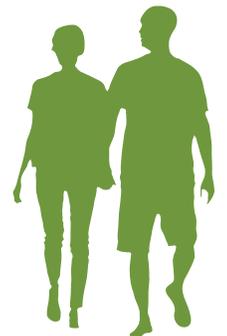


DATE: May 2024



PEDESTRIAN PLAN



THANK YOU.

This Pedestrian Plan was prepared by Stantec for the Town of Indian Trail, North Carolina through the North Carolina Department of Transportation - Integrated Mobility Division Bicycle & Pedestrian Planning Grant Program. Special thanks to the members of the project team that participated in the development of this Plan:

- **Todd Huntsinger**
Town of Indian Trail, Engineering
- **Tim Jones**
Town of Indian Trail, Planning
- **Brandi Deese**
Town of Indian Trail, Planning
- **Adam McLamb**
Town of Indian Trail, Public Works
- **Adrian Moritz**
Town of Indian Trail, Engineering
- **Moe Mulhull**
Citizen/Property Owner
- **Brian Huncke**
Union County Sheriff's Department
- **Mandy Benton**
Union County Transportation Services
- **Curtis Bridges**
Charlotte Regional Transportation Planning Organization
- **Theo Ghitea**
NCDOT, Division 10
- **Alex Rotenberry,**
NCDOT, Integrated Mobility Division

TABLE OF CONTENTS:

01	INTRODUCTION	1
02	EXISTING CONDITIONS	13
03	PUBLIC ENGAGEMENT TO DATE	29
04	RECOMMENDATIONS.	35
05	IMPLEMENTATION.	75
	APPENDIX	AVAILABLE DIGITALLY



LIST OF ABBREVIATIONS

AASHTO	American Association of State Highway Transportation Officials
CRTPO	Charlotte Regional Transportation Planning Organization
FHWA	Federal Highways Administration
GHSP	Governor's Highway Safety Program
HSIP	Highway Safety Improvement Program
IMD	Integrated Mobility Division
ITE	Institute of Transportation Engineers
MTP	Metropolitan Transportation Plan
MUTCD	Manual of Uniform Traffic Control Devices
NACTO	National Association of City Transportation Officials
NCDOT	North Carolina Department of Transportation
PARTF	Parks and Recreational Trails Fund
RAISE	Rebuilding American Infrastructure with Sustainability and Equity
SRTS	Safe Routes to Schools
STBG	Surface Transportation Block Grant
STI	Strategic Transportation Investments
USDOT	United States Department of Transportation

00 : **EXECUTIVE
SUMMARY**

What is a Pedestrian Plan?

This plan is a chance to imagine a walkable Indian Trail.

A pedestrian plan is used to evaluate existing walking conditions and recommend future projects. As part of a pedestrian plan, the project team learns about barriers to walking and opportunities to improve walking. Better sidewalks and sidepaths will improve safety, connectivity, and well-being for all people in Indian Trail.

The recommendations in this plan are a vision from the community. These projects will require more work to turn into a reality, but this plan is the first step.

What was examined?

Data analysis highlighted safety problems.

The project team analyzed crash data to determine where major safety problems are. Independence Boulevard sees many crashes. Because of these safety problems, Independence Boulevard is a barrier to people who would like to walk.

The project team also looked at key destinations and existing sidewalks to find gaps in the network.

Community input was essential. We heard...

The project team used public meetings, surveys, and an interactive map to hear from the community.

- 1 Walking is an important part of Indian Trail residents' daily lives.
- 2 Residents feel safe and comfortable walking...in limited areas.
- 3 Crossing major roads and intersections is a core safety concern.

Focus groups guided the plan. We heard...

Out of many meetings with focus groups, the project team gained three main takeaways.

- 1 Safety improvements benefit both people and places in Indian Trail.
- 2 Greenways are both a recreational amenity and a transportation improvement.
- 3 Strengthening regional relationships can help speed up implementation.

What does this plan recommend?

A network of facilities that includes:



15.7
miles of new
sidewalks



26.1
miles of new
sidepaths

We recommend a pedestrian network that is low-stress and well-connected. This will require building new sidewalks, sidepaths, and greenways.

This network will help Indian Trail prioritize its future pedestrian projects.



11.9
miles of new
greenways

Start with Key Projects.

The community identified six places that need pedestrian improvements the most.

1. Old Monroe Road @ Waxhaw-Indian Trail Road Intersection
2. Roadway Crossing Improvements @ Old Monroe Road near Future Greenway Crossing
3. Pedestrian Crossings @ Sun Valley High School & Shopping Centers
4. Unionville-Indian Trail Road @ Faith Church Road Intersection
5. Chestnut Lane @ Potter Road Intersection
6. Indian Trail-Fairview Road @ Greenway

These projects should be a top priority for Indian Trail. To help these projects move forward, the project team created a concept design for each project. These designs cannot be used for construction, but they can be used to estimate cost and timeline for these projects. For more information, see Chapter 4: Recommendations.

Use policy and funding programs to build it!

We recommend Indian Trail adopt policies such as Vision Zero, code revisions, traffic calming, etc. (discussed in Chapter 4: Recommendations) These policies will improve Indian Trail's pedestrian experience over time. Some policies will make sure that new infrastructure considers the needs of people walking, while other policies will provide education support.

To fund the priority projects, we recommend starting with short-term projects. While these are underway, Indian Trail staff can develop a funding strategy for long-term projects. Indian Trail can use its government partners (NCDOT, CRTPO, Union County) to find the best funding source for its projects. Potential state and federal funding sources are listed in Chapter 5: Implementation.

PAGE INTENTIONALLY LEFT BLANK

01



INTRODUCTION

<u>VISION AND GOALS</u>	3
<u>PLANNING PROCESS</u>	4
<u>WHY IS THIS PLAN IMPORTANT?</u>	6

INTRODUCTION



Indian Trail — a fast-growing, attractive, exciting community in Union County and within the Charlotte Metropolitan Area.

Well-positioned for those looking for a family-friendly alternative, Indian Trail offers a relaxed, small-town feel in reach of big city features for those that call it home.

The purpose of this Pedestrian Plan Update is to evaluate the Town of Indian Trail's existing pedestrian conditions and recommend infrastructure projects, policies, and programs to improve safety, connectivity, and well-being for people of all-ages-and-abilities.

This Plan aspires for positive change in peoples' lives by designing better environments for walking throughout the Town. The presence of safe pedestrian infrastructure creates outdoor options for mobility needs. In turn, this means increased access to jobs, schools, and health care, and overall happier and healthier communities. Overall, this plan advocates for businesses, citizens, and visitors of Indian Trail to realize the health, mobility, safety, environmental, and economic benefits of walking.

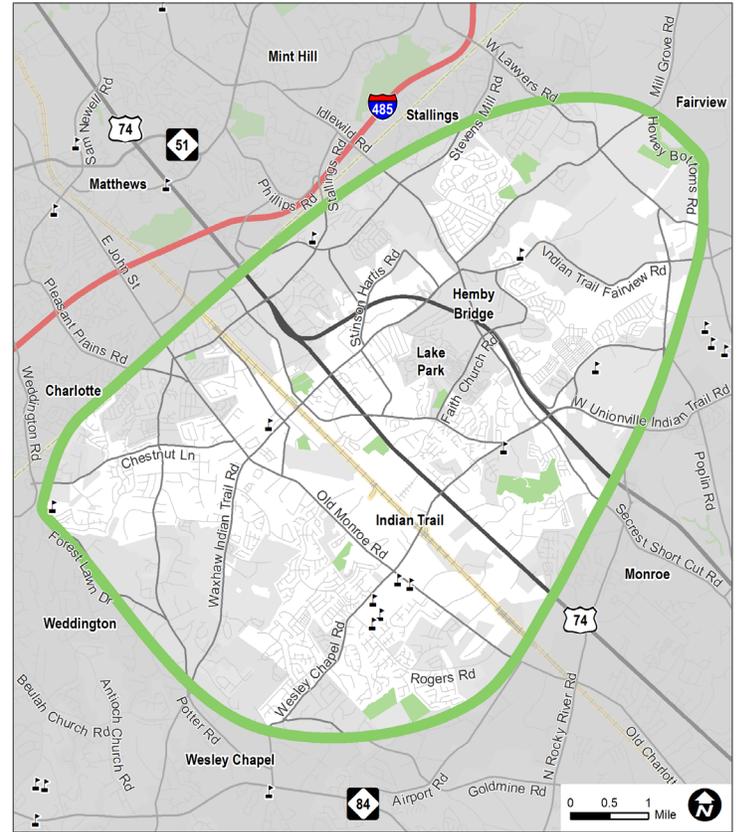


Figure 1.1: Study Area, Indian Trail.

Not just about pedestrians:



Everyone is a pedestrian at some point when traveling, whether they're on two feet or not. In this plan, we use the terms "Pedestrian," "Walk," and "Walking" to encompass all, including persons with disabilities.

Vision & Goals

In step with Indian Trail's vision to continually provide a vibrant, healthy, safe, and attractive community, this Pedestrian Plan Update builds from Walk IT (2009), Indian Trail's first Comprehensive Plan. MoveIT is working to improve pedestrian options by identifying new opportunities, and ongoing initiatives, that build upon the existing pedestrian network and prior planning efforts, engaging Indian Trail's regional and statewide mobility partners, and enhancing the multimodal environment for those of all-ages-and-abilities. Doing so will connect people with place and create greater access to those destinations where they live, work, play, and learn – within Indian Trail and surrounding communities.



This Plan's goals build upon the foundation previously established in Walk IT (2009), and refine them to reflect the priorities of this Update:

- ✓ **Safe:** a network that provides safe facilities for walking designed to modern standards, accessible for users of all ages and abilities
- ✓ **Direct & Convenient:** a walking network that is connected and continuous, enabling residents and visitors to get where they want to go.
- ✓ **Equitable & Accessible:** all residents and visitors should have the option to walk to and from destinations on a network that is convenient, direct, and easily accessible.
- ✓ **Attractive & Community-Forward:** a network that creates and expands recreational opportunities, foster a sense of place and community identity, with maintainable infrastructure.
- ✓ **Effective & Efficient:** an implementable plan for developing facilities that fosters regional collaboration, consistent with Town plans and policies.

This Plan also furthers the Town's Priority Areas, adopted by Town Council in 2021:



1. Roads & Infrastructure
2. Public Safety
3. Planning & Growth Management
4. Creating a Downtown
5. High Quality Team

Planning Process

Over the course of nearly 12 months, the MoveIT Pedestrian Plan update was developed through a three-phase process encompassing aspects of planning and design for non-motorized travel, with numerous opportunities for public participation.

The Plan has been developed in three broad phases:



Figure 1.2: Generalized Project Schedule.

The planning process began in Spring 2023 with the initial Advisory Committee meeting and will conclude in Winter 2023 with adoption by Town Council.

The Advisory Committee is an essential element of this ongoing process. Composed of representatives from local and regional organizations and backgrounds, the Advisory Committee guides the planning process, providing valuable insight on community needs and values, while integrating Indian Trail's goals and objectives within the final plan. The initial Advisory Committee meeting was held in late April 2023, introducing the planning process and consulting team, orienting to the Plan's broad objectives, and seeking initial direction on issue identification and best means of engagement. Subsequent committee meetings will focus on the results of public engagement, defining specific, measurable goals and objectives, and prioritizing project recommendations.

ADVISORY COMMITTEE MEMBERS:

Todd Huntsinger

Director of Engineering, Town of Indian Trail

Brandi Deese

Planning Director, Town of Indian Trail

Tim Jones

Project Manager, Senior Planning Manager, Town of Indian Trail

Curtis Bridges

Database & Active Transportation Planner, Charlotte Regional Transportation Planning Organization

Theo Gitea

Division Planning Engineer, North Carolina Department of Transportation, Division 10

Adam McLamb

Director of Public Works, Town of Indian Trail

Adrian Moritz

Engineering Project Manager, Town of Indian Trail

1. Outreach & Data Analysis

The first phase of the planning process centers on project commencement, initial public engagement, and investigation of Indian Trail's overall transportation network, particularly as it influences pedestrian user behavior. The initial Survey and Interactive Web Map begin to evaluate community perspectives on walking within Indian Trail, highlighting both community trends, issues, and values. This interactive map identified specific locations of concern, key areas of interest for developing or expanding connections, and barriers to biking and/or walking within the Town. Coupled with data-driven analyses of the transportation network, evaluation of the existing facilities, and understanding of demographic trends, this phase sets the foundation upon which robust recommendations can be developed.

2. Discussion & Draft Recommendations

The second phase of the planning process, utilizes feedback received and existing conditions data analysis to begin framing a walking network. Higher-priority corridors that connect to key destinations become primary connections, and lower-priority corridors that complete the network become secondary connections. From this network the project team identifies individual projects, displays them within tables and maps, and works with the Advisory Committee and second round of public outreach to prioritize (rank) into near-, mid-, and long-term needs.

3. Final Recommendations & Reporting

The third phase of the planning process brings everything together into a graphically friendly final plan with funding considerations and implementation strategy included. The North Carolina Department of Transportation – Integrated Mobility Division (NCDOT IMD) provides the final review of the plan to ensure compatibility with other pedestrian plans across the State, integration with regional Comprehensive Transportation Planning, and compliance for future funding opportunities.

Why is this Plan Important?



Why should Indian Trail care about walking? How does being “walking-friendly” benefit Indian Trail, its citizens, businesses, and visitors?

It’s not the first time these questions have been asked. In fact, extensive research has been shown that when people move to neighborhoods that are designed to promote physical activity and active transportation, they tend to spend less time in their cars and more time walking for transportation. Making walking easier can also help communities by improving safety, increasing interaction between residents, improving local economies, and reducing air pollution.¹ Decades of research suggest the following benefits of walking:

¹ The Centers for Disease Control. (2020) Designing Activity-Friendly Communities, <https://www.cdc.gov/nccdphp/dnpao/features/walk-friendly-communities/index.html>



Walking is good for the local economy.



Walking is good for education.



Walking creates safer streets.



Walking is good for the environment.



Walking is good for community health.



Walking is good for the local economy.

Walking is the most affordable mode of transportation. In 2020, The American Automobile Association (AAA) found that the average American household spends almost \$10,000 per year to own and operate a single car.² It's expensive to own a car, and providing infrastructure for people to travel safely -- walking or rolling -- is a major cost saving for those who cannot afford to own and maintain a reliable automobile, retaining wealth within your community.

Walking is basically free and can result in savings each year if walking opportunities are available. Investing in pedestrian infrastructure can also boost tourism revenue, support local business, and create jobs.

In addition, many tourists seek out places where they feel comfortable walking to explore a new area, and when they do, they spend money.

A 2022 study of four shared-use paths in the Charlotte metropolitan area showed \$24.7 million in annual economic impacts driven by traffic from the shared-use paths.³ Active streets that support walking are generally more attractive to businesses, increasing the opportunity for economic development.

Building bike and pedestrian infrastructure creates an average of 9.6 jobs for every \$1 million spent compared to roadway projects, which create 7.8 jobs per \$1 million invested. Walkable communities generally have active streets that promote business exchange while providing a safe and efficient way for citizens to travel by walking.

Walking is good for businesses and residences alike. A community's walkability or bikeability consistently ranked one of the most important community amenities by prospective home buyers. According to the Urban Land Institute, 50% of US residents say walkability is a high priority when considering where to live. Prospective home buyers consistently ranked a community's walkability as one of the most important community amenities. Studies have shown that **property values may increase by as much as \$7 per square foot for every foot closer its location to a greenway, trail, or shared-use path.**⁴

² American Automobile Association. (2020). Your Driving Costs, 2020. <https://newsroom.aaa.com/asset/your-driving-costs-fact-sheet-december-2020/>

³ Carolina Thread Trail. (2022). Trail Benefits: Evaluating the Economic, Physical Health, and Environmental Impacts of Completing Six Key Segments of the Carolina Thread Trail. https://www.carolinathreadtrail.org/wp-content/uploads/2022/12/CTT-Econ-Impact-Report_Dec2022_Final.pdf

⁴ NCDOT. (2013). Walk Bike NC: North Carolina statewide pedestrian and bicycle plan. <https://www.ncdot.gov/bikeped/walkbikenc/default.aspx>



Walking is good for education.

Students and school systems also benefit from a more walkable community. Improved infrastructure and programs can improve the walking environment for students. **Increased numbers of students walking can reduce transportation costs for buses**, a significant operating cost for public and private school systems and allow for greater funding to be spent on education. **Walking can also improve educational outcomes:** a growing body of literature demonstrates that increased physical activity, which includes walking to or from school, can improve test scores, increase on-task behaviors, and reduce the amount of time teachers spend managing student behavior. One study found that children who walk or bicycle to school, rather than being driven by their parents, have better concentration.⁵ These benefits seem to continue through life. Physical activity in childhood can lead to higher cognitive function later in life. Those who exercise when they are children perform better on cognitive tests later in life, regardless of their current age.

⁵ ScienceNordic (2012). Children who walk to school concentrate better. <https://scienordic.com/children-and-adolescents-denmark-exercise/children-who-walk-to-school-concentrate-better/1379550>

Walk-to-School Programs offered on the Statewide and National Level, aimed at improving safety and levels of physical activity for students.



NC VISION ZERO



“Connect parks to schools, especially ones that are less than a mile away”

- Focus Group Stakeholder



Walking creates safer streets.

Safety is among the most important benefits derived from better walking and biking infrastructure. Investments in infrastructure can significantly improve safety for all users, pedestrians, bicyclists, and drivers alike. North Carolina is currently ranked as one of the most unsafe states (13th of 50) for biking and walking based on per capita bicyclist fatalities.⁶ According to the 2011 North Carolina Bicycle and Pedestrian Safety Survey, at least 70% of North Carolinians would walk or bike more for daily trips if walking and biking and walking conditions were improved.⁷

Because the risk of getting into a crash increase with the amount of time spent in a car, walking reduces risk exposure for drivers and pedestrians. Studies have also shown that **sidewalk installation can result in a 65%-89% reduction in pedestrian crashes.**

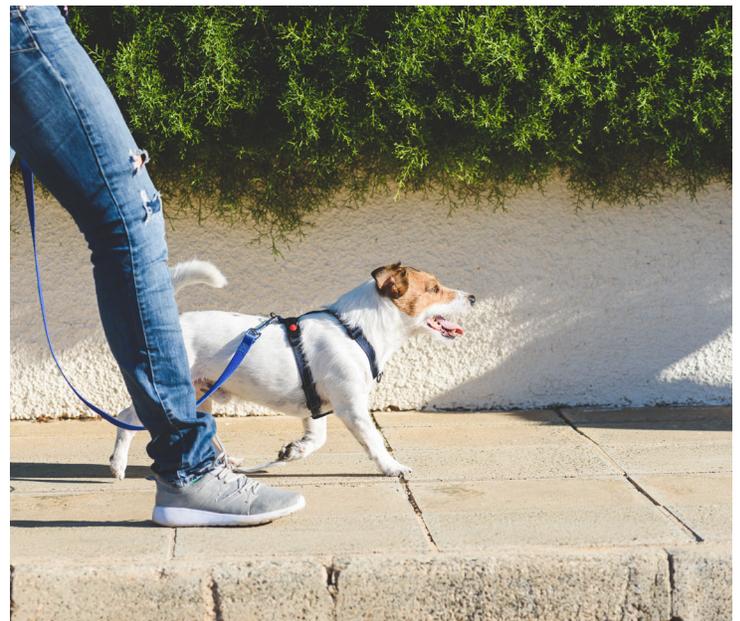
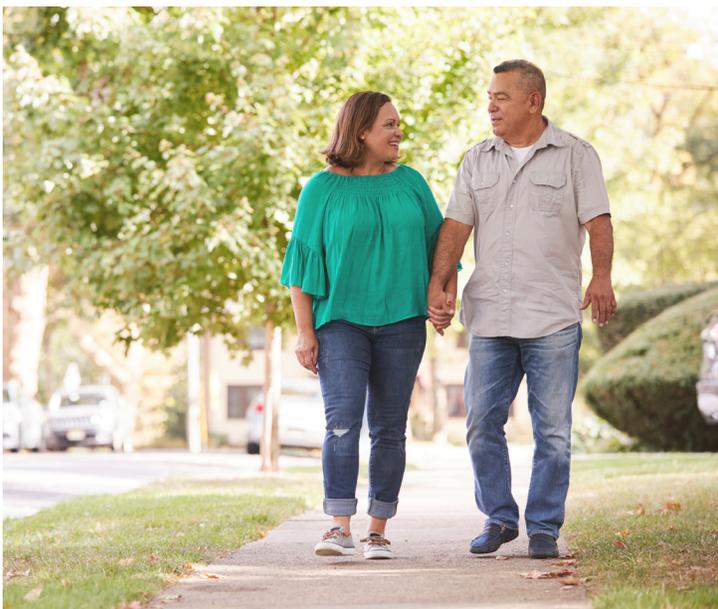
⁶ Smart Growth America. (2021). Dangerous By Design: State Rankings. <https://smartgrowthamerica.org/dangerous-by-design/>

⁷ NCDOT. (2013). Walk Bike NC: North Carolina statewide pedestrian and bicycle plan.

People are more likely to walk and move about more when they feel protected from traffic and safe from crime and hazards.⁸ Beyond pedestrians, however, walking infrastructure can also benefit drivers through reduction in the frequency and severity of crashes. Many improvements for walking double as traffic calming countermeasures, which reduce the likelihood of vehicle speeds and crashes.

Finally, better walking infrastructure gets more people out and walking, **which increases pedestrian visibility and safety.** Studies have shown that pedestrian-motorist crash rates can decline by as much as 34% simply by doubling the number of bicyclists and pedestrians on our streets.

⁸ Centers for Disease Control (2013). More People Walk to Better Health. <https://www.cdc.gov/vitalsigns/walking/index.html>





Walking is good for the environment.

About 30% of all air pollution in the US comes from the extraction and burning of fossil fuels in motor vehicles.⁹ Fossil fuel emissions are harmful to children, senior citizens, and individuals with heart or other respiratory illnesses as well as those susceptible to developing such conditions. These emissions are **especially harmful to low-income populations that more often reside in neighborhoods near highways**. Walking, on the other hand, produces no greenhouse gas emissions. A walkable environment reduces greenhouse gas emissions by 4 tons a year, compared to living in an automobile-dependent suburb.¹⁰ Perhaps equally as important, it also reduces individuals' exposure to these harmful pollutants: pedestrians are less exposed to air pollutants, on average, than those traveling by car, bus, or bike.

⁹ Energy Information Administration. (2021). Energy and the environment explained. www.eia.gov/energyexplained/energy-and-the-environment/where-greenhouse-gases-come-from.php

¹⁰ Congress of New Urbanism. (2021). Ten environmental benefits of walkable places. bit.ly/41EWgad

10 Environmental Benefits of Walking From the Council of New Urbanism

1. Reduces greenhouse gas emissions
2. Improves urban microclimates
3. Minimizes land use
4. Reduces air pollution
5. Improves water management
6. Promotes alternative transportation
7. Makes cities more beautiful
8. Increases active use of space
9. Cuts ambient noise
10. It makes better use of space





Walking is good for community health.

