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FRIENDS GREENWAY FEASIBILITY STUDY

Greensboro, North Carolina



ACKNOWLEDGMENTS

CITY OF GREENSBORO

Shawna Tillery / Parks & Recreation Planning and Project Development Manager
Elizabeth Jernigan / Parks & Recreation Planner

CONSULTANT TEAM

McAdams / Design Lead

Iona Thomas / Principal-in-Charge
Graham Bruns / Project Manager
Jimmy Prestwood / Greenway Engineer
Garrett Jenkins / Graphics Specialist



