TOWN OF ELON

MULTIMODAL

PLAN

Adoption Date: TBD

2024

TOWN OF ELON
EST. 1893
DEEP ROOTS • NEW HORIZONS

ACKNOWLEDGMENTS

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1

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

To be included in the final
draft of the Plan

GREENWAY TRAIL

DOWNTOWN 2 ELON

To Elon

CITY OF BURLINGTON

2

INTRODUCTION

INTRODUCTION

Background & Context

Elon is a community of just over 11,000 people located in the Piedmont Region of North Carolina. The Town was founded as a railroad depot midway between Goldsboro and Charlotte and has grown to support a thriving downtown, vibrant neighborhoods, and the town's namesake Elon University.

In the Spring of 2022, Elon applied for a first-of-its-kind Multimodal Network Planning Grant through the North Carolina Department of Transportation (NCDOT). The Town was awarded the grant in the Fall of 2022, and work began at the beginning of 2023.

Over the course of a year, Town staff worked closely with the community to develop recommendations and strategies that address the needs and desires of people walking, bicycling, and using transit. The resulting Plan identifies a clear vision for the future of multimodal travel, and provides a road map for advancing projects that will enhance the experiences of all people in Elon regardless of age, ability, or the mode they choose.
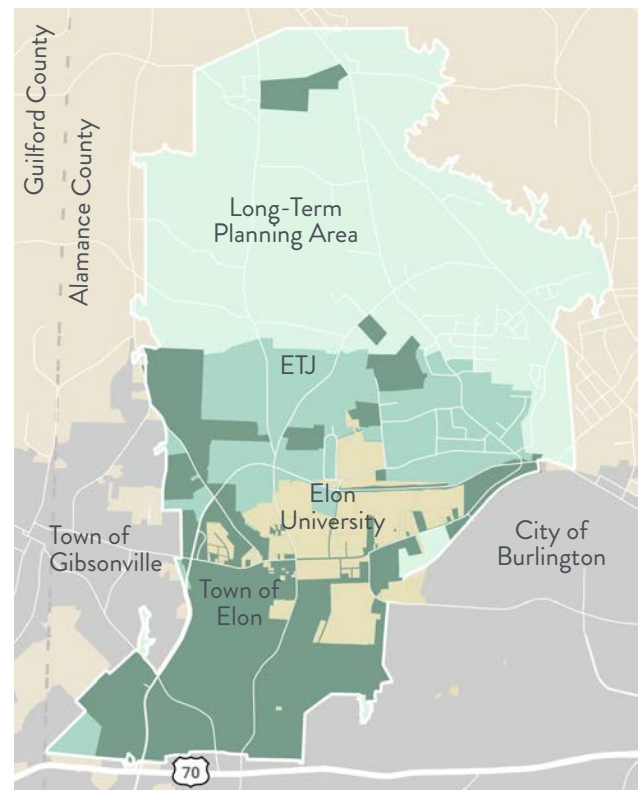
Study Area

The study area for this Plan is consistent with the 2019 Comprehensive Land Use Plan's Long-Term Planning Area . This area encompasses 11.5 square miles, and includes land within the Town's municipal boundary as well as the Town's extraterritorial jurisdiction (ETJ), where the town has planning and zoning authority. The study area also extends north to include less-developed areas

of unincorporated Alamance County and the 72-acre town-owned parcel that is planned to be a future park.

Using the Long-Term Planning Area for the this Plan—even though some areas may be largely undeveloped—is critical to laying the foundation for future multimodal connectivity. As areas north of Elon begin to develop, facilities for walking, bicycling, and public transit can be incorporated into and built concurrently with new development. Integrating land use and transportation planning will lead to safer, healthier, more connected communities, and reduce infrastructure costs for the Town for decades to come.

Map 1. Study Area

Vision & Goals

The first step for this Plan was to develop a clear vision with supporting goals. The vision statement describes what the future should look like, and helps maintain focus throughout the planning process. Having a strong vision statement also helps support decisions as the Plan is implemented and measure success. Elon's vision statement was crafted through extensive engagement with the Steering Committee, Town Staff, and the Public.

Input from the Steering Committee's Vision Statement "Mad Lib" activity

Traveling within Elon is ___, ___ and ___

VISION

"The Town of Elon is a vibrant community that welcomes walking, bicycling, and transit through a comprehensive network of connected streets and trails. Traveling within Elon is easy and safe, and people of all ages and abilities can reach neighborhoods, downtown, and the surrounding region."

Goals represent milestones on the path to the vision. This Plan has six goals which are shown below.

GOALS

SAFETY
Reduce risks for people who walk, bicycle, and take transit.

CONNECTIVITY
Develop a network that connects people to destinations

COMMUNITY
Foster people-oriented streets.

ACCESSIBILITY
Provide access for people of all ages and abilities

INTEGRATION
Create seamless connections between modes.

MOMENTUM
Create a culture that encourages walking, bicycling, and transit.

Why Make a Multimodal Plan?

Elon is uniquely positioned to make a transformative impact on how people move in and around the community. While today, driving in a car is the main method of transportation for most people in Elon, the following trends highlight the specific opportunity Elon has to set a new trajectory the Town's future transportation system.

1. The region is growing

Elon is centrally located between the Charlotte and Raleigh metropolitan areas, two of the fastest growing regions in the Nation.[1] More people moving to the area places increased pressure on the existing street network but also provides opportunities for new development and new transportation options.

2. Not everyone can (or wants to) drive

Elon is home to over 6,000 university students as well as the largest retirement community in North Carolina.[2] College students and elderly adults are two key demographics that are more reliant on safe, comfortable alternatives to owning and driving a personal vehicle.

3. People are requesting more options

Improvements to non-vehicular travel facilities, particularly sidewalks, is the most frequent citizen request received by Elon's Planning Department

4. Walking, bicycling, and transit benefit the whole community

Whether you love walking and running for exercise, or simply want to support a local downtown business, working towards and multimodal transportation network benefits the whole community. The following pages highlights six key benefits of walking, bicycling and transit.

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1. https://carolinademography.cpc.unc.edu/2023/02/21/raleigh-charlotte-make-top-10-list-for-fastest-growing-large-metros-in-the-united-states/#:~:text=Two%20North%20Carolina%20metros%20were,that%20led%20in%20percent%20growth.

2. Town of Elon, NC. 2021. Community Profile. https://www.townofelon.com/wp-content/uploads/2021/03/Community-Profile_Complete_2021.pdf

Benefits of Walking, Bicycling, and Transit

Physical Health

A well-connected multimodal transportation network that encourages walking, bicycling, and public transit use can lead to a healthier community. Walking and biking for transportation can reduce the risk of chronic conditions like heart disease[2]. Access to transit also increases transit-associated walking trips, which contribute to meeting physical activity recommendations.[3]

Mental Health

Access to walking, bicycling, and public transit can also improve mental health. Bicycling for transportation is shown to improve mood.[4] Residents of walkable neighborhoods are often in more frequent contact with loved ones and have higher perceived mental health than those who live in car-centric neighborhoods.[5]

Economic Impacts

Walking and biking for commuting and leisure has proved to generate big economic impacts in North Carolina. Walking and bicycling trips generate spending, reduce health care costs, and decrease congestion.[6] Additionally, public transit systems in North Carolina provide an annual benefit of $778 million due to transportation cost savings and access to affordable mobility options.[7] Improving walking and biking access to economic centers and storefronts encourages more interaction with businesses.[8]

Equity

Just over 5% of Elon residents do not own a personal vehicle.[9] Creating safer options to travel without a car gives everyone improved access to essential services. Expanding transit service especially can decrease transportation disadvantage in a community, which can reduce intergenerational poverty and lead to improved quality of life.[10]

Safety

Bicycle specific infrastructure, such as separated bike lanes and shared use paths, can lower the risk of crashes and injuries.[11] A study by the American Public Transportation Association (APTA) also found that people can reduce their change of being in a crash by more than 90% by taking public transit instead of commuting by car.[12]

More Users

More people will use bicycling, walking, and public transit as a means of transportation as these networks are expanded. Research shows that public policies that encourage more people to walk and bike as well as more bicycle and pedestrian specific infrastructure lead to more walking and bicycling trips.[13] More walking and bicycling trips leads to a visible walking and biking culture in a city, which can encourage even more users, especially among college students.[14]

2. https://doi.org/10.1186/s12966-019-0775-8

3. https://doi.org/10.1016/j.envres.2017.10.025

4. https://doi.org/10.1007/s11116-014-9521-x

5. https://doi.org/10.1016/j.envint.2018.08.002

6. https://www.ncdot.gov/bikeped/walkbikenc/pictures/EconomyImpact-Analysis.pdf

7. https://www.ncdot.gov/divisions/integrated-mobility/public-transit-services/Documents/benefits-transit-infographic-statewide.pdf

8. https://doi.org/10.1080/01944363.2019.1638816

9. U.S. Census Bureau. (2017). "Tenure By Vehicles Available."

10. https://doi.org/10.1016/j.cstp.2016.02.004

11. https://ehjournal.biomedcentral.com/articles/10.1186/1476-069X-8-47

12. https://www.apta.com/wp-content/uploads/Resources/resources/reportsandpublications/Documents/APTA-Hidden-Traffic-Safety-Solution-Public-Transportation.pdf

13. https://pubmed.ncbi.nlm.nih.gov/19765610/

14. https://doi.org/10.1016/j.jtrangeo.2014.06.009

3

CURRENT CONDITIONS

CURRENT CONDITIONS

Overview

Elon's multimodal transportation network was analyzed to identify gaps, barriers, and needs that should be addressed to increase safety, connectivity, and accessibility. This chapter highlights the results from geospatial analysis and in-person site visits to understand the experience today for people moving through and to Elon. It includes a review of Elon's current and previous planning efforts which are summarized in the Plan, Policy, and Program Review section.

Demographics

A demographics analysis was conducted using the 2021 American Community Survey (ACS) 5-year data. This data shows Elon's population was 11,059 in 2021. Elon is unique in being home to both Elon University and the state's largest retirement community - Twin Lakes Retirement Community.[1] Elon University is home to over 6,300 undergraduate and more than 750 graduate students. The student population naturally impacts many demographic statistics for the Town.

In 2021, Elon's median age was 21.9 years, while the median age of Alamance County was 39.6 years. During the same time, about 60% of the Town's population was under the age of 30 years old and 15% was 65 years or older. Most residents (82%) identified as White, which is higher than the county (60%) and the state as a whole (61%).

Other statistics are shown in Figure 1 and below:

- 24.5% of people live below the poverty line.
- 4.9% of people were born outside the U.S., with 65% from Asia and 21% from Latin America.
- 54.3% of people have a bachelor's degree or higher.

Travel Characteristics

As of 2021, the average commute work was 19.2 minutes. Most households have access to at least one car, but 2.7% of the population lives in a no-car household. This is a higher percentage than the County as a whole, which is close to 0%.

As shown in Figure 1 most people report driving alone to work. While few people walk, carpool, or work from home, 62% of survey respondents want to commute more by walking, biking, or transit.

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1. Town of Elon, NC. 2021. Community Profile. https://www.townofelon.com/wp-content/uploads/2021/03/Community-Profile_Complete_2021.pdf

Figure 1. Elon Demographics[2]

POPULATION BY RACE (2021)

2%
4%
5%
7%
82%

- White
- Black or African American
- Asian
- Two or more races
- Hispanic

HOUSEHOLD INCOME

7%	OVER $200K
24%	$100-$200K
32%	$50-$100K
37%	UNDER $50K

0% 10% 20% 30% 40% 50%

TRANSPORTATION TO WORK (2021)

83%
DROVE ALONE

6%
CARPOOLED

6%
WORKED AT HOME

4%
WALKED

2. Alamance County, NC. 2021. ACS 2021 1-year data. Census Reporter. https://censusreporter.org/profiles/05000US37001-alamance-county-nc/

Alamance, NC. 2020 Census Bureau. 2020 Census Bureau. Data USA. https://datausa.io/profile/geo/alamance-nc

Elon, NC. ACS 2021 5-year data. Census Reporter. https://censusreporter.org/profiles/16000US3721095-elon-nc/

Elon, NC. 2020 Census Bureau. Data USA. https://university.datausa.io/profile/geo/elon-nc

Community Destinations

Elon is home to a wealth of educational, civic, and recreational destinations that provide opportunities for residents and visitors to learn, recreate, and access important Town services.

Destinations are primarily clustered downtown along Williamson Avenue, where it intersects Trollinger Avenue, and further north within the university campus near Phoenix Drive.

Table 1 and Map 2 highlight key destinations in Elon that were identified by Steering Committee members and through spatial analysis. These destinations represent places for education, gathering, and connecting to nature, as well as important civic sites. Clustered destinations along North Williamson Avenue and West Haggard Avenue in the downtown area, offer opportunities for residents, students, and visitors to reach these locations with relatively short trips that may not require a car.

Downtown Elon

Table 1. Key Destinations in Elon

	DESTINATION	CATEGORY
1	Elon Elementary School	Schools
2	Western High School	Schools
3	Beth Schmidt Park	Parks
4	Morgan Place Park	Parks
5	Hunt Softball Park	University
6	Schar Center	University
7	Rhodes Stadium	University
8	Fire Station	Municipal
9	Fire Station	Municipal
10	Police Station	Municipal
11	Elon Post Office	Municipal
12	Elon Municipal Building	Municipal

Map 2. Key Destinations

Map 2. Key Destinations

GLEN RAVEN

ELON UNIVERSITY

GIBSONVILLE

TO BURLINGTON

Barber Rd
Elon Ossipee Rd
Lowe Rd
Amick Rd
Pitts Rd
Shallowford Church Rd
N Manning Ave
N NC 87 Hwy
Durham St Ext
Routh Rd
Macarthur Ln
Walker Rd
Power Line Rd
University Dr
N Okelly Ave
E Haggard Ave
E Trollinger Ave
Ball Park Ave
Truitt Dr
Brookview Dr
Westbrook Ave
University Dr
70

N

0   0.25   0.5 mi

Destinations
- 🔵 Schools
- 🟢 Parks
- 🟠 Municipal
- 🟣 University
- ▭ Study Boundary
- ▭ Town & ETJ Boundary
- ▭ Elon University

Elon's Street Network

Street Characteristics

Elon's transportation network is shaped by the university campus network and the rural character of the surrounding area. Primary thoroughfares within Elon are listed in Table 2. The downtown area is composed of a few square blocks that create a dense street grid between West Haggard Avenue and the railroad tracks at West Lebonon Avenue south of campus. Extending out from the downtown in all directions, streets follow a typical suburban form. Streets in these areas, particularly south of downtown, are primarily neighborhood loops and cul-de-sacs connecting to higher speed arterials. Haggard Avenue and Williamson Avenue are the primary east-west and north-south connection through town, respectively.

There are just over 91 miles of streets in the study area, approximately 42 of which are owned and maintained by NCDOT. The majority of NCDOT streets are higher speed with posted speed limits of 35 mph. There are 30 miles of locally maintained streets in the study area and 19 miles of private roads.

The Plan's study area includes 91 miles of streets!

- NCDOT
- Town of Elon
- Private

Table 2. Street Characteristics of Primary Thoroughfares				
NAME	**NUMBER OF LANES**	**CURB/GUTTER**	**AADT**	**SPEED LIMIT**
East Haggard Ave	2 (+ Turn Lane)	Yes (West of Danieley Way)	4,200	35 mph
West Haggard Ave	2 (+ Turn Lane)	Yes (East of Manning Ave)	4,600	35 mph
South Williamson Ave	2 (+ Turn Lane)	Yes (North of Sunset Dr)	10,500	35 mph
North Williamson Ave	2 (+ Turn Lane)	Yes (South of Phoenix Dr)	6,000	35 mph
Manning Ave	2	No	2,100	35 mph
Oak Ave	2	Yes	6,000	35 mph
University Dr	4 (+Turn Lanes)	Yes (South of Manning Ave)	12,500	25-35 mph
North O'Kelly Ave	2	Yes (South of the Inn at Elon)	n/a	35 mph
Note: All primary thoroughfares, except for North O'Kelly Ave, are owned by NCDOT.				

Walking, Bicycling, and Transit in Elon Today

Since 1880's, when the Town of Elon was established at the Mill Point Train Depot and Elon University was founded, Elon has continued to grow as a community and university town. For over 130 years, the university has grown out from these crossroads at Williamson Avenue and Lebanon Avenue with pedestrian infrastructure connecting classrooms, on-campus housing, and other amenities. The Town, however, has expanded with residential neighborhoods and community parks connected primarily by roadways with limited sidewalks and no bicycle facilities.

Elon's hub for restaurants, businesses, and civic activity remains at the original Mill Point, along Williamson Avenue and Lebanon Avenue, and continues along a gridded street network north and west along West Haggard Avenue. Tucked between the towns of Gibsonville, Glen Raven, and Burlington, Elon stays connected to its neighboring municipalities primarily through Haggard Avenue and Williamson Avenue which bisect the town north to south and east to west, respectively.

SURVEY SAYS!