Greater walking infrastructure also can lead to improved public health outcomes for communities. In 2012, more than 60% of adults reported walking 10 minutes or more in the past week for transportation or leisure.¹¹ An easy form of exercise providing facilities and opportunities for walking will allow Indian Trail residents to incorporate physical activity into their daily lives through active transportation, recreation, and exercise.

Access to walkable facilities, in turn, can help reverse local health disparities. According to its 2022 Community Health Needs Assessment, 29% of Union County residents are obese.¹² Half of those surveyed (50%) in the assessment said they did not regularly exercise. In addition, not enough sidewalks were mentioned in the assessment as a top concern of living in Union County. The Centers for Disease Control and Prevention (CDC) recommends at least 150 minutes of moderate exercise each week¹³, yet many people do not have safe access to basic forms of physical activity like biking and walking. Over half of County residents lack access to exercise opportunities (62%).

Creating a walkable Indian Trail creates better health outcomes through access to active living. Walking is a powerful public health strategy for the following reasons¹³:

- Walking is an easy way to start and maintain a physically active lifestyle.
- Walking is the most common form of physical activity for people across the country.
- Walking can serve many purposes, such as exercise, fun, or get to school, work, or other nearby destinations.
- Making walking easier can help communities by improving safety, social cohesion, and local economies and reducing air pollution.

In addition, the health and well-being benefits of increased physical activity has a positive impact on individual and societal health costs. Each year North Carolinians spend \$50 billion on health care, nearly \$8,000 per person.¹⁴ According to a recent study, medical costs due to physical inactivity amount to almost 14% of this figure.¹⁵ Improving conditions for walking and bicycling in Indian Trail will increase safe, accessible physical activity opportunities and help to reduce healthcare costs. **Every dollar invested in pedestrian and bicycle trails can result in a savings of nearly \$3 in direct medical expenses.**¹⁶



62%

**Union County residents
lacking access to exercise
opportunities.**

¹¹ 12 Union County Human Services. (2022). Union County Community Health Assessment. <https://www.unioncountync.gov/home/showpublisheddocument/7048/638180370454670000>

¹³ Centers for Disease Control and Prevention. Vital signs: walking among adults — United States, 2005 and 2010. MMWR Morbid Mortal Wkly Rep. 2012;61(31):595-601.

¹⁴ The Centers for Disease Control. (2020) Step It Up! The Surgeon General's Call to Action to Promote Walking and Walkable Communities, <https://www.cdc.gov/physicalactivity/walking/call-to-action/index.htm>

¹⁵ Health Care Cost Institute. (2018). A multi-payer analysis of health care spending in North Carolina.

¹⁶ NC Institute for Child Development Professionals. (2012). Tipping the Scales: The high cost of unhealthy behavior in North Carolina.

¹⁷ Victoria Transport Policy Institute. (2021). Evaluating Active Transport Benefits and Costs.

PAGE INTENTIONALLY LEFT BLANK

02

- **EXISTING**
- **CONDITIONS**
-
- PLANS, POLICIES, AND ORDINANCES 14
- EXISTING PLANS & CONDITIONS 15
- COMMUNITY CHARACTERISTICS 23
- EXISTING FACILITIES 24

EXISTING CONDITIONS



Plans, Policies, and Ordinances

Indian Trail has a history of collaborative engagement with residents and stakeholders, with improving the Town's and region's quality of life in mind.

To accomplish this, the Town manages some of the changing forces -- despite state and federal policy shifts, growth pressures, or changing demographic characteristics. This management happens in different ways: within short-range reviews and regulations governing private and public developments, long-term visioning encapsulated in area, corridor, and/or town-wide planning studies, and participation in regional planning bodies like the Charlotte Regional Transportation Planning Organization (CRTPO).

Indian Trail also participates in county and state partnerships on roadway improvements, utility infrastructure, and programs that can further support positive changes. The following plans and Town ordinances were reviewed from a pedestrian perspective, considering larger community goals.



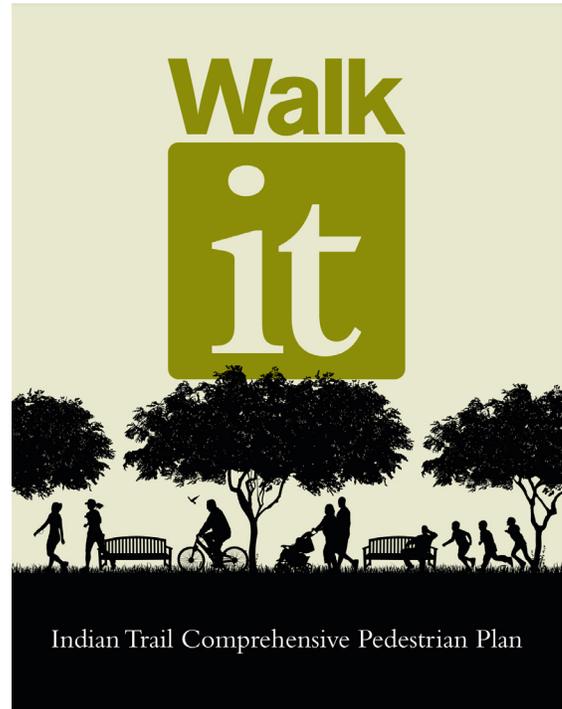
Existing Plans & Conditions

This study takes place in the context of the previous planning efforts by the Town, Union County, and other organizations with a vision for Indian Trail and its transportation network.

Indian Trail Walk IT Comprehensive Pedestrian Plan (2009)

Like the *Bike It Plan*, the *Indian Trail Walk It Comprehensive Pedestrian Plan* starts with a context of rapid growth and a desire to maintain connectivity without an automobile. Unlike the bicycle plan prepared two years later, the *Pedestrian Plan* does not feature an extensive Executive Summary, but launches into the benefits of walking as exercise and as a viable alternative to auto travel that confers quality of life and economic benefits. Short- and long-term goals emphasize ordinance and funding changes to support walking, as well as creating community linkages and modifying pedestrian and driver behaviors.

The key issues identified through a public involvement program featured a walking audit/ checklist, public meetings, and surveys tend to focus on more spot-specific matters, including crossings and connections, although there is mention of older neighborhoods lacking basic pedestrian facilities. Safety, followed by connectivity, were the two most-important public priorities in pedestrian network development.



Recommendations in this Plan are comprehensive, and worthy of individual review in this update. These include:

- Fun runs
- Walk-to-school initiatives
- Car-free days
- Citizen watch

Detailed ordinance suggestions include:

- Cul-de-sac connections
- Connectivity
- Construction/ dedication of greenways
- Standard maintenance guidelines
- Lighting
- Sidewalk installation on both sides of the street
- Street trees/buffers along pedestrian routes

Project recommendations also accompany the report in its appendices.

Indian Trail Imagine IT Comprehensive Plan through 2041 (2022)

The Vision Statement of the Town's Imagine IT Comprehensive Plan says, in part, that the Town will "assist in providing a variety of transportation options with opportunities for walking, biking, transit, and automobile by connecting all of its villages, downtown, and commercial corridors." The overall stated purpose of the Plan is to "articulate community goals and visions" and guide future development proposals. Objectives include high-quality design as well as improving and promoting bicycle and pedestrian networks. Interestingly, the context section of this Plan does not emphasize the pace of growth in Indian Trail as much as the regional attractions that drive growth in the larger metropolitan area and the Town's place within the region.

The Plan is structured around "Villages or Corridors," identifying six of the former (including Downtown), and two corridors. Conceptually this idea was carried forward from the prior version of the Plan. Recommendations are derived from three scenarios: Status Quo, Conservative (growth), and Aggressive (growth). While the Conservative scenario was chosen, subsequent growth rates in Indian Trail exceeded this forecast.

Recommendations pertaining to pedestrian transportation largely cite the adopted Pedestrian Comprehensive Plan, identifying neighborhood loops and trails in that document. Pedestrian features, especially greenways, are noted as important character identifiers for various Village subareas. These recommendations are supplemented later in the plan, but the sub-section on pedestrian travel is pulled fairly verbatim from the adopted Pedestrian Plan.



WWW.ENVISIONITPARKS.COM

Parks and Recreation Strategic Master Plan Update (2021 Update to the 2019 Plan)

The 2021 update includes goals like developing measurable revenue targets, more engagement with residents, expansion of offerings to address growth, prioritizing maintenance, expanding connectivity, and celebrating diversity.

Much of the Plan is devoted to assessing parks facilities. However, it also identifies five "big moves:" specific actions to be undertaken by the Department, one of which is local and regional trail connectivity. The Plan also contains several references to sidewalks needing to connect to park facilities, and some specific public comments expressing the need for sidewalks and other actions.

Neighborhood Traffic Calming Policy (2021)

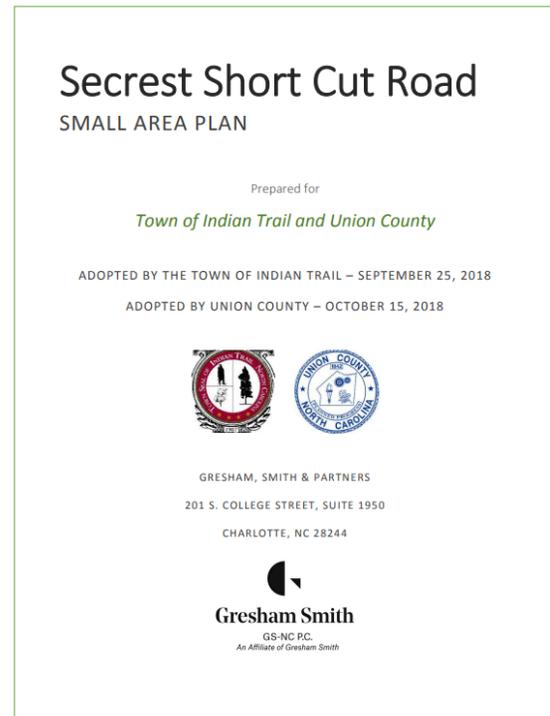
The *Neighborhood Traffic Calming Policy's* purpose is to reduce traffic speeds and improve safety conditions in residential areas (along with other restrictions, only streets with direct residential driveway access are covered under this policy). Within the policy, it is noted that sixty percent (60%) of residents have to sign a petition approving the traffic calming measures and the traffic calming plan has to be approved by Town Council.

The preferred treatments are described with potential impacts to neighbors and emergency responders. These **preferred countermeasures are all physical infrastructure changes**, some of which, like raised crosswalks may directly improve pedestrian safety while other treatments (like center island narrowing) may indirectly improve the safety or aesthetics of the pedestrian experience.



Traffic Calming Examples: Raised Crosswalk and Chicane design

Secret Short Cut Road Small Area Plan (2018)



This Plan develops a future vision for a small area in eastern Indian Trail that also falls within the jurisdictions of Hemby Ridge and Union County. The area is – currently – almost entirely (99%) residential and agricultural – although less than 10% of land is developed. The lack of cross-street mobility imposed by major streets was noted in the plan as a core issue. Associated concerns include noise, growth, and continuity of community character.

Recommendations suggests that the area will develop with very little low-density uses, and be mainly comprised of a mix of medium- and high-density residential with crossroad commercial and highway-oriented employment. As with many Indian Trail plans, **connectivity is a key strategy, along with sidewalks on several streets***.

**NOTE: Traffic analyses should find more points of engagement with pedestrian movements on, to, and through proposed developments while respecting adopted plan recommendations.*

Sidewalk Maintenance Policy (2012)



This Policy outlines how Indian Trail will manage the maintenance of its sidewalks, which are reviewed on a rotating basis at least once every three years. Repairs are determined by these assessments using a ranking system for sidewalk segments in one of three categories:

- no scheduled maintenance or
- cracks/separation warranting annual maintenance or
- repairs within six calendar weeks.

Sidewalks along private streets are the responsibility of the HOA or residents. It is not clear how much if any funds that Indian Trail contributes to sidewalk repair beyond Powell Bill programming, but **typical funding amounts should be identified in the new Pedestrian Plan.**



Bike IT Bicycle Master Plan (2011)

The Plan itself begins with the context of rapid prior growth in population, which has almost tripled since 2000. Most of this expansion is natural growth, although there have been some changes in the town boundary as well.

Major priorities include:

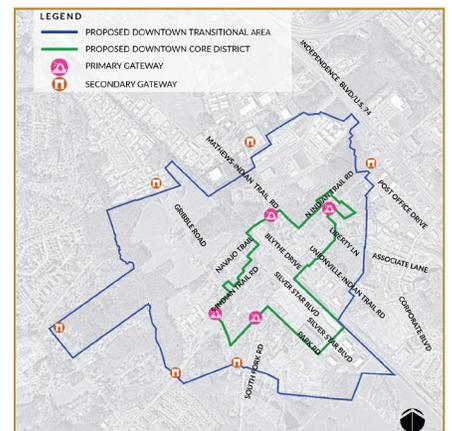
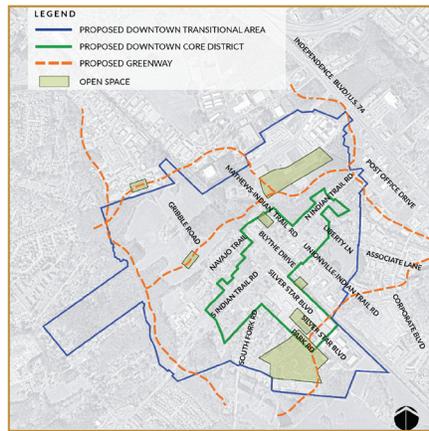
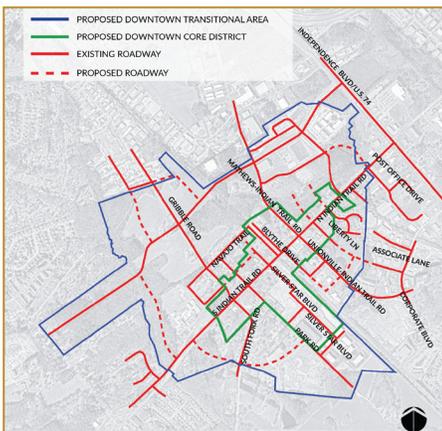
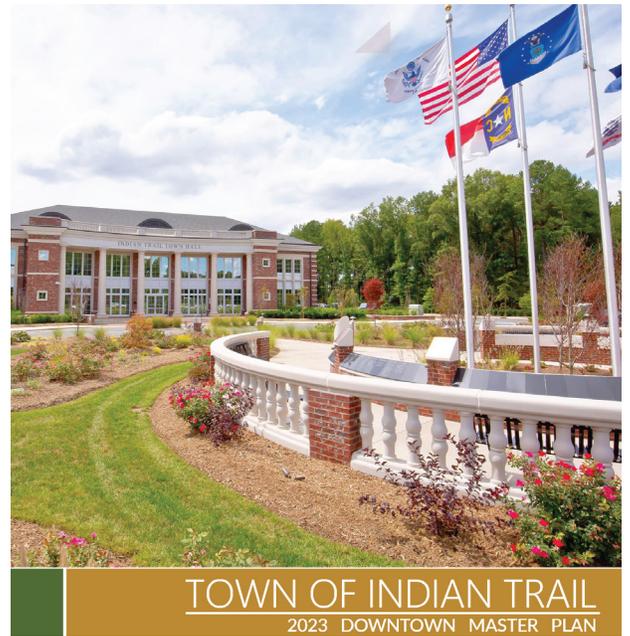
- connectivity between neighborhoods and destinations with multi-use paths, greenways
- bicycle facilities that are safe and accessible to all users
- connections to downtown

The summary identifies key policy, construction (e.g., signage, pilot projects), and funding priorities. Recommendations were built from public outreach techniques that included an on-line survey, public, and stakeholder interviews. **Survey and crash data both supported the idea that safety was of paramount concern to biking on any facility that is a major roadway.**

Downtown Master Plan (Adopted November 2023)

In November of 2023, the Town adopted the Downtown Master Plan Update, the first major update to the Downtown Master Plan adopted in 2006. The Update works in collaboration with the Comprehensive Plan and guides development within the downtown area. The updated plan includes amendments to the Town’s Unified Development Ordinance, and rezones the Downtown to one of three new districts: Downtown Core District (DCD), Downtown Transitional District (DTD), or Downtown Transitional, Residential District (DTD-R). Additionally, the Plan proposes new roadway extensions and connections, which should be accompanied by sidewalk construction in accordance with current land development standards, and new greenways.

A guiding principle is to “Use principles of complete streets, create bike corridors and pedestrian linkages to parks, amenities, and downtown spaces and neighborhoods.”



Indian Trail Code of Ordinances / Unified Development Ordinance (2021)

The Indian Trail Code of Ordinances (“Code”) has several direct references to pedestrian infrastructure considerations.

The Town has important regulations and guidance that coordinate landscaping and pedestrian movement / infrastructure:

- There are preservation requirements for trees in public rights-of-way (ROW), including ROW used for sidewalks and greenways (830.040)
- Development projects containing multiple buildings and activities are required to provide safe and direct pedestrian connections between the different buildings and land uses. Such sidewalk and walkway improvements must be coordinated with the layout and design of required landscape improvements (810.200)
- Bike parking standards and quantities are established in Sections 1030 (1030.010-.020)
- General design language for pedestrian movement and infrastructure (1110.090)

Connectivity is also promoted by requiring two or three entrances, restrictions on offset intersections, minimum driveway / street spacing that may be more restrictive than NCDOT standards, convenience and safety for bicycle and pedestrian movement. Pedestrian connections discernible by material or design from driving surfaces are also required from public sidewalk to the entrance of all principal buildings.

Sidewalks are required on both sides of the street except for minor residential subdivisions (fewer than five dwellings) or large-lot subdivisions (four acres or more in size). Other policy considerations

for sidewalks include obstruction (132.01.01), trash (50.01.05/60.04.03), loitering (71.01.04(7)), prohibition of golf carts (31.07.01), restriction on staking animals where they can reach the sidewalk (91.01.02), and **limitations of sidewalk usage by juveniles under the age of 17 between the hours of 11PM and 6AM (Sec. 131.02.01).**

Development regulations also include consideration of pedestrians. For example, 60% of a building face adjacent to sidewalk must be transparent (630.040); greenways are not mentioned. **Site plans have to show sidewalks and greenways (350.050(A.13)/360.130) on the site but not nearby planned or existing facilities (e.g., vicinity map).** Sidewalks and other infrastructure have to be approved by the Town before private construction commences, but **greenways are not called out by name (360.040).**

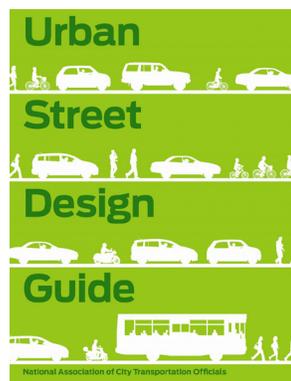
Easements are required for greenways, trails, and bike paths at the discretion of the Planning Director (1160.010). Illumination is required for sidewalks (1330.070), although greenways are not mentioned in this section. While compliance with the Comprehensive Plan is noted (13120.020) there is **not a requirement for new developments to be in compliance with an adopted pedestrian (or Bicycle or Greenway) plan. Greenways do not appear to have a definition in the current version of the Code.**

Indian Trail Land Development Standards (2021)

The Town's standards address sidewalk construction criteria and intersection design, both of which are relevant to this Plan. Sidewalks are to be a minimum of six feet (6') in width. Suggesting that high-pedestrian traffic areas should be at least eight feet (8') in width unless otherwise noted or defined hardship cases would be an improvement. Intersection radii for local and collector streets are 25' and 30' respectively, regardless of topographic conditions, sufficiently restrictive to slow turning traffic if this is an effective radius. If this dimension refers to an "actual" radius, then **five or 10 feet on local streets would be more appropriate to reduce turning vehicle speeds and shorten pedestrian crossing distances.** (Note: Refer to PedBikeSafe.org "Curb Radius Reduction" and NACTO's Corner Radii for definitions and additional commentary on desirable curb radii.) Modifications and clarification dealing with appropriate design vehicle, presence of on-street parking, and presence of bicycle lanes, etc., would be useful. **Standards for greenway construction, including clear zones, gateway access/control, and materials would also be a relevant addition to the current standards.**

Corner radii directly impact vehicle turning speeds and pedestrian crossing distances. Minimizing the size of a corner radius is critical to creating compact intersections with safe turning speeds. While standard curb radii are 10–15 feet, many cities use corner radii as small as 2 feet.

— *NACTO Urban Street Guide*



2050 Metropolitan Transportation Plan (2022)

Charlotte Regional Transportation Organization (CRTPO)



This is the federally mandated long-range 20-plus-year transportation plan for the Charlotte / Metrolina Region, including Indian Trail and part of Union County, as well as Mecklenburg and Iredell counties, and 23 other municipalities. This Plan discusses growth trends, relationships to other planning documents, and engagement. Active in reviewing active mode recommendations, members of the standing CRTPO bicycle and pedestrian committee were part of this plan's process.

Sidewalk and shared-use trail recommendations are pulled primarily from those jurisdictions – like Indian Trail – that have adopted pedestrian plans. Funding shortfalls and equity are discussed as important planning considerations. Scenario planning was used to drive recommendations, including investments in connected and autonomous vehicles.

CONNECT Beyond Regional Mobility Plan (2021)

Centralina Regional Council & Metropolitan Transit Commission



This Plan, which emphasizes an all-encompassing approach to public transportation planning, has a study area of 12 counties in two states with a population of 2.6 million. Rapid growth is the Plan's most critical topic, also with a marked focus on equity practices signaled by access to education, jobs, and housing to promote economic and social mobility. It isn't surprising that major mobility hubs (locations where people can access multiple forms of transportation) and corridors are a focus for a plan with such a large study area.

Pedestrian-relevant principles include:

- expanding mobility choices (including walking)
- better bus networks, mobility-friendly places
- investments in strategic mobility corridors

The number one goal from the survey results was to create safe and connected multimodal networks, including those serving pedestrians.

Considering “mobility-friendly place” designations and design considerations for infrastructure and growth patterns in the pedestrian plan would tie into this document, as would continuing to emphasize safe connections across and along major highways.

Carolina Thread Trail Master Plan for Union County and Participating Municipalities (2011)

CAROLINA THREAD TRAIL
MASTER PLAN
FOR UNION COUNTY AND
PARTICIPATING MUNICIPALITIES



The Carolina Thread Trail, known as the “Trail” impacts 15 counties, with 100 proposed miles of greenway in Union County, was developed through a community-driven process. A key part of that process was identifying destinations, including Indian Trail parks and cultural/historic places.

Stallings to Indian Trail, Indian Trail to Wesley Chapel are two routes impacting the Town, and the latest thinking on these routes of the Trail should be included in the Pedestrian Plan update. Incorporating action steps, including involvement with the Friends of the Carolina Thread Trail organization, corridor planning, easement acquisition / incentives, and updating the Master Plan, should be considered as well.

