raleigh metropolitan statistical area, Wake County, and the city of Raleigh.

Population & Housing Growth

Population estimates provide a helpful initial context in reviewing the study area. The study area represents approximately 3 percent of the city’s population and households and has experienced faster population growth from 2010 – 2018 than the county and city (Table 2). The population in the study area is generally older and wealthier compared to the City of Raleigh overall. The median

Location	2018 Population	Annual Population Growth (2010-2018)
Wake County	1,092,636	2.37 percent
City of Raleigh	469,363	1.83 percent
MSA Study Area	13,370	2.92 percent

Table 2. Population Comparison

age in the study area is 40.5 years as compared to 33.6 years for the City (U.S. is 38.3 years), while the median household income is \$61,401, compared against the city median of \$60,395. However, the distribution of household income shows a diversity of income levels throughout the study area.

Business & Industry

Economic base analysis includes those industry clusters which drive the regional economy. In Wake County, this is dominated by Information and Professional and Technical Services sectors. The study area includes 2,039 +/- businesses with a total of 31,935 employees. The largest percentage of employees is in the Services sector, which includes Health Services and Hotels & Lodging. As noted in

Figure 17 below, the largest percentage of business categories in the study area may differ from those who employ the most people.

Real Estate Market Dynamics

Demand for space is driven by several factors including, but not limited to, the local economy and job growth, transportation, infrastructure, land entitlements, construction costs and quality of life. Analyzing real estate markets is as much art as it is science, as the data represents both a snapshot in time and prevailing trends. Real estate data is measured by submarkets, which include specific smaller geographic areas within a region. These are important elements when understanding local market capture² in the context of the larger regional marketplace.



Business Summary

Midtown - St. Albans Study Area
Area: 4.97 square miles

Prepared by Esri

Data for all businesses in area				
Total Businesses:	2,039			
Total Employees:	31,935			
Total Residential Population:	13,370			
Employee/Residential Population Ratio (per 100 Residents)	239			
by SIC Codes	Businesses		Employees	
	Number	Percent	Number	Percent
Agriculture & Mining	15	0.7%	1,054	3.3%
Construction	90	4.4%	822	2.6%
Manufacturing	35	1.7%	950	3.0%
Transportation	30	1.5%	187	0.6%
Communication	36	1.8%	1,037	3.2%
Utility	8	0.4%	165	0.5%
Wholesale Trade	49	2.4%	567	1.8%
Retail Trade Summary	340	16.7%	6,338	19.8%
Home Improvement	18	0.9%	114	0.4%
General Merchandise Stores	13	0.6%	906	2.8%
Food Stores	31	1.5%	599	1.9%
Auto Dealers, Gas Stations, Auto Aftermarket	29	1.4%	534	1.7%
Apparel & Accessory Stores	35	1.7%	196	0.6%
Furniture & Home Furnishings	18	0.9%	590	1.8%
Eating & Drinking Places	110	5.4%	2,694	8.4%
Miscellaneous Retail	86	4.2%	704	2.2%
Finance, Insurance, Real Estate Summary	321	15.7%	5,601	17.5%
Banks, Savings & Lending Institutions	65	3.2%	2,794	8.7%
Securities Brokers	45	2.2%	589	1.8%
Insurance Carriers & Agents	66	3.2%	582	1.8%
Real Estate, Holding, Other Investment Offices	145	7.1%	1,636	5.1%
Services Summary	938	46.0%	12,595	39.4%
Hotels & Lodging	15	0.7%	777	2.4%
Automotive Services	29	1.4%	141	0.4%
Motion Pictures & Amusements	37	1.8%	371	1.2%
Health Services	236	11.6%	4,219	13.2%
Legal Services	81	4.0%	783	2.5%
Education Institutions & Libraries	27	1.3%	553	1.7%
Other Services	513	25.2%	5,750	18.0%
Government	53	2.6%	2,525	7.9%
Unclassified Establishments	124	6.1%	94	0.3%
Totals	2,039	100.0%	31,935	100.0%

Source: Copyright 2018 Infogroup, Inc. All rights reserved. Esri Total Residential Population forecasts for 2018.

Date Note: Data on the Business Summary report is calculated using Esri's Data allocation method which uses census block groups to allocate business summary data to custom areas.