This Plan's survey offers more nuance on travel in Elon. Of the 219 respondents, 61% walk on a daily basis, 20% bike daily or a few times a week, and 2% take transit daily or a few times a week.

WHAT DOES *MULTIMODAL* MEAN?

There are many ways we travel through our communities. Walking, driving or riding in a car, riding transit, and riding a bike, scooter, or other wheeled device - these are all different modes of travel. Multimodal simply means multiple modes of travel.

A multimodal trip might look like someone biking from their home to the bus and then walking from the bus to their final destination. A multimodal transportation network provides infrastructure to support multiple modes.

NCDOT-sponsored Multimodal Network Plans specifically seek to develop interconnected pedestrian, bicycle, and transit routes. These modes warrant special consideration within the context of our traditional vehicle-oriented transportation system as they have been historically overlooked and underfunded, but offer big gains for livability, quality of life, and sustainability.

Pedestrian Network

Elon's existing pedestrian network consists of public and private sidewalks, as well as the greenway from Beth Schmidt Park down University Drive. Connected pedestrian routes are primarily in and around downtown, with some pockets of sidewalk beyond the Town and ETJ Boundary. Of the 91 miles of roadways in the study area, only 12% of streets have a sidewalk, and only 5% have sidewalks on both sides. Elon University and the Twin Lakes Retirement Community both include a robust network of internal, private sidewalks.

Sidewalk ramps and crosswalks are also important as they help make crossings accessible and increase visibility of people crossing the street. Crosswalks near the university often have high-visibility markings, but there are several instances of unmarked crosswalks in the study area.

Bicycle Network

The greenway provides a space for people biking or using another wheeled devices. However, this route is on the western edge of town and does not aid in connecting people to a majority of destinations. A short portion of the Downtown(Burlington)2Elon greenway exists within Town limits on South Oak Avenue. Shortly after entering Elon, the greenway transitions to a sidewalk.

Elon currently has no on-street bicycle infrastructure. In general, narrow street widths, lack of shoulders on roadways, and prevalence of streets with speed limits of 35 mph or greater, make bicycling on the street uncomfortable for most ages and abilities.

Map 3 on the following page shows existing pedestrian and bicycle infrastructure.

Downtown Decorative Crosswalk

Greenway on S Oak Avenue

Map 3. Pedestrian and Bicycle Routes

Map 3. Pedestrian and Bicycle Routes

Gerringer Mill Rd

Barber Rd

Durham St Ext

Elon Ossipee Rd

Lowe Rd

N Nc 87 Hwy

Routh Rd

Amick Rd

Pitts Rd

GLEN RAVEN

Shallowford Church Rd

Walker Rd

Macarthur Ln

N Manning Ave

Power Line Rd

University Dr

ELON UNIVERSITY

E Haggard Ave

N Okelly Ave

GIBSONVILLE

E Trollinger Ave

Ball Park Ave

Truitt Dr

Brookview Dr

Westbrook Ave

University Dr

70

Existing Sidewalks
— One side
— Both Sides
— Planned
— Private

Existing Trails
— Greenways
— Natural Surface Trails
  Elon University
  Parks

Transit Network

Elon's transit network is made up of the Elon Express, operated by the University of Elon, and Link Transit, operated by the City of Burlington The Elon Express has three routes which can be tracked by riders through the Passio Go! app which was launched in 2022. The three existing Elon Express routes include:

- **Danieley Center Tram:** Circular route through the Danieley neighborhood. Arrives every 10 minutes.

- **Haggard Avenue:** Linear route along East and West Haggard Avenue connecting to apartments and university facilities. Arrives every 15 minutes (and every 30 minutes after 6:00pm).

- **University Avenue:** Circular route along University Avenue, Cook Road, and Williamson Avenue. that connects to shopping and restaurants. Arrives every 35 minutes.

Link Transit is the regional transportation agency serving Burlington, Elon, Gibsonville, Alamance County Offices and Alamance Community College. While the blue line route passes through Elon, there has not been a stop in Elon.

In May of 2023, Link began a one year pilot to expand the existing blue line and provide seven new stops in Elon. The expanded blue line service runs Monday through Friday from 5:30am to 9:30pm and Saturday from 9:25 am to 6:30 pm.

As transit service is extended into Elon's downtown and neighborhoods, safe, connected, and accessible routes to and from the transit stops will be especially important for people walking and biking to the bus.

Source: Elon University

Map 4. Transit Routes

Link Transit
Link Blue Route
Link Stops

Elon Express
Danieley Center Tram
Haggard Ave
University Ave
Elon University
Parks

Demand for a Multimodal Network

It's clear people in Elon want more ways of getting around without a car and want a public realm that supports healthy lifestyles. Below are findings from the public survey.

"I would love a town where everyone is able to walk / bike to downtown!"

-Survey Respondent

62% of non-students want to commute by walking, biking, or transit more

79% of non-students want to walk or bike more for recreation

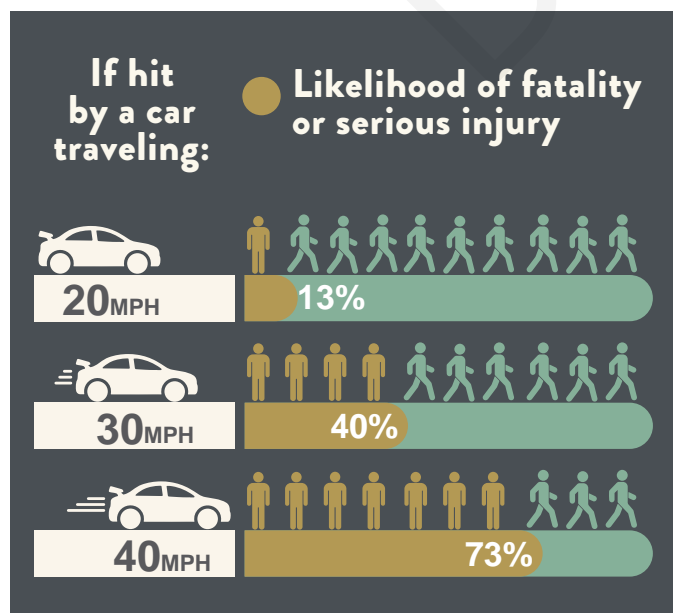**25%** of all respondents want to use transit more

Barriers and Needs Analysis

Elon has the opportunity to design streets that provide safe, active options to get around without a car and to help people age-in-place. This is particularly important given the many students and seniors in Town. High speed roads, railroad crossings, and infrastructure gaps all act as barriers for people walking and bicycling.

The current lack of pedestrian and bicycle infrastructure is a key barrier to people that need or want to get around without a car. Map 5 on the following page highlights the need to connect pedestrian routes to transit stops. The lack of any sidewalks within a quarter-mile of two of the seven transit stops is a major barrier to accessing the Link service.

Speed is another barrier to safety and comfort as people move throughout town, specifically when separated facilities are not present for people walking and bicycling. As shown Figure 2 below the likelihood of fatality or serious injury from a crash at 40 MPH is 60% higher then at 20 MPH.

Figure 2. Speed and Likelihood of Injury[1]

If hit by a car traveling: ● **Likelihood of fatality or serious injury**

20 MPH — 13%
30 MPH — 40%
40 MPH — 73%

Barriers to Walking and Bicycling

People who participated in the public survey used online maps to pinpoint locations of barriers to walking and biking. Map 6 on page 27 shows high speed roads in Elon along with other barriers to walking and biking identified by people who participated in the public survey. In addition to mapping physical barriers, the survey asked people to rank the severity of various barriers as high, medium, low, or not an issue. Below are the top three barriers to both walking and bicycling, along with the percentage of respondents who identified the issue as a barrier.

Top 3 Barriers to Walking

» There aren't sidewalks that connect to my destinations (80% of respondents)

» Crossing on major roads feel unsafe/uncomfortable (71% of respondents)

» Street lighting at night is poor (48% of respondents)

Top 3 Barriers to Bicycling

» Destinations lack adequate bicycle parking (49% of respondents)

» There aren't dedicated bikeways that connect to my destinations (43% of respondents)

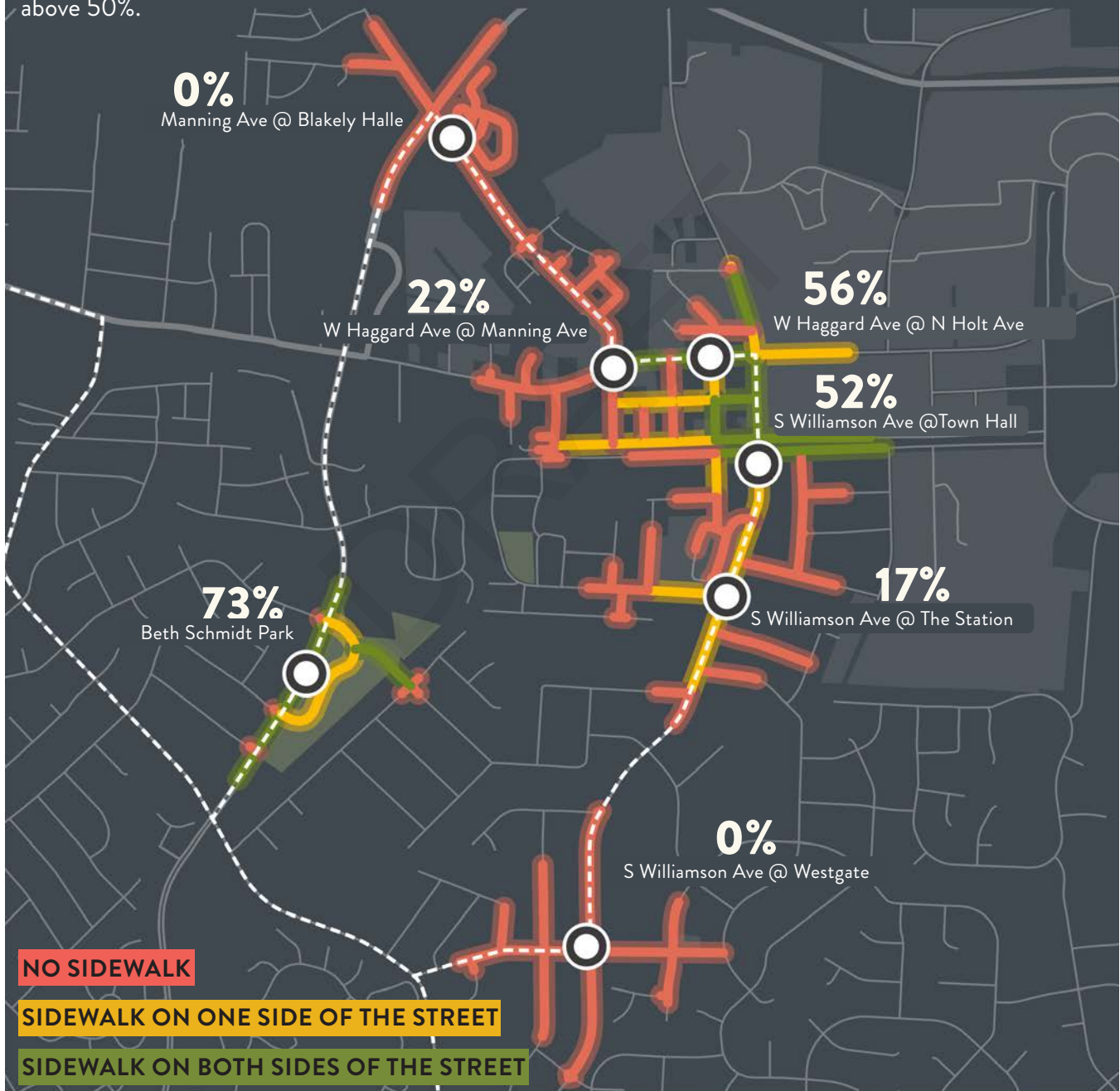» Crossings on major roads feel unsafe/uncomfortable (38% rof respondents)

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1. Tefft, B.C. (2011). Impact Speed and a Pedestrian's Risk of Severe Injury or Death (Technical Report). Washington, D.C.: AAA Foundation for Traffic Safety.

Map 5. Sidewalk Completeness at Transit Stops

Pedestrian Access to Transit

All transit users are pedestrians at one point and complete sidewalk networks near transit stops are critical to a successful transit system. Pedestrian access to the transit stops were analyzed by mapping sidewalk completeness within a 5-minute walk (quarter mile) of each stop. A sidewalk completeness score of 100% means sidewalk is present on both sides of every street within a quarter-mile of the stop.

Of the seven stops along the expanded Blue Line, only three have a sidewalk completeness score above 50%.

0%
Manning Ave @ Blakely Halle

22%
W Haggard Ave @ Manning Ave

56%
W Haggard Ave @ N Holt Ave

52%
S Williamson Ave @Town Hall

73%
Beth Schmidt Park

17%
S Williamson Ave @ The Station

0%
S Williamson Ave @ Westgate

NO SIDEWALK

SIDEWALK ON ONE SIDE OF THE STREET

SIDEWALK ON BOTH SIDES OF THE STREET

Map 6. Barriers to Walking and Bicycling

N

0   0.25   0.5 mi

Gerringer Mill Rd

Barber Rd

Elon Ossipee Rd

Durham St Ext

Lowe Rd

N Nc 87 Hwy

Routh Rd

Amick Rd

Pitts Rd

Shallowford Church Rd

Macarthur Ln

GLEN RAVEN

Walker Rd

N Manning Ave

ELON UNIVERSITY

Power Line Rd

University Dr

N Okelly Ave

E Haggard Ave

GIBSONVILLE

TO BURLINGTON

Ball Park Ave

E Trollinger Ave

Truitt Dr

Brookview Dr

Westbrook Ave

University Dr

70

Barriers

— Railroads & 35+ MPH Roads

● Survey Barriers

Elon University

Parks

Barriers Related to Rail

A railroad owned by the Norfolk Southern Corporation bisects Elon, separating downtown from nearby neighborhoods and key destinations. The railroad, which carries high-speed trains traveling at and above 80 mph, presents a barrier to the overall flow of traffic through downtown and is a major barrier to establishing a comfortable multimodal network. The railroad poses unique challenges for bicyclists and people who use other wheeled devices due to the risk of wheels becoming stuck in the tracks when crossing at-grade crossings. While Amtrak trains travel through Elon, the train station is in disrepair and there is no current commuter rail stop in Town.

Just east of downtown, a pedestrian tunnel under the railroad connects Elon University to East Trollinger Avenue. The tunnel includes American Disabilities Act (ADA) compliant ramps and is well-maintained. However, many people noted the entrance on Trollinger as a safety concern because pedestrians vehicles are unable to see approaching pedestrians until they enter the crosswalks and many people noted pedestrians seem to "pop" out of the tunnel without warning.

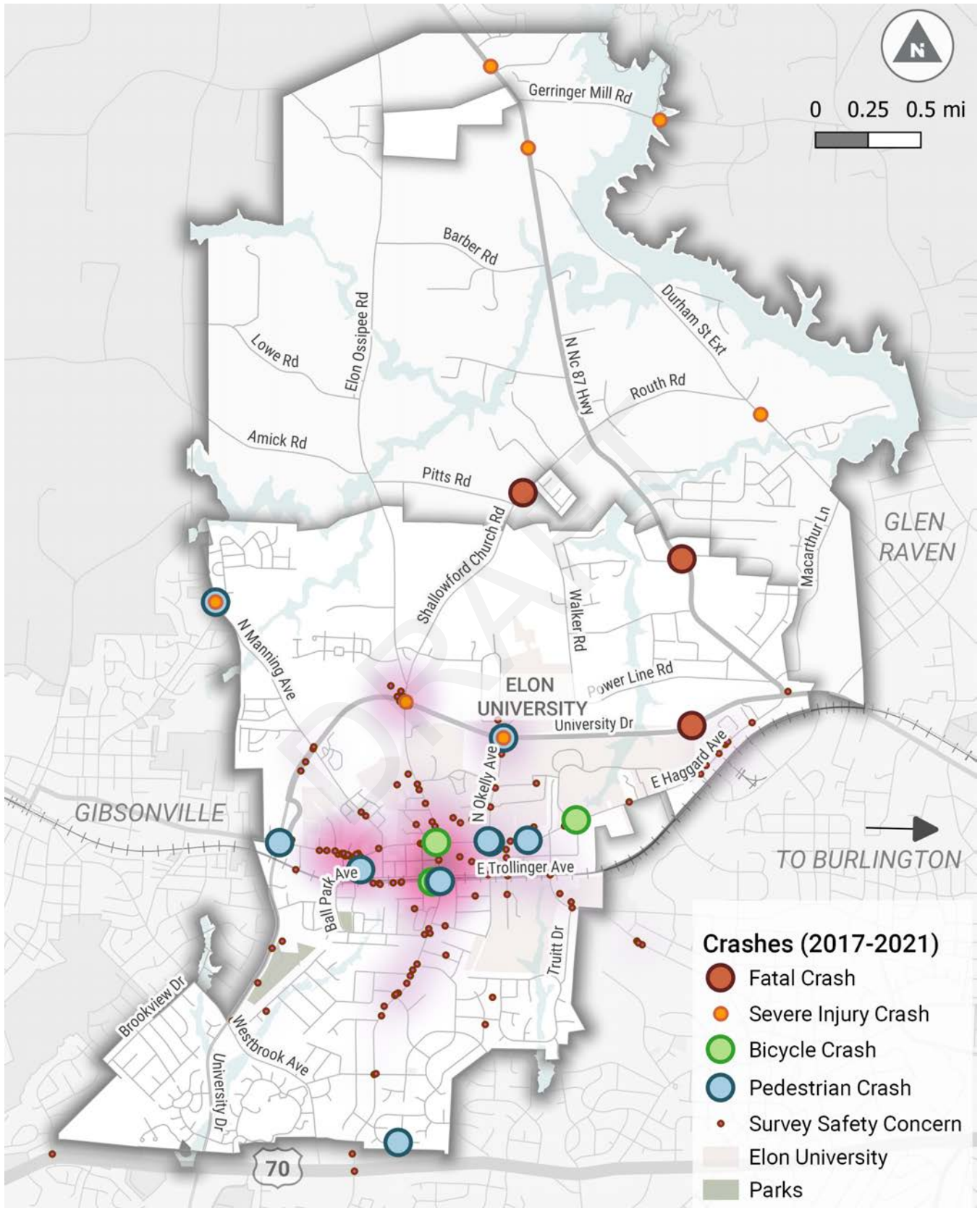**Pedestrian Tunnel Entrance**

Bicycle and Pedestrian Safety Analysis

Map 7 shows locations of roadway safety concerns identified through the online public survey for this plan in relation to crashes between 2017 and 2021. Bicycle and pedestrian crashes are concentrated in the downtown and university areas. While these areas have the most existing sidewalks and the most people walking and biking they also present the most opportunities for conflicts and unsafe situations where gaps in the infrastructure exist. Other areas of note include West Haggard Avenue, South Williamson Avenue, the railroad, and intersections along University Boulevard.