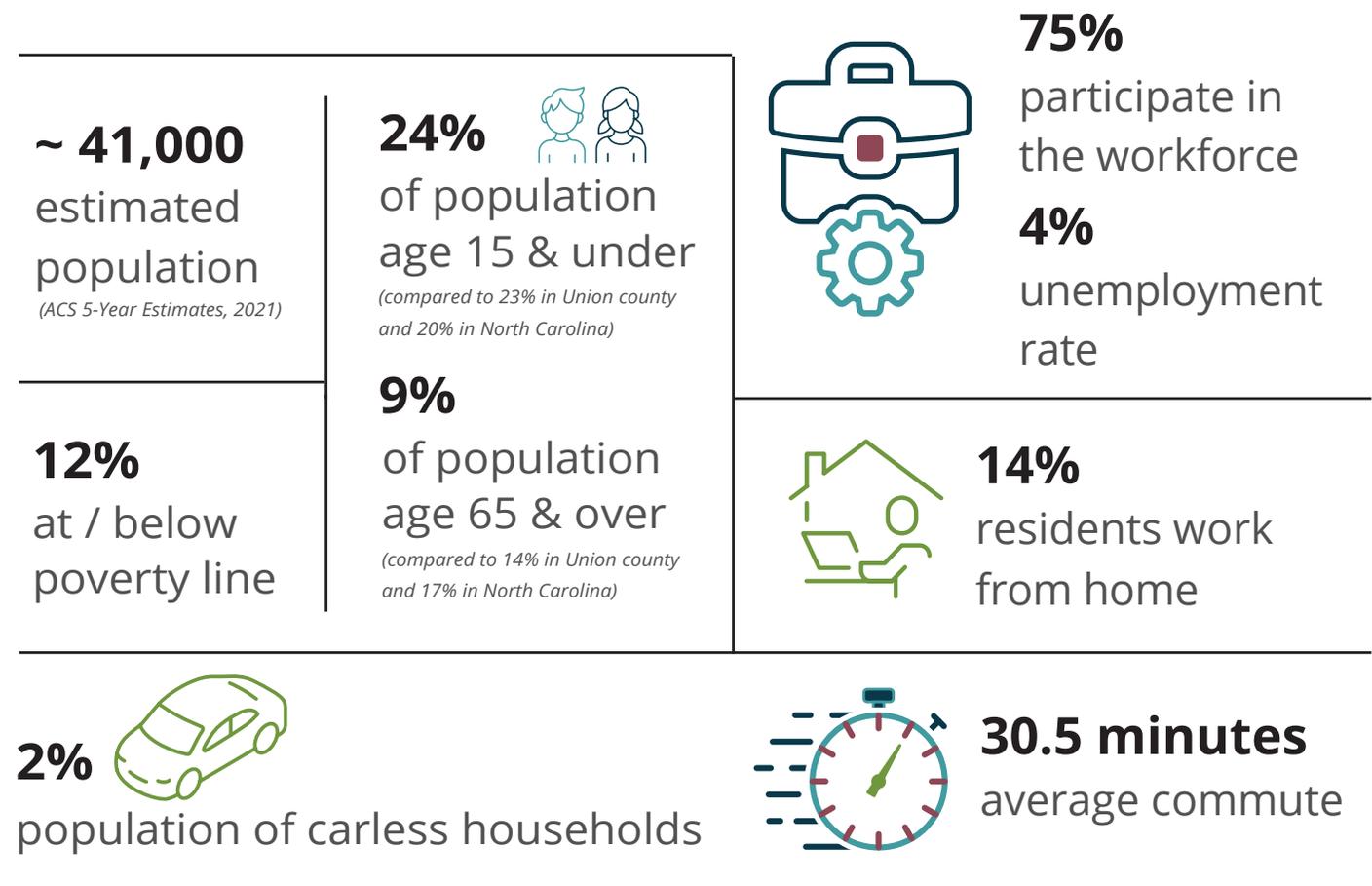
Community Characteristics

Demographics

Demographics can help define the population characteristics within Indian Trail that walk, or would like to walk. Lack of car ownership, commuting patterns, and income status are indicators of community needs and can be used to project demand for a well-connected pedestrian network.



Indian Trail is one of the **fastest-growing** communities in North Carolina



How residents get around (mode choices)

Indian Trail's neighborhoods are spread throughout the town limits, with commercial areas and community services (like parks) distributed throughout but close to major thoroughfares. Not surprisingly, the vast majority of residents choose to travel by automobile rather than active modes, both due to development pattern as well as the lack of viable mobility alternatives. 85% of Indian Trail residents travel by automobile, whether alone or shared, with less than one percent of the population choosing to walk.

Existing Facilities

Key Destinations/Trip Generators

Certain community features, such as downtowns, schools and universities, and key shopping destinations generate traffic and influence travel patterns within the community. These are called trip attractors, or trip generators, and understanding their location in Indian Trail is important to understanding a community's transportation network as a whole.

Within the Town, these key locations include:

- Sun Valley Commons Shopping Center
- Union Festival Shopping Center
- Independence Boulevard, between Indian Trail-Fairview Road and Unionville-Indian Trail Road
- Crooked Creek Park
- Chestnut Square Park
- Schools or Grocery stores – various locations

Notably, many of these trip generators are distributed across Indian Trail's municipal limits and opposite sides of Independence Boulevard. Getting to and between these areas requires crossing this major thoroughfare, which features few safe, convenient crossings for pedestrians.

"Sun Valley is where I do a lot of my shopping"

"I wish I had other places to walk"

"...Need more tree cover"

- Focus Group Stakeholders



Existing & Proposed Facilities

Indian Trail's pedestrian network is developed but incomplete, characterized by the gaps that result from construction through private development and lack of facilities on state-owned roadways. Within neighborhoods, residents and visitors enjoy a connected network of sidewalks and facilities conducive to walking. This may vary between new and established neighborhoods, as older communities may lack sidewalks. However, **very few sidewalks or shared-use facilities exist along collectors and arterials in Indian Trail**, which makes walking to destinations and difficult and stressful choice. Shared-use paths exist (along

Old Monroe Road through the intersection with Unionville-Indian Trail Road); however, these facilities are often disconnected.

Additional bike and pedestrian facilities are on the horizon. A portion of the future **Carolina Thread Trail** is planned to connect through Indian Trail (see Figure 2.1), connecting residents to parks and other destinations both in Indian Trail and the region.

Once constructed, the Thread Trail will also offer residents a **safe crossing of Independence Boulevard**. A construction project on North Indian Trail Road will construct wide sidewalks and safe, high-visibility crosswalks in downtown Indian Trail.

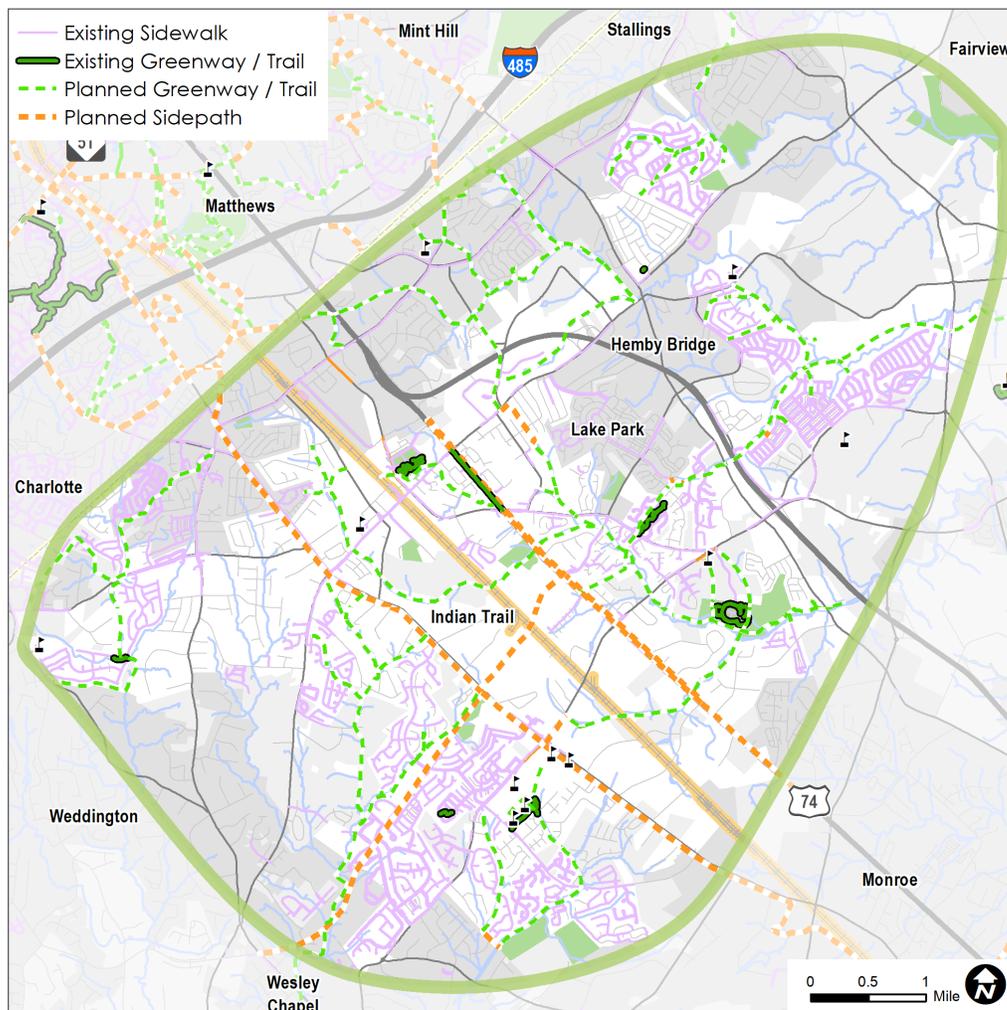


Figure 2.1: Existing and planned walking facilities in Indian Trail.

CORRIDOR NAME (Route Number) From (south/west) to (north/east)	LENGTH (mi)	MAX. VOLUME	MIN. ROW WIDTH	POSTED SPEED	NO. OF LANES
Old Monroe Road (SR-1009) From Potter Road / Stallings Road to Wesley Chapel Road / Wesley Chapel Stouts Road	5.75	21,500	60	45	2
Unionville Indian Trail Rd (SR-1367) From N Indian Trail Rd to Sardis Church Rd	2.77	16,000	60	35 / 45	2 / 4
W Unionville Indian Trail Rd (SR-1367) From Sardis Church Rd Roundabout to N Rocky River Rd	1.90	14,000	60	45	2 / 3 / 4
Forest Lawn Dr (SR-1358) From Potter Rd to Antioch Church Rd	1.95	5,400	--	45	2
Antioch Church Road (SR-1338) From Forest Lawn Dr to Matthews Weddington Rd	0.44	11,500	--	45	2
Matthews Indian Trail Rd (NS-97446) From N Indian Trail Rd to CPPC Lane	2.09	--	--	35	2 / 3
E Independence Blvd (US-74) From Unionville Indian Trail Rd to Monroe Expressway Bypass	2.06	79,000	100	55	4 / 6
W Hwy 74 (US-74) From Rocky River Rd to Faith Church Rd	2.56	56,500	100	55	4 / 5
Secret Short Cut Rd (SR-1501) From N Rocky River Rd to Indian Trail Fairview Rd	3.92	15,500	--	35 / 45	2
Idlewild Rd (SR-1501) From Stevens Mill Rd to Indian Trail Fairview Rd	1.99	24,000	60	35 / 45	2 / 3
W Lawyers Rd (SR-1004) From Ridge Rd to Hawthorne Dr	3.00	15,500	--	45	2 / 3
Wesley Chapel Rd (SR-1162) From Hugh Crocker Dr to Goldmine Rd	0.45	14,500	--	45	2
Goldmine Rd (SR-1162) From Wesley Chapel Rd to Red Cedar Ln	0.95	3,800	--	45	2
Wesley Chapel Rd (SR-1377) From Goldmine Rd to Old Monroe Rd	2.44	20,000	--	45	2 / 3
Wesley Chapel Stouts Rd (SR-1377) From Old Monroe Rd to E Independence Blvd	1.17	21,000	--	45	2 / 5
Poplin Rd (SR-1508) From W Unionville Indian Trail Rd to N Rocky River Rd	1.75	5,900	--	45	2 / 3
N Rocky River Rd (SR-1514) From Poplin Rd to W Lawyers Rd	1.80	8,000	60	55	2 / 3
Faith Church Rd (SR-1518) From W Unionville Indian Trail Rd to Indian Trail Fairview Rd	2.64	1,600	60	35 / 45	2 / 3
Faith Church Rd Ext (NS-97305) From E Independence Blvd to W Unionville Indian Trail Rd	0.66	--	--	35	3 / 5
Indian Trail Fairview Rd (SR-1520) From Younts Rd to N Rocky River Rd	4.74	14,500	40	35 / 45	2 / 4
Waxhaw Indian Trail Rd (SR-1008) From Potter Rd to Old Monroe Rd	3.20	6,900	--	45	2
S Indian Trail Rd (SR-1008) From Old Monroe Rd to Matthews Indian Trail Rd	0.98	20,000	60	35	2 / 3
N Indian Trail Rd (SR-1008) From Matthews Indian Trail Rd to Independence Blvd	0.50	20,000	--	35	2 / 4
Mill Grove Rd (SR-1525) From Idlewild Rd to Howey Bottoms Rd	3.42	7,200	--	35 / 55	2 / 3
Chestnut Ln (SR-1362) From Matthews Weddington Rd to Old Monroe Rd	2.58	8,400	--	35 / 45	2 / 3
Chestnut Pkwy (NS-98997) From Old Monroe Rd to Independence Blvd	1.49	--	--	25	4
Potter Rd (SR-1357) From Waxhaw-Indian Trail Rd to Old Monroe Rd	4.50	16,000	60	45	2 / 3
Stallings Rd (SR-1365) From Old Monroe Rd to Mt Harmony Church Rd	3.09	14,000	60	35 / 45	2 / 4
Stevens Mill Rd (SR-1524) From Stallings Rd to Greenway Dr	2.73	10,000	60	45	2 / 3

Table 2.2: Select characteristics for existing roadways in Indian Trail. Volume counts (AADT) from NCDOT as of 2021.

Crashes & Safety

Analyzing crash and safety data is a critical tool in understanding the needs and opportunities in Indian Trail’s transportation network. Concentrations of crashes indicate acute areas of concern for all roadway users: higher crash statistics may indicate high usage, poor geometric design, inadequate sight distances, or other potential causes.

Crashes show that the primary barrier to safe pedestrian activity is Independence Boulevard. A high-speed, high-volume corridor, Independence Boulevard has intermittent walking facilities with significant gaps along the corridor, as well as few crossing opportunities spaced far apart.

Half of all fatal bicycle- and pedestrian-involved crashes in the study area from 2011 to 2022 occurred on or near Independence Boulevard (see Figure 2.3). Intersections at Unionville-Indian Trail Road and Wesley Chapel Stouts Road stand out as high-crash concentrations as well.

Off of Independence Boulevard, the Sun Valley Commons Shopping Center area and the Unionville-Indian Trail Road / Old Monroe Road intersection also show higher crash frequencies. As future destination centers, creating a safer pedestrian environment is important to achieving broader community goals in these areas.

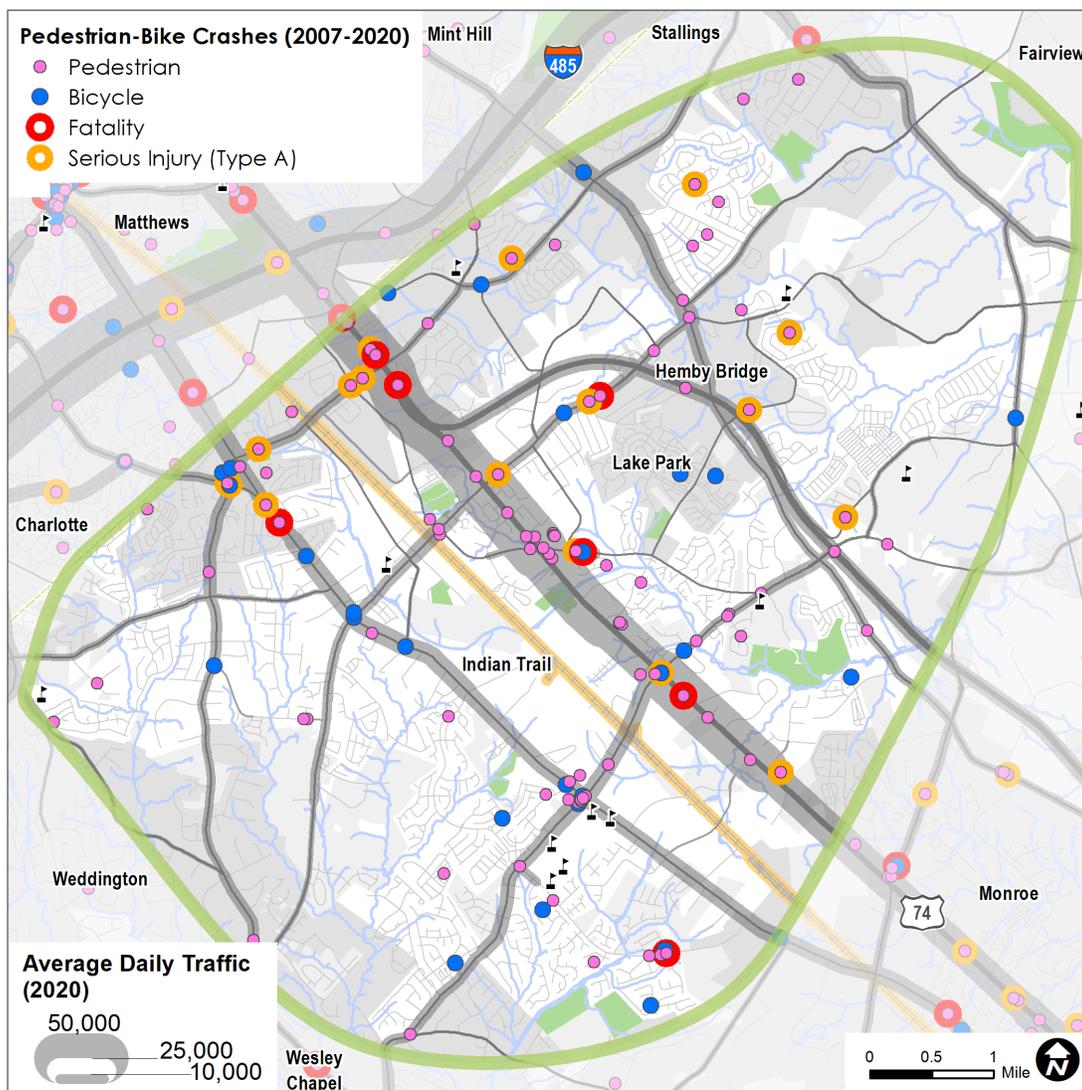


Figure 2.3: Bicycle & pedestrian crashes (2007-2020) with relative traffic volumes.

PAGE INTENTIONALLY LEFT BLANK

03

PUBLIC ENGAGEMENT

<u>PROJECT WEBSITE</u>	30
<u>ONLINE SURVEY</u>	31
<u>INTERACTIVE MAP</u>	32
<u>FOCUS GROUPS</u>	33
<u>PUBLIC OUTREACH EVENTS</u>	34

PUBLIC ENGAGEMENT



Public engagement plays an critical role in any design or study, as its results will impact the daily lives of community members and local businesses. Meaningful engagement means stronger results, tighter community bonds, and a greater chance of implementation. Furthermore, engagement provides invaluable feedback to planners, engineers, and designers that might not be fully understood looking at data alone; **the human element and a diversity of perspectives helps to reframe the project team’s view of the issues and provide better suggestions for improvement.**

This section describes the processes, strategies and activities used to engage with the Indian Trail community to date. It also summarizes information received from the public, including online survey methods, virtual interaction, and public meetings and events.



Project Team outreach at the IT Paws in the Park Event

Project Website

The website for the Plan’s development, www.moveindiantrail.com, was established early in the Plan’s development to serve as a key focal point both for disseminating information and receiving feedback. The website features information on project purpose, dates and locations of upcoming meetings, and ways to get involved with the project. These include the Online Survey and Interactive Map, described below.

MOVE IT

We want to hear from you!
Click Here

Home Outreach Documents

MoveIT PEDESTRIAN PLAN UPDATE

Welcome! We're glad you're here!

Why this project?

The Town of Indian Trail is pleased to announce the start of **Move IT Pedestrian Plan 2023**. The purpose of this study is to examine conditions for walking in and around Indian Trail and provide recommendations to improve the overall walking experience for all users.

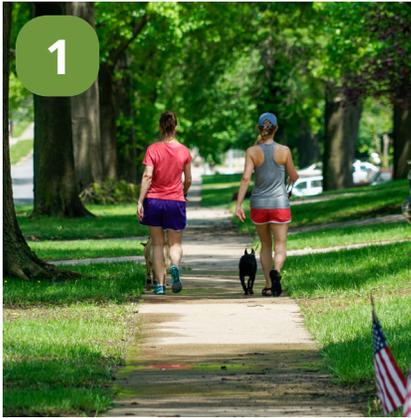
This planning project will assess conditions and recommend policies and

[moveindiantrail.com](http://www.moveindiantrail.com)

MoveIndianTrail.com website as of November 2023.

Online Survey

One of two early means of online engagement, the online survey was accessible through the project website and allowed the public to provide feedback on issues central to the Plan's development, such as areas of concern, important destinations, and desired improvements to the pedestrian network. Open from March to August of 2023, the survey generated 546 responses. Key takeaways follow (responses can be found in the Appendices to this Plan):



1

Walking is an important part of Indian Trail residents' daily lives.

Approximately three-fifths of survey respondents are walking at least once or twice a week in Indian Trail, with 32% of respondents walking daily, and 30% walking weekly (at least once or twice). The reasons for their trips, however, are telling: while over 70% indicated that they walk daily for recreation or exercise, fewer than 10% indicated they walk at all to or from school or work, and nearly two-thirds (64%) indicated they never walk to run errands or shopping. Recreation is always a top reason for walking, but the significant difference between recreation and transportation-based responses indicates a community not conducive for walking.

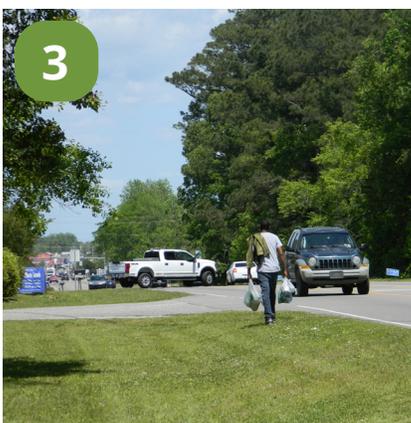


2

Residents feel safe and comfortable walking... in *limited* areas.

Residents' perception of safety is highly dependent on location. Not surprisingly, residents indicated relative comfort with walking within their neighborhoods (74% comfortable, to 17% uncomfortable), reinforced by connected sidewalks on at least one side of the street. Other areas, however, were less comfortable, including:

- Near schools (31% comfortable to 40% uncomfortable)
- In downtown Indian Trail (27% comfortable to 42% uncomfortable)
- To or from parks and other community resources (26% comfortable to 51% uncomfortable)



3

Crossing major roads and intersections is a core safety concern.