July 27, 2018

Figure 17. Study Area Business Summary

Retail

The dominant commercial use within the study area is retail. In addition to North Hills, there are nine shopping centers and other convenience-oriented service/retail centers located throughout the study area, and they are anchored by grocery stores and other major retail chains. According to third quarter 2018 reports from REIS (a prominent commercial real estate data source) for the Raleigh-Durham metro, over the last four quarters, market absorption totaled 119,000 square feet, less than half the average annual absorption rate of 278,800 square feet recorded since late 2008. The metro average vacancy rate was 7.6 percent, among the 20 lowest vacancies nationally. The metro has experienced the fastest rent growth in the South Atlantic region, with an average asking rent of \$19.70 per sq. ft. The study area is located within the North Raleigh submarket (Table 3). The North Raleigh submarket, one of five distinct geographic concentrations within Raleigh-Durham, contains 9.8 million square feet, or 32.7 percent of the metro's total inventory of neighborhood and community shopping center space. As of the third quarter of 2018, the North Raleigh submarket absorbed most of the total space within the metro, totaling 90,000 sq. ft. over the second quarter. One of the largest projects to break ground in the region is Midtown East on Wake Forest Road, totaling 173,936 sq. ft. and will be anchored by the region's first Wegmans grocery store.

Retail Submarket	Total Inventory SF	Vacancy Rate	Average Rent
North Raleigh	9,800,000	8.5 percent	\$21.18

Source: REIS 3Q2018

Table 3. North Raleigh Retail Submarket

Office

The North Hills/Six Forks and Falls of Neuse submarkets that encompass the study area rank fifth and eighth in size among the submarkets in the metro region, respectively. Overshadowed by the RTP submarket, average rents for the metro have risen every quarter since the third quarter of 2013 – up to \$22.96 per sq. ft. with a projected strong finish to \$23.08 by end of 2018. According to REIS, the average growth rate for office-using employment in Raleigh-Durham is expected to average 0.9 percent annually during 2019 and 2020, enough to facilitate an absorption rate averaging 500,000 sq. ft. per year. The Six Forks corridor submarket is expected to capture 10.8 percent of this absorption. The combined 6,145,000 sq. ft. of office space in the two submarkets of Six Forks Road and Falls of Neuse Road rank third behind RTP and Cary (Table 4). Over the past four quarters, the metro market absorption totaled 434,000 sq. ft., 15.7 percent greater than the average annual absorption rate recorded since Q4 2008. However, the introduction of new inventory has placed upward pressure on metro vacancy rates, which increased 60 basis points to 15.4 percent by the third quarter of 2018.

Office Submarket	Total Inventory SF	Vacancy Rate	Average Rent
Six Forks Rd.	3,987,000	20.3 percent	\$22.46

Source: REIS 3Q2018

Table 4. MSA Office Submarket

Industrial

Distribution/Warehouse and Flex/R&D are the two primary types of industrial uses make up this segment. The primary uses within the study area include Flex/R&D and older manufacturing space. However, the online shopping industry has created heightened demand for warehouse/distribution centers, as evidenced by Amazon Prime located in the building with Wake Tech's Beltline Education Center within the study area. Of the six submarkets

that make up the metro region, the study area lies within the North Wake County submarket, the second largest in total inventory behind RTP. With an overall metro vacancy of 6.2 percent, the submarket has the highest vacancy at 10.2 percent as of the third quarter of 2018 (Table 5). The average rent is among the lowest, compared to the overall metro average of \$10.72, as new construction occurring in other areas of the region places upward pressure on rents. This implies a lower demand in this submarket as compared to others in the region.

Flex/R&D Submarket	Total Inventory SF	Vacancy Rate	Average Rent
North Wake County	4,069,000	10.2 percent	\$9.81

Source: REIS 3Q2018

Table 5. North Wake County Flex Submarket

Housing

The housing in much of the study area is dominated by low-density, single-family homes. Much of the housing was built from 1960–1969 and is subject to the possibility of renovation or teardowns as seen in the Six Forks Road corridor. Median home prices in the Raleigh metro hit a peak June (Figure 18),