Most fatal and severe injury crashes have occurred along higher speed roadways including Highway 87, Shallowford Church Road, Gerringer Mill Road, and Durham Street. Because Elon only has a population of around 11,000, historical crash data only tells part of the story of roadway safety in the area. Crash data does not reflect near misses or crashes that were not reported. It also does not account for varying perceptions of safety for people of different ages and abilities, such as young children, older adults, and people using mobility devices.

Road safety should be considered comprehensively to capture the varied human experiences of walking, bicycling, and taking transit in Elon.

Map 7. Crashes and Safety Concerns

Gerringer Mill Rd
Barber Rd
Durham St Ext
Elon Ossipee Rd
Lowe Rd
N Nc 87 Hwy
Routh Rd
Amick Rd
Pitts Rd
Macarthur Ln
GLEN RAVEN
Shallowford Church Rd
N Manning Ave
Walker Rd
Power Line Rd
ELON UNIVERSITY
University Dr
E Haggard Ave
GIBSONVILLE
N Okelly Ave
E Trollinger Ave
TO BURLINGTON
Ball Park Ave
Truitt Dr
Brookview Dr
Westbrook Ave
University Dr
70

0   0.25   0.5 mi

Crashes (2017-2021)
- ⬤ Fatal Crash
- ⬤ Severe Injury Crash
- ⬤ Bicycle Crash
- ⬤ Pedestrian Crash
- • Survey Safety Concern
- Elon University
- Parks

Equitable Access to the Network

Everyone deserves to move throughout their community with ease and dignity. Transportation infrastructure and opportunities though, are not equally distributed and are especially lacking for historically oppressed and marginalized communities. The result is that people who are most relent on walking, biking, and public transit often have the least access to high quality multimodal infrastructure.

In Elon, investments in sidewalks and transit have been primarily concentrated in the university and downtown areas. While these places will continue to be the heart of the Elon community, equitable transportation recommendations will need to expand the network into other areas that have not had this same investment.

This Plan utilized the NCDOT Environmental Justice (EJ) index (Figure 3) to identify populations that may experience disproportionately high negative impacts from a lack of transportation opportunities. NCDOT defines environmental justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies.
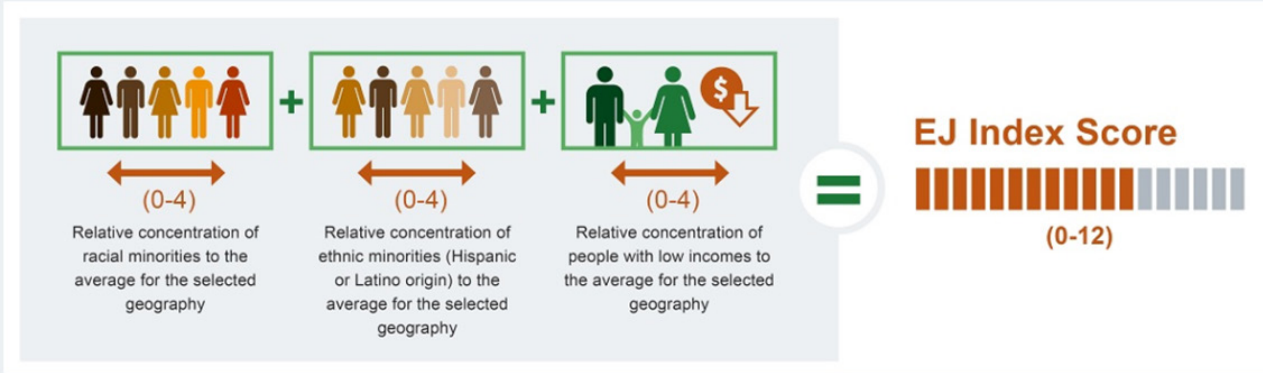
The NCDOT EJ index uses US census data to measure relative concentrations of racial minorities, ethnic minorities, and people with low-incomes. Scores are relative to the averages in Alamance County.

Map 8 highlights the EJ scores for the Elon study area. Neighborhoods west of South Williamson Avenue and north of Barber Road have higher environmental justice concerns.
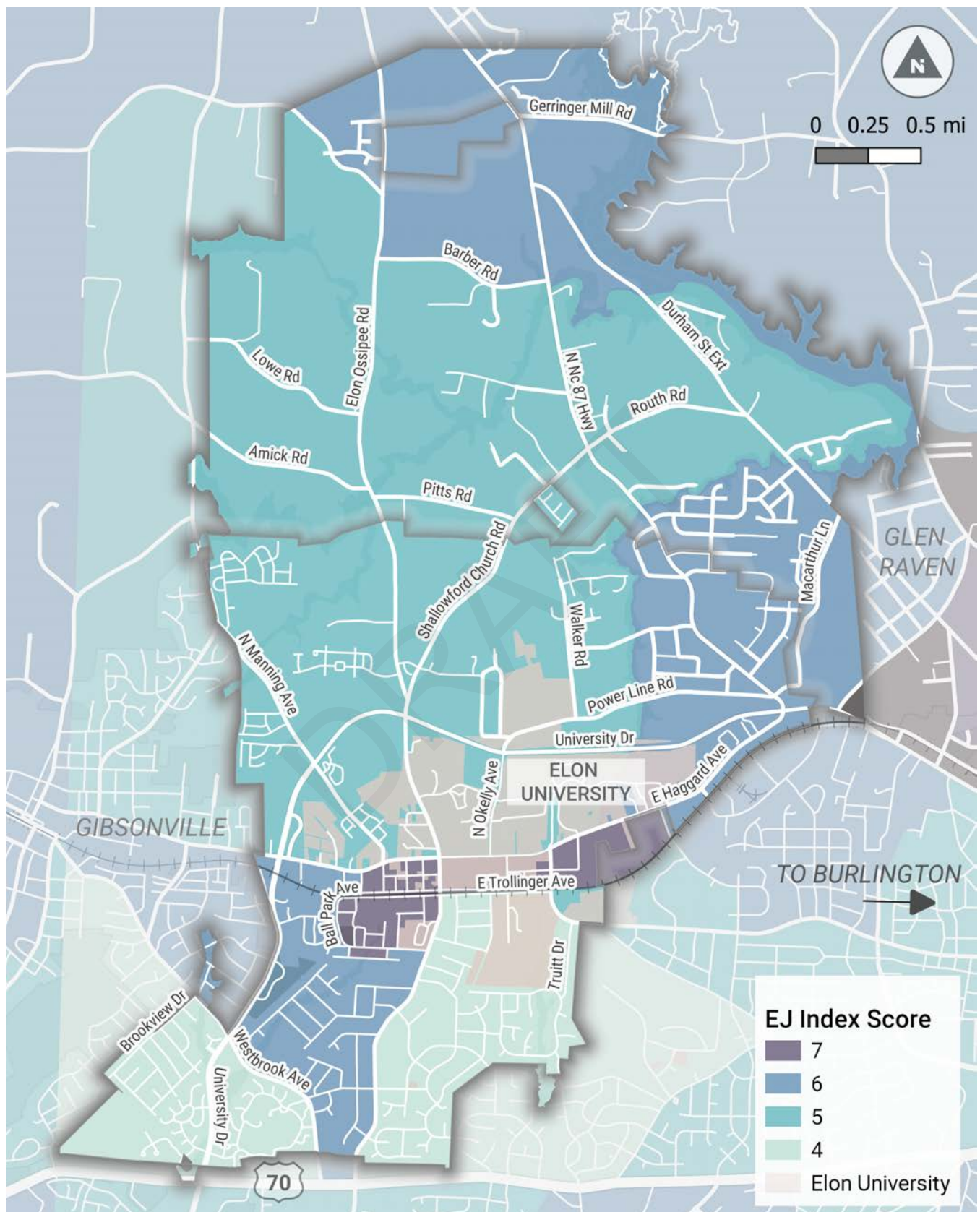
The end of the sidewalk at Manning Avenue

Figure 3. NCDOT Environmental Justice Index

Source: NCDOT, 2023 https://storymaps.arcgis.com/stories/7e3bbd00fe014a77b5f1620334209712

Map 8. NCDOT Environmental Justice Index Map

EJ Index Score
- 7
- 6
- 5
- 4
- Elon University

Key Findings of Barriers and Needs Assessment

- **Elon is an active community and people want more mobility options.**

  » Network recommendations should balance utilitarian trips and desires for active recreation.

- **The railroad is a major barrier and places with higher environmental justice concerns are concentrated around the railroad.**

- **Safety concerns and barriers closely align with popular places within Elon.**

  » Many of these places identified by the public are also areas where people are more likely to walk, bike, and take transit. This shows there is potential to yield big gains from investments in these spaces.

- **Elon's unique populations of seniors and students have unique mobility needs, but also benefit from extensive networks of private sidewalks and paths.**

  » Elon University and Twin Lakes have miles of internal paths that make it convenient and comfortable to walk. However, getting from these internal systems to other places without a car is a challenge.

- **Elon's mobility landscape is rapidly changing!**

  » The launch of LINK in Elon coincided with the kickoff of this Plan and while barriers related to transit access can be addressed in the future, it will take strategic investment to expand transit service to communities where access to a vehicle is less common and to fill gaps in pedestrian infrastructure.

- **University Boulevard is a major dividing line.**

  » Not only is University Boulevard a major barrier for walking and biking, it is also a dividing line. Most existing sidewalks are south of University Boulevard. Getting ahead of development north of University Boulevard will be critical to proactively building a multimodal network to avoiding expensive retrofit projects in the future.

- **Investments in infrastructure for walking and bicycling must connect to destinations, and bicycle parking is part of the solution.**

Railroad Crossing at S Oak Avenue

Link Transit Stop Without Sidewalk

Plan, Policy, and Program Review

The Elon Multimodal Network Plan supports existing planning efforts within the Town of Elon. In addition, the Plan desires to build upon and complement these previous endeavors. This section summarizes a complete review of previous planning documents, including local regulations and plans focused on infrastructure, programs, and policies that influence walking, bicycling, and public transit in Elon and the surrounding area. The contextual understanding that this review provides will guide the development of the Plan and ensure that its recommendations are relevant, realistic, and in-touch with community needs.

Table 3. Reviewed Plans		
PLAN	**YEAR**	**KEY TAKEAWAYS**
Town of Elon Land Development Ordinance (LDO)	2023	• Moves Town of Elon away from conventional development patterns, and towards modern "new urbanist" development. • Recommends creating pedestrian scaled streets by hiding and shrinking parking lots, requiring bicycle parking within commercial and multi-use buildings, and requiring connected and widened sidewalks

Burlington-Graham Metropolitan Planning Organization (BGMPO) Transportation Safety Plan	2021	• Plan aligns with NCDOT's Strategic Highway Safety Plan and uses a Safe Systems Approach which focuses on
		  » Safe Speeds,
		  » Safe Roads,
		  » Safe Road Users,
		  » Post Crash Care, and
		  » Safe Vehicles
		• Follows the traditional E's of highway safety (Education, Enforcement, Engineering, Emergency services) with an additional 'E' for Everyone, to emphasize that all road users have a shared responsibility to make safe choices.
		• Offers a prioritized list of roadways to focus safety efforts on.
		  » University Avenue through Elon is the second ranked roadway. Road requires a focus on pedestrian safety and being a more user friendly corridor

Haggard Corridor Study – Phase 1	2021	• Document focuses on .75-mile section of Haggard Avenue around Elon University • Recommends multi-use path on both sides by widening sidewalk or constructing new paths • Potential bike lane and roadway improvements • Plan suggests two proposed roundabouts. The first and largest would address concerns with the proposed Elon University collector road (Near Oak Avenue)

Table 3. Reviewed Plans Continued

PLAN	YEAR	KEY TAKEAWAYS
BGMPO Metropolitan Transportation Plan 2045	2020	• Plans out how multimodal improvements across the region can be built within current funding projections • Bicycle and Pedestrian projects for Town of Elon from the plan are: 　» Williamson Avenue and St. Marks Church Road Bike Lane project would create a 2.57 mile bicycle facility 　　• Would add a safe north-south bicycle connection between Alamance Crossing commercial activity center, US 70 commercial corridor and Elon University 　» The University Drive Sidepath is a 0.93-mile bicycle facility project 　　• Intended to address the existing gaps in provided shared-use facility (sidepath) along the roadway. The project was originally recommended in the Elon Bicycle, Pedestrian, and Lighting Plan. 　» The Haggard Avenue Bike Lane is 2.72-mile bicycle facility project located in Elon. 　　• The project traverses Haggard Avenue between University Drive and West Webb Avenue. 　　• This project is part of the Haggard Avenue Corridor Study and is shown as an option in the Phase 1 document
Gibsonville Bike Plan	2020	• The proposed network recommendations extend into Elon, thus making this plan an important resource in the creation of the Town's bicycle network. • The plan identified strategies for increasing safety and connectivity, as well as people focused development strategy for improving the experience of all users in Gibsonville's downtown core. • Recommends bicycling and walking investments be viewed as an investment in future economic growth and as offering increased access to retail and destinations
Envision Elon 2040	2019	• Plan offers land use development guidance and direction to grow the Town of Elon over the next 20 years. • Advocates for concentrated development in the "core" around Elon University and downtown. • The plan also calls for: 　» a complete and integrated grid street network 　» complete street design principles; 　» new access management standards; 　» minimum street spacing guidelines

Table 3. Reviewed Plans Continued

PLAN	YEAR	KEY TAKEAWAYS
Town of Elon Bicycle, Pedestrian, and Lighting Plan	2017	• Offers the most recent proposed network of facilities • Has strong emphasis on lighting and user comfort with focus on making the network work for all users regardless of time of day. • Recommends community-based programming that encourages streets that foster a sense of belonging for all users. • Includes recommendations for providing separated bicycle facilities on major roads
Burlington Greenways & Bikeways Plan	2017	• A key theme from public feedback during the planning process was a desire to increase greenway and bikeway connectivity to local destinations, including downtown Elon and Elon University • In terms of connections to the Town of Elon, one of the priority projects proposed in the Plan was the Burlington-Elon Greenway/Bikeway which connects downtown Burlington with Elon University. • Additionally, the proposed Gum Creek Greenway would terminate just south of Haggard Avenue at Oak Street.

Key Themes of Existing Plans, Policies, and Programs

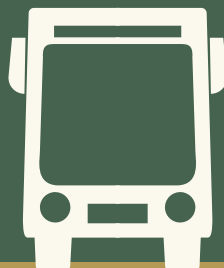Based on the review of the above documents, a number of overarching themes emerged:

- Developing a multimodal transportation network has been a long-standing goal
- The Town of Elon seeks to employ New Urbanism principles to create a vibrant town and pedestrian realm
- Downtown and university areas are key areas for redevelopment and revitalization
- Collaboration between the Town of Elon and University of Elon is critical for successful long-range planning and site development
- With regard to traffic safety planning, the Town of Elon emphasizes awareness campaigns and law enforcement. The BGMPO and NCDOT appear to have a similar focus when it comes to traffic safety planning.
- Between the LDO and Bicycle, Pedestrian, and Lighting Plan, Elon is moving towards focusing street design improvements on bringing the street to a pedestrian scale with proper street furnishing and road reconfigurations
- The region-wide planning efforts aim to create a bicycle and trail network the connects Burlington, Gibsonville, Elon and Graham.
- Putting bicycle and pedestrian projects along state highways into plans allows for municipalities to ask NCDOT to construct the project when they perform roadway projects.