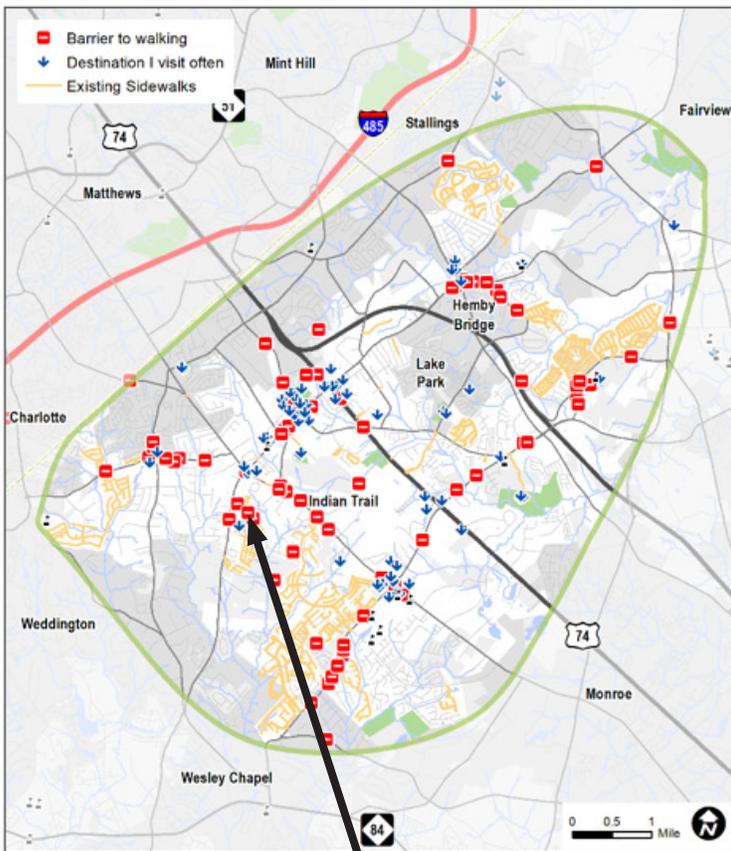
Crossing roads – and walking along major roads – generated significant discomfort. Only 6% of respondents indicated any level of comfort walking along larger roads (84% indicated discomfort), and nearly 70% of respondents indicated discomfort crossing streets at intersections regardless of speed or volume:

- “[I] have not ventured out of [my] neighborhood.”
- “[The] sidewalks begin and then end -- with no place to safely cross to reach toward a sidewalk.”
- “Very dangerous intersections, like South Fork Road and Old Monroe Road, along with Indian Trail Road. A lack of sidewalks and definitely non-existent lighting.”

Interactive Map

Like the Online Survey, the Interactive map provided another early means of online engagement. The interactive map allowed respondents the opportunity to leave feedback on the existing transportation network from the convenience of their home rather than at an in-person public meeting on a specific date/time. The project team asked for locations that may serve as potential barriers to biking, destinations that residents bike or walk to currently or would like to

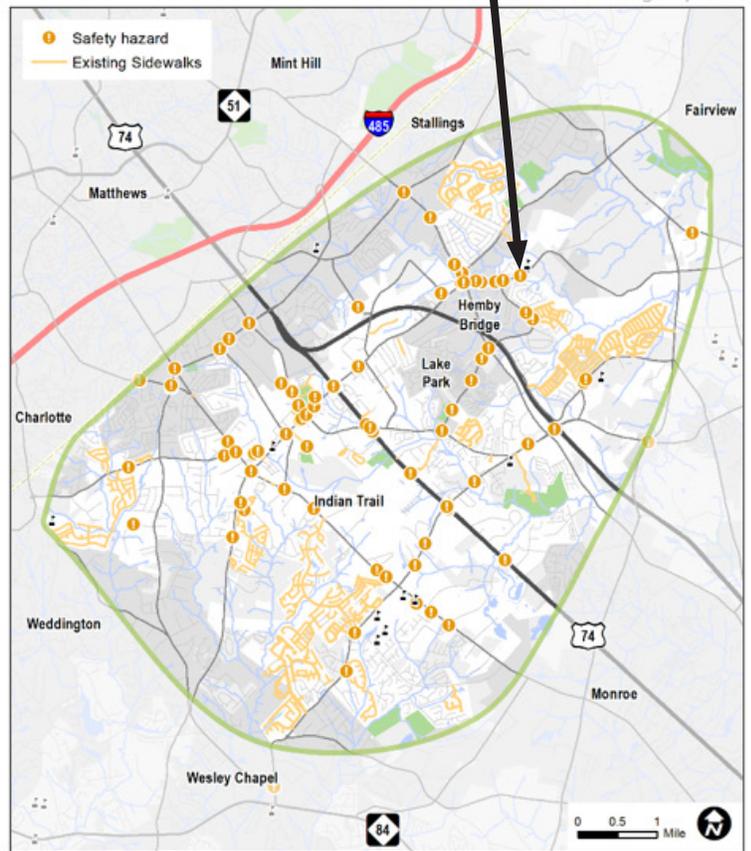
bike or walk to in the future, as well as any areas of acute safety concerns. Community feedback was excellent, **346 unique points** on the map. These points were used to identify priority corridors or areas of interest for priority project design, as well as to aid in evaluation and prioritization of recommendations (discussed further in subsequent chapters). All comments can be found in the Appendices to this Plan.



Interactive Map showing Points of Interest contributed by residents

"A sidewalk connecting neighborhood to grocery store would be so helpful for those who cannot drive!" (Improvement Needed)

"This neighborhood is close enough to the schools to walk but there is not a safe path." (Safety Hazard)



Focus Groups

Focus Group Meetings, conducted towards the end of the first phase of engagement, offered an opportunity to discuss in more detail some of the issues, goals, and potential strategies for improvements to the pedestrian network. These individuals included residents, local committee members, community leaders, advocates, regional policy-makers. In contrast to the volumes of quantitative data produced during the initial investigation phase of the project, these 'listening sessions' with community members in a virtual format allowed the project team to verify data with group perspectives, as well as to supplement the same information with local insight and perspective not captured through data.

2 Focus Group Meetings:
 - Greenways & Aging
 - Policy Officials

10 Focus Group Attendees, from:
 - Union County
 - Council on Aging
 - Chamber of Commerce
 - Residents

Summary of key Focus Group themes discussed:

1 Safety improvements benefit both people and places in Indian Trail.

- Safe sidewalks with connecting crosswalks improve park accessibility.
- Indian Trail demographics are shifting to a slightly older population, and seniors need safety improvements – including lighting – to feel comfortable walking.

2 Greenways are both a recreational amenity and a transportation improvement.

- Residents and visitors alike who utilize the greenway system throughout Indian Trail value shade and prefer greenways to sidewalks during hotter summer months.
- Separation from traffic encourages families to make greater use of the network.

3 Strengthening regional relationships can help speed up implementation.

- As one of the largest communities in the region, Indian Trail's tax base is better equipped to support implementation.
- CRTPO, Union County, and NCDOT Division 10 staff can support implementation efforts through grant assistance and training on locally-administered projects program.

Public Outreach Events

Public Outreach

The first round of public engagement took place on **Saturday, May 6th**, as the project team set up a pop-up tent at the **Paws in the Park event at Crooked Creek Park**. Project team members sought feedback from the public on challenges, issues, and opportunities with Indian Trail's current pedestrian network, as well as to receive other comments. Activity at the tent was significant, with over **45 members** of the public coming by to learn more about the project and leave comments on destinations they'd like to walk to, as well as safety hazards and desired connections.

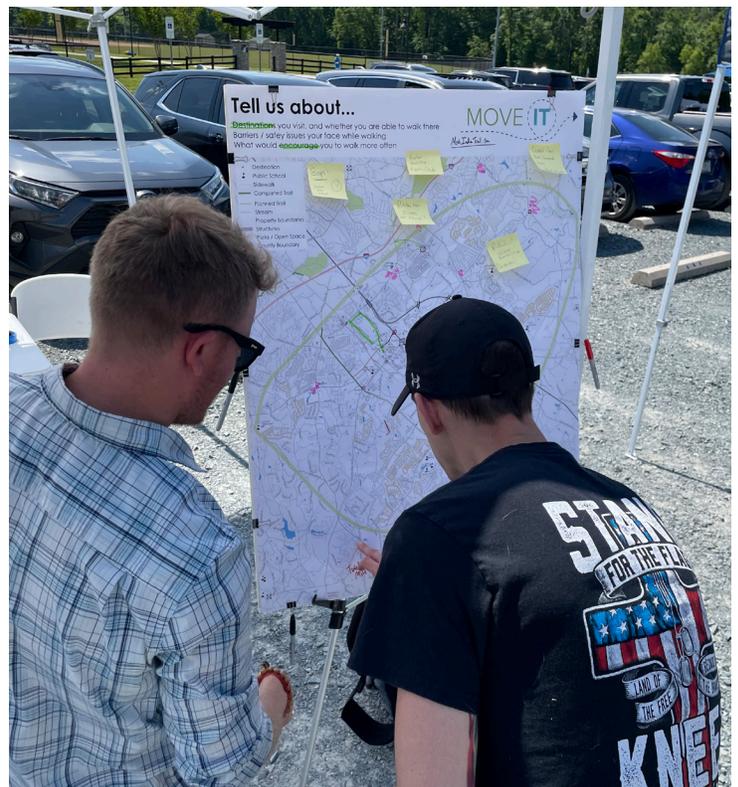
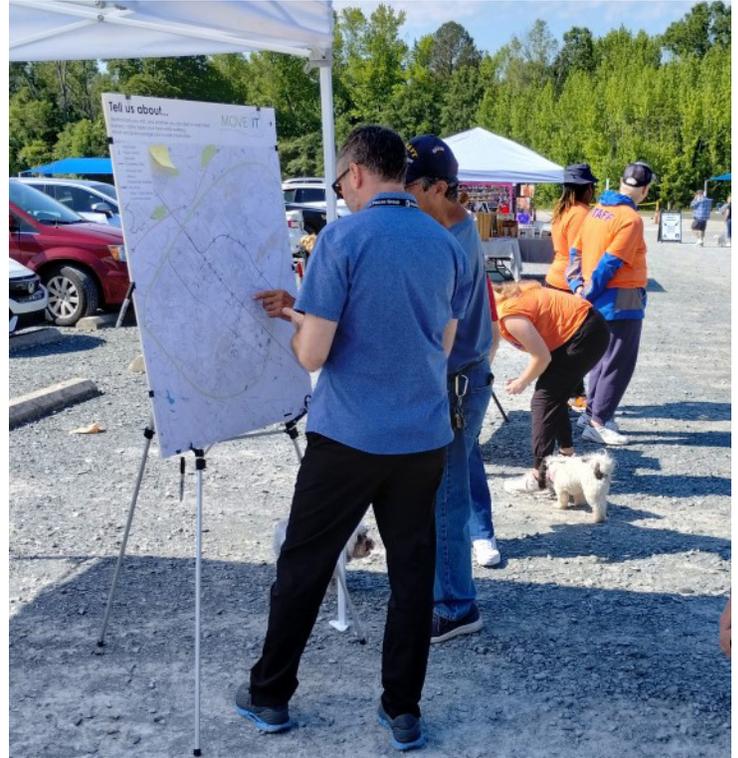
The second round of broad public outreach took place in October 2023, continuing outreach by **"meeting people where they are at"**, with pop-ups and intentional conversations taking place at Chestnut Square Park and Sweet Union Brewing Company. This second round of engagement focused on the proposed recommendations, seeking feedback from the public both on the network itself as well as prioritizing among the projects to develop a greater understanding of implementation needs. Information from this round of outreach assisted the planning team in developing evaluation criteria (see Chapter 4) and prioritizing projects for highest community impact.

"Need more access points to trails/parks"

"Walking along streets is HOT in the summer"

"Need sidewalks to "draw" people to the park"

- Outreach Feedback



Indian Trail residents and staff at the Paws in the Park outreach event.

04 : RECOMMENDATIONS

<u>PRINCIPLES OF THE NETWORK</u>	37
<u>FACILITY RECOMMENDATIONS</u>	50
<u>PRIORITY PROJECTS</u>	56
<u>POLICY AND PROGRAM RECOMMENDATIONS</u>	68

RECOMMENDATIONS



Greenway through the Town of Indian Trail.

The Town of Indian Trail will strive to construct an **interconnected and seamless network of pedestrian facilities** that is constructed incrementally over time. The network will be thoughtfully planned to connect users to desired destinations, both civic and recreational, and consider the comfort level of pedestrians of all ages and abilities. Gaps in the pedestrian network, whether roadway segments or dangerous intersections, serve as potential barriers to most pedestrians. Continual outreach to users is necessary to identify, document, and prioritize potential projects to limit or correct network gaps.

All roadway improvement projects, whether Town or NCDOT funded, must include considerations for a pedestrian facility treatment moving forward, particularly at intersection crossings. Critical network links are those crossing the railroad, or those without an alternative (parallel) facility.

Selecting the best pedestrian facility types for a given roadway can be challenging since the selection must balance traffic conditions, land use context, and implementation cost. For general guidance, the graphic below highlights the importance of **building towards an equitable pedestrian network**, beginning with the basics before focusing on enhanced features, such as convenient, comfortable, and enjoyable walk corridors.

Principles of the Network

More pedestrians are willing to walk along a connected pedestrian network, provided that these routes are efficient, seamless, and easy to use. There are seven key principles for pedestrian network design, and among these, the first three are particularly important in guiding pedestrian route selection:

- **Safety:** Reduce the frequency and severity of crashes and minimize potential conflict points between vehicles and pedestrians.
- **Comfort:** Minimize stress, anxiety, and safety concerns for the design user.
- **Connectivity:** Direct and convenient trips that provide access to desired community destinations served by the roadway network. Transition from sidewalk to greenways/sidepaths will be seamless and clear.



“Aging in place often means downsizing homes and adding walkability

- Focus Group Feedback

“We would walk more often with safer intersections and better sidewalks. I hope you will invest in make this a safer and healthier community!”

- Interactive Survey Feedback



The Seven Principles of Pedestrian Network Design:

Source: FHWA Bikeway Selection Guide (2019).

1. Safety
2. Comfort
3. Connectivity
4. Directness
5. Cohesion
6. Attractiveness
7. Unbroken Flow

Types of Walking Facilities



1. **Sidewalks:** Sidewalks are paved spaces exclusively for the use of pedestrians, typically made of concrete, and located between buildings, adjacent to travel lanes or connecting buildings to travel lane sidewalks. Sidewalks are typically located above the curb in the right-of-way, but on a temporary basis may be located flush with the roadway to accommodate construction activities. Sidewalks should be provided on all streets in urban areas according to ADA accessibility guidelines. Where an urban contiguous sidewalk and curb are not used, the sidewalk hardscape can be softened by providing a grass planting strip between the sidewalk and roadway/curb.



2. **Sidepaths:** Sidepaths are physically separated from adjacent travel lanes above the curb. They may be located on one side of a street, or both sides. Unlike two-way separated bike lanes, which provide for the exclusive travel of bikers, sidepaths are designed to support and encourage pedestrian use as well. Sidepaths are often referred to as Shared Use Paths (SUPs) or Multi-Use Paths (MUPs).



3. **Greenways/Trail:** Similar to sidepaths as a facility for non-motorized travel that is physically separated from a roadway; however, Greenways (or Trails, or Shared-Use / Multi-Use Paths) may be independently aligned (following a stream or railroad corridor), and not associated with a parallel roadway. Trails may be paved or unpaved, benefiting water quality or sustainable development in addition to their transportation or recreation function. Note that greenways / trails are not studied in depth in this plan, especially where they veer away from roadways into natural areas. The emphasis in this Plan is on connections between greenway/trail segments.

CROSSING THE STREET: INTERSECTION & MIDBLOCK TREATMENTS



Some streets are largely designed for vehicular mobility at a high level: high volumes of traffic, more trucks, or higher speeds. However, even in these environments (perhaps especially in these environments) considerations of safe pedestrian access are critically important.

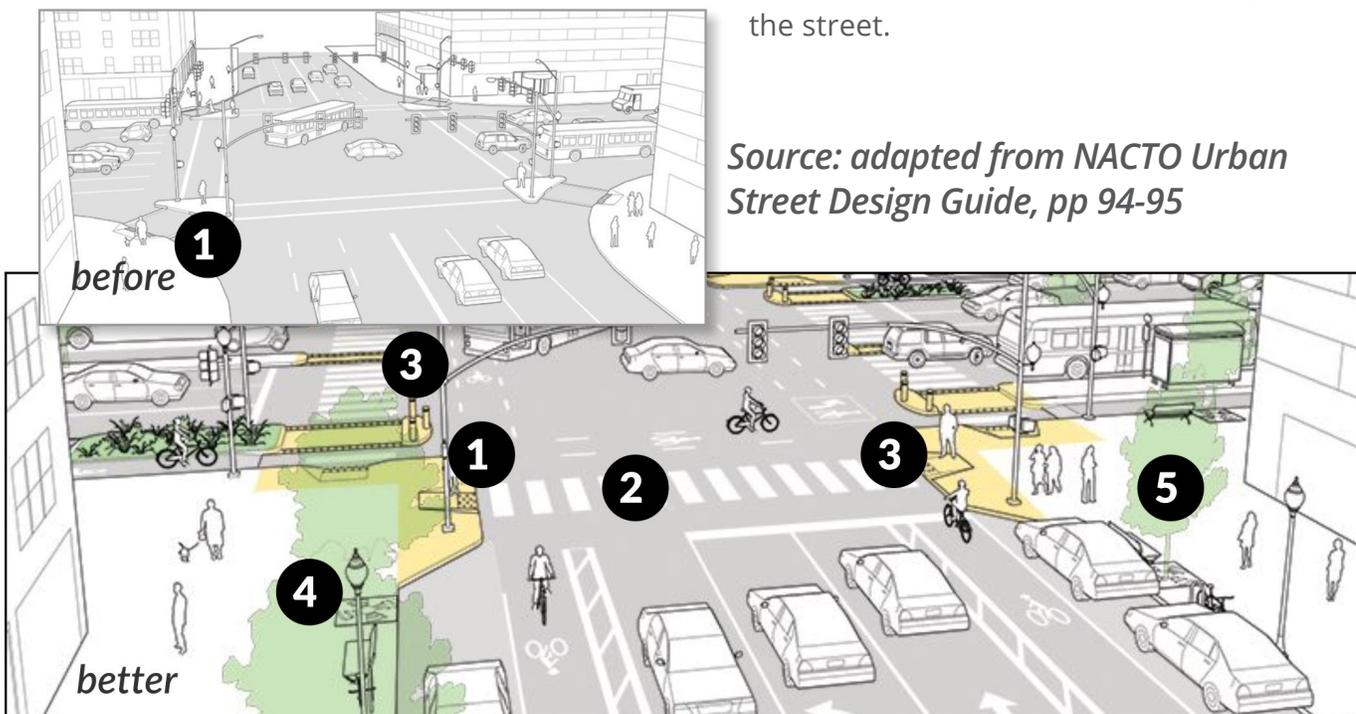
There are two main considerations in pedestrian design for roadways:

1. Roadway designers want pedestrians to cross the street at (preferably signalized) intersections;
2. Pedestrians want to cross the street where it is most convenient for them to do so. If pedestrians need to go well out of their way to cross at an intersection, then the intersection should be obviously easier and safer compared to crossing at a midblock location.

STRATEGIES AT INTERSECTIONS

It isn't necessary to work every element into an intersection upgrade like that shown in the figure below, but **(1)** eliminating free-flow or continuous right-turning lanes where practical, **(2)** using high-visibility pavement markings in busy areas, and **(3)** designing curbs and medians to facilitate "safe haven" crossings are great starts, as is **(4)** pedestrian scale lighting in areas that get after-dark activity. Easily overlooked is **(5)** streetscaping, like trees and benches, that encourage more walking - which in turn increases the driver's expectations of encountering pedestrians in the street.

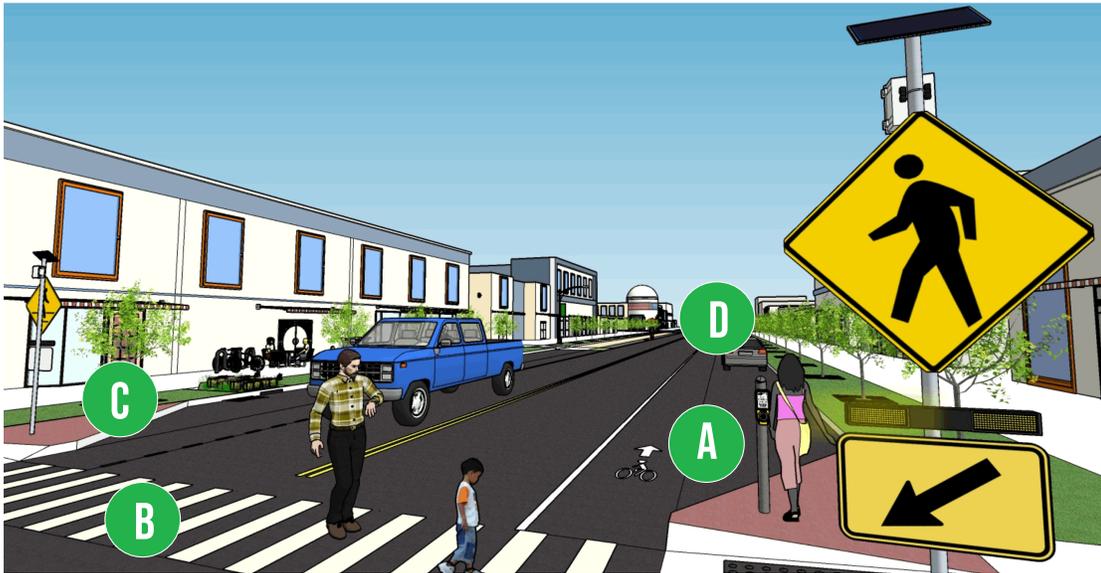
Source: adapted from NACTO Urban Street Design Guide, pp 94-95



MIDBLOCK CROSSINGS

Midblock pedestrian crossings are warranted on streets where the posted speed limit is 35 mph or less and where pedestrian volumes exceed 20 per hour crossing the major street (see MUTCD).

As with other pedestrian crossing devices, the push button **(A)** should be clearly visible and accessible. A high-visibility crosswalk **(B)** is recommended for any midblock crossing type to increase awareness of the potential to automobile drivers. Curb extensions **(C)** help to reduce the distance pedestrians have to cross the street, as well as protecting and demarcating the on-street parking area **(D)**. The device shown below is a **Rectangular Rapid Flashing Beacon (RRFB)**; higher-volume streets would require a **Pedestrian Hybrid Beacon (PHB)** using overhead signals.



Source: Adapted from Pedestrian Safety Guide and Countermeasure Selection System.

"We would love to see more sidewalks and shade trees to increase walking in our community!"

- Public Survey Response

"A sidewalk connecting neighborhood to grocery store would be so helpful for those who cannot drive!"