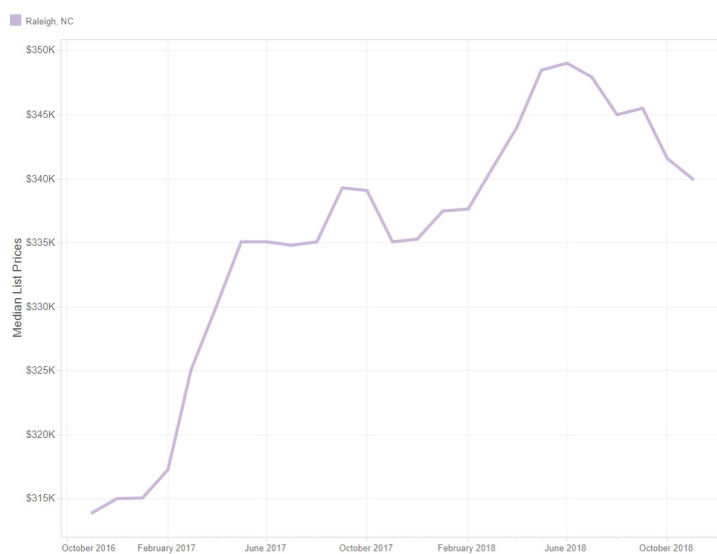


Figure 18. MSA Median Home Prices, 2016 - 2018

with a November 2018 median list price of \$340,000. Wake County had a median list price of \$370,000, up 2.9 percent from the prior year. While the market trend suggests prices could have reached their near term peak (i.e. trending downward at close of 2018), construction costs continue to impact home prices, including renovations/additions.

Data from the National Association of Realtors for zip code 27609 within the Study Area indicates that as of the end November there were 127 homes for sale, including single family and townhomes/condos ranging from \$135,000 to \$2,450,000.

The greatest impact on housing in the metro region has been the addition of multifamily housing in the form of rental apartments. According to the third quarter 2018 Raleigh-Durham Multifamily Report from Avison Young, tenant demand remains healthy as strong demand growth, a high quality of life and rapidly growing population keep supply and demand in balance. Average market rents continue to rise, largely due to increased construction costs, which place most new inventory in the luxury segment. As of third quarter 2018, the total market occupancy rate at 93 percent is down 50 basis points from last year, with an average monthly market rent of \$1,257 per unit or \$1.46 per sq. ft., which rose 2.3 percent year over year. The highest Class A (new luxury) rental rate among the urban submarkets is \$2.88 per sq. ft. The fastest growing submarkets adding units include Central Durham and the RTP.

The North Raleigh submarket (bounded to the north by I-540) includes the study area (Table 6). It ranks third among the largest submarkets by number of units, behind RTP and South Durham.

Apartment Submarket	Total Inventory Units	Occupancy Rate	Average Rent/Unit	Average Rent/SF
North Raleigh	14,373	95.2 percent	\$1,124	\$1.19

Source: REIS 3Q2018

Table 6. North Raleigh Housing Market

Opportunities

Review and analysis of the existing conditions, market data, transportation dynamics and public input reveals that the diversity found along the various corridors and within neighborhoods points to a variety of issues that must respond to the location, history, infrastructure, and economic and social context of the study area. The following three overarching themes highlight the issues and opportunities for consideration regarding land use policy.

Size Matters

The existing development pattern between residential neighborhoods and adjacent commercial areas highlights the stark contrast in density. Low density single-family neighborhoods lie adjacent to high density mixed-use developments which leave little transition in the transect between uses. Consideration for this has been given in the St. Albans area as developers consider “step down” building heights to ease this transition. While both the UDO and Comprehensive plans have transitional policies, future land use policy should consider adequacy of these policies in the study area.

Retrofitting Obsolescence

The transformation of North Hills is a nationally-recognized example of suburban retrofit into a vibrant mixed-use district. The continued evolution of retail will place development pressures on other aging retail centers within the study area that may transition to more urban mixed-use or change their use altogether to housing or other commercial uses. Similarly, the inventory of aging office and industrial product in the study area will likely transition – some in the short term, others long-term, as occupancy or ownership changes. Modern new workplaces demand amenities that the current inventory may not provide to remain competitive in this changing environment.

The “Missing Middle” and Affordability

The demand for housing continues to grow. The balance between preservation of existing housing stock and redevelopment of single family lots into multi-unit housing is necessary to provide a continued supply of affordable or relatively affordable housing. The concept of “missing middle” housing reflects the fact that typical zoning codes permit either larger-scale multistory housing or lower-density single family units, but nothing in between. The “missing middle,” then, is generally defined as duplexes or small, three- or-four-unit apartments that are of the same scale as detached houses.