4

PUBLIC ENGAGEMENT

PUBLIC ENGAGEMENT

Overview

Public engagement for Elon's Multimodal Network Plan was strategic, goal-driven, and adaptable to meet the needs of the community throughout the project. Engagement was conducted in the form of **steering committee meetings**, **stakeholder interviews**, **public outreach events**, and **online engagement** including a public survey.

The feedback received through these public engagement events and meetings was consolidated and analyzed to guide the development of the Plan. Throughout the planning process, draft content was presented to the public for additional feedback before being finalized in the Plan.
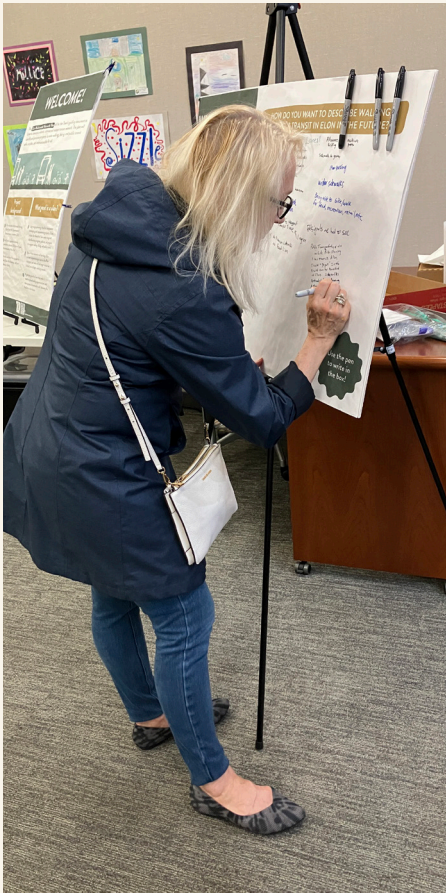
Engagement Goals

The public engagement process was anchored in the following goals:

- Provide an Open and Transparent Process
- Listen First
- Create Inclusive Opportunities
- Encourage Multimodal Travel in Elon
- Give Proper Notice of Activities
- Be Nimble in the Face of Uncertainty

Outreach

Community members, local leadership, and Elon staff were engaged creatively and effectively. This process utilized three broad public engagement approaches: a steering committee, public events, and online engagement materials. As shown on the following page, engagement approaches were scheduled to allow for feedback to be collected across several platforms and analysis to be reviewed multiple times during plan development.

Public Engagement by the Numbers

4 Steering Committee Meetings

2 Public Open Houses

1 Walking Tour

2 Pop-up Events

219 Survey Results

"It should be a priority to connect neighborhoods so that there is seamless and safe travel for those walking, riding, & pushing strollers."

-Survey Respondent

Steering Committee

The Steering Committee provided oversight and guidance throughout the development of this Plan. The Steering Committee was made up of 20 people (Table 4) who were appointed by the Elon Town Council and included a broad range of Elon residents and local leaders. This group crafted the Plan's vision and goals, guided public engagement strategies, verified current conditions analyses, gave recommendations and feedback on the multimodal network, and reviewed all aspects of the Plan.

All four Steering Commitee meetings were held at the Elon Town Hall. Meetings used a hybrid format to provide options for members to attend in-person or online. Recordings were provided for members who were unable to attend to stay informed and share comments separately. Members also provided feedback through follow up surveys. Steering Committee Meeting #3 included a walking tour of two routes in Elon. This activity provided an opportunity to observe current conditions of the multimodal network and better understand existing infrastructure.

Steering Committee Meeting Snapshots

Table 4. Steering Committee Members	
NAME:	**REPRESENTING:**
Jim Hartman	Community
Alex Nordheimer	Community
Madelyn Pastrana	Community
Rick Raveau	Community
Adam Trzonkowski	Community
Diane Gill	Town of Elon Planning Board
John Harmon	Town of Elon Planning Board
Philip Owens	Town of Elon Planning Board
Tom Flood	Elon University
Dave Gammon	Elon University
Mackenzie Brown	Town of Elon Downtown Advisory Committee
Monti Allison	Elon Town Council
Kim Brown	Town of Elon Parks and Recreation
Mary Kathryn Harward	Town of Elon Planning Department
David Murphy	Town of Elon Public Works
Lori Oakley	Town of Elon Planning Department
Jill Weston	Downtown Development
Chuck Edwards	NCDOT Division 7
Alex Rotenberry	NCDOT Integrated Mobility
Wannetta Mallette	Burlington-Graham MPO

#1
- March 29 at Town Hall
- Focus: Overview of the plan process, preliminary visioning, and current conditions.

#2
- June 16 at Town Hall
- Focus: Review survey results, visioning activity, introduce network development methodology.

#3
- August 3 at Town Hall
- Focus: Share final vision and goals, review multimodal network facilities and maps.
- Activity: Walking tour

#4
- December
- Focus: Review Final Plan.

Figure 4. Steering Committee Walking Tour Route

ELON MULTIMODAL PLAN
Steering Committee Walking Tour
8.3.2023
Route #1

Public Outreach Events

A mixture of events were held during the planning process to ensure that engagement opportunities were convenient, accessible, and meaningful. Public events served to create a two-way conversation: to inform the community about the planning process and to gather information about existing conditions and community input for the Plan.

Event locations were chosen with the goal of meeting people where they already gather. Events were scheduled during the Elon University school year to ensure faculty, staff, and students were aware of the Plan and had the opportunity to share their feedback and experiences in Elon.

Pop-Up Events

Pop-up events are informal gatherings where engagement occurs in places or during events where people are already gathered. A pop-up event was hosted at the Elon Farmers Market to share information about the project, brainstorm multimodal network ideas, and promote the public survey. Elon Farmers Market is located on West College Avenue, a pedestrian-only street, and is conveniently located in the center of Downtown and on the edge of Elon University's campus.

Pop-up Events Snapshot

- April 29 at Elon Farmers Market.
- Focus: Share Plan overview and current conditions. Hear the community's vision for the Plan.

- September 21 at Elon Farmers Market
- Focus: Share multimodal network and early action projects

Open Houses

Two open houses were held; one in April and the other in September. Open house locations were determined in collaboration with Elon staff, and sites were selected with consideration of ease of access by community members. At each open house, people learned about the plan process, and provided input. Interests and concerns that emerged from public comments at these meetings shaped the strategic direction of the plan. The April open house was held at Elon Town Hall and focused on visioning, goal setting, and network brainstorming. The second open house was held at Elon Farmers Market in September. This casual and public environment allowed residents, students, and downtown business owners and customers to attend. The second meeting focused on the proposed network, catalyst projects, prioritization criteria, and implementation.

Open House Snapshot

#1
- April 29 at Town Hall
- Focus: Share Plan overview and existing conditions. Hear visioning ideas & needs for safety and network improvements.

#2
- September 21 at Elon Farmers Market
- Focus: Review multimodal network, facilities, and early action projects, and prioritize planning efforts.

"Any changes with more bike lanes, sidewalks, or running trails would be great and enhance life quality in Elon by a lot!"
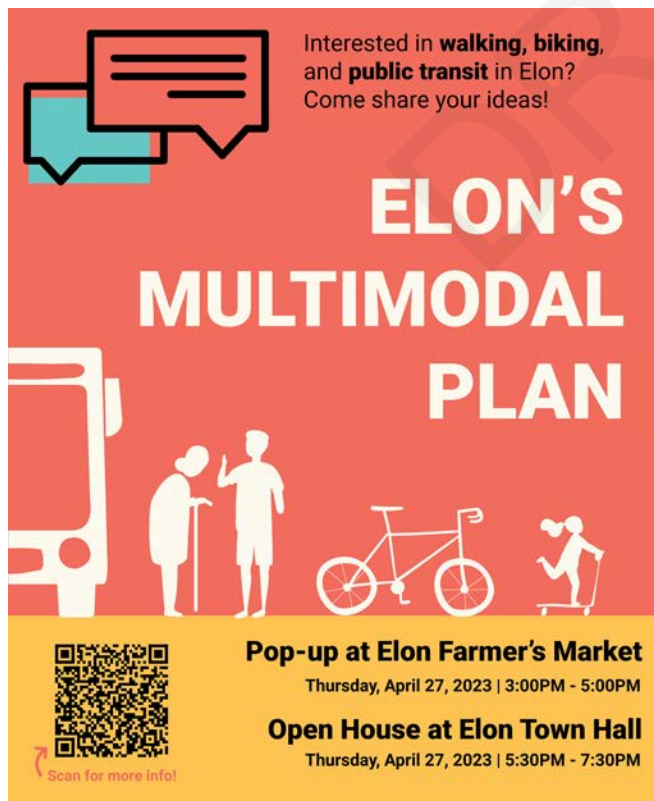
-Survey Respondent

Online Engagement

Online tools allowed for another layer of engagement by allowing people to share their experiences and preferences without needing to attend meetings or in-person events.

Project Webpage

At the beginning of the engagement process, the project team developed content for Elon staff to populate a page on the Town website for the Plan. The webpage served as a platform to announce upcoming meetings and events and identify project milestones. The project team regularly provided content updates, such as meeting information and materials. The project webpage was a resource for those not able to attend meetings and/or those that have comments that were not shared during a formal meeting.

April Open House Flier

Interested in **walking, biking**, and **public transit** in Elon? Come share your ideas!

ELON'S MULTIMODAL PLAN

Pop-up at Elon Farmer's Market
Thursday, April 27, 2023 | 3:00PM - 5:00PM

Open House at Elon Town Hall
Thursday, April 27, 2023 | 5:30PM - 7:30PM

Scan for more info!

Social Media Campaign

The project team partnered with Town staff to maximize the use of applicable accounts such as Facebook, Instagram, and Twitter, which advertised outreach opportunities and built general momentum around initiatives focused on walking, bicycling, and taking transit.

Public Survey

A public survey distributed both online and in-person provided a tool to gain an understanding of the existing gaps and barriers within Elon's multimodal network along with opportunities to connect to local destinations. Focus areas for the survey were demographics, pedestrian and bicycle behavior, and perceptions of walking, biking. and taking transit. All responses were critical to shaping the proposed networks, programs, and policies. The survey was open to the public from April 25 through June 10, 2023. The survey was publicized at public outreach events, at steering committee meetings, and on the Town of Elon website and social media pages. In total, 219 participants completed the survey. Survey results are summarized on the next page.

Public Survey Snapshot

- Open from April 10-June 9, 2023
- Results:
  - » 219 participants
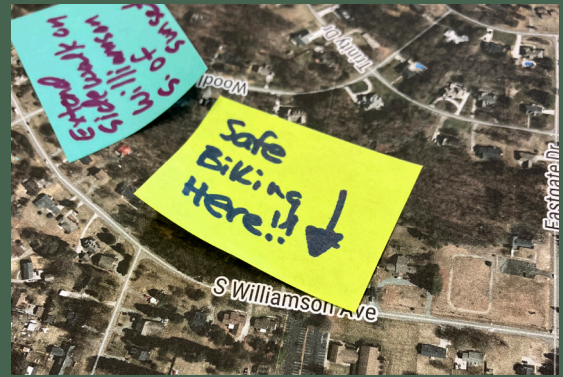 - » 380 comments on the interactive map

Stakeholder Interviews

Three key stakeholder groups were interviewed to share their unique perspectives of walking, biking, or taking transit throughout Elon. Stakeholders provided a diverse perspective of the Elon experience and included a multi-generational Elon resident, an avid bicyclist, and new Elon resident, and the director of LinkTransit.

These conversations provided personal testimony to the current multimodal infrastructure in Elon and specific needs and hopes for the future.

Stakeholder Interview Snapshot

- June-July via Zoom
- 3 interviews
- Focus: Stakeholder experiences and recommendations for walking, biking, and transit in Elon.

"I think the improvements the Town of Elon has made over past several years since COVID has been great and I'm excited to see what's next. I'm also very happy the Town is managing the Farmers' Market!"

-Survey Respondent

Themes from Engagement

1. PEOPLE ARE EXCITED!

Throughout the engagement process, many people left notes about how important this plan is and thanking the project team for taking steps toward improving walking, biking, and taking transit in Elon.

"Thank you for the improvements over the past several years! More, please!"

-Survey Respondent

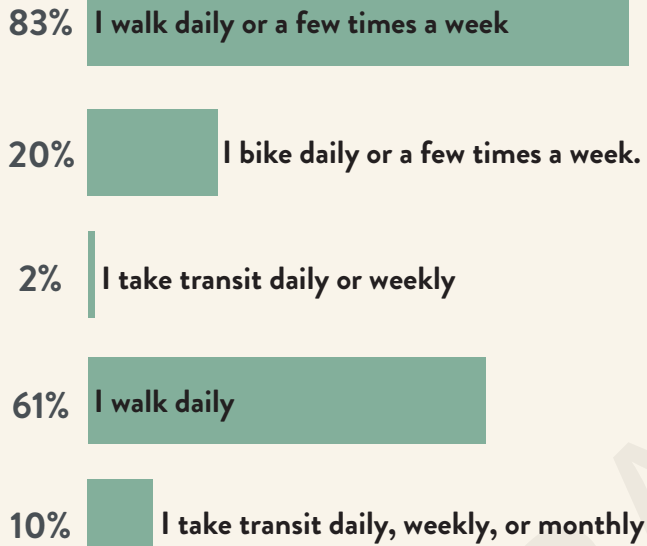"We would love a town where everyone is able to walk / bike to downtown!"

"Here's hoping that Elon will soon have more and better transport choices."
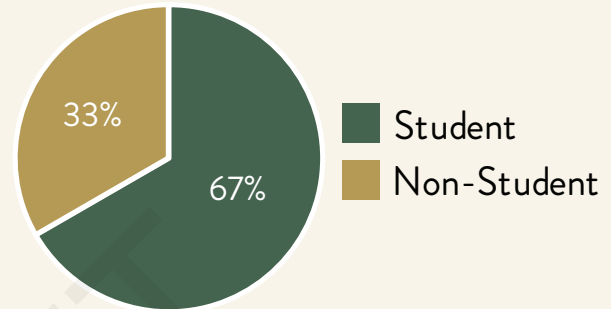
2. PEOPLE WANT MORE OPTIONS TO GET AROUND!

Survey respondents shared their current transportation habits and their hopes for getting around by walking, bicycling, and transit more often.

CURRENT TRANSPORTATION HABITS

83% I walk daily or a few times a week

20% I bike daily or a few times a week.

2% I take transit daily or weekly

61% I walk daily

10% I take transit daily, weekly, or monthly

TRANSIT RIDERS

Two-thirds of transit riders in Elon are students.
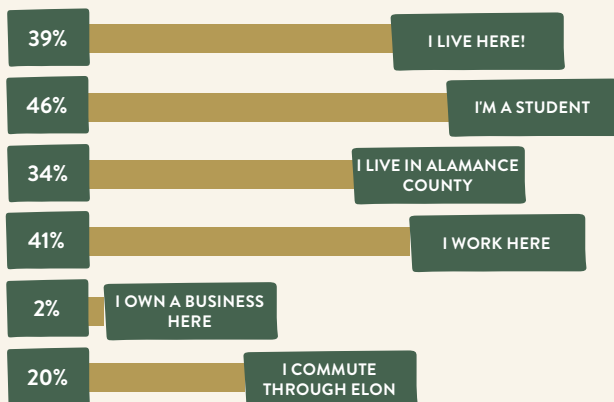
33%

67%

■ Student
■ Non-Student

75% of people surveyed would like to commute by walking, biking, or transit more.

3. PEOPLE CARE ABOUT ELON!

People of all ages, races, and connections to the Town of Elon participated in the planning process and shared their feedback.

RELATIONSHIP TO ELON

39% I LIVE HERE!