- Interactive Survey Feedback

"We would walk more often with safer intersections and better sidewalks. I hope you will invest in make this a safer and healthier community!"

- Public Survey Response

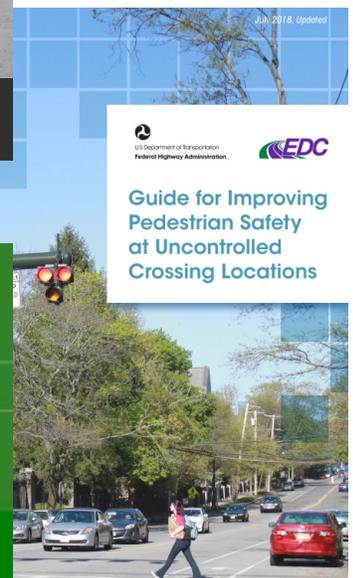
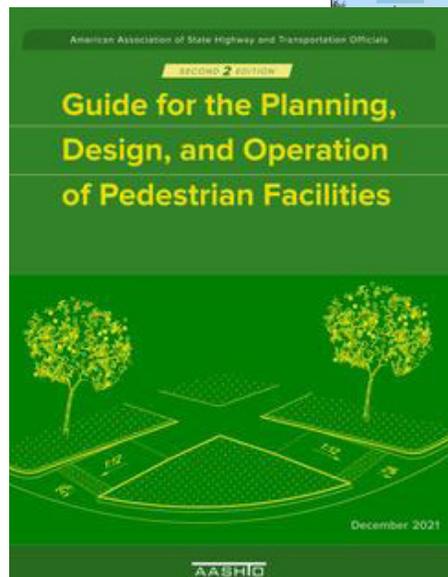
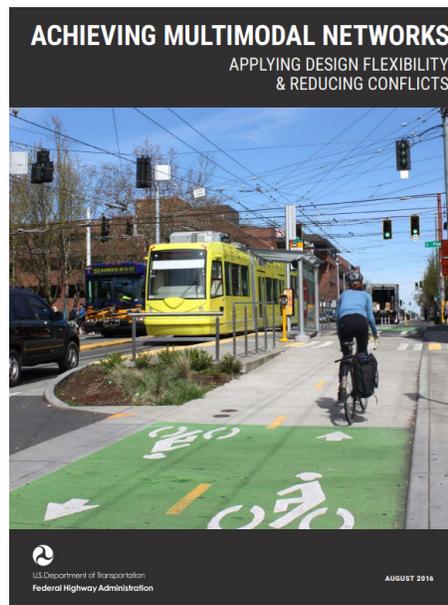
Design Guidance

Making efficient use of resources means recognizing those tools that are already in place for the Town to use. A number of agencies and organizations have published guidelines for best practice in designing and planning for safe pedestrian movement. An incomplete list of guidance documents is shown in the following list.

NCDOT also maintains a web page with links to important guidance and resources:

<https://connect.ncdot.gov/projects/BikePed/Pages/Guidance.aspx>

- *ADA Standards for Transportation Facilities*
- *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations*
- *Accessible Shared Streets: Notable Practices and Considerations for Accommodating Pedestrians with Vision Disabilities*
- *Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts*
- *Manual on Uniform Traffic Control Devices for Streets and Highways (not free)*
- *Bicycle and Pedestrian Program*
- *Federal Highway Policy & Guidance Center*
- *Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations*
- *Accommodating Bicycle and Pedestrian Travel: A Recommended Approach*
- *Design Guides (streets, bicycling, transit, walking)*
- *Guide for the Planning, Design, and Operation of Pedestrian Facilities, 2nd Edition*
- *Capital Area Greenway Design Guide*
- *Multimodal Transportation Site Impact Handbook*
- *Greenways: A Guide To Planning Design And Development*



Design Principles



SAFETY FIRST: Place the safety and security of people first in the design process – not as an afterthought – or on a level playing field with other considerations. Safety comes first and is considered at every step of planning, design, construction, and maintenance.



MAJOR INTERSECTIONS: Streets always make tradeoffs between two factors: mobility and accessibility. As mobility (speed and flow) improves accessibility tends to decline, and vice-versa. With the exception of fully-controlled freeways, safe streets have safe crossings at-grade, and partial- or full-control of access streets have separated crossings at key locations near major pedestrian traffic generators like large schools or event centers.



MINOR INTERSECTIONS: Streets and intersections in Indian Trail are usually single-lane roads coming together. Increasing awareness of pedestrians should be the goal for these crossings, made safer by signal options and marked crosswalk designs that are relatively inexpensive to implement. Intersections in the Mixed-Use Activity Center and Downtown Districts also need to consider complementary aesthetics.



PARKING ALONG THE STREET: On-street parking can support street-side economies that benefit some kinds of retail, which in turn attract pedestrians and cyclists as well — if they can be accommodated together. Curb extensions (sometimes called “bulb-outs” help reduce crossing distances and buffer parking areas.



GREENWAYS OFF-ROAD AND ON-ROAD: Greenways that run parallel to the road inside its right of way have some different design considerations from their off-road counterparts, especially where they cross streets. Short connections from residential areas and pedestrian generators to greenways should be a major focus.

DESIGNING FOR A VARIETY OF USERS: Unlike modern roadways where the design variables are few, the users of trails, greenways, and sidepaths are different and possess different design parameters for different users. Consider the typical user and apply context-specific considerations (document these to prevent them from becoming a new, too-broadly applied standard).

CONTEXT: Crosswalks and public art installations are design features that can be installed later with varying degrees of success, but traffic calming is better considered during planning and design of streets.



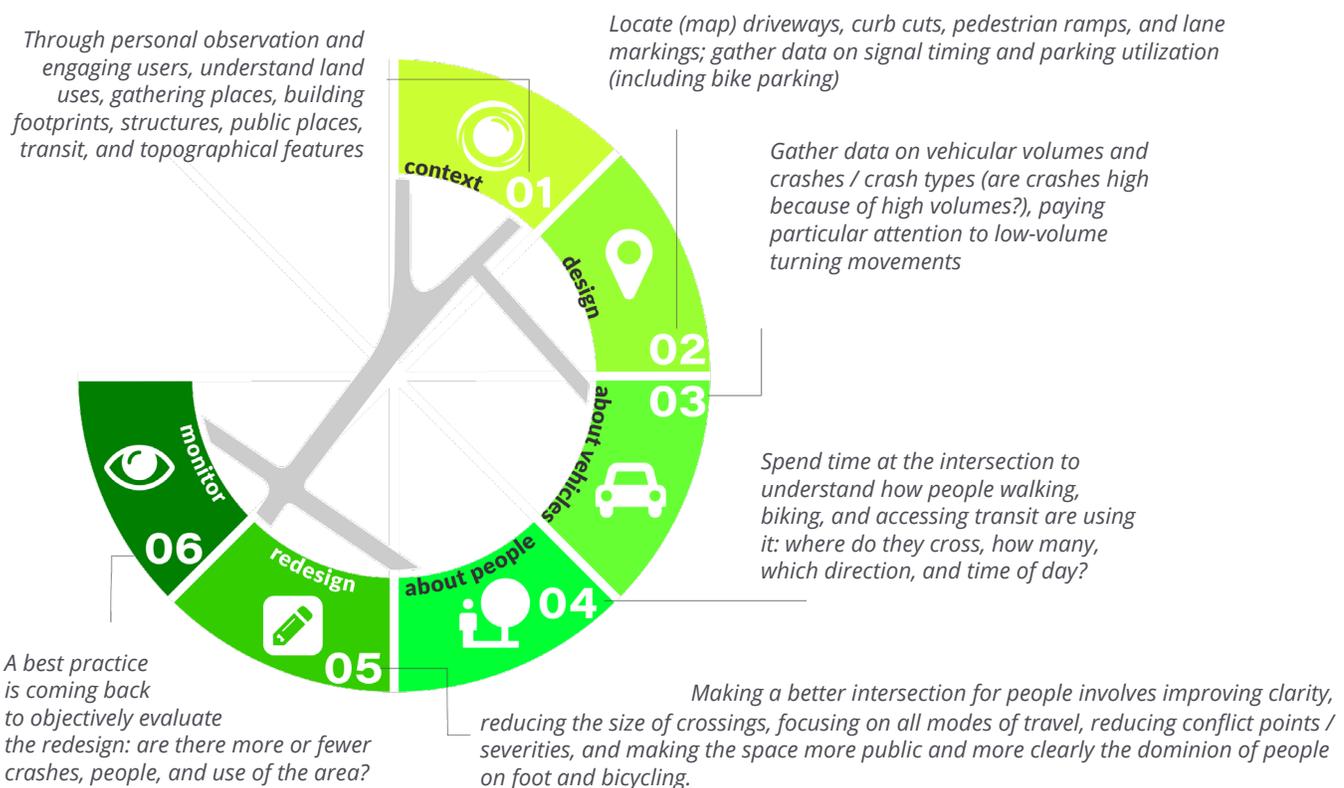
MAKE IT (AND KEEP IT) ACCESSIBLE: Connectivity and eliminating barriers add up to a big difference when traveling on foot in Indian Trail. Keeping in mind a few basic design considerations can save lives, travel time, and costs.

PEDESTRIAN DESIGN CHECKLIST: The following table should be used as a quick reference guide for reviewing site plans and proposed designs, or as a handout for the development community during the early stages of development proposals. Details are provided in half-page formats for each of the “subjects” in the following pages.

DESIGN Fundamental: PROACTIVE ACCESSIBILITY

The Americans with Disabilities Act (ADA) of 1990 and Accessibility Guidance (ADAAG) published originally by the Department of Justice (2010) is amplified by other legislation and guidance. These include the Architectural Barriers Act (ABA) and Information and Communication Technology Act (ICT, particularly with respect to communicating information via websites or kiosks), sometimes referred to as Section 504 requirements (under the Rehabilitation Act of 1973). It's important to understand that these acts require "... accessible features such as curb cuts, ramps, continuous sidewalks, and detectable warnings" but also require that efforts be made to overcome communication barriers on websites, documents, and similar efforts to the extent that is practicable.

Making an accessible transportation system means evolving a mindset whenever work in the street right of way is being considered: is there a school, senior center, park, large residential area, apartment, or other major source or attractor of pedestrian traffic nearby, and what are the likely mobility characteristics of those pedestrians? These considerations are then overlaid on the context of the built environment using the steps outlined below.



The purpose of this section of the Plan is not to supplant adopted design guidance, but to acknowledge conditions in Indian Trail that are encountered most often in the planning and consideration of infrastructure design solutions. Local, NCDOT, and federal design standards and guidance are starting points for moving forward with countermeasures on existing facilities or in the preparation of new multimodal transportation facilities.

SUBJECT	KEY CONCEPTS
ALONG the Street	
Sidewalks	Connectivity and eliminating gaps; appropriate levels of maintenance; design that encourages use by people of all abilities
Greenways	Follow FHWA Bikeway Selection Guidance for recommended minimum widths; preferred greater width in downtown and high-traffic areas
Lighting	Spacing at regular intervals; consider spacing standards at shorter distances / separation than for motor vehicle movement to encourage walking
Street Amenities	Plan ahead for connectivity between parcels; private development plays a lead role; short connections to Carolina Thread Trail
Signage and Wayfinding	Long-term costs (leasing); designs that direct light to where it is needed and away from where it is not
Traffic Calming	Can help to establish gateways to downtown identified in Downtown Master Plan Update
ACROSS the Street	
Railroad Crossing	Work with CSX to: consider adding activated physical barriers at key crossings; focus on mobility impaired accessibility
Curb Ramps	Install and repair/replace during maintenance and utility projects; focus on ADA/ADAAG compliance (existing standards); avoid corners
Curb Extensions	For use primarily in downtown or high-traffic areas; consider bicycle facility conflicts; benefits to buffering on-street parking
Midblock Crossings	Integration opportunity with fire station access points, where applicable; multi-lane crossings; high-traffic crossings
Roundabouts	Focus on sound design; splitter islands with minimum 6' width; locate pedestrian crossing away from circulator; good sight lines
Signalization	Pedestrian push-buttons on every corner; lead pedestrian intervals (LPI) on moderate-to-busy intersections
Greenway/ Street Intersections	Bring crossing back towards roadway; clear sight lines; pedestrian-side signage and signals; advance driver warning
Separated Grade Crossing	Pedestrian convenience = more use; high volume locations where other options are unavailable
Marked Crosswalks	Design to expected volumes and context; a given with 3,000+ traffic volumes; short separations - people cross where it is convenient

Table 4.1: Policy and design concepts for pedestrian improvements.



SIDEWALKS

Sidewalks should be at least five feet in width to allow for passing pedestrians to be accommodated comfortably, with a minimum four-foot separation from traffic unless a tighter configuration cannot be avoided. These values increase in the Downtown districts and Mixed-Use Activity Center overlays to accommodate tables, street furniture, additional plantings, and pedestrian-scale lighting. Concrete is the norm unless located in a high-design area that makes use of brick pavers to enhance the aesthetic value.

Slopes and cross-slopes accommodate wheelchair and other users with mobility assistance devices. Driveway slopes do not interfere with the level cross-slope of a sidewalk; slopes down to the road grade are accomplished in the buffer zone between the edge of sidewalk and edge of street. Section 7.7 of the Comprehensive Plan has the appropriate street cross-section and designs for pedestrian accommodation by street typology.



GREENWAYS

Greenways are the most-often-cited preference for people wanting to travel by foot, but developing a network requires acquisition of right-of-way through development set-asides, individual conservation easements, or working with utility companies in power easements. For this reason advance network planning and strong policies are a must.

Design should feature minimum 10' (preferred 12') widths with two-foot clear zones on each side. Break-away bollards or heavy landscaping should prevent unauthorized vehicular access. Sharp curves warrant direction (centerline) separation of opposing traffic.



LIGHTING

Lighting not only contributes to safety but to personal security. [USDOT research](#) suggests that 76% of pedestrian crashes happen after dark when only 25% of travel occurs, and that minority populations are disproportionately affected in these crashes.

Lighting needs to be directed towards where it is needed, and away from where it is not. A simple and inexpensive light meter can be used to measure luminance at various locations around schools, intersections, parking lots, and other priority areas.



STREET AMENITIES

Benches, landscaping, decorative / pedestrian-oriented lighting, water fountains (for people and their pets), bicycle repair stations, public art, and other fixtures communicate that people on foot are supposed to be here. One design recommendation is to think small and frequent instead of large and expensive. The small bronze cat statues playing on Asheville's iconic Wall Street, simple outdoor planters in Pinehurst, tiny curb art, or string lights across a minor street, alley, or parking area can be transformative. In Raleigh, one neighbor on Pace Street near downtown started writing "dad jokes" in chalk on the sidewalk during the COVID-19 pandemic, replacing them every week (or more often). Ordinances and programs, especially in high-design mixed-use activity center overlays and downtown districts, actively encourage design innovation.



SIGNAGE AND WAYFINDING

Signage is a delicate balance: too little or too much can have very detrimental effects on the outcome. While signage standards for official roadway signs, even informational and advisory, have long-standing rules (such as the Manual on Uniform Traffic Control Devices), the usage, placement, and purposes of wayfinding are more flexible.

Wayfinding should help answer questions like, "Where am I?," "Which way am I facing?," "How far away is it?," and "How can I get there?" Municipalities have also used wayfinding to help "brand" the city/town or even neighborhoods within a single municipality to create pride of place. Wayfinding helps people if it is provided at key decision points (e.g., intersections) and offers only information needed to navigate a place. If lighted, direct the lighting down, not up. *As always, be aware of NCDOT standards when considering signage, including wayfinding.*



TRAFFIC CALMING

Most of the problems people have with streets involve a conflict between the two most-important transportation objectives: mobility and accessibility. Traffic calming helps to retroactively bring traffic volumes and speeds context back into alignment with specific neighborhoods. Indian Trail's traffic calming objectives include achieving vehicular speeds appropriate to the context, increasing safety, reducing crash numbers and severity of injuries, and reducing the need for police enforcement.

Overlooked practices include law enforcement involvement in prevention; working with neighborhoods to hold street events or speed watch programs to raise awareness of the street's purposes; and focusing on educating residents about the unintended consequences (noise, deteriorating effectiveness) of some countermeasures.



RAILROAD CROSSING

Vehicle drivers are often the focus of at-grade railroad/street crossing safety treatments, but in areas where pedestrians are encouraged or expected then they should be considered just as strongly. Safety treatments at rail crossings include:

- a. Swing gates
- b. Flashing warning beacons,
- c. Detectable (tactile) surfaces,
- d. Directional surface tiling/guides,
- e. Pedestrian gates across sidewalk,
- f. Gate skirts/extensions
- g. Zig-Zag crossing and
- h. Channelizing pedestrians with fencing or large ballast stones to safe crossings.



CURB RAMPS

The Indian Trail population is relatively youthful but, like many other places, as it trends older it becomes increasingly a moral - and legal - imperative to consider how those that are physically challenged to be mobile are treated in transportation design. Pedestrian pathways need standardized and thoughtful curb access designs to make them more accessible to those using assisted mobility devices and who may be sight-challenged. Generally avoid corner ramps that direct the user into two-way traffic. As with curb extensions, considerations of drainage and attention to if and how the roadway drainage prevents ponding is necessary.



CURB EXTENSIONS (AKA, BULB-OUTS)

Extending the curb does a couple of things to improve pedestrian safety. First, it puts pedestrians into a narrower line of sight with automobile drivers while they are still buffered by a vertical curb and sidewalk. Second, they reduce the crossing distance for pedestrians and the amount of time that they are in vehicular traffic. They are also typically associated with gateways for streets and neighborhoods, buffers for on-street parking, and smaller turning radii that slow turning vehicles to allow more time for everyone to be accounted for. Notice drainage and bicycle treatments, especially with respect to on-street bike lanes during the design process.



MIDBLOCK CROSSINGS

Typically, pedestrians are encouraged to cross a street at signalized intersections where automobile drivers are expecting to be stopped. In some instances and under special circumstances (e.g., speed limits under 35mph and volumes less than 15,000 vehicles per day, or vpd) a midblock crossing may be warranted to accommodate locations where 25 or more users per hour already cross the road. Advance warning signage such as that shown in the image at right is important; less obvious is the need to consider lighting provisions and maintaining good sight lines free from visual interference and clutter.

ROUNDBABOUTS



By now most transportation professionals understand the potential safety benefits of roundabout controls at intersections: they reduce crash rates by 40% to 60% or more if the design and underlying causes of crashes are understood correctly. Pedestrians need to be considered carefully, as there are no natural “gaps” in traffic for them to cross. Persons with hearing or sight limitations are especially vulnerable to this lack of cues. Designers rely on slowing down approaching cars, signage, and high-intensity pavement markings to alert drivers to the potential presence of a pedestrian (or cyclist entering the stream of traffic). This shouldn’t discourage the use of roundabouts, but carefully considering the context and design are necessary.

SIGNALIZATION



When the subject of signalization is brought up in the context of pedestrians, it is most often focused on pedestrian push-button signals, audible warnings, and the like. These controls should be located where they are accessible to all users in an intuitive fashion.

But vehicular signalization controls are also important: the lead pedestrian interval (LPI) gives pedestrians a head start into the intersection to denote their priority and help ensure their visibility to drivers approaching an intersection. Ensuring that signal phasing is appropriate to allow slower crossings to occur is important as well.



GREENWAYS / STREET CROSSINGS

Most greenways are going to cross over a street at some point. Sometimes this crossing happens in a “midblock” situation where it is important to alert drivers and cyclists/pedestrians on the greenway path of each other. If the crossing can happen at an intersection, then the other treatments available at those locations become feasible, making it the preferred option. In general, even where sidepaths deviate away from the roadway, the path ideally “bends” back towards the roadway in advance of an intersection. This allows more time for pedestrians and cyclists to be aware of the crossing ahead, and creates better opportunities for drivers to see them approaching from their periphery. Understanding vehicular conflict points helps anticipate signage and sight lines treatments.

SEPARATED GRADE CROSSINGS



There are some instances where an at-grade crossing is simply too dangerous yet the number of pedestrians crossing the street are too great to do anything but construct a separated-grade crossing. Sometimes called a pedestrian bridge or underpass, these crossings are both expensive and surprisingly challenging to get people to use them, as they require climbing or using an elevator get up (in the case of a bridge) and down before crossing. Grade-separated crossings improve vehicular efficiencies since there is no pedestrian wait time at signalized intersections. Channelizing pedestrians to the entry points of the bridge is crucial to ensuring that there is value and optimum benefits from the structure. Bridges can't obstruct signals behind them, but they can often be decorated relatively inexpensively to create a gateway effect and thus doing “double-duty” to help justify their cost.

MARKED CROSSWALKS



Creating safe passage for pedestrians at intersections has become both a challenge and a necessity for today's designer, planner, or city architect. For many years, pedestrians have been relegated to ever-narrower spaces at the edges (often literally) of busy travelways and crossing at infrequent, inconvenient, and unsafe intersections.

Marked crosswalks, often with high-durability thermoplastic, is the standard treatment at every intersection. While high-visibility crosswalks are extremely useful in many situations, they should be applied in locations that have high volumes of pedestrian traffic, significant crash histories, or other reasons to avoid over-use and deterioration of compliance.

Facility Recommendations

Creating a network of well-connected, low-stress facilities is the goal of this plan. Walking needs to be a safe, convenient, and pleasant form of transportation for the broadest array of people. Aligning with the vision of this plan of creating safe and comfortable pedways, this low-stress network would be appropriate for people of all ages and abilities. The pedestrian facilities, crossings, and road treatments described on the next page are designed to appeal to a wide variety of pedestrians, creating a walking network that those of all ages and abilities are willing to use.

“Please make updates so we can all walk more!”

- Public Survey Response

“If sidewalks exist we will use them! I love walking short distances for errands.”

- Public Survey Response

“I would like to walk or ride my bike from Brandon Oaks to downtown Indian Trail.”

- Interactive Map Feedback

Facility Network

This comprehensive network should be built incrementally over time. As Indian Trail continues to evolve, new development and roadway construction projects, as well as regularly scheduled roadway maintenance opportunities (like resurfacing projects), should incorporate these facilities. As progress is made on priority projects, new priorities should be selected from this comprehensive map of recommendations.