In Raleigh, as is the case in many other areas, existing missing middle units are often lost to conversion to single-family houses, and new development often does not include the type. Few examples of missing middle types exist in the study area, but consideration of the type may be appropriate in some areas.

The existing housing stock in the study area is aging, with much of it built during the 1960's, making many of the neighborhoods among the oldest in the city. As home prices escalate and construction costs fuel the luxury apartment market, low income and the “missing middle” of workforce housing will continue to be constrained. Affordable housing concerns in the study area mirror that throughout the city, as housing policy issues are reviewed and discussed by City of Raleigh leaders.

Land Use Considerations

Land use product types and design will be further developed through the study process of targeted areas, so that future development be driven by local policy and vision, highest and best use, and market forces. These are identified by vacant parcels or obsolescence, providing opportunities for retrofitting or adaptive reuse. Economic development may occur in each of these areas by adding additional employment, housing options, and transportation improvements (Figure 19). Parcels in blue represent entitled development, red represents developable

Study Area Estimates	Office	Industrial (Flex)
Estimated Annual Demand (s.f.)	244,000 +/- s.f.	37,000 +/- s.f.
Current Pipeline Supply (s.f.)	1,764,726 +/- s.f.	136,355 +/- s.f.
Estimated Absorption (years)	7-8 years	3-4 years

Table 7. Office and Industrial Space Demand

parcels identified in the Six Forks Corridor Study, and purple indicates areas that are anticipated for strategic mid-to-long term redevelopment opportunities. Transportation improvements—represented through directional red arrows—include roadway extensions, grade separations, BRT expansion, transit routing changes, commuter rail access, and extension of the greenway that would all support redevelopment. These improvements would act as catalysts in attracting private investment to, in turn, fund public infrastructure projects through increase in the tax base.

With the demographic and economic dynamics and key constituents in mind, the current and potential land uses were reviewed in the context of trends, demand factors, market and submarket performance, and potential capture of the various asset categories of real estate. Further described in the Appendix, the summary of real estate and land use considerations are categorized by the four product types below.

Office & Industrial

Employment growth and economic development efforts are the primary drivers for this category. Aside from national market trends that impact these uses, other factors that impact the study area include obsolescence (older buildings that no longer meet the needs of modern uses), adaptive reuse (buildings repurposed for new or different uses) and the expansion of healthcare and medical use buildings (e.g. Patient tower at Raleigh-Duke Hospital). The submarket performance of office and industrial influences the capture of this type of space (Table 7). Clearly, office uses dominate the

study area and show strong market performance, while industrial uses will likely continue to diminish as businesses relocate to other areas and those buildings which are viable may change their use. The current pipeline of office product is clustered in the North Hills and St. Albans area, and industrial product is in the self-storage category along Atlantic Avenue, as well as owner-occupied uses in or adjacent to the study area.

Retail

The expansion of retail is dependent upon population, household and income growth. National market trends including e-commerce and the shift toward shopping experiences has weighed heavily on this category. Traffic patterns and consumer preferences will influence the amount and location of retail, particularly as grocery stores and other food categories continue to compete locally for market share. The Study Area is among the region's strongest and best performing submarkets, largely due to North Hills. Retail in the Study Area will continue to evolve as obsolete retail centers reinvent themselves or convert to other uses, and population growth is buoyed by added apartment units to the Study Area. The current pipeline of retail product is dominated by the new Wegmans in the Midtown East project (Table 8)

Study Area Estimates	Retail/Restaurant
Estimated Annual Demand (s.f.)	162,000 +/- s.f.
Current Pipeline Supply (s.f.)	359,970 +/- s.f.
Estimated Absorption (years)	2-3 years