46% I'M A STUDENT

34% I LIVE IN ALAMANCE COUNTY

41% I WORK HERE

2% I OWN A BUSINESS HERE

20% I COMMUTE THROUGH ELON

RACE & ETHNICITY

<1%
2%
2%
1%
9%
3%
83%

■ White
■ Black
■ Latino
■ Native Hawaiian
■ Other
■ Asian
■ Prefer to Not Answer

5

RECOMMENDED
MULTIMODAL SYSTEM

RECOMMENDED MULTIMODAL SYSTEM

Overview

Recommendations in this Plan include projects, programs, and policies that support and expand opportunities for walking, bicycling, and transit in Elon. This chapter focuses on the project recommendations through the framework of a multimodal network. The network emphasizes streets and trails where future investment will have the greatest impact towards achieving the Town's goals. It is designed to be comprehensive, but it intentionally does not include every street. Taking a network-based approach allows Elon to strategically move towards their multimodal vision, rather then implementing isolated projects. While the network is visionary, it is not unattainable. This chapter provides a system for prioritizing and scoring projects so that work can begin on the most impactful projects first. Opportunities to jump-start the network are also included in concepts and cost estimates for six early action projects.
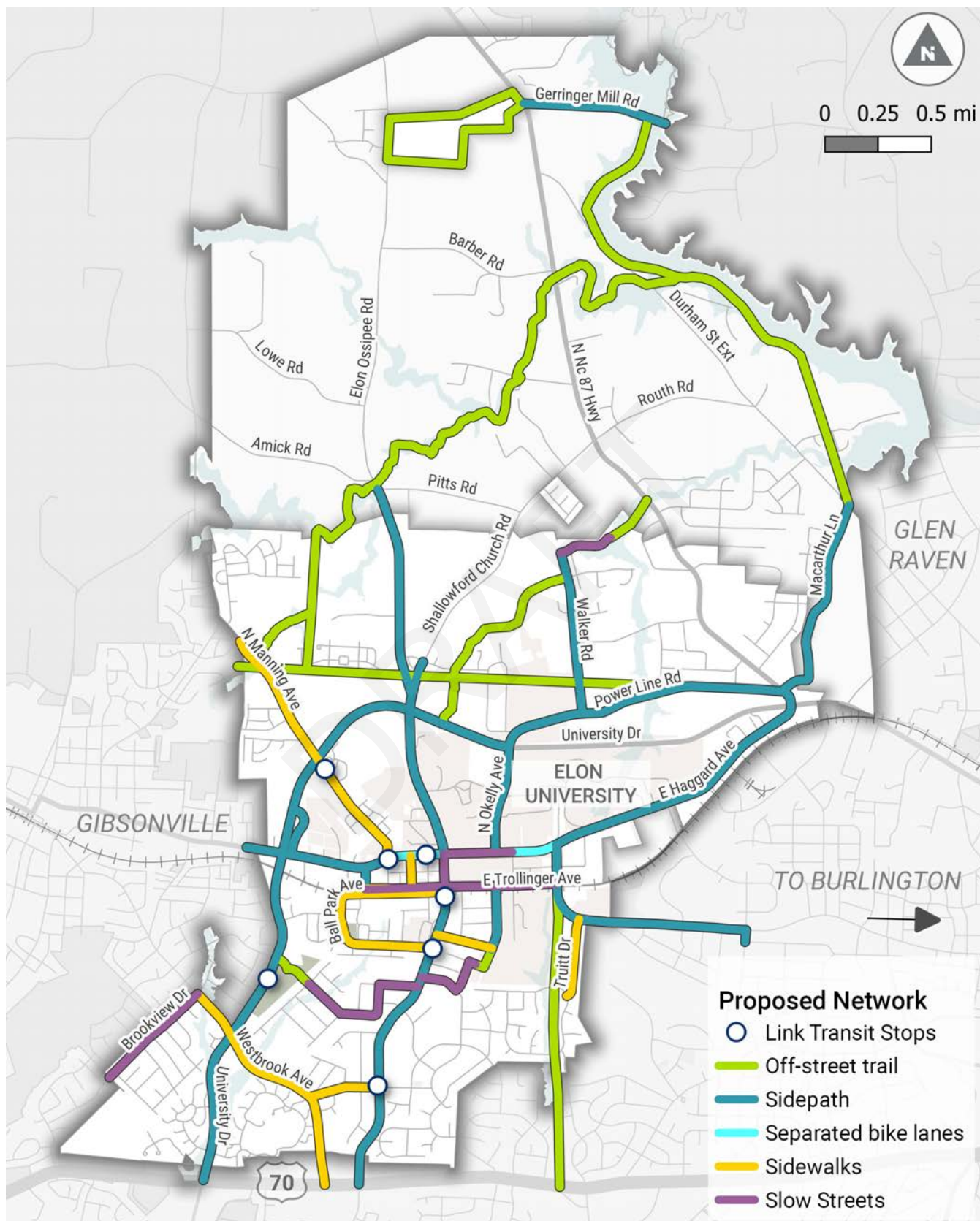
Developing a Multimodal Network

The proposed multimodal network will provide safe, comfortable, and convenient transportation options for people in Elon, regardless of their age or ability. The network map incorporates and builds on existing infrastructure with new proposed facilities for walking, bicycling and public transit.

Network recommendations were developed by layering data from public engagement and the existing conditions analysis. The graphic below highlights the overlapping layers of analysis which formed the foundation of the network. After an initial draft of the network was developed, refinements were made based on feedback from the Steering Committee and the second public open house.

Public Input
Responding to community requests and concerns

Missing Links
Leveraging the existing network & filling key gaps

Destinations
Taking people where they want to go

Safety Concerns
Addressing pedestrian & bicycle crash hot spots

Overlapping Modes
Encouraging multimodal trips

Map 9. Elon's Multimodal Network

Gerringer Mill Rd

0   0.25   0.5 mi

Barber Rd

Durham St Ext

Elon Ossipee Rd

Lowe Rd

N Nc 87 Hwy

Routh Rd

Amick Rd

Pitts Rd

GLEN RAVEN

Shallowford Church Rd

Walker Rd

Macarthur Ln

N Manning Ave

Power Line Rd

University Dr

ELON UNIVERSITY

N Okelly Ave

E Haggard Ave

GIBSONVILLE

E Trollinger Ave

Ball Park Ave

TO BURLINGTON

Truitt Dr

Proposed Network

◯ Link Transit Stops
━━ Off-street trail
━━ Sidepath
━━ Separated bike lanes
━━ Sidewalks
━━ Slow Streets

Brookview Dr

Westbrook Ave

University Dr

70

Elements of the Network

Elon's multimodal network provides a vision of connected streets and trails that are safe and comfortable for people of all ages and abilities. The elements of the network each serve a specific purpose and are appropriate for a specific context, but all work together to support a cohesive system. The value of the network will come from the connected sum of its parts.

Off-Street Trails

Off-street trails, also referred to as greenways, are wide shared paths for both walking and bicycling. They typically go through natural areas and follow streams or utility corridors.

Separated Bike Lanes

Separated bike lanes provide a dedicated space for bicyclists that is physically separated from vehicles. Buffers provide vertical and horizontal separation from traffic and can be formed by parking, concrete curbs, or flexible delineator posts (shown below).

Sidepaths

Sidepaths can also be considered greenways and also provide space for both walking and bicycling. They have a similar look and feel to off-street trails, but run parallel to roadway corridors.

Sidewalks

Sidewalks are narrower than sidepaths but still provide separated, accessible space for people walking and rolling along side a roadway. Sidewalks in downtown areas can also have space for benches, outdoor dining, and landscaping.

Slow Streets

Many streets in Elon can become great spaces for walking and bicycling, even without sidewalks or bike lanes. Intentionally slowing vehicles down and adding shared lane marking sand signage can create an environment where all users can comfortably share the street. Sidewalks should be included on slow streets in downtown contexts but may not be needed in lower-volume residential contexts.

Transit Recommendations

Transit recommendations in this Plan focus on supporting and improving the recent Link Transit expansion. The network map and early action projects do not include new routes, but rather highlight opportunities for connected sidewalk networks around stops as well as upgraded amenities and accessibility features. Additional transit recommendations can be found in the Action Plan on page 86.

Prioritization

The network map on the previous page shows 35 miles of new potential projects in Elon. While each piece of the network is valuable, building every project on the network will require incremental progress over years and even decades. Prioritization provides a framework to answer the question *what should Elon do first?* It sets up a transparent system for moving the projects forward which will have the biggest impact on achieving the Plan's vision. The prioritization process has three key steps which are listed below and highlighted in Figure 5 on the facing page.

1. Select the criteria
Six prioritization criteria were selected based on feedback from open houses, Town staff, and the Steering Committee. These criteria also align with the Plan's goals.

2. Calculate a raw scores
The network was broken into segment "pieces" at every intersection. Using the six criteria, scores were calculated for every piece of the network.

3. Calculate weighted scores
Weighted scores were then calculated by multiplying the raw score by each criterion's respective percentage weight.

Prioritized Map & Table

The map and table on the following pages show the scores for all 51 projects in the multimodal network. Project extents were determined based on natural breaks at intersections or the beginning or end of existing infrastructure. Most project corridors include multiple network "pieces" which were averaged to create a total project score. For corridors where the recommended facility is already present, scores were not calculated. These corridors, however, were still included on the overall project list to support continued maintenance.

While every corridor may not have received a high score, each piece of the network is a critical part of advancing the Town's vision and working towards a safe, comfortable multimodal system. Lower scoring projects may also end up being implemented sooner as funding becomes available or opportunities arise to partner with nearby projects and development.

Finally, the prioritized project list is not static. As new data becomes available or priorities shift, the scores should be recalculated and updated. Additionally, as the first projects are moved forward and completed, new projects will rise in priority.

Figure 5. Prioritization Criteria

CRITERIA	DESCRIPTION	RAW SCORE	WEIGHTED SCORE	
EQUITY	**Is this project in an area where people have been historically disadvantaged or are more in need of high-quality transportation options? (Based on NCDOT Environmental Justice Index*)**	• Highest Environmental Justice scores (score = 6-7) - 20 pts • Middle Environmental Justice scores (score = 5) - 10 pts • Lowest Environmental Justice scores (score = 4) - 0 pts	**25%**	**5 points**
TRANSIT ACCESS	**Is this project near a LINK transit route**?**	• Within ¼ mile of a transit route - 20pts • Within ½ mile of a transit route - 10 pts • Not within ½ mile of a transit route - 0pts	**25%**	**5 points**
SAFETY	**Is this project along a route with a pedestrian- or bicycle-related crash or in an area where people reported feeling unsafe? (Based on survey input safety concern points)**	• High number of survey points or a bicycle or pedestrian crash - 20pts • At least one survey point - 10 pts • No survey points or crashes - 0pts	**20%**	**4 points**
COMMUNITY DESTINATIONS	**Does this project serve community destinations? (Based on survey input destination points)**	• More than 1 destination - 20 pts • At least one destination - 10pts • No destinations - 0pts	**15%**	**3 points**
FILLING GAPS	**Is this project filling a gap where there is no opportunity for walking or biking today?**	• No facility currently for walking or bicycling - 20 pts • Some existing infrastructure for walking or bicycling - 0 pts	**15%**	**3 points**

*See the Existing Conditions Chapter for more information on NCDOT's Environmental Justice Index

**Transit routes were used rather then stops to accomodate anticipated changes in the exact stop locations throughout the LINK Transit pilot project.
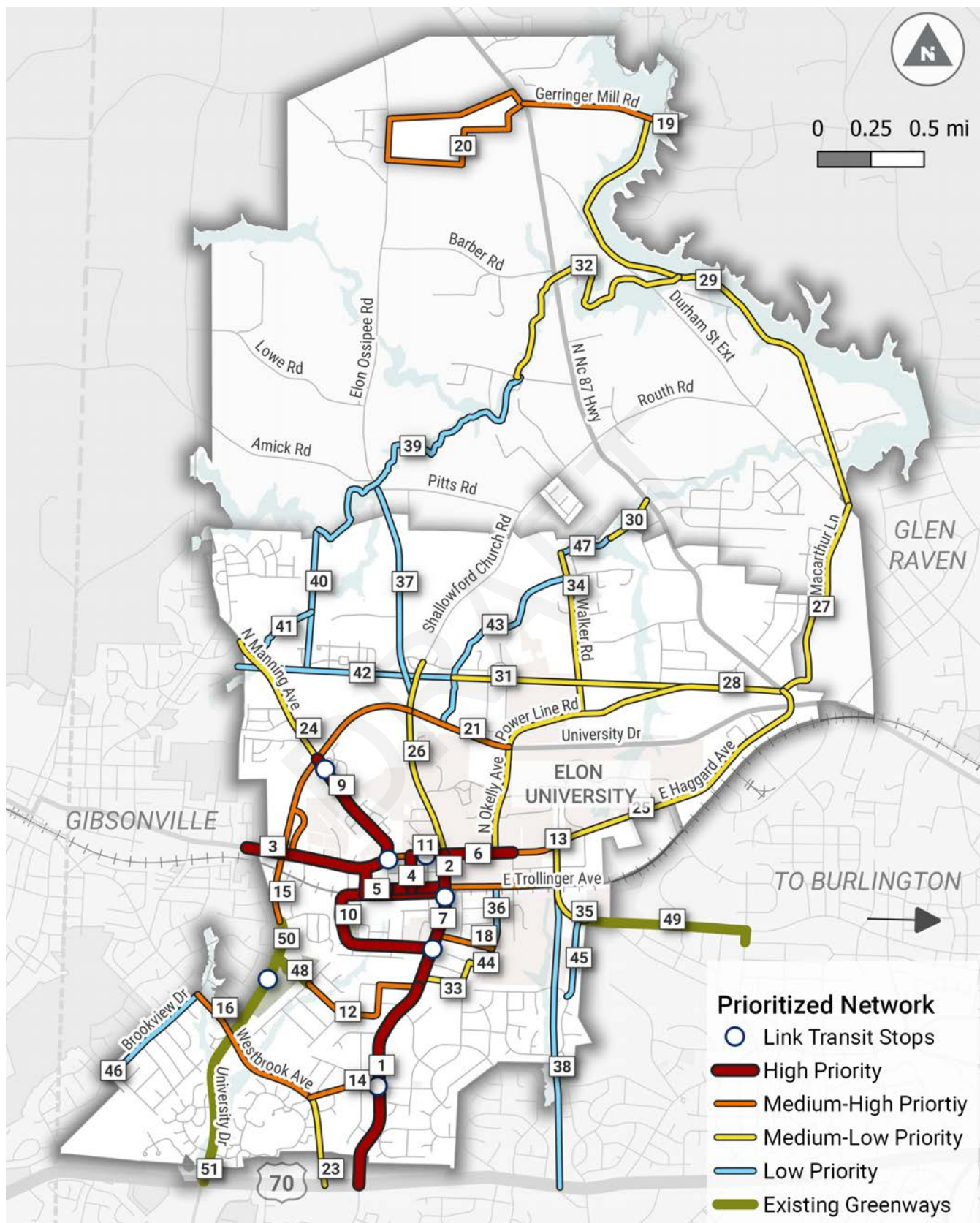
Map 10. Prioritized Network

Gerringer Mill Rd
19
20
Barber Rd
32
29
Elon Ossipee Rd
Durham St Ext
Lowe Rd
N Nc 87 Hwy
Routh Rd
Amick Rd
39
Pitts Rd
30
47
Macarthur Ln
GLEN RAVEN
40
37
Shallowford Church Rd
34
27
41
43
Walker Rd
42
31
28
24
Power Line Rd
21
University Dr
26
9
ELON UNIVERSITY
E Haggard Ave
GIBSONVILLE
N Okelly Ave
25
TO BURLINGTON
3
11
13
15
4
2
6
E Trollinger Ave
5
35
49
10
7
36
50
18
45
48
44
16
12
33
Brookview Dr
46
Westbrook Ave
1
38
51
University Dr
14
70
23

Prioritized Network

○ Link Transit Stops
━ High Priority
━ Medium-High Priortiy
━ Medium-Low Priority
━ Low Priority
━ Existing Greenways

0   0.25   0.5 mi

Table 5. Prioritization Results

ID	LOCATION		FROM	TO	FACILITY	PROJECT TYPE	SCORE
				High Priority			
1	S Williamson Avenue	NCDOT	US Highway 70	Sunset Drive	Sidepath	New Construction	17.0
2	N Williamson Avenue	NCDOT	W Haggard Avenue	W Lebanon Avenue	Slow Street	Upgrade	17.0
3	W Haggard Avenue/ Church Street	NCDOT	N Manning Avenue	Western Town Boundary	Sidepath	New Construction	16.7
4	N Lee Street		W Lebanon Avenue	W Haggard Avenue	Sidewalk	New Construction	16.5
5	W Lebanon Avenue		Church Street	Manning Avenue	Sidewalk	New Construction	16.5
6	E Haggard Avenue		N Williamson Avenue	N Antioch Avenue	Slow Street	Upgrade	15.0
7	S Williamson Avenue	NCDOT	Sunset Drive	E Trollinger Avenue	Sidepath	Upgrade	14.6
8	W Lebanon Avenue		S Williamson Avenue	Church Street	Slow Street	Upgrade	14.5
9	Manning Avenue	NCDOT	University Drive	W Haggard Avenue	Sidewalk	New Construction	14.1
10	Ball Park Avenue/ W Trollinger Avenue		S Williamson Avenue	S Williamson Avenue	Sidewalk	Upgrade	14.0
				Medium-High Priority			
11	W Haggard Avenue	NCDOT	Manning Avenue	N Williamson Avenue	Separated Bike Lanes	Upgrade	13.3
12	Courtland Drive/ Sunset Drive		S Williamson Avenue	Forestview Drive	Slow Street	New Construction	13.1
13	E Haggard Avenue		N Antioch Avenue	N Oak Avenue	Separated Bike Lanes	Upgrade	13.0
14	Westgate Drive		Westbrook Avenue	S Williamson Avenue	Sidewalk	New Construction	12.9
15	University Drive	NCDOT	Huntingdon Street	Shallowford Church Road	Sidepath	Upgrade	12.2
16	Westbrook Avenue	NCDOT	Brookview Drive	Westgate Drive	Sidewalk	New Construction	12.1
17	W Lebanon Avenue		S Williamson Avenue	N Oak Avenue	Slow Street	Upgrade	11.8
18	Woodale Drive		S Williamson Avenue	S O'Kelly Drive	Sidewalk	New Construction	11.5
19	Gerringer Mill Road	NCDOT	NC Highway 87	Shallowford Natural Area	Sidepath	New Construction	11.0
20	Town Park Perimeter Trail		Ossipee Rd (NC 87)	Elon Ossipee Rd	Off-street trail	New Construction	11.0
21	University Drive	NCDOT	Shallowford Church Road	Power Line Road	Sidepath	New Construction	11.0