15.7
miles of new
sidewalks



26.1
miles of new
sidepaths



11.9
miles of new
greenways

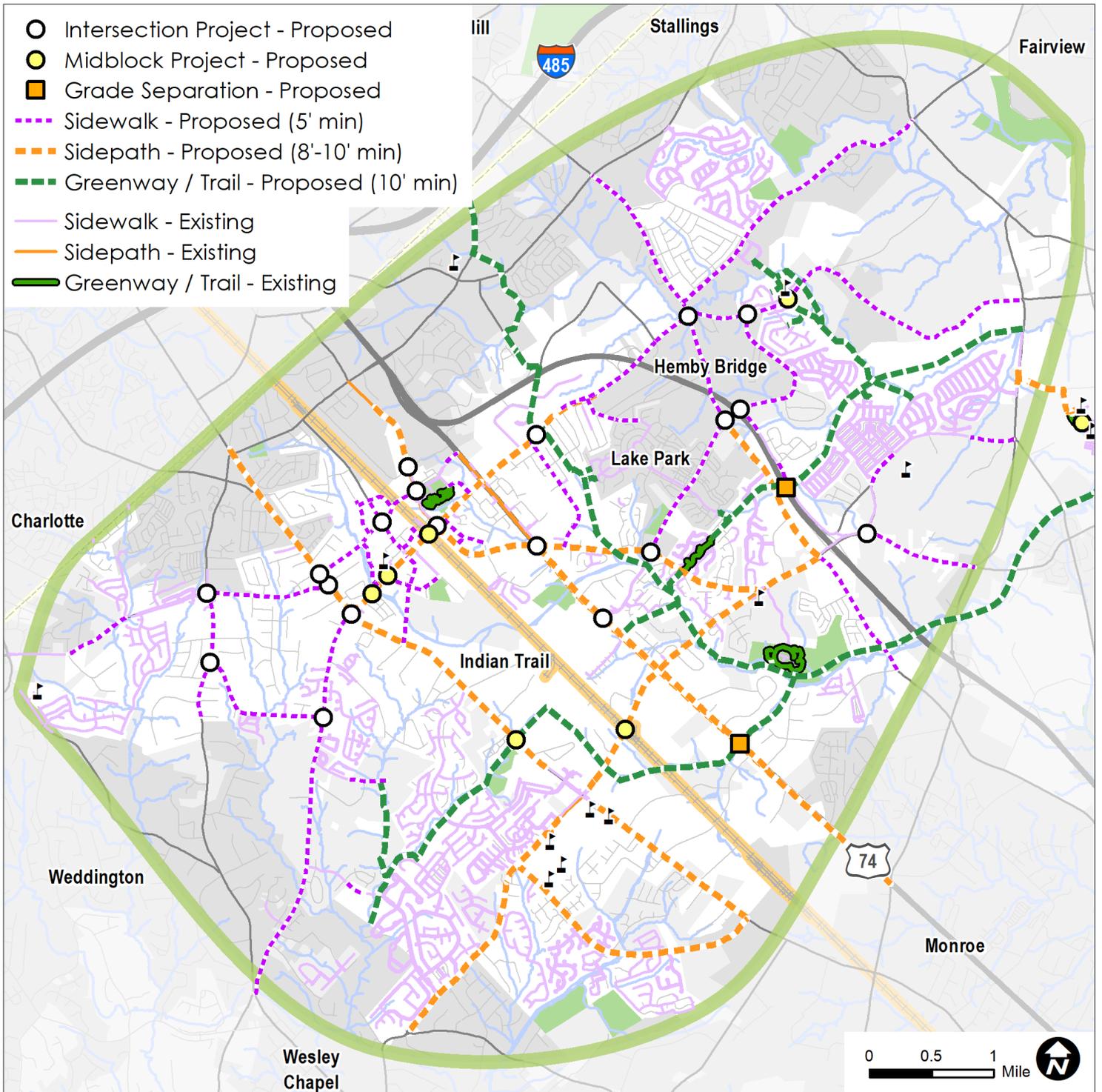


Figure 4.2: Facility Network Plan (Pedestrian Facilities).

Prioritization

With more project needs than there are funds available, prioritization of projects enables cities to identify those projects that most contribute to accomplishing community-defined goals and objectives for its network. Prioritization categories were developed by the Advisory Committee from the Plan’s Goals, public feedback, and technical analysis, in order to identify projects with the greatest impact **according to Indian Trail’s vision.**



ACCESSIBILITY:
proximity to education, recreational facilities, shopping, and points of interest



SAFETY:
proximity to corridors with high traffic volumes and/or crashes



CONSTRUCTIBILITY:
property constraints and corridor ownership



EQUITY:
transportation disadvantaged populations



PUBLIC INPUT:
community-identified needs through public engagement and advisory committee

Projects located in close proximity to identified areas or meeting these criteria receive higher scores. Translated, these scores indicate a project’s likelihood of improving the quality of walking within the Indian Trail study area.

Projects receiving higher scores were classified as High Impact recommendations, representing the highest rate of return from implementation. Other projects were sorted into Mid- or Low-Priority recommendations accordingly based upon score and considerations for constructibility.

For each category, relative weights were assigned to reflect their importance. To make the categories operational, GIS data resources were identified to create scores in each category, with 12 evaluation criteria identified (Table 4.3). Raw Values were normalized to a scale of 1 (low) to 10 (high), and an average value was computed for each. Weights for each category were then applied to their average score and summed to generate a Total Score out of 100. Total Score was ranked from 1-50 (according to highest score) and assigned one of three Priority Categories: High, Medium, or Low

CATEGORY	WEIGHT	EVALUATION CRITERIA
Accessibility & Access	24%	Access to schools (proximity)
		Access to transit facilities (proximity)
		Access to parks (proximity)
		Access to Interactive Map-identified destinations OR barriers to walking (proximity)
Safety & Crashes	24%	Bicycle or Pedestrian crashes (maximum density value along corridor)
		Fatal or Severe Injury crashes (maximum density value along corridor)
Constructibility & Impact	19%	Avoidance of flood hazard: floodplain or 1% annual chance (proximity)
		Potential right-of-way impact (location within existing ROW)
Public Input	19%	ArcGIS Online Interactive Map points of interest (maximum value along project corridor)
		Primary and Secondary corridors (proximity)
Equity	14%	EJ Screening Tool Score (average score along corridor)
		TDI Screening Tool Score (average score along corridor)

Table 4.3: Prioritization categories, weights, and description of evaluation criteria.

Priority Network

While the above map (Figure 4.2) represents the long-term vision for the fully-realized Indian Trail network, **not all of these projects can, or should, be built at once.** The follow table (Table 4.4) and map (Figure 4.5) represents those pedway facilities that are recommended for construction as a part of this Plan.

Over time, as these facilities are constructed, this Plan should be revisited to identify new projects for construction and/or changes to this Plan that are merited due to new travel patterns, development, or user preference.

ID	CORRIDOR NAME (Route Number) From (south/west) to (north/east)	LENGTH (mi)	RECOMMENDATION	SCORE	PRIORITY CATEGORY
41	Wesley Chapel Stouts Road <i>From Old Monroe Road to E Independence Boulevard</i>	1.17	Sidepath	80	HIGH
36	Matthews Indian Trail Road <i>From Stallings Road to Smith Farm Road</i>	0.87	Sidepath	73	HIGH
45	N Indian Trail Road <i>From Matthews Indian Trail Road to Independence Boulevard</i>	0.50	Sidepath	71	HIGH
22	Chestnut Parkway <i>From Matthews Indian Trail Road to Independence Boulevard</i>	0.46	Sidewalk	70	HIGH
42	Sardis Church Road <i>From Independence Boulevard to Unionville Indian Trail Road</i>	1.05	Sidepath	70	HIGH
33	Unionville Indian Trail Road <i>From N Indian Trail Road to Independence Boulevard</i>	0.89	Sidepath	70	HIGH
31	Old Monroe Road <i>From Rogers Road to Wesley Chapel Road / Wesley Chapel Stouts Road</i>	1.48	Sidepath	68	HIGH
43	Indian Trail Fairview Road <i>From E Independence Boulevard to 1st Avenue</i>	1.16	Sidepath	66	HIGH
39	E Independence Boulevard <i>From Wesley Chapel Stouts / Sardis Church Road to Rocky River Road</i>	2.54	Sidepath	65	HIGH
37	E Independence Boulevard <i>From Chestnut Parkway to Unionville Indian Trail Road</i>	0.98	Sidepath	63	HIGH
40	Wesley Chapel Road <i>From Goldmine Road Roundabout to Old Monroe Road</i>	2.44	Sidepath	63	HIGH
38	E Independence Boulevard <i>From Unionville Indian Trail Road to Wesley Chapel Stouts / Sardis Church Road</i>	1.40	Sidepath	62	HIGH
3	Gribble Road <i>From Indian Trail Road South to Chestnut Parkway Extension</i>	0.48	Sidewalk	61	HIGH
44	S Indian Trail Road <i>From Old Monroe Road to Railroad Tracks / Navajo Trail</i>	0.98	Sidepath	60	HIGH
34	Unionville Indian Trail Road <i>From Independence Boulevard to Sardis Church Road</i>	1.88	Sidepath	60	HIGH
35	W Unionville Indian Trail Road <i>From Sardis Church Road Roundabout to Poplin Road</i>	0.43	Sidepath	58	HIGH
15	Waxhaw Indian Trail Road <i>From Blanchard Circle to Old Monroe Road</i>	1.25	Sidewalk	57	HIGH

Table 4.4: High-priority pedestrian projects.

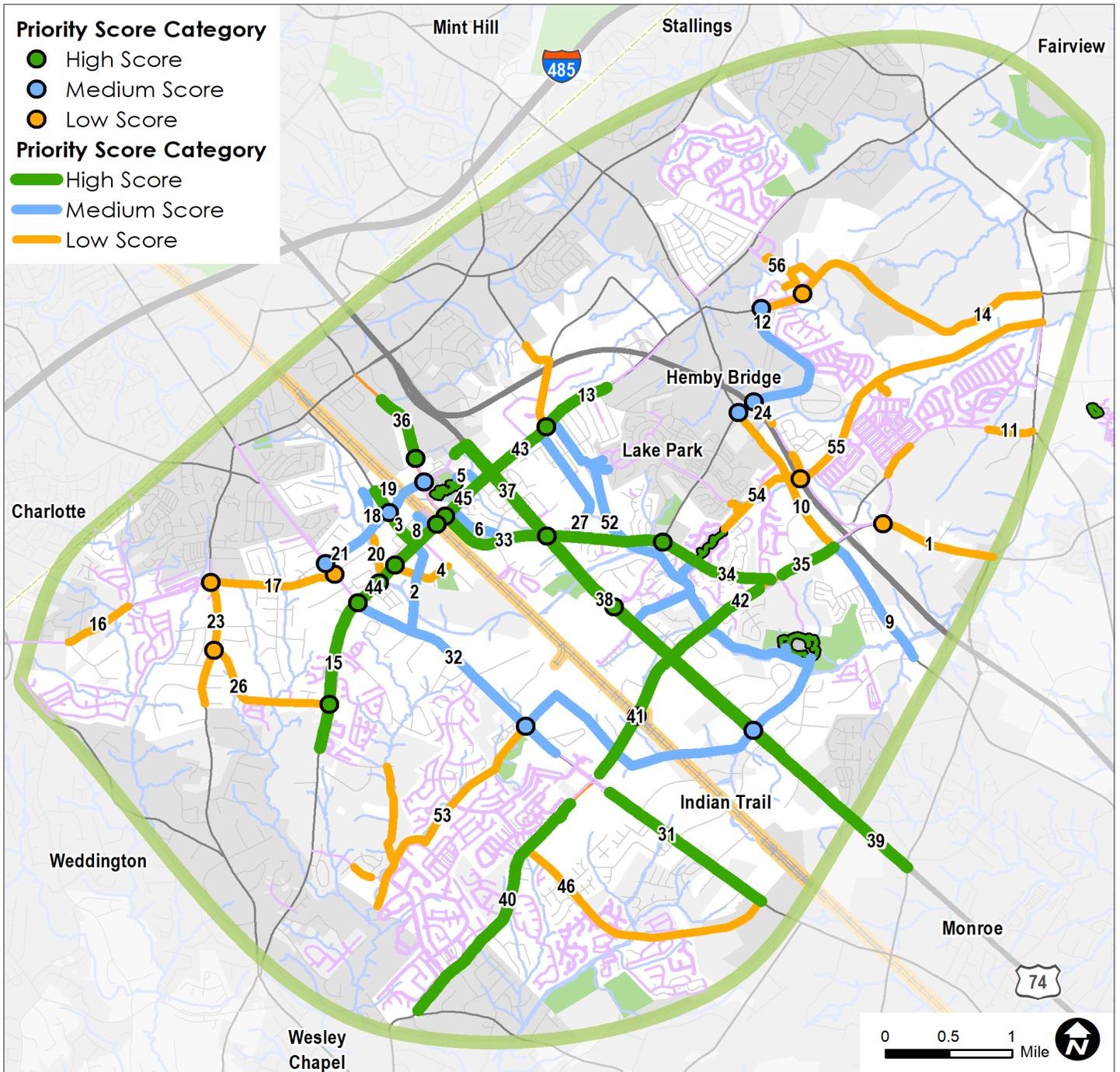


Figure 4.5: Recommended pedestrian facilities projects by priority.

Priority Projects

In developing this Plan, six (6) areas in Indian Trail were identified as having high importance to pedestrians and suitable for more detailed consideration and recommendations. Concept designs have been completed for each area to depict potential enhancements identified in the Plan, including sidepaths, sidewalks, curb ramps, and intersection crossing treatments. These projects are highlighted in the Plan because they were identified as a greater need during the public involvement process. Feasibility-level design is recommended for each of these priority projects to review and determine the most appropriate (engineering-design) placement of pedestrian facilities.

PRIORITY PROJECT #1: *Pedestrian Improvements at Old Monroe Road @ Waxhaw-Indian Trail Road Intersection*

Description: Existing signalized intersection with surrounding retail development in need of safe pedestrian crossing improvements that tie into existing sidewalks or planned multi-use path improvements.

Notable: Planned STIP project along Old Monroe Road U-4714B (incorporated into this concept)

CRASH HISTORY:

- 1 Severe Injury crash (2015)

BIKE/PED HISTORY:

- Possible Injury (C) – Bike crash (2012)
- Property Damage (PDO) - Bike crash (2022)

VEHICLES PER DAY:

- 11k Waxhaw-Indian Trail Rd
- 20k Old Monroe Rd

ROW:

- 60' wide

PAVEMENT WIDTH:

- 36' (3-lanes)

POSTED SPEED:

- 35 mph Waxhaw-Indian Trail Rd
- 45 mph Old Monroe Rd

UNION COUNTY CTP RECOMMENDED:

- Boulevards – Need Improvement
- Multi-Use Path along Old Monroe Rd (south)
- Sidewalk (improvement)

DESIGN CONSIDERATIONS:

- Retail/commercial intersection
- Traffic signal – lacking pedestrian crossings
- Leading Pedestrian Interval (LPI)
- Signal backplates (visibility)
- Signal re-timing
- Modernize for ADA accessibility



ADA curb ramps.

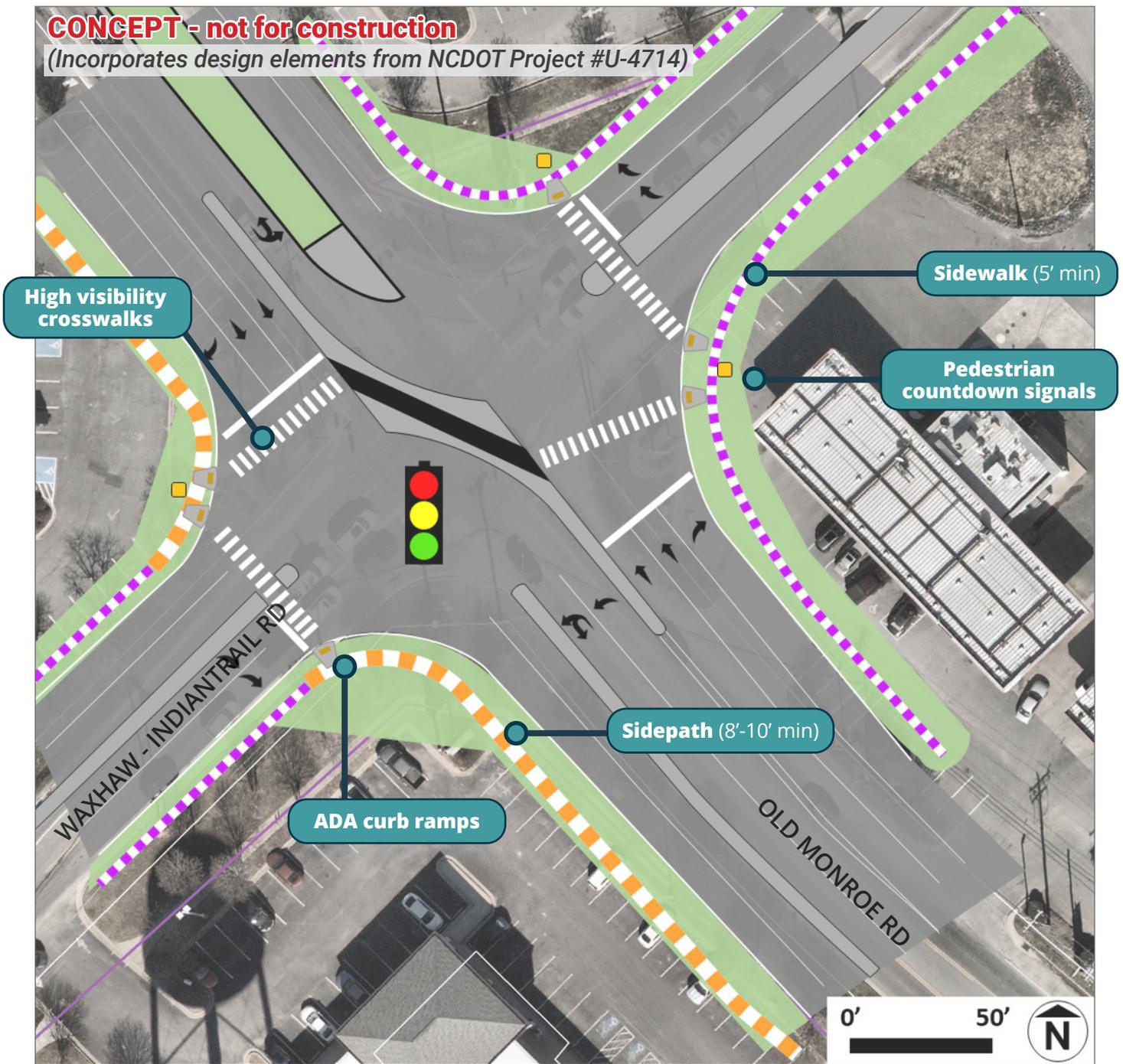


Figure 4.6: Intersection redesign concept / Priority Project #1.

*NCDOT engineering cost estimate (final design phase) developed as part of NCDOT Proj. #U-4714, a ~6.5 mile reconstruction of Old Monroe Road jointly funded by NCDOT, CRTPO, and the Town. This estimate represents all roadway modifications to convert to Reduced Conflict Intersection (RCI).

**Planning-level cost estimates for pedestrian improvements only. This figure does not include ROW costs. Figure represents cost of pedestrian improvements only as part of a larger intersection improvement project, and does not account for other roadway improvements undertaken to improve the intersection.

Unit costs were compiled from a combination of sources, including recent construction bids, NCDOT P6.0 cost estimator tool, similar local projects, and professional judgement. Materials, labor, and inflation have contributed to volatile construction costs in recent years.

Cost Estimate:

U-4714B Intersection: **\$9,600,000** (NCDOT)*

Pedestrian Improvements only: **\$225K - \$375K** (planning level)**

PRIORITY PROJECT #2: Roadway Crossing Improvements at Old Monroe Road near Future Greenway Crossing

Description: Existing rural roadway with future development potential. Opportunity for a midblock crossing of greenway trail (connect with Crooked Creek Greenway) to tie into planned Multi-use Path along Old Monroe Road. Electric transmission power line and easement exist, which may be used for greenway connection to potential Town Park to the south.

Notable: Planned TIP project along Old Monroe Road U-4714B (incorporated into this concept); Carolina Thread Trail (CTT) connection

CRASH HISTORY:

- Fatal crash (2019) – Wet conditions
- 0 bicycle or pedestrian crashes

VEHICLES PER DAY:

- 19k Old Monroe Rd

ROW:

- 75' to 90' wide

PAVEMENT WIDTH:

- 26' wide (2-lanes)

POSTED SPEED:

- 45 mph

UNION COUNTY CTP RECOMMENDED:

- Boulevard – Need Improvements
- Sidewalk (Recommended)
- Multi-Use Path along Old Monroe Rd (south)

DESIGN CONSIDERATIONS:

- Future development
- NCDOT planned reconstruction of Old Monroe Road - U-4714
- Modernize for ADA accessibility



Rectangular Rapid Flashing Beacons (RRFB).



High visibility crosswalks.



Figure 4.7: Midblock redesign concept / Priority Project #2. Device recommended here is a Rectangular Rapid Flashing Beacon (RRFB); higher-volume streets would require a Pedestrian Hybrid Beacon (PHB) using overhead signals.

Cost Estimate: \$280K - \$450K
(planning level)*

*Planning-level cost estimates do not include ROW costs.

Unit costs were compiled from a combination of sources, including recent construction bids, NCDOT P6.0 cost estimator tool, similar local projects, and professional judgement. Materials, labor, and inflation have contributed to volatile construction costs in recent years.



Greenway / Trail.

PRIORITY PROJECT #3: *Pedestrian Improvements at Pedestrian Crossings @ Sun Valley High School & Shopping Centers*

Description: Safe Routes to School candidate, with adjacent land uses that are retail/commercial. Lots of new development surrounding this intersection, suggesting more pedestrian exposure (potential).

Notable: High crash intersection (137 in 5-year period), with four (4) pedestrian or bicycle crashes recorded; Planned TIP project along Old Monroe Road U-4714B (incorporated into this concept)

CRASH HISTORY:

- 137 crashes in 5-year period (high)

BIKE/PED HISTORY:

- Pedestrian (Serious Injury) – Sat 2/5/2021
- Pedestrian (Suspected Injury) – Thur 10/15/2008
- Bicycle (Suspected Injury) – Mon 6/2/2014
- Pedestrian (Possible Injury) – Sun 2/2/2020

VEHICLES PER DAY:

- 17k-19k Old Monroe Rd
- 18k-20k Westley Chapel/Stouts Rd

ROW:

- 80' to 90' wide

PAVEMENT WIDTH:

- 60' to 70' wide (5+ lanes)

POSTED SPEED:

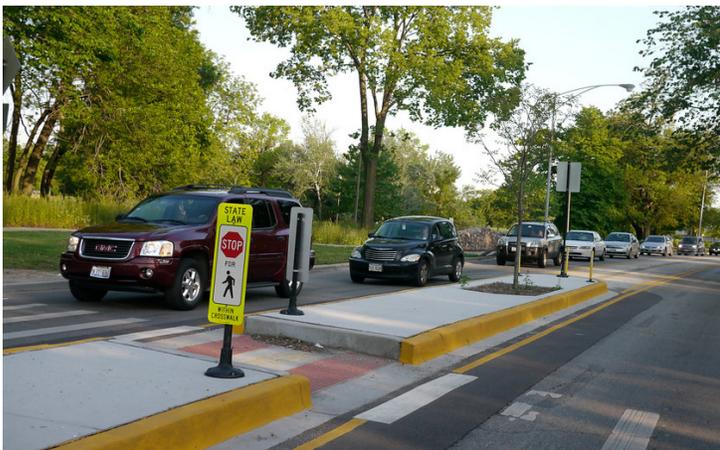
- 45 mph

UNION COUNTY CTP RECOMMENDED:

- Boulevard – Need Improvements
- Sidewalks + Multi-use Paths

DESIGN CONSIDERATIONS:

- Leading Pedestrian Interval (LPI)
- High visibility crosswalks
- Pedestrian refuge islands
- Signal backplates (visibility)
- Signal re-timing
- Modernize for ADA accessibility



Pedestrian refuge island.