Table 8. Retail Demand

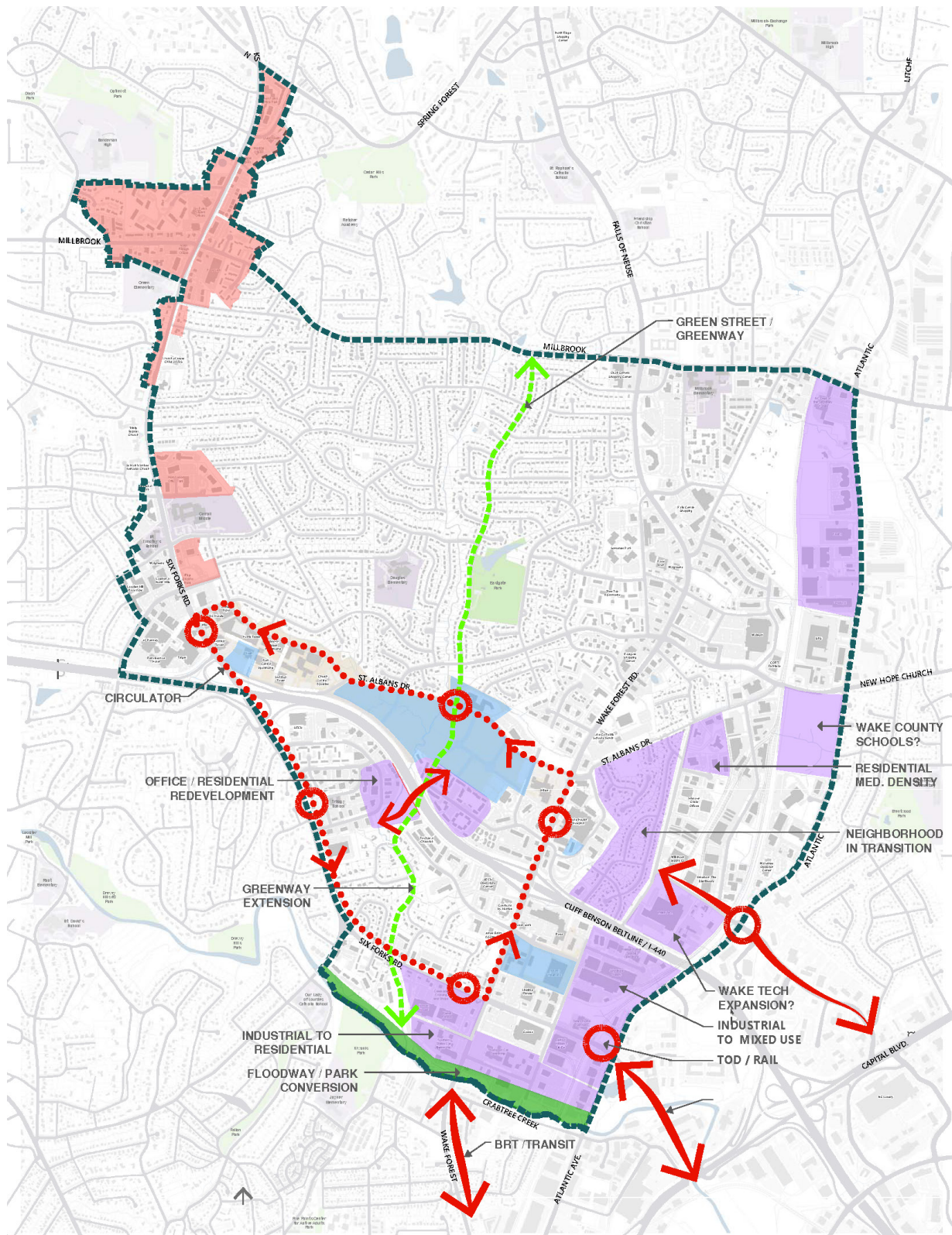


Figure 19. Study Area Future Land Use Framework

Housing

The demand for housing is driven primarily by job growth. In addition, migration to the area for those relocating for lifestyle or other quality of life components have placed pressure on the local housing market. Therefore, a range of demand may be estimated based upon both natural population growth and job growth. Clearly job growth is the primary driver for the Raleigh regional housing market. The changing demographic dynamics of an aging population, millennial attraction to the region and multi-cultural and multi-generational households also influence the study area. Lifestyle segmentation assists in understanding housing choice and its many forms – single family, multifamily and senior housing as housing preferences by a diverse population impact the study area. Other factors such as quality of schools, housing affordability and public safety are key components to the housing segment.

The City of Raleigh 2017 Data Book, released in September of 2018, projects land capacity by zoning districts for up to 85,851 additional dwelling units. Currently permitted projects in the Study Area would absorb approximately 3 percent of that capacity, over the next 4 years, depending on market cycles (Table 9).