ID	LOCATION		FROM	TO	FACILITY	PROJECT TYPE	SCORE
				Medium-Low Priority			
22	N O'Kelly Drive		University Drive	E Haggard Avenue	Sidepath	Upgrade	11.0
23	Westbrook Avenue	NCDOT	Westgate Drive	US Highway 70	Sidewalk	New Construction	11.0
24	Manning Avenue	NCDOT	Western Town Boundary	W Haggard Avenue	Sidewalk	New Construction	10.9
25	E Haggard Avenue	NCDOT	Oak Avenue	Macarthur Lane	Sidepath	Upgrade	10.7
26	Shallowford Church Road	NCDOT	Wolfgang Street	E Haggard Avenue	Sidepath	Upgrade	10.7
27	Macarthur Lane	NCDOT	Ossipee Rd (NC 87)	Durham Street Extension	Sidepath	New Construction	8.7
28	Power Line Road	NCDOT	University Drive	Ossipee Rd (NC 87)	Sidepath	New Construction	8.6
29	Haw River Trail		Gerringer Mill Road	Durham Street Extension	Off-street trail	New Construction	8.0
30	Ossipee Road Connector Trail		Gazebo Drive	Ossipee Rd (NC 87)	Off-street trail	New Construction	8.0
31	Power Line Trail		Project ID 43	Power Line Road	Off-street trail	New Construction	8.0
32	Travis Creek Trail (North)		Phibbs Road	Project ID 29	Off-street trail	New Construction	8.0
33	Orange Drive/ Westminster Drive		S Williamson Avenue	Project ID 44	Slow Street	New Construction	8.0
34	Walker Road	NCDOT	Power Line Road	Gazebo Drive	Sidepath	New Construction	7.9
35	S Oak Avenue	NCDOT	E Haggard Avenue	Truitt Drive	Sidepath	Upgrade	7.6
				Low Priority			
36	S O'Kelly Drive		Woodale Drive	E Trollinger Avenue	Sidepath	Upgrade	6.8
37	Elon Ossipee Road	NCDOT	Pitt Road	Shallowford Church Road	Sidepath	New Construction	6.6
38	Gum Creek Trail		US Highway 70	S Oak Avenue	Off-street trail	New Construction	6.5
39	Travis Creek Trail (South)		Phibbs Road	Travis Creek	Off-street trail	New Construction	5.5
40	Power Line Trail		Travis Creek	Stone Gables Drive	Off-street trail	New Construction	5.5
41	Manning Ave Trail		Manning Avenue	Power Line Easement	Off-street trail	New Construction	5.5
42	Power Line Trail		Western Town Boundary	Project ID 43	Off-street trail	New Construction	5.5
43	Forest Creek Trail		University Drive	Walker Road	Off-street trail	New Construction	5.5

ID	LOCATION	FROM	TO	FACILITY	PROJECT TYPE	SCORE
44	O'Kelly Connector Trail	Westover Drive	S O'Kelly Drive	Off-street trail	New Construction	5.5
45	Truitt Drive	Windsor Way	S Oak Avenue	Sidewalk	New Construction	5.0
46	Brookview Drive	Westbrook Avenue	Southern Town Boundary	Slow Street	New Construction	3.0
47	Walker Road/ Gazebo Drive	Walker Road	Project ID 30	Slow Streets	Upgrade	2.5
48	Beth Schmidt Connector Trail	Elon Park Drive	Forestview Drive	Off-street trail	Maintain*	N/A
49	S Oak Avenue NCDOT	Canterbury Drive	Truitt Drive	Sidepath	Maintain*	N/A
50	University Drive NCDOT	Westbrook Avenue	Huntingdon Street	Sidepath	Maintain*	N/A
51	University Drive	Westbrook Avenue	US Highway 70	Sidepath	Maintain*	N/A

NCDOT NCDOT owned roadway

*Existing facilities are included as part of the network but did not receive prioritization scores.

Early Action Projects

In addition to the prioritized multimodal network, this Plan includes six early action project concepts. Early action projects represent opportunities to jump start implementation of the network and transform mobility in Elon. While some early action projects overlap with high-scoring network corridors, the locations for these projects were primary identified through community input and how they fit into the following overarching categories.

1. Safe Crossings

Great multimodal corridors are only as good as their crossings. Projects in this category focus on locations where additional infrastructure can increase safety for people crossing the street by reducing their exposure and increasing visibility. Safe crossings projects include the intersection of University Drive and Westbrook Avenue and the railroad pedestrian tunnel.

2. Critical Gaps

A key theme throughout this Plan is filling gaps in the multimodal network. While corridor projects address larger-scale network gaps, these early action projects focus on "low-cost, high-reward" locations where a relatively small connection can exponentially expand access to the network. Critical gaps projects include West Haggard Avenue and a greenway connection between O'Kelly Avenue and Woodale Road

3. Transformative Moves

While some early action projects represent quick wins that can be relatively easily implemented, others lay out an initial vision for projects that are larger and more complex but have the potential to transform Elon and the region beyond. Transformative moves projects include the railroad crossings at Williamson Avenue and a signature greenway trail north of University Drive

Project Probable Costs

For each early action project planning-level cost opinions were calculated using 2022–2023-unit costs from North Carolina and similar projects where applicable. Several assumptions are built into the estimates including:
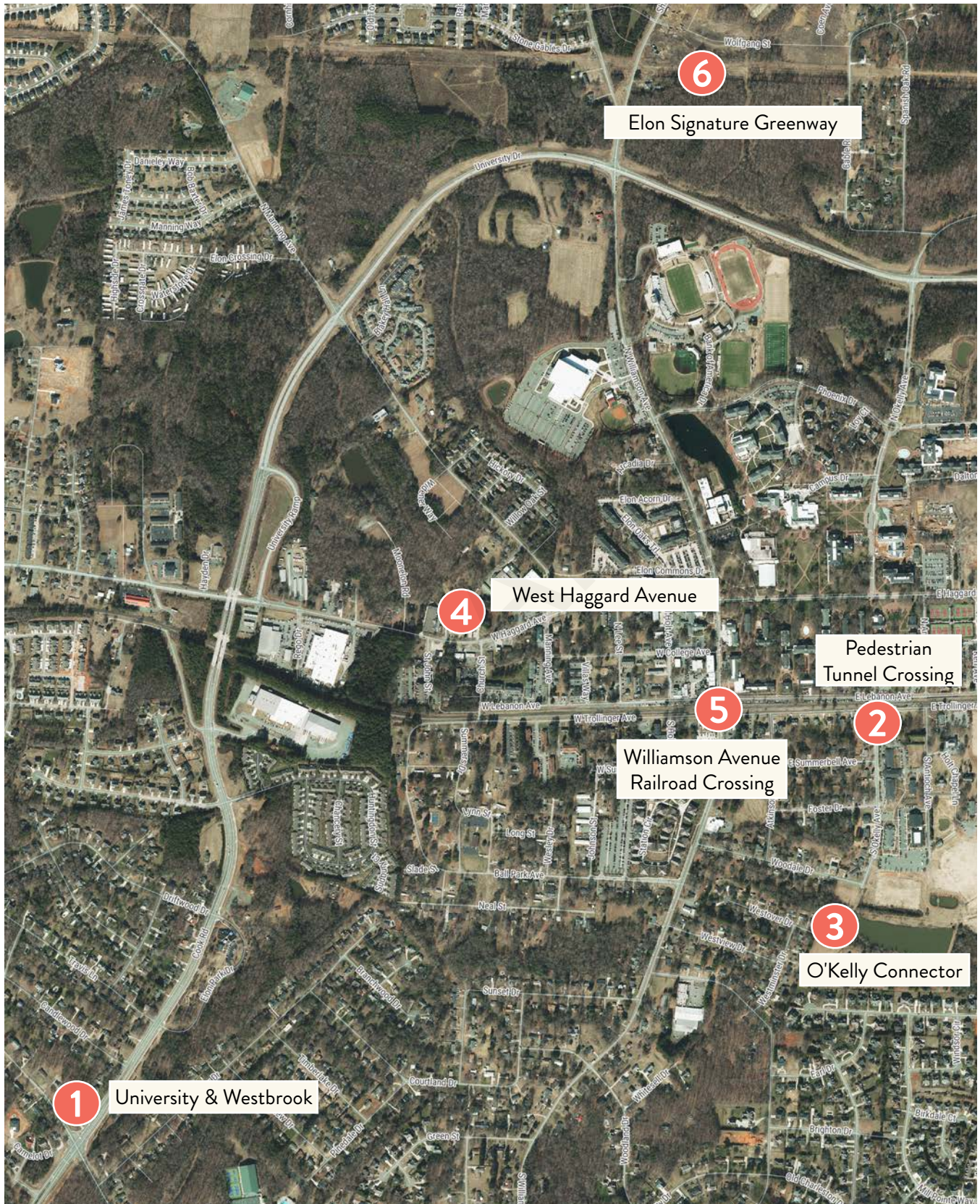
- Total costs are rounded to the nearest $10,000

- Quantities are estimates only based on measurements from the conceptual sketches

- No right-of-way (ROW) acquisition costs were considered

- No utility relocation costs were considered

- Lump sums were considered for signal modifications, maintenance of traffic, and mobilization items

- 20% contingencies for Design and Construction Engineering as well as a general contingency were added

While the cost opinions identifies costs for major features, other accessory elements are not accounted for and will likely increase the cost of a project. These items include but are not limited to:

- Decorative paving materials beyond what is shown in the sketches (e.g., brick or stamped colored concrete)

- Street trees

  » Planting new trees or preservation of existing street trees

More detailed costs should be calculated upon the engineering of each individual project.

Map 11. Early Action Project Locations

6 Elon Signature Greenway

4 West Haggard Avenue

Pedestrian Tunnel Crossing

5 2

Williamson Avenue Railroad Crossing

3 O'Kelly Connector

1 University & Westbrook

1. University & Westbrook

Westbrook Avenue crosses University Drive just south of the Beth Schmidt dog park. While the intersection is signalized with existing crosswalks on three of the approaches, the wide lanes and skewed angles create long, exposed pedestrian crossings. This project reduces crossing distances and slows turning vehicles with curb extensions and median "noses" that extend past the crosswalk. New curb ramps and high visibility crosswalks also further enhance safety and accessibility. The concepts on the following page show both an interim, lower cost design using flex posts and paint as well as a full construction design with formalized curbs and landscaping.

KEY FEATURES

A Flexible delineator posts

B Perpendicular, high visibility crosswalks

C 25' turning radius

D Neighborhood connection

E Median "nose" past crosswalks

F Concrete curb and landscaped buffer

PROJECT COSTS

ITEM	INTERIM DESIGN	FULL BUILD
Materials	$88,100	$230,100
Design & Construction	$17,600	$46,000
Contingency	$17,600	$46,000
Total Cost	*$130,000*	*$330,000*

UNIVERSITY DR

Beth
Schmidt
Park

A

C

Existing sidepath

B

CAMELOT DR

WESTBROOK AVE

FULL BUILD

UNIVERSITY DR

Beth
Schmidt
Park

F

E

D

CAMELOT DR
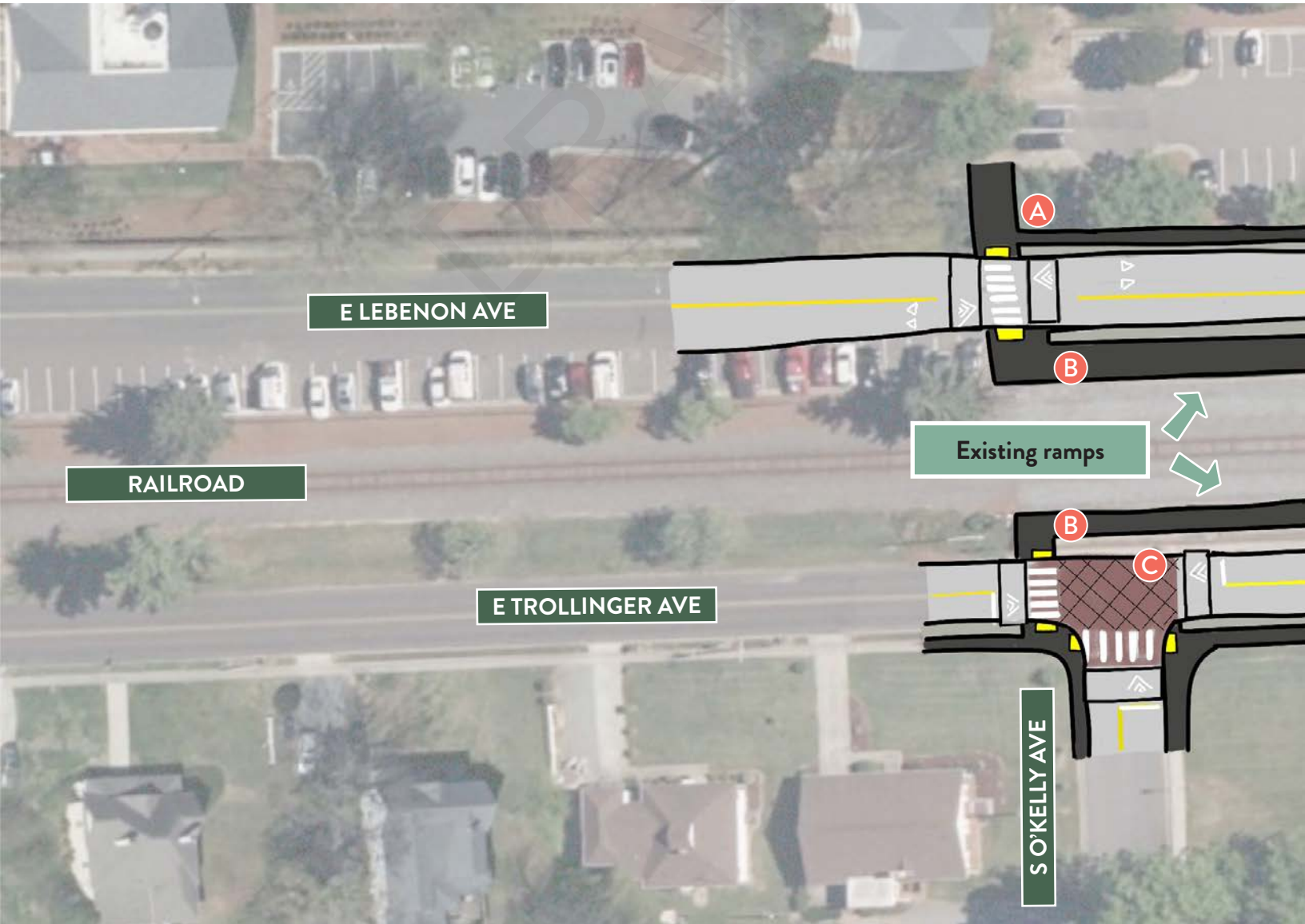
WESTBROOK AVE

2. Pedestrian Tunnel Crossings

This project enhances the visibility and safety of pedestrians utilizing the Elon University Pedestrian Tunnel. Passive detection Rectangular Rapid Flashing Beacons (RRFBs) recognize when a pedestrian is exiting the tunnel and flash to alert motor vehicles to slow down and yield. Raised crossings and a raised intersection at S O'Kelly Avenue visually and physically elevate people crossing and provide a level path from curb to curb. These crossings not only slow vehicles down and enhance safety but also provide unique opportunities for brick pavers and other place-making elements.

KEY FEATURES

A Raised crosswalks

B Passive detection Rectangular Rapid Flashing Beacon (RRFB)

C Raised Intersection

PROJECT COSTS

ITEM	TOTAL
Materials	$324,200
Design & Construction	$64,800
Contingency	$64,800
Total Cost	*$460,000*

A

B

TRAIL
X-ING

Pedestrian
tunnel

Existing stairs

RAILROAD

S ANTIOCH AVE

A

A

3. O'Kelly Greenway Connector

This project provides a 10' shared use path from Woodale Road to S O'Kelly Avenue and extends to the existing sidewalks at the Elon South Campus Gym. This path would utilize existing Town right-of-way to provide a safe and dedicated connection between Elon University and the neighborhoods to the South of Downtown.