Pedestrian countdown signals.

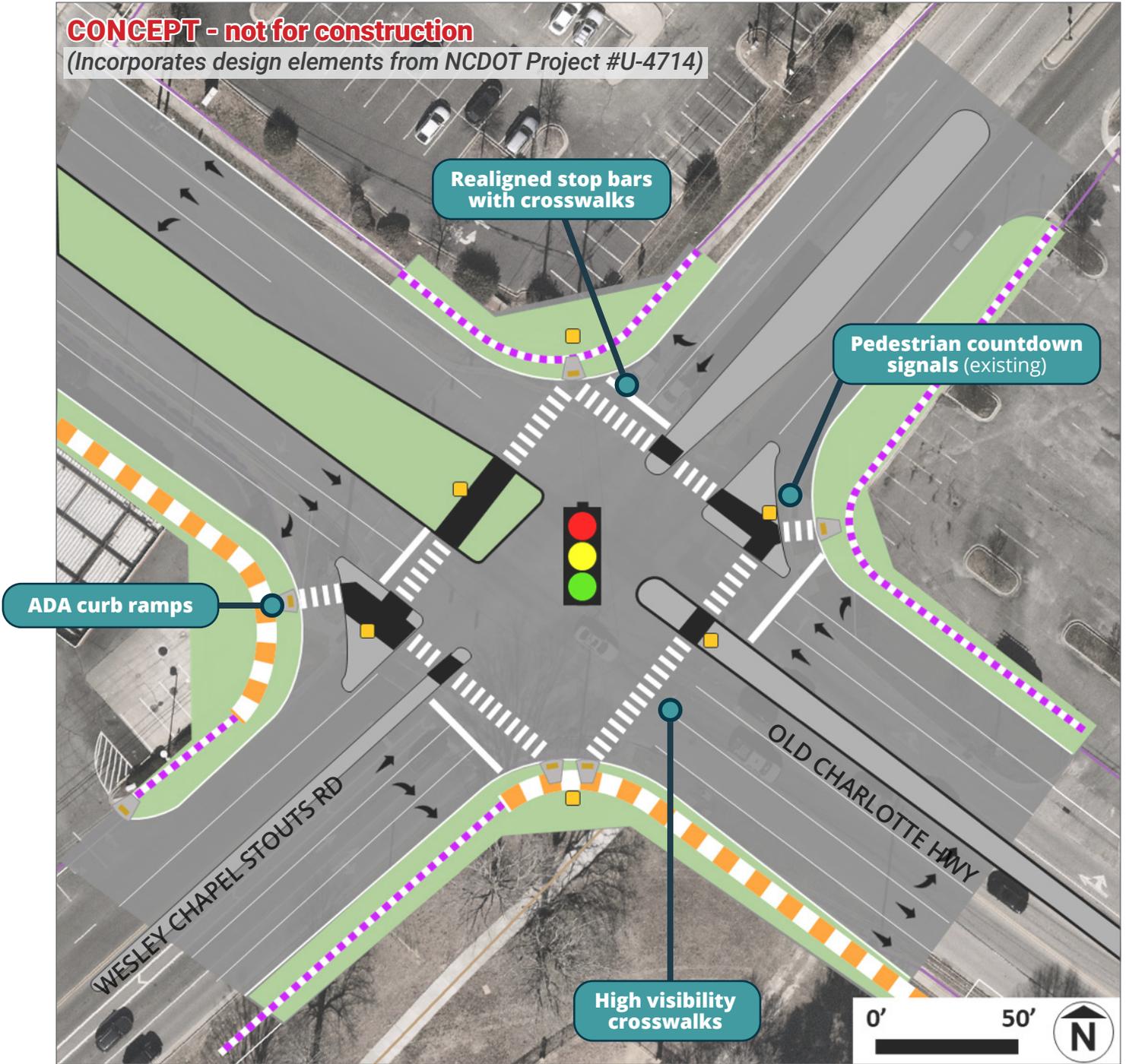


Figure 4.8: Intersection redesign concept / Priority Project #3.

*NCDOT engineering cost estimate (final design phase) developed as part of NCDOT Proj. #U-4714, a ~6.5 mile reconstruction of Old Monroe Road jointly funded by NCDOT, CRTPO, and the Town. This estimate represents all roadway modifications at this intersection.

**Planning-level cost estimates for pedestrian improvements only. This figure does not include ROW costs. Figure represents cost of pedestrian improvements only as part of a larger intersection improvement project, and does not account for other roadway improvements undertaken to improve the intersection.

Unit costs were compiled from a combination of sources, including recent construction bids, NCDOT P6.0 cost estimator tool, similar local projects, and professional judgement. Materials, labor, and inflation have contributed to volatile construction costs in recent years.

Cost Estimate:

U-4714 Intersection: **\$14,400,000** (NCDOT)*

Pedestrian Improvements only: **\$120K - \$180K** (planning level)**

PRIORITY PROJECT #4: *Unionville-Indian Trail Road @ Faith Church Road Intersection*

Description: Signalized intersection with surrounding residential land uses. Used as alternative route to US 75 / Independence Blvd. Curb & gutter on one side, awaiting further development and roadway improvements.

Notable: Near by and connects with planned Crooked Creek Greenway (CTT).

CRASH HISTORY:

- 20 vehicular crashes in 5-year period (medium)
- 0 bicycle and pedestrian crashes

VEHICLES PER DAY:

- < 15k Unionville IT Road

ROW:

- 60' wide

PAVEMENT WIDTH:

- 36' (3-lanes)

POSTED SPEED:

- 35 mph Faith Church Road
- 45 mph Unionville IT Road

UNION COUNTY CTP RECOMMENDED:

- Boulevard – Need Improvements
- Sidewalks (recommended)

DESIGN CONSIDERATIONS:

- Pedestrian crosswalks
- Curb extensions / bulbouts
- Connect with Sidepath and sidewalks
- Planned Greenway connection
- Modernize for ADA accessibility



Pedestrian countdown signals.



Sidepath.

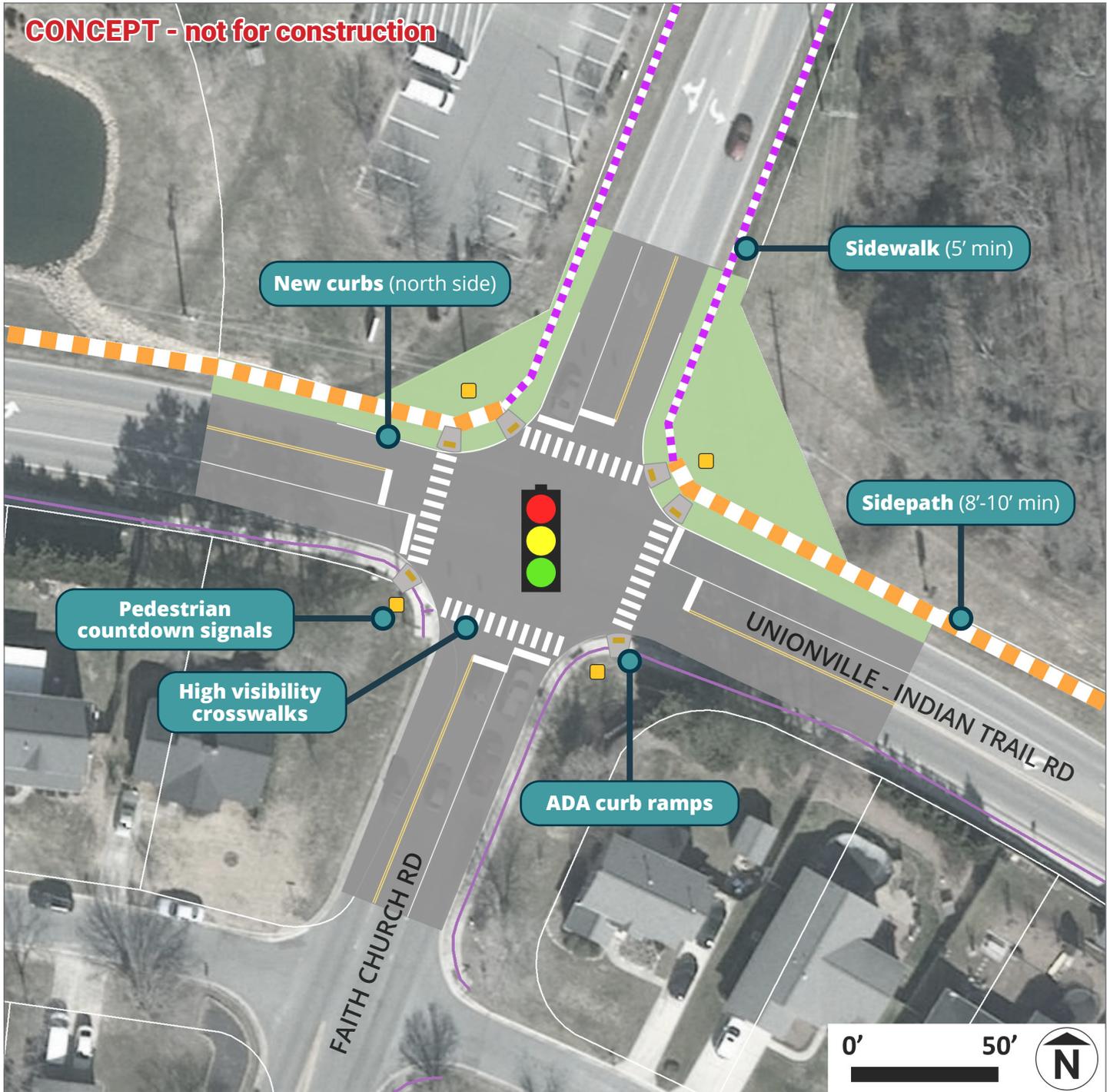


Figure 4.9: Intersection redesign concept / Priority Project #4.

Cost Estimate: \$200K - \$320K
(planning level)*

*Planning-level cost estimates do not include ROW costs.

Unit costs were compiled from a combination of sources, including recent construction bids, NCDOT P6.0 cost estimator tool, similar local projects, and professional judgement. Materials, labor, and inflation have contributed to volatile construction costs in recent years.

PRIORITY PROJECT #5: *Chestnut Lane @ Potter Road Intersection*

Description: Signalized intersection with ADA curb ramps and existing sidewalks. Mixture of retail/commercial and residential land use near by. No pedestrian or bicycle crashes to date, however increased pedestrian exposure is likely with more development. Improving visibility and reducing vehicle speed is needed.

Notable: Pedestrian refuge island possible on one leg of Chestnut Lane (median)

CRASH HISTORY:

- 20 vehicular crashes in 5-year period (medium)
- 0 bicycle and pedestrian crashes

VEHICLES PER DAY:

- 6k to 8k Chestnut Lane
- 13k to 15k Potter Road

ROW:

- 60' wide

PAVEMENT WIDTH:

- 36' to 45' (3+ lanes)

POSTED SPEED:

- 35 mph Chestnut Lane
- 45 mph Potter Road

UNION COUNTY CTP RECOMMENDED:

- Boulevard – Need Improvements
- Sidewalks (recommended)

DESIGN CONSIDERATIONS:

- Speed reduction / traffic calming
- High visibility crosswalks
- Fill sidewalk gaps
- Pedestrian refuge island
- Pedestrian lighting + countdowns
- Modernize for ADA accessibility



High visibility crosswalks.



Pedestrian refuge island.

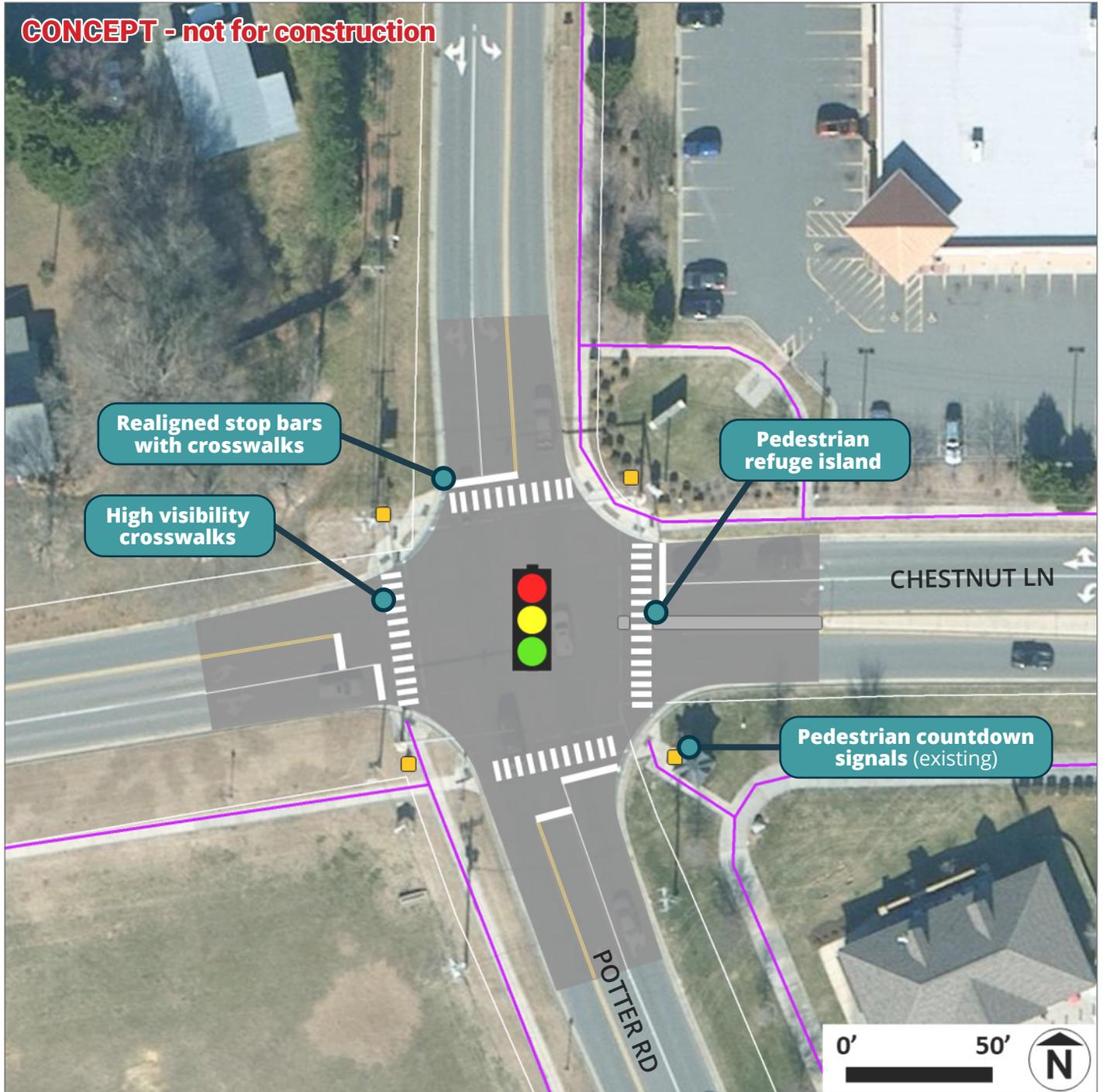


Figure 4.10: Intersection redesign concept / Priority Project #5.

Cost Estimate: \$80K - \$125K
(planning level)*

*Planning-level cost estimates do not include ROW costs.

Unit costs were compiled from a combination of sources, including recent construction bids, NCDOT P6.0 cost estimator tool, similar local projects, and professional judgement. Materials, labor, and inflation have contributed to volatile construction costs in recent years.

PRIORITY PROJECT #6: *Indian Trail-Fairview Road @ Greenway (Stinson Hardis Road)*

Description: Non-signalized intersection along a heavily traveled corridor (IT-Fairview Road), with a slightly skewed angle. Industrial land uses nearby suggesting larger trucks / deliveries making turns at this intersection. Need a safe, at-grade crossing for Sidepath / Multi-use Path to serve as future greenway connection with Crooked Creek Greenway (CTT). Perhaps signalized in the future?

Notable: Planned greenway crossing in this vicinity, though final alignment is not known.

CRASH HISTORY:

- 19 vehicular crashes in 5-year period (medium)
- 0 bicycle and pedestrian crashes

VEHICLES PER DAY:

- 5k Stinson Hardis Rd
- 14k IT-Fairview Road

ROW:

- 75' to 90' wide

PAVEMENT WIDTH:

- 28' to 48' (2-4 lanes)

POSTED SPEED:

- 35 mph IT-Fairview Road
- 45 mph Stinson Hardis Road

UNION COUNTY CTP RECOMMENDED:

- Boulevard – Needs Improvement
- Sidewalk (IT-Fairview Rd)
- Multi-use Path (Stinson Hardis Rd)

DESIGN CONSIDERATIONS:

- Overhead power lines
- Sidepath / Multi-use Path
- Rectangular Rapid Flashing Beacon (RRFB)
- Carolina Thread Trail segment (Greenway)
- Pedestrian lighting
- Modernize for ADA accessibility



Sidepath.



High visibility crosswalks.

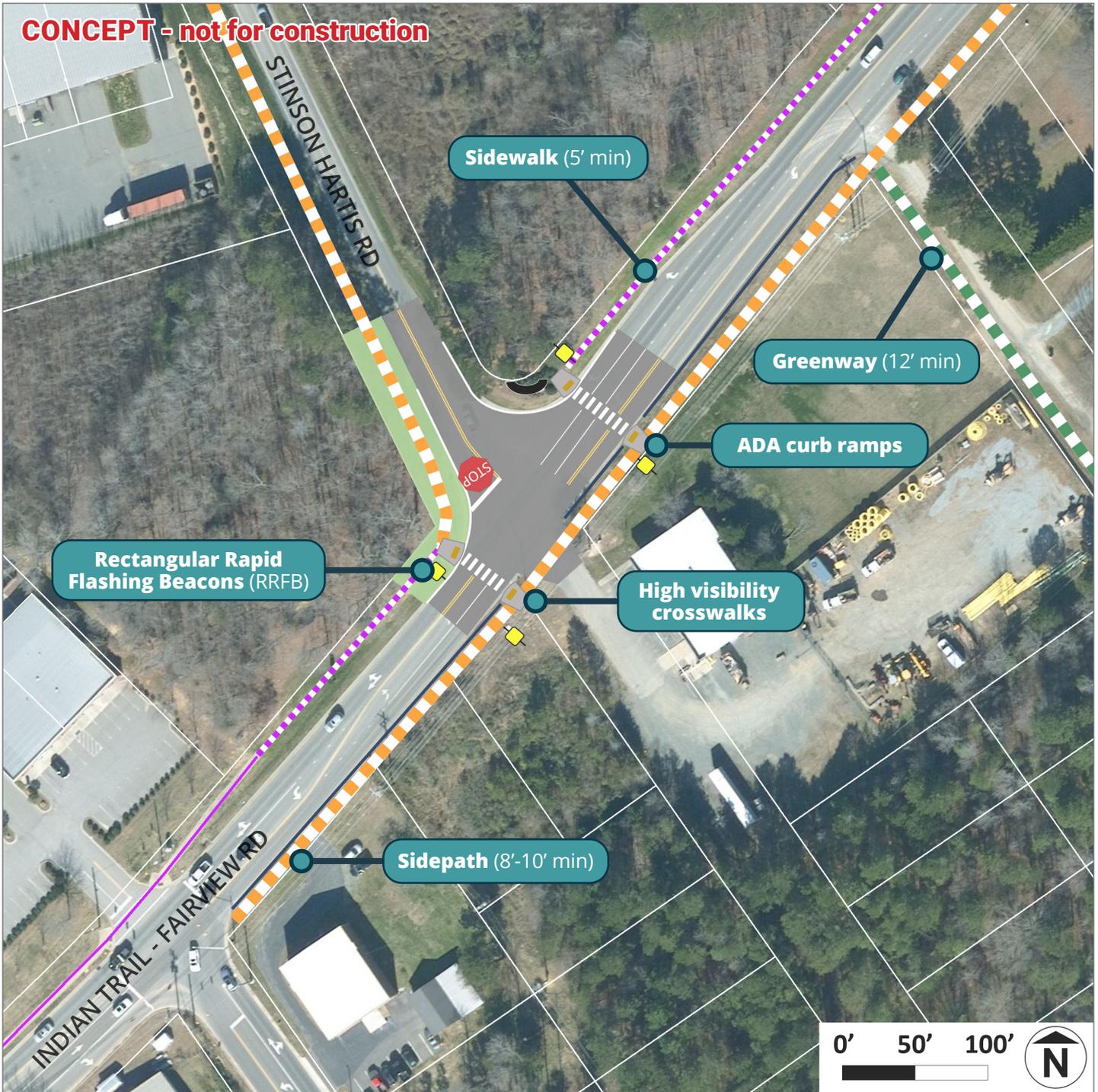


Figure 4.11: Intersection redesign concept / Priority Project #6.

Cost Estimate: \$300K - \$475K
(planning level)*

*Planning-level cost estimates do not include ROW costs.

Unit costs were compiled from a combination of sources, including recent construction bids, NCDOT P6.0 cost estimator tool, similar local projects, and professional judgement. Materials, labor, and inflation have contributed to volatile construction costs in recent years.



Pedestrian lighting.

Program & Policy Recommendations

The project recommendations understandably receive the most attention in many plans, but bicyclists and **pedestrians are benefited the most in the long term by having favorable public and private policies**. After all, attention to the “Six Es of Bike and Pedestrian Planning” results in a more effective, more comprehensive approach to creating a safe bicycle and pedestrian network, and increasing active transportation in communities.

The recommendations in this section are based on a review of Indian Trail’s policy and program environment including specific ordinance and plan language, as well as feedback from the Advisory Committee and staff on existing actions.



WHAT ARE THE 6 E'S OF PEDESTRIAN PLANNING?

ENGINEERING

Physical improvements (e.g. sidewalks, crosswalks).

EVALUATION

Programs & policies that identify needs.

EDUCATION

Teaching bike skills, safety, and active transportation.

ENCOURAGEMENT

Activities to encourage using active transportation.

ENFORCEMENT

Deterring unsafe behavior and enforcing safety rules.

EQUITY

Ensures that all, no matter background or situation, have the opportunity to safely walk or bike.

Program Recommendations

Indian Trail has developed pedestrian plans and standards before, and has implemented programs and policies across a wide array of initiatives. The purpose of this section is not to subtract from those efforts - *great ideas usually remain great in the long term*. But neither is the purpose to indiscriminately add to the labors of staff and limited resources. A balance has to be struck that targets worthwhile initiatives, raises public awareness of positive potential actions, then prioritizes those actions that can be undertaken with the current and near-term resources available to Indian Trail and its partners. Ideally, actions are taken that support pedestrian movement as well as one or more other objectives, like improving aesthetics or enhancing economic activity. This plan calls out those opportunities (“Connecting the Dots”).

The following diagram illustrates broad areas where policies and programs can have an impact, everything from engineering the solutions to ensuring equitable provisions for various users and decision making.