Study Area Estimates	Housing (all types)
Estimated Annual Demand (units)	150-500 units
Current Pipeline Supply (units)	2,557 units
Estimated Absorption (years)	4+ years

Table 9. Housing Demand

Hotels

The travel and tourism industry is monitored regionally by the Greater Raleigh Convention and Visitors Bureau (CVB). Its 2018-2019 Business Plan provided the 2018 U.S. Travel Outlook prepared by the U.S. Travel Association (USTA), which concluded: “Strong personal income and employment growth, surging consumer and business confidence, moderate inflationary

pressures, an ongoing export recovery and growing shipments of capital goods all set the stage for continued solid economic growth during the first half of 2018.” USTA also had opined that, “for the travel industry, domestic travel, both business and leisure, [is] in a good position for continued solid growth in 2018.” The CVB shared data from CBRE Hotels report *Hotel Horizons*, which reported that 2017, Raleigh-Durham [market] hotels finished the year with a revenue per available room (RevPAR) gain of 0.3 percent.³ This was the result of a decline in occupancy of 1.4 percent and a 1.6-percent gain in average daily room rates (ADR). The market’s upper-priced properties finished 2017 ahead of its lower-priced properties in terms of RevPAR change. The properties in this category attained a 1.1-percent gain in ADR but suffered a 1.0-percent decrease in occupancy. Lower-priced hotels experienced an ADR growth rate of 0.7 percent, along with a 1.8-percent loss in occupancy. This suggests that the newer supply and upper-priced brands are performing better than the lower-priced counterparts. For calendar year 2019, CBRE Hotels envisions for the Raleigh-Durham market:

- Occupancy: 67.5 percent, up 0.5 percent
- ADR: \$106.56, up 1.8 percent
- RevPAR: \$71.89, up 2.3 percent

Demand generators for room night demand include regional destinations, such as universities, hospitals and sporting or cultural venues. Additionally, large regional employers who provide corporate business are key to this segment. Required nearby amenities include shopping and dining options. There are currently 12 hotels within the study area with an additional 652 rooms/keys planned/under construction. Demand and absorption are more complex in this segment, as they combine real estate with business operations, which are evaluated on a project by project basis.

3. Revenue per available room (RevPAR) is a performance metric used in the hotel industry. It is calculated by multiplying a hotel's average daily room rate (ADR) by its occupancy rate. It may also be calculated by dividing a hotel's total room revenue by the total number of available rooms in the period being measured.

1.5.5 Housing

Issues

Housing options and affordability are significant issues for residents of the study area and City of Raleigh leaders. As discussed in the “Development and Market Analysis” section above, tenant demand for multifamily rental housing is strong in the North Raleigh submarket, and monthly rental rates are increasing due to construction costs and the luxury apartment segment. The study area’s existing traditional low density neighborhoods were largely built in the 1960’s and may now be subject to renovation, teardown, and replacement. Construction of higher end rentals and the existing stock of low density large lot parcels are contributing constraints towards the lack of affordable housing options and are putting pressure on existing affordable housing stock.

During the public engagement phase, commenters from the Wake Forest Road and Atlantic Avenue corridors noted housing affordability and preserving residential neighborhoods as priorities for the MSA area plan. Commenters also indicated support for numerous options to accommodate new residents with “granny flats” (also known as Accessory Dwelling Units or ADUs), followed by more single family homes, townhomes, apartments, duplexes/ triplexes, and accommodate growth somewhere else.⁴ The full results from the survey are available in the Appendix. Feedback from the public engagement phase largely indicated support for more housing that did not diverge from existing scale. As the demand for affordable housing increases, market demand and mechanisms do not appear aligned to support affordable options such as workforce—or “missing middle” —housing.

Opportunities

Expanding housing choices and affordability in the study area is challenging due to constraints on where additional and higher density residential units may be built. However, there are strategies for supporting both the preservation of existing housing options and increasing choices.

- Educate homeowners on the ADU application process to encourage the addition of housing options in low density areas.
- Through City policies, encourage affordable housing and workforce housing in redevelopment areas such as those along Crabtree Creek.
- Expand and improve transit service within access of redeveloping parcels that include affordable housing options.
- Explore policy options to preserve existing affordable housing options throughout the study area.
- Consider allowing greater variety of housing types and allowing more overall housing in targeted areas.

4. The survey question asked, “Midtown, like the rest of Raleigh, is experiencing population growth. Please check all of the options for accommodating new residents that you agree with”

Midtown-St. Albans

Issues and Opportunities