KEY FEATURES

A Existing Town ROW

B Shared use path crossing

C 10' shared use path

D Neighborhood connection

PROJECT COSTS

ITEM	TOTAL
Materials	$196,300
Design & Construction (20%)	$39,300
Contingency (20%	$39,300
Total Cost	*$280,000*

Existing path looking south from O'Kelly Avenue

E SUMMERBELL DR

Existing sidewalk

Elon South
Campus Gym

Faculty/Staff
Wellness Center

S O'KELLY AVE

E FOSTER DR

B

A

C

WOODALE RD

D

4. West Haggard Avenue

This project provides a 10' sidepath alongside West Haggard Avenue from Manning Avenue to St John's Street. Additional improvements include an RRFB crossing at St Johns Street, new ADA ramps, and truck aprons, and a gateway plaza.
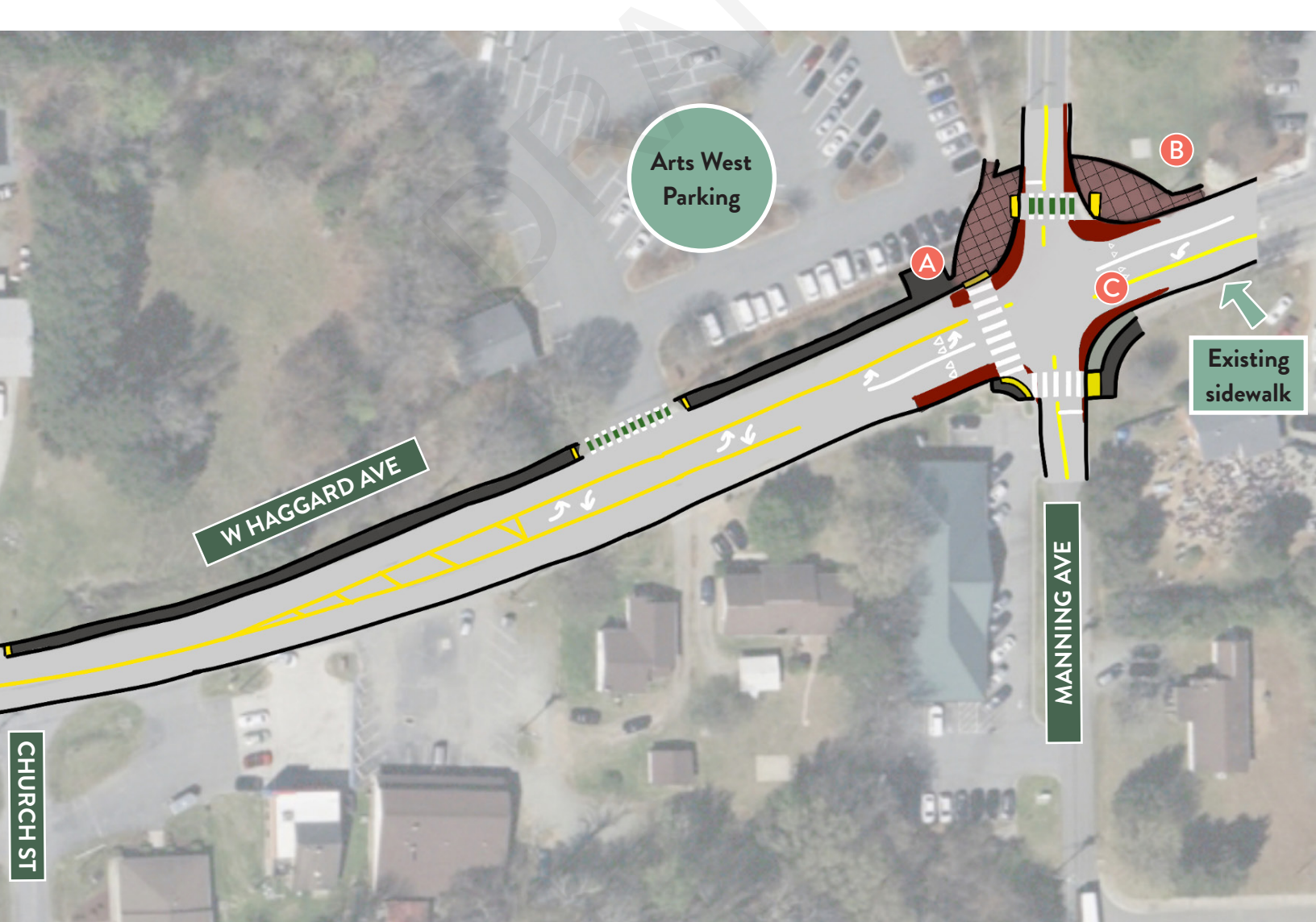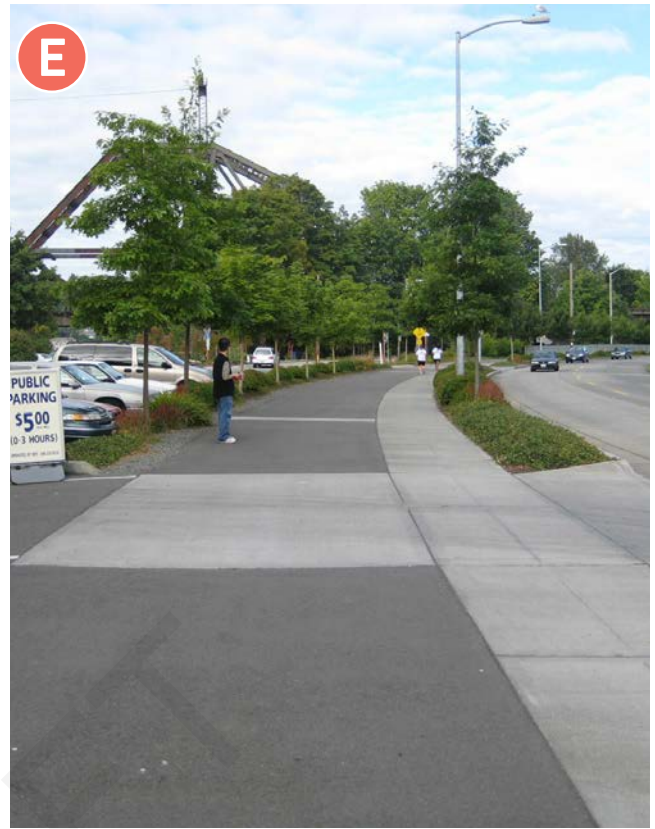
KEY FEATURES

A Relocated transit stop

B Gateway Plaza

C Truck aprons

D RRFB crossing

E 10' sidepath

PROJECT COSTS

ITEM	TOTAL
Materials	$385,500
Design & Construction (20%)	$77,000
Contingency (20%	$77,000
Total Cost	**$540,000**

C

E

Arts West Parking

B

A

C

Existing sidewalk

W HAGGARD AVE

MANNING AVE

CHURCH ST

5. Williamson Avenue Railroad Crossing

This project focuses on a critical sidewalk connection in downtown Elon. By repurposing the southbound left turn lane on Williamson Avenue, a walkway could be added between existing sidewalks on Lebenon Avenue and Trollinger Avenue. The project would also include formalized curb extensions and a protected flexible bollard buffer along the walkway.

KEY FEATURES

A Landscaped curb extension

B Extended painted curb extensions

C Stamped red brick pavement

D Remove dedicated left turn lane

E Buffer with flexible bollards

PROJECT COSTS

ITEM	TOTAL
Materials	$116,100
Design & Construction (20%)	$23,200
Contingency (20%	$23,200
Total Cost	*$170,000*

Downtown Elon

N WILLIAMSON AVE

Ⓐ

Existing sidewalk

Existing sidewalk

Ⓑ

Existing curb extension

E LEBENON AVE

Ⓒ

Ⓔ

RAILROAD

Ⓓ

E TROLLINGER AVE

Existing sidewalk

Existing sidewalk

Town Hall

Post Office

Ⓑ

S WILLIAMSON AVE

6. Elon Signature Greenway

This project utilizes an existing power line easement north of University Drive for a two-mile signature greenway trail. The east-west connection would provide connections to neighborhoods, Elon University and Elon Elementary for people walking, bicycling, rolling, and running. Median refuges, and high visibility crossings prioritize safety at trail crossings.

KEY FEATURES

A Median refuge island

B Shared use path crossing

C 10' shared use path

D RRFB crossing

PROJECT COSTS

ITEM	TOTAL
Materials	$1,297,100
Design & Construction (20%)	$259,400
Contingency (20%	$259,400
Total Cost	**$1,900,000**

Existing power line easement looking north from Shallowford Church Road

GREENWAY MAP

MANNING AVE

TRAIL CROSSINGS

ELON OSIPPEE RD

SHALLOWFORD CHURCH RD

Elon Elementary

WALKER RD

CROSSING INSET

UNIVERSITY DR

TRAIL CROSSINGS

CROSSING INSET

STONE GABLES DR

ELON OSIPPEE RD

SHALLOWFORD CHURCH RD

A

B

C

D

B

FOR CHILDREN
THE SNYDER CAMPUS
FOUNDED ON THIS SITE AS
THE CHRISTIAN ORPHANAGE
BY THE CHRISTIAN CHURCH
IN 1907

6

IMPLEMENTATION

IMPLEMENTATION

Overview

The Elon Multimodal Plan outlines an implementation strategy for the Town to create a safe and connected network of walking, bicycling, and transit infrastructure. However, this Plan is only the beginning; conversations around how to implement Elon's multimodal network must continue and lead to action. The action steps outlined in this chapter will help support the Town's vision to create a vibrant community that encourages walking, bicycling, and taking transit.

VISION

"The Town of Elon is a vibrant community that welcomes walking, bicycling, and transit through a comprehensive network of connected streets and trails. Traveling within Elon is easy and safe and people of all ages and abilities can reach neighborhoods, downtown, and the surrounding region."

Collaboration and partnerships will be key to advancing the multimodal projects recommended in this document. **Partnerships, programs,** and **policies** complement multimodal infrastructure investments by creating champions, effecting culture, and establishing formal strategies that will benefit the entire multimodal system. These elements are essential in moving projects from planning to implementation. Last but not least, strategic **funding** is vital to bring this plan to life. Funding opportunities for the Town to consider are categorized by project type.

These 4 key components are integrated into the Action Plan on Page 86 to ensure timely, coordinated, and sustainable implementation of the Plan:

- **Partners**
- **Programs**
- **Policies**
- **Funding Sources**

The implementation chapter concludes with Performance Measures and an Action Plan. The Performance Measures in Table 9, which are aligned with the prioritization criteria, are used to measure the progress and success of the Action Plan items in Table 10. The Action Plan lists actions by phase and includes a variety of actions to successfully implement the Plan with projects, partners, programs, policies, and funding.

Implementing the Plan

Implementing the Plan will require the strategic use of resources and continued partnership and collaboration across agencies, stakeholder groups, and organizations.

Phasing for Infrastructure Projects

The list below provides an overview of steps that should be considered as Elon advances projects. These phases often overlap and may repeat, depending on the type of project, number of partnering organizations, and project complexity. Design elements may not be applicable for some projects, such as programmatic or policy-based projects.

1 Identify & Coordinate with Partners

The Town should continue to prioritize relationship building across organizations and agencies. Early coordination with jurisdictional and permitting agencies and key stakeholders can help the Town advance projects.

2 Create a Design Concept

A conceptual design for a project can aid project conversations by providing a concept for partners and coordinating entities to react to and provide feedback on, seek funding, and solicit feedback from the community. Design concepts for six Early Action Projects are included in this Plan.

3 Identify Funding Resources

The Town should identify funding sources and various revenue streams that can fund construction or project costs.

4 Pilot Projects

Conducting a pilot or installing a temporary pedestrian, bicycle, or transit facility can be a valuable tool to test ideas, gain support, gather data, and address pressing issues. Temporary or interim installations could be installed for several weeks to multiple years until permanent construction takes place.

It is recommended that demonstration projects stay in place for at least 30 days to allow people to adjust to the proposed design. Evaluating the demonstration or interim project through data collection and feedback from the community and partner agencies is essential. Results of the temporary installation can inform long-term project decisions and design elements.

5 Inventory

Collect data before the project begins and after implementation. The data gathered will provide key information for subsequent project phases, needs for further improvements, or similar projects in other areas.

6 Detailed Design

Develop construction documents after funding sources are identified. These documents are necessary for permitting and to guide the construction process.

Key Components

Applicable partners, programs, policies and funding that Town staff can work with or utilize to encourage, educate, and implement multimodal projects are outlined in the following sections.

Partners

Strategic partnerships will aid in implementing projects, programs, and policies and applying for funding to meet the goals of the Plan. Partners should be identified across the private, public, and non-profit sectors and span a variety of industries.

Table 6. Implementation Partners	
PARTNER	**OPPORTUNITY**
Town of Elon	A variety of key departments within the Town of Elon will be important for coordinating and advancing recommendations. Depending on each project's characteristics, it may be important to engage the following departments: • Planning and Zoning • Parks and Recreation • Public Safety • Public Services
N.C. Department of Transportation (NCDOT)	Partnership and coordination with NCDOT will be vital for implementing the recommended changes along many of the primary roadways through town including Williamson Ave., Haggard Ave., Manning Ave., University Dr., and Oak Ave., among others. NCDOT also distributes funding through a variety of Federal programs.
Burlington-Graham Metropolitan Planning Organization (BGMPO)	The Burlington-Graham MPO includes the Town of Elon and is a key regional partner. The MPO can help foster connectivity between Elon and neighboring municipalities. In addition to distributing funding, Elon must work the MPO to include transportation projects in the NCDOT State Transportation Improvement Program (STIP).
City of Burlington and Town of Gibsonville	Connectivity between these municipalities is critical as Elon residents regularly take advantage of the activities, services, and resources available in Burlington and Gibsonville.
Local Businesses	Engagement with local businesses, such as bike shops and running shoe stores, will be beneficial for implementing specific bicycle and pedestrian programs and policies. Often, these local businesses also have strong connections to community organizations and informal groups.

Table 6. Implementation Partners, continued

PARTNER	OPPORTUNITY
Community Organizations	Engagement with community organizations that emphasize values such as active living, bicycling, walking, and outdoor recreation will be beneficial in implementing specific multimodal programs and policies. Examples of key community organizations could include: Impact Alamance, Alamance County Service League, United Way, local faith communities, and local run clubs and bicycle groups.
Alamance-Burlington School System	Engagement with local schools is valuable for project and program advancement, especially around values such as creating safe routes to school and developing multimodal facilities that are welcoming to people of all ages. For example, the elementary, middle, and high schools are all located north of downtown and should be considered a key community partner in shaping Elon's bicycle and pedestrian network.
Elon University	Elon University is a vital partner as a significant landowner and its influence on housing, population, programming, and transportation services throughout campus and the Town. Connections to and through the University's well established pedestrian networks are critical to building out Elon's town-wide multimodal network. The Elon Express, the university's bus service to and through campus and the Town, is open to the general public and can serve as a vital link in transit connectivity for all Elon residents.
Link Transit	Link Transit is an important partner for strengthening multimodal facility connections to and from transit stops and developing transit stop improvements. The Blue Link Transit route that connects Burlington, Elon, and Gibsonville offers important connectivity for Elon residents to access services in neighboring towns.
Norfolk Southern Corporation	The Norfolk Southern Corporation owns the railroad through Elon and operates high-speed rail cars on the railroad. Establishing a good working relationship with Norfolk Southern will be critical to adding walking and rolling treatments across the tracks.
Amtrak	Building a relationship with Amtrak will be vital to moving any conversations forward regarding passenger train access and the possibility of re-establishing a station.

Programs

Programs can encourage more people to walk, roll, and take transit; educate the broader community about road safety and available multimodal transportation options; and help enforce traffic laws to improve safety for all road users.