RECOMMENDATIONS BASED ON THE 6 E'S OF PEDESTRIAN PLANNING

EDUCATION	ENCOURAGEMENT	ENFORCEMENT	EVALUATION	ENGINEERING	EQUITY	
						Adopt this Plan Update!
EDUCATION	ENCOURAGEMENT					Incorporate Let's Go Walking! Curriculum into Schools
EDUCATION	ENCOURAGEMENT				EQUITY	Start a Walk-to-School Program
EDUCATION	ENCOURAGEMENT					Create a Volunteer Trail Maintenance Program
	ENCOURAGEMENT		EVALUATION	ENGINEERING		Participate in CRTPO's Bike & Pedestrian Working Group
EDUCATION	ENCOURAGEMENT		EVALUATION		EQUITY	Develop a Vision Zero Program
	ENCOURAGEMENT		EVALUATION	ENGINEERING	EQUITY	Adopt a Complete Streets Policy
			EVALUATION			Update Town Ordinances
		ENFORCEMENT	EVALUATION	ENGINEERING		Modify the Traffic Calming Program
	ENCOURAGEMENT				EQUITY	Adopt Low-Literacy and Equity Initiatives in Outreach
EDUCATION		ENFORCEMENT				Hand out Pedestrian & Driver Safety Cards

1 PROGRAM: LETS GO WALKING!

Part of the “Let’s Go NC!” bicycle and pedestrian safety program developed by North Carolina State University Institute for Transportation Research and Education (for NCDOT’s Integrated Mobility Division) and Safe Routes to School Program, the “Let’s Go Walking!” element is focused on school-age children and safety. North Carolina, like much of the rest of the country, would like for childhood obesity to be a thing of the past, and see their children become more active more often. An important advantage of this program is that there are ample, ready-to-use materials housed by NCDOT and IMD. A second important feature is that the curriculum is comprehensive, addressing intersection crossing, walking near traffic, and safety in parking lots and around school buses.



Learn More about “Let’s Go Walking” here:
<https://www.ncdot.gov/divisions/integrated-mobility/safety/lets-go-nc/Pages/walking.aspx>

2 PROGRAM: WALK TO SCHOOL PROGRAM

Once kids have had an opportunity to learn about safe behavior walking in and around streets, the next step (no pun intended) is to make walking a regular part of their day. A great time to do this is before school or after school, in groups, with parents. The popular nomenclature for this is a “Walking School Bus.” School performance and physical health are both augmented if kids have had the chance to move a little before they get to class.

What to Do. Again, finding an in-school champion is a major goal for starting this program. More often, the Walking School Bus is started and led by an engaged parent or group of parents accessed through a PTA. The Town Hall and Chestnut Square Park might make for great meeting places and are about one mile from Indian Trail Elementary School, a good distance readily covered in 20-30 minutes. Parents meet with kids, park their cars, get everyone organized, and set out to the school.



Learn More about NC Safe Routes to Schools Program Here:
<https://www.ncdot.gov/divisions/integrated-mobility/safety/Documents/safe-routes-to-school-description.pdf>

3 PROGRAM: PARTICIPATE IN THE CRTPO BICYCLE & PEDESTRIAN WORK GROUP

The discontinuous town boundary and proximity of multiple counties and other municipalities suggest that coordination with these partners is an important part of Indian Trail's long-term success for pedestrian and multimodal planning. The recommendation is for the Town to attend and participate in the meetings of the Charlotte Regional Transportation Planning Organization Bicycle and Pedestrian Work Group.

What to Do. While direct membership may not be an immediate option, the Town should coordinate with the work group and attend their meetings.



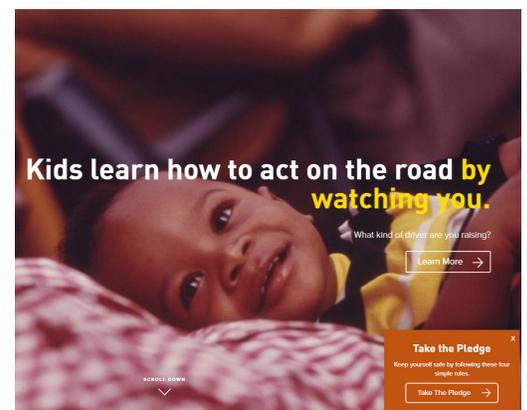
charlotte regional transportation planning organization

Learn More about the CRTPO Bicycle & Pedestrian Working Group Here: <https://crtpo.org/boards-committees/work-groups-committees/bicycle-pedestrian-work-group/>

4 POLICY: VISION ZERO

The Vision Zero movement started overseas but has gained a lot of traction in the U.S. Pedestrian fatalities continue to experience a general rise, and have emerged as a serious equity concern as well as a safety focus. Initiating a Vision Zero program in Indian Trail requires a multi-department effort, since law enforcement and design personnel need to be closely involved in the effort—as does the leadership of the Town, including the manager and Town Council. Vision Zero policies can and should involve design standards, site plan reviews, code of ordinance modifications, and other areas that lead decisionmaking for new pedestrian facilities. Essentially, Vision Zero takes the approach that safety isn't just one consideration among many, it is the leading factor in the many decisions that influence the pedestrian environment: traffic deaths are preventable events.

What to Do. The Vision Zero Network is a great resource and should be reviewed closely. Regardless, assigning one staff person to lead the initiative is an important first step, followed by the creation of a Vision Zero Task Force composed of relevant members of the Town staff and partnering organizations. This group oversees a Safety Action Plan that brings the specific actions to light and applies resources and a review strategy to chart progress.



Learn More about North Carolina's Vision Zero Efforts here: <https://ncvisionzero.org/>

5 POLICY: CODE REVISIONS

- Define Land Use Conflicts (Section 1110.090). Define clearly an exception because of “conflicts due to land use relationships” would be desirable if these conditions may prevent a pedestrian (or street) connection from being made.
- Clarify when Sidewalks are Required. Reviewing when overlay districts and some codes may require sidewalks on both sides of the street, such as for O-PED-2 and O-PED-3 planned developments.
- Reconsider the Time Restriction for Sidewalk Use by Juveniles. Section 131.02.01 prohibits the use of sidewalks between the hours of 11PM and 6PM by those under the age of 17. Consider modifying this to allow the use of sidewalks at any time when accompanied by a parent, or simply eliminate the law or restricting it to greenways where sightlines in and out of the facility tend to be more restricted.
- Integrate Greenways into the Code Alongside Sidewalk Requirements. There are several locations in the current code language where sidewalks are addressed but not greenways. For example, the requirement that 60% of a building face has to be windows or “void” when fronting a sidewalk, but not greenways. A similar condition exists for showing greenways (or sidewalks) on nearby properties on submitted plan sheets (connectivity issue) and approval before construction commences (360.040) or being shown on development applications (410.050) and Certificates of Zoning Compliance (420.020/420.030).
- Create a Definition Entry for Greenway. There are a lot of definitions but here is a comprehensive version from Michigan: “...a contiguous or linear open space, including habitats, wildlife corridors, and trails, that links parks, nature reserves, cultural features, or historic sites with each other, for recreation and conservation purposes.” (source: Michigan Zoning Enabling Act, Act 110 of 2006).
- Ensure that New Developments are in Compliance with Plans. While compliance with the Comprehensive Plan is noted (13120.020) there is not a requirement for new developments to be in compliance with an adopted pedestrian (or bicycle or greenway) plan.

6 PROGRAM: VOLUNTEER TRAIL MAINTENANCE

With the Carolina Thread Trail (CTT) comes opportunities to create connections and make a centerpiece for advertising walking and greenways generally, but it also implies that there is a responsibility for enhanced trail maintenance, including basic clean-up. Developing and expanding trail maintenance through volunteer programs is important to realizing the potential of the CTT. A good first option is to meet with the Triangle Lands Conservancy and talk about their options for developing and expanding trail construction, reconstruction, and maintenance volunteerism. Building on the existing Parks Cleanup program through Public Works is also a good start.



Other Program & Policy Considerations

The number of potential policy updates and programs that strengthen, encourage, enforce, and otherwise promote pedestrian activity in Indian Trail are many, and far outstrips the capacity of staff time and funds that the Town can contribute towards it. The following is a listing of the actions that should be considered should additional resources become available, or priorities change.

POLICY: Develop and Adopt a Complete Streets Policy.

Complete streets represent the outcome of design, policy, planning, and maintenance efforts to create a streetscape that is compatible with the needs of everyone who wishes to use it, regardless of their age or physical capabilities.

[BikeWalkKC's Ordinance Template](#), which received a perfect score from the National Complete Streets Coalition, is a template that can be used to develop policy that fits their community.

PROGRAM: Conduct an Annual Walk-Focused Event.

Perhaps in alliance with an existing event or program, create and mark out a one- or two-mile walking route. Get creative with partnerships and activities; consider treasure hunts, trivia questions, or pet adoption stations along the length of the route.



POLICY: Adopt Low-Literacy and Equity Initiatives in Outreach. This action shouldn't be limited to pedestrian-related planning activities, but wrap around the entire mindset of how Town staff conduct engagement, identify priorities, and consider design alternatives. Remember that even good initiatives, like a "See-Click-Fix" website that allows people to report on safety or maintenance concerns, can be disproportionately used by people with good literacy and access to technology. A good starting place is the venerable but still excellent USDOT "How to Engage Low-Literacy and Limited-English-Proficiency Populations in Transportation Decisionmaking"

POLICY: Modify the Current Traffic Calming Program. Tiering safety countermeasures to reflect the severity of the issues and costs of remediation is an important part of a traffic calming program, and need to include non-infrastructure reinforcement. Using street events to remind people of the residents who live along a street, offering watch-for-children signage, or creating a speed control program using car magnets and signed commitment to obey the speed limit are good additions to the toolkit in the current program. Second, consider eliminating the four-way STOP sign control countermeasure, as it adds burdens to traffic enforcement and weakens driver perceptions of the importance of obeying traffic controls when they are placed on very low-volume streets. Lastly, if devices are identified as necessary, then a petition (75% approval) should be required to receive approval AND that the full cost of discretionary removal of the devices will be borne by the residents.

POLICY: Conduct Periodic (four times per year) Pedestrian Enforcement Operations. Stage pedestrian crossings at high-importance marked crosswalks and hand out warning citations to motorists that fail to yield. The [WalkSmartNC program](#) is a good resource to start.

PROGRAM: Create and Hand Out Pedestrian and Driver Safety Cards. Everyone claims to have the worst drivers or the most careless walkers - handing out reminders of best practice cards (see below) helps to reinforce key messages to both drivers and pedestrians. These cards should be handed out when giving warning citations or other enforcement actions.

PAGE INTENTIONALLY LEFT BLANK

05 : IMPLEMENTATION

FIVE-YEAR IMPLEMENTATION 77

PARTNERS 78

FUNDING 80

IMPLEMENTATION



Following through on these recommendations will require persistence and leadership from the local community. Although local sources of funding can go a long way in achieving community aims, there are a variety of ways for the residents of Indian Trail to encourage walking in their community. This section outlines the organizational structure and steps necessary to successfully achieve the goals set forth by this Plan.

Five-Year Implementation Strategy

Updating this Plan is only one step in continuing the progress towards a pedestrian-friendly Indian Trail. Implementing this Plan will require a coordinated effort amongst Town officials, leaders, and citizen volunteers. This section provides a series of actions steps for moving forward with the recommendations of the Plan.

ADOPT THIS PLAN.

Adoption of this Plan will be the first step to implementation. Once adopted, the Plan should be forwarded to regional and state decisionmakers, such as the CRTPO and NCDOT Division office, for inclusion in a regional planning and development processes.

CONSIDER A PEDESTRIAN (AND BIKE) ADVISORY COMMITTEE.

The planning process has engaged many citizens in visioning and goal-setting for Indian Trail. Building on this momentum to keep citizens engaged in a permanent committee structure will allow continued citizen involvement in the Plan's implementation. This may be in the form of a new committee, or joining an existing Bike/Ped Committee.

SECURE FUNDING FOR THE SHORT TERM PROJECTS.

In order for Indian Trail to become a more pedestrian-friendly Town, it must have the priorities and the funding available to proceed with implementation. The Town should work to secure funding for implementation of several short-term projects (see the System Plan section) and develop a long-term funding strategy. This will help reinforce the commitment to the Plan and reaffirm to residents that the Plan is moving forward.

BEGIN WORK ON TOP PRIORITY PROJECTS.

In addition to committing local funds to high-priority projects in the Plan, the Town should work to develop a local Safe Routes to School (SRTS) project (see Funding) and/or seek other national, state or private funding sources for continued, long-term success in implementing the Plan.

ADOPT POLICY CHANGES THAT SUPPORT THE GOALS OF THE PLAN.

Proposed ordinance changes that will be crucial to balancing the public/private burden of implementing this Plan are listed in the Program & Policy Recommendations section of the Plan.

DEVELOP SUPPORTIVE EDUCATION, ENCOURAGEMENT AND ENFORCEMENT PROGRAMS.

Better pedestrian facilities alone do not make a Town pedestrian friendly. A variety of programs should also be implemented to create and support a multimodal-friendly culture. Programs and policy priorities should be implemented alongside infrastructure improvements.

EMBARK ON COMPLEMENTARY PLANNING EFFORTS.

The Town should incorporate the recommendations of the Plan into future and existing Plans developed and updated at the local, regional and statewide level.

Partners

NCDOT

As the administrator of the Bike and Pedestrian Planning Grant Initiative and the primary agency concerned with transportation planning, engineering, and construction in the State of North Carolina, NCDOT will be an important partner in the implementation of this Plan. After the adoption of this Plan, NCDOT should continue to provide technical assistance and consulting regarding bike and pedestrian transportation planning in Indian Trail. NCDOT Division 10 is responsible for construction and maintenance of bike and pedestrian facilities in the Town. It will be the primary partner for the design and construction of recommended projects made in Chapter 4 of this Plan.

The Strategic Prioritization Office of Transportation (SPOT) process prioritizes most NCDOT division projects, per the state's Strategic Transportation Investment (STI) law. SPOT is a data-driven approach to project prioritization for all transportation mode projects, including bike (for greenways) and pedestrian project improvements. STI provides three funding tiers for transportation projects: Statewide Mobility, Regional Impact, or Division Needs.

CHARLOTTE REGION TRANSPORTATION PLANNING ORGANIZATION (CRTPO)

As the MPO responsible for long-range transportation planning within the Indian Trail area, CRTPO will have an important role to play in implementing the projects recommended in this Plan. For the infrastructure needs to be met, CRTPO should continue to revise and integrate the multimodal needs of the Town in its CTP.

Opportunities to improve the bike and pedestrian environment should be taken when roadways are scheduled for maintenance or construction. Many of the projects outlined in this report can be accomplished in unison with maintenance programs initiated by the MPO and funded in combination with state roadway improvement programs such as SPOT.



Integrated Mobility Division

N.C. DEPARTMENT OF TRANSPORTATION



UNION COUNTY

Planning by the Union County government has a very tangible effect on the Town of Indian Trail. The Town is the primary organization governing land use planning and transportation planning, but the County also develops plans for land use and transportation at the county level as well as managing public health initiatives. It is vital that these plans align with common goals that span municipal boundaries. There are several crucial ways for the County to support this Plan:

- Support active transportation through regional trails and networks.
- Promote active transportation and public health through county-wide programming.
- Prioritize pedestrian safety when updating the CTP.

INDIAN TRAIL

Indian Trail is responsible for implementing this Plan. Through its adoption, the Town will be empowered to act as a champion for bike and pedestrian needs. The Town should form a pedestrian and bike advisory committee that will serve as champions for pedestrian needs in planning. As champions of active transportation, committee members should encourage the full implementation of this Plan. This includes advocating for the project and programmatic recommendations in this Plan, as well as developing other events and programs as they work in the community.



Funding

When considering possible funding sources for bike and pedestrian projects, it is important to remember that not all construction activities or programs will be accomplished with a single funding source. It will be necessary to consider several sources of funding that together will support full project completion. Funding sources can be used for a variety of activities, including: programs, planning, design, implementation, and maintenance. This section outlines the most likely sources of funding from the federal, state, and local government levels as well as from the private and non-profit sectors. Note that this reflects the funding available at the time of writing. Funding amounts, and the programs themselves may change over time.

FEDERAL FUNDING SOURCES

- Surface Transportation Block Grant (STBG)
- Highway Safety Improvement Program (HSIP)
- RAISE Grants
- Recreational Trails Program (RTP)
- Safe Routes to Schools (SRTS)
- Congestion Mitigation Air Quality (CMAQ)
- Carbon Reduction Program (CRP)

STATE FUNDING SOURCES

- Strategic Transportation Investments (STI)
- Governor's Highway Safety Program (GHSP)
- Powell Bill
- Parks & Recreation Trust Fund (PARTF)
- Spot Safety Program

Surface Transportation Block Grant (STBG)

The STBG program is designed to respond to local transportation needs across all modes. Transportation Alternatives Program (TAP) funding is set aside within this program. Bike and pedestrian improvements are the most common type of project funded with TAP dollars, including sidewalks and greenways.

Within the STBG and TAP set-aside, percentages of the State's allocation are available for areas meeting certain population thresholds. Indian Trail should coordinate with CRTPO and NCDOT to discuss opportunities to apply for STBG or TAP set-aside funding. TAP and STBG dollars are also programmed through the NC Strategic Transportation Investments (STI) formula discussed below. STBG or TAP funds can be used for all phases of a project, including design, environmental review, and construction.

Local agencies must provide a 20% local match to receive funding for a bike or pedestrian project. Town staff should consult with NCDOT to develop cost estimates for future construction projects and options for administering federally-funded projects. Local staff should plan to devote significant time to administering federally funded projects. NCDOT's Local Programs Management Office has more information on the steps involved with locally-administered bike and pedestrian construction projects.

<https://connect.ncdot.gov/municipalities/Funding/Pages/default.aspx>

<https://www.fhwa.dot.gov/fastact/factsheets/stbgfs.cfm>

Highway Safety Improvement Program (HSIP)

The Highway Safety Improvement Program (HSIP) aims to reduce traffic fatalities and serious injuries on all public roads, including non-State-owned public roads. The NCDOT HSIP follows a data-driven approach to select safety projects, select design options (often referred to as “countermeasures”), and evaluate performance. NCDOT traffic engineers work with local agencies to evaluate high-crash locations as possible HSIP projects. NCDOT reviews the past 10 years of bike and pedestrian crash history at potential project sites. Local agencies should contact their respective Division office to discuss bike and pedestrian safety concerns along local or State-owned roadways. HSIP-funded bike and pedestrian improvement projects often do not require a local funding match. Common HSIP-funded project types include pedestrian hybrid beacons (PHBs), road diets, pedestrian refuge medians, and pedestrian signals at marked crosswalks.

<https://www.ncdot.gov/initiatives-policies/safety/Pages/default.aspx>

<https://safety.fhwa.dot.gov/hsip/about.cfm>

FHWA Safe Routes to Schools (SRTS)

Safe Routes to School (SRTS) is an approach that promotes walking and biking to school through infrastructure improvements, enforcement, tools, safety education, and incentives to encourage walking and biking to school. SRTS initiatives improve safety and levels of physical activity for students. SRTS programs can be implemented by a department of transportation, metropolitan planning organization, local government, school district, or even a school. Infrastructure projects can only be considered Safe Routes to School projects **if they are located within two miles of an elementary or middle school.**

<https://www.transportation.gov/mission/health/Safe-Routes-to-School-Programs>

Recreational Trails Program (RTP)

The FAST Act created a set aside to be directed toward the Recreational Trails Program (RTP), retained in the most recent authorization bill. In North Carolina, the Department of Natural and Cultural Resources (DNCR) manages RTP. The NC Division of Parks and Recreation (State Trails Program) provides grant funding to local groups to acquire property or build trails. Grants are usually limited to \$100,000 per community or project, with a required 25% local match. RTP-funded trail projects include **paved greenways and natural surface hiking trails.**

<https://www.ncdcr.gov/grant-audience/recreational-trails-program-rtp>

Strategic Transportation Investments (STI)

In 2013, the North Carolina General Assembly passed the STI law . STI defines the overall structure and criteria for distributing NCDOT's federal and state transportation dollars among new projects. Pedestrian projects are eligible within the STI Division Needs funding tier, meaning it will compete for dollars, across all modes and with other communities in the same NCDOT Highway Division. STI follows a data-driven scoring process for all transportation projects. Each mode has a separate scoring methodology, described by the Strategic Mobility Formula (sometimes referred to as "SPOT"). Though the formula adjusts with each cycle, a typical SPOT version of the formula used to score projects considers the following criteria:

- Safety (~15%) ■ Connectivity (~10%)
- Access (~10%) ■ Cost Effectiveness (~5%)
- Demand (~10%) ■ Local Input (~50%)

Local input is the most significant part of a project's overall score, so it is most important to coordinate with the CRTPO and NCDOT Division 10 office. For more information about the SPOT criteria, review online resources provided by NCDOT:

<https://connect.ncdot.gov/projects/planning/Pages/PrioritizationResources.aspx>

Powell Bill

This program is paid to municipalities to maintain or construct local streets that are the responsibility of the municipalities. Funds can be used for **planning, construction, and maintenance of bikeways and sidewalks.**

Spot Safety Program

The NCDOT Spot Safety Program constructs smaller improvement projects to address safety issues. The maximum Spot Safety funds per project is \$250,000. A NCDOT committee recommends Spot Safety projects to the Board of Transportation for approval and funding. The committee considers criteria such as the **frequency and severity of crashes, levels of traffic congestion, pedestrians and school access, and local support.** Local agencies should contact their NCDOT Division to discuss locations that may have high crash rates and safety concerns to see if this is a possible funding source.

Parks & Recreation Trust Fund (PARTF)

PARTF provides grants to local governments to assist with public park and recreation projects, including trails and greenways. PARTF is administered by the NC Division of Parks. Local governments can apply to **acquire land for parks and build trails or greenways for public use.** A proposed project must be located on a single site. A local agency must provide at least a 50% local match of the total project cost (appraised value of donated land to the local agency can be used as part of the match).

<https://www.ncparks.gov/more-about-us/parks-recreation-trust-fund/parks-and-recreation-trust-fund>

The Governor's Highway Safety Program (GHSP)

The GHSP offers grants for safety improvement projects for state highways in North Carolina. Projects must focus on reducing crashes, injuries, and fatalities as conditional requirements for qualifying for a potential grant.

<https://connect.ncdot.gov/municipalities/Law-Enforcement/Pages/Law-Enforcement-Reporting.aspx>

Next Steps

What do we do first? How do we get started? Building a complete network from this vision document is a long-term process for both Indian Trail and its regional partners.



Adopt this Plan



Share with Local, Regional, and State Partners



Start with Identified High-Priority Projects & Locations



Identify Appropriate Grants & Local / Regional Partners



Secure Local Match Commitments (10% - 20%)

TOWN OF INDIAN TRAIL



Crossing
Paths Park

← Union County
Sheriff's Office

Indian Trail
Public Works

Town
Government
Center ↑

A decorative graphic at the bottom of the sign panel featuring silhouettes of trees and people walking or pushing a stroller.

CHECKING
STATION