Table 7. Implementation Programs		
PROGRAMS	**RELEVANCE**	**PARTNERS**
Burlington-Graham MPO 2020-2032 Metropolitan Transportation Improvement Program (anticipated approval in 2023)	This program is a subcomponent of the State Transportation Improvement Program (STIP) within the Burlington-Graham MPO Metropolitan Transportation Plan and identifies pedestrian and bicycle projects to be implemented throughout the region. Projects in Elon include Lee Avenue Sidewalk Construction.	NCDOT, Burlington-Graham MPO, Town of Elon
North Carolina Strategic Transportation Prioritization Process (SPOT)	The SPOT prioritizes projects that advance statewide mobilty, have regional impact, and meet division needs. Sidewalk along W Haggard from Manning Ave and St. John Street. Sidewalk along N Williamson Ave from University Drive to the Elon Athletic Campus entrance.	NCDOT, Burlington-Graham MPO, Town of Elon
Safe Routes to School (SRTS)	The Safe Routes to School program engages school-aged children through promotional and educational programs and events related to road safety. This program can help the Town engage youth in community conversations about walking and biking, especially when highlighting safety, and making Elon a great place to bike and walk, regardless of a person's age.	Alamance Burlington School System, Community Organizations, Local Businesses, Town of Elon
Walking Routes	Promoting the existing walking routes in Town and building upon them to include new walking and biking routes around Elon neighborhoods and key Town corridors can enhance awareness of existing and planned infrastructure for people walking and biking.	Local Businesses, Community Organizations, NCDOT, Town of Elon
Local Pedestrian and Bike Educational Campaigns	Educational campaigns can share important information about rules of the road and safety for people traveling to, through, and around Elon.	NCDOT, Elon University, Alamance Burlington School System, Community Organizations, Local Businesses

Table 7. Implementation Programs, continued

PROGRAMS	RELEVANCE	PARTNERS
Watch for Me NC	Enhancing pedestrian and bicycle safety and awareness for people using all modes of travel can help create a safe and inclusive roadway network. Watch for Me NC is a comprehensive and multimedia statewide pedestrian and bicycle safety and awareness campaign geared toward safety, education, and enforcement.	NCDOT, Burlington-Graham MPO, Community Organizations, Town of Elon
Temporary Street Closure Events	These events close select roads from car traffic, providing more space for people riding bikes and walking. These events can serve as a powerful tool to help a community envision different uses for the street, enhance safety, and promote social connection.	Town of Elon, Local Businesses, NCDOT
Bicycle Rodeos and Traffic Garden Demonstrations	Bicycle rodeos are events that involve instructional activities to help people learn to ride a bicycle or become a more confident rider. Traffic Gardens, which are often temporarily installed as part of a bicycle rodeo, create a miniature street network with typical roadway elements for children to learn how to ride a bike in a safe, protected space that mimics the real world.	Alamance Burlington School System, Elon University, NCDOT, Town of Elon, Community Organizations

Policies

Through the use of its code of ordinances, Elon can grow strategically. The following existing policies provide a framework for recommendations and design guidelines that can help guide future development to support walking, bicycling, and taking transit.

Town of Elon Land Development Ordinance

The Town's existing Land Development Ordinance (LDO) has served as a tool to shape the built environment and future growth. The Town has established a suite of policies and regulations that help connect sidewalk gaps, enhance walking, bicycling, and transit infrastructure, and calm roadway speeds.

PARTNERS:
- Local Businesses
- Burlington Transportation Department
- Elon University

Town of Elon Land Management Ordinance

The Town's new Land Management Ordinance (LMO) will be replacing the Land Development Ordinance. The management requirements outlined in the Ordinance support Elon's larger goal of improving people's walking, bicycling, and transit experience.

PARTNERS:
- Local Businesses
- Burlington Transportation Department
- Elon University

Town of Elon Flood Damage Prevention Ordinance

The Flood Damage Prevention Ordinance provides requirements for construction and flood resilience policies. This ordinance advances this Plan's goals of accessibility and integration to ensure multimodal facilities do not become hazardous during extreme flood events.

PARTNERS
- Developers
- Elon University

Phase II Stormwater Post-Construction Ordinance

Stormwater regulations will guide the design and implementation of new and updated multimodal facilities throughout the Town of Elon.

PARTNERS
- Developers
- Town of Elon Departments

Funding Sources

There are a variety of funding sources that Elon can explore to finance multimodal transportation projects.

Table 8. Implementation Funding Sources															
FUNDING SOURCE	TYPE	Bicycle Improvements	Pedestrian Improvements	Multi-Use Trails	Intersection Improvements	Transit Enhancements	Active Transportation Programs	Safety Programs	Access Management	Traffic Calming	Maintenance	Lighting	Streetscaping	Wayfinding/ Signage	FUNDING SOURCE LINK
AARP Community Challenge Grant	Non-Profit	X	X	X	X	X	X	X		X					Link
BlueCross BlueShield of North Carolina Foundation	Other						X								Link
Community Development Block Grant- Neighborhood Revitalization (CDBG-NR)	Federal	X	X	X	X		X					X	X	X	Link
Enhanced Mobility of Seniors & Individuals with Disabilities (Section 5310 of the FAST Act)	Federal		X	X	X	X		X						X	Link
Healthy Streets Grant Program	Federal	X	X	X									X		Link
Highway Safety Improvement Program (HSIP)	Federal	X	X	X	X	X		X		X					Link
Land & Water Conservation Fund	Federal			X			X						X		Link
Multimodal Planning Grant Program	State	X	X	X	X	X	X	X		X		X	X	X	Link
Park and Recreation Trust Fund (PARTF)	State	X	X	X	X		X					X		X	Link

Table 8. Implementation Funding Sources, continued

FUNDING SOURCE	TYPE	Bicycle Improvements	Pedestrian Improvements	Multi-Use Trails	Intersection Improvements	Transit Enhancements	Active Transportation Programs	Safety Programs	Access Management	Traffic Calming	Maintenance	Lighting	Streetscaping	Wayfinding/ Signage	FUNDING SOURCE LINK
PeopleForBikes Community Grant Program	Non-Profit	X		X	X		X	X						X	Link
Railroad Crossing Elimination Grant Program	Federal	X	X		X									X	Link
Reconnecting Communities Pilot Program – Planning Grants and Capital Construction Grants	Federal	X	X		X	X	X	X					X		Link
Recreational Trails Program (RTP)	Federal			X								X		X	Link
Safe Streets and Roads for All	Federal	X	X			X	X	X		X					Link
State Street-Aid (Powell Bill) Program	State	X	X	X							X				Link
State Transportation Improvement Program (STIP)	State	X	X		X	X			X	X			X		Link
Surface Transportation Block Grant (STBG) Program	Federal	X	X	X	X	X				X		X	X	X	Link
Transportation Alternatives Program (TAP)	Federal	X	X	X	X	X	X	X		X					Link

DRAFT

Performance Measures

Performance measures gauge improvement or success towards achieving a goal. Table 9 below outlines how the goals for the Elon Multimodal Network Plan align with the project prioritization criteria introduced in Chapter 5 on page 55. These performance measures will be used to measure the progress and success of the recommended actions listed in the Action Plan on the following pages.

Table 9. Performance Measures		
GOAL	**PRIORITIZATION CRITERIA**	**PERFORMANCE MEASURES**
Safety Reduce risks for people who walk, roll, and take transit	• Safety Concerns • Filling Gaps	• Crash rate of people walking, bicycling, and taking transit (fatal and serious injuries) • Vehicle speeds (posted vs measured) • Number of high-visibility crossings installed
Community Foster people-oriented streets	• Destination Connectivity • Equity	• Amount of bicycle parking infrastructure • Amount of seating along walking, bicycling, and transit routes • Miles of street trees along multimodal network • Implementation of a wayfinding plan and style guide
Integration Create seamless connections between modes	• Transit Access • Filling Gaps	• Walking, bicycling, and transit-friendly ordinances/policies • Number of high-comfort multimodal facilities (sidewalks, sidepaths, separated bike lanes, covered transit stops, etc.) • Number of gaps along the multimodal network
Connectivity Develop a network that connects people to destinations	• Destination Connectivity • Filling Gaps	• Miles of continuous walking and bicycling facilities • Miles of continuous sidewalk • Percent of residential parcels within a 5-minute walk (0.25 miles) of a transit stop, sidewalk, or greenway • Percent of residential parcels within a 10-minute bicycle rid (0.5 miles) of a transit stop or high-comfor bicycling facility
Accessibility Provide access for people of all ages and abilities	• Safety Concerns • Equity • Transit Access	• Counts of people walking, bicycling, and taking transit • Percent of ADA compliant walking and rolling routes • Percent of high equity priority parcels within a 5-minute walk (1/4 mile) of sidewalk • Percent of high equity priority parcels within 1/2 mile of a bikeway, trail, or transit
Momentum Create a culture that encourages walking, bicycling, and transit	• Transit Access • Equity	• Budget line dedicated to multimodal projects • Number of multimodal education programs in schools • Number of students walking or bicycling to school • Attendance at walking, running, and bicycling clubs • Counts of people walking, bicycling, and taking transit

Action Plan

The action plan provides a list of concrete recommendations throughout the Elon Multimodal Network Plan. Each action is categorized as immediate, near-term, mid-term, or long-term, depending on the ease of implementation, project sequencing, and level of need. Recommended actions vary from education, encouragement, and enforcement to roadway projects and Town policies. The action plan also outlines potential partner organizations and how the action aligns with the Plan goals.

Table 10. Action Plan

RECOMMENDED ACTION	POTENTIAL PARTNERS	GOALS ACHIEVED
Immediate Term (0-1 Year)		
Determine baseline data for the recommended performance measures (Table 9 on page 55).	• Burlington-Graham MPO • NCDOT • Alamance-Burlington School System	• All goals
Create a Multimodal Transportation Advisory subcommittee within the existing Parks and Recreation Committee.	• Burlington-Graham MPO • Alamance-Burlington School System	• Momentum
Enforce the requirement for a 5-foot wide pedestrian access easement in all new development.	• Town of Elon Departments	• Community • Connectivity
Amend the LMO to include design standards for bikeways including sidepaths, greenways, and separated bicycle lanes (directional and two-way). Design should align with the latest version of the American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities. The minimum width for a sidepath shall be 10 feet wide. Standard widths for separated bicycle lanes shall be: • 5 feet wide for directional facilities and 12 feet wide for two-way facilities. • A 2-foot wide buffer with vertical delineation is a recommended standard for bike lanes (3 feet when adjacent to on-street parking). • Narrower widths may be warranted in constrained situations.	• Town of Elon Departments	• Safety • Connectivity • Accessibility

Table 10. Action Plan, continued

RECOMMENDED ACTION	POTENTIAL PARTNERS	GOALS ACHIEVED
Amend the LDO to require developers to: Build out segments of the proposed multimodal network while developing their property, and Build sidepaths and/or separated bike lanes along major thoroughfares.	• NCDOT	• Safety • Community • Integration • Connectivity
Amend the LMO to reduce the maximum design speed for neighborhood streets from 30 mph to 25 mph.		• Safety
Update language in the Town of Elon Park Rules and Regulations to include language about electric bicycles (e-bikes).	• Community Organizations	• Momentum
Update the Streetscape Sponsorship Program to include bicycle parking as one of the approved streetscape features that residents can donate to the Town.	• Local businesses • Community Organizations	• Community • Integration • Momentum
Conduct a transit stop inventory and assessment to score accessibility, comfort, and safety of each stop.	• Link Transit • Elon University	• Safety • Community • Accessibility • Momentum
Near Term (1-3 Years)		
Train public works staff to incorporate on-street striping projects during regular maintenance cycles.	• NCDOT	• Connectivity • Integration
Establish a Safe Routes to School pilot program at Elon Elementary.	• Alamance-Burlington School System • NCDOT	• Safety • Community • Accessibility • Momentum
Start an encouragement program in schools to increase the number of students walking and bicycling to school (e.g. golden sneaker award for the class with the highest percentage of walkers and bikers; small prizes for students).	• Elon University • Alamance-Burlington School System	• Momentum
Engage local bike shops and running stores for bike and walk specific programs and policies. (e.g., Ask a local run club to sponsor or promote walking programs or events.)	• Local Businesses • Community Organizations	• Momentum

Table 10. Action Plan, continued

RECOMMENDED ACTION	POTENTIAL PARTNERS	GOALS ACHIEVED
Make a plan for annual walking- and bicycling-related crash analysis.	• NCDOT • City of Burlington • Town of Gibsonville	• Safety • Integration • Accessibility
Host events promoting walking, bicycling, and taking transit (e.g., Open Streets, bike safety workshop, traffic garden, bicycle race, walking or running race, school walking clubs/walking school buses, bus tours); make these annual or biannual events moving forward.	• NCDOT • Burlington-Graham MPO • City of Burlington • Town of Gibsonville • Link Transit • Local Businesses • Community Organizations	• Community • Momentum
Promote local run, walk, and bike clubs or groups on the Town's event calendar, newsletter, and social media pages.	• Community Organizations • Burlington-Graham MPO • Alamance-Burlington School System	• Community • Momentum
Join the "Watch for Me NC" program.	• Burlington-Graham MPO • Alamance-Burlington School System • Alamance County Community YMCA • Community Organizations	• Safety • Momentum
Advance at least one Early Action Project.	• NCDOT	• All goals
Advance at least one project from the proposed multimodal network.	• NCDOT	• All goals
Work with the City of Burlington to identify strategic walking, bicycling, and transit connections between municipalities.	• Burlington-Graham MPO • City of Burlington • Town of Gibsonville • Link Transit	• Safety • Integration • Connectivity
Using the results from the transit stop inventory, formalize bus stops with concrete pads, accessibility ramps, and shelters. Customize transit stops with art and amenities developed by the community.	• Link Transit • Elon University • Community Art Groups • Local Businesses	• Safety • Community • Accessibility • Momentum

Table 10. Action Plan, continued

RECOMMENDED ACTION	POTENTIAL PARTNERS	GOALS ACHIEVED
Create a plan for utilizing utility corridors for greenway use based on best practices from Rails-to-Trails Conservancy (https://www.railstotrails.org/build-trails/trail-building-toolbox/basics/utilities/).	• Duke Energy	• Safety • Integration • Connectivity • Momentum
Create a dedicated budget line item to fund multimodal facility projects and programs.	• NCDOT • Burlington-Graham MPO	• All goals
Amend the LMO to include soil volume requirements for street trees.		• Community
Establish a relationship with Norfolk Southern Corporation and Amtrak to discuss walking and bicycling treatments across the tracks and reestablishing an Amtrak station in Elon.	• Norfolk Southern Corporation • Amtrak	• Safety • Integration
Mid-Term (3-5 Years)		
Expand Safe Routes to School pilot program to other schools throughout the Town	• NCDOT • Guilford County School District	• Safety • Accessibility • Community • Momentum
Establish the Slow Street Network program with branding sign and design standards for approved traffic calming elements	• NCDOT • Community Organizations	• Safety • Community • Integration • Momentum
Collect participation numbers in annual Walk, Bike & Roll to School Day events to demonstrate demand for walking, biking, and bicycling infrastructure	• NCDOT • Alamance-Burlington School System	• Momentum
Develop a walking tour or formalize preferred walking loops around Elon to historic landmarks, such as comfortable neighborhood routes and along key corridors (e.g. N Williamson Ave. and W Haggard Ave.)	• Local Businesses • Community Organizations • Elon University	• Safety • Community • Momentum
Create a unified wayfinding plan and style guide for Elon.	• NCDOT	• Community • Integration • Connectivity

Table 10. Action Plan, continued

RECOMMENDED ACTION	POTENTIAL PARTNERS	GOALS ACHIEVED
Incorporate pedestrian and bicycle safety into school curriculum.	• Guilford County School District	• Safety • Momentum
Advance at least two projects from the proposed multimodal network.	• NCDOT	• All goals
Advance at least two Early Action Projects	• NCDOT	• All goals
Update Elon's technical standards to require tight corner radii (e.g., 20 feet or 25 feet where applicable rather than the standard 30-foot radii) on non-industrial streets	• NCDOT	• Safety
Long-Term (5+ Years)		
Leverage participation numbers in annual Walk, Bike & Roll to School Day events to advocate for targeted and systemic projects to promote walking and bicycling.	• NCDOT • Alamance-Burlington School System • Elon University • Burlington-Graham MPO	• Safety • Community • Accessibility • Momentum
Enhance regional multimodal facility connections.	• Burlington-Graham MPO • City of Burlington • Town of Gibsonville	• Connectivity • Accessibility
Advance at least one project from the proposed multimodal network annually moving forward.	• NCDOT	• Safety • Community • Connectivity • Accessibility • Momentum
Create an open space plan that builds on Envision Elon 2040 Comprehensive Plan and addresses greenways and streetscape greening.	• Local Businesses • Community Organizations • Elon University • Alamance-Burlington School System	• Community • Momentum

Table 10. Action Plan, continued

RECOMMENDED ACTION	POTENTIAL PARTNERS	GOALS ACHIEVED
Implement wayfinding throughout Elon in accordance with the unified wayfinding plan and style guide.	• NCDOT	• Community • Integration • Connectivity
Advance regional multimodal connectivity via Link Transit and Amtrak.	• Link Transit • Amtrak	• Community • Integration • Momentum
Update this Plan! An update approximately every five years and no greater than every ten years is standard. Depending on timing, implementation of projects, and development in and around Elon, it may be appropriate to create an abbreviated plan update document before fully revising this Plan.	• NCDOT • Burlington-Graham MPO • Alamance-Burlington School System • Elon University • Community Organizations	• All goals
Ongoing		
Share ridership data with Link Transit and Elon University to inform and advocate for transit improvements.	• Link Transit • Elon University	• Community • Accessibility • Momentum
Evaluate Plan progress by analyzing performance measures annually.	• NCDOT • Burlington-Graham MPO	• All goals
Continue to develop partnerships for programming.	• NCDOT • Burlington-Graham MPO • Alamance-Burlington School System • Elon University • City of Burlington • Town of Gibsonville • Local Businesses • Community Organizations	• All goals

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APPENDICES

APPENDICES

To be included in the final
draft of the Plan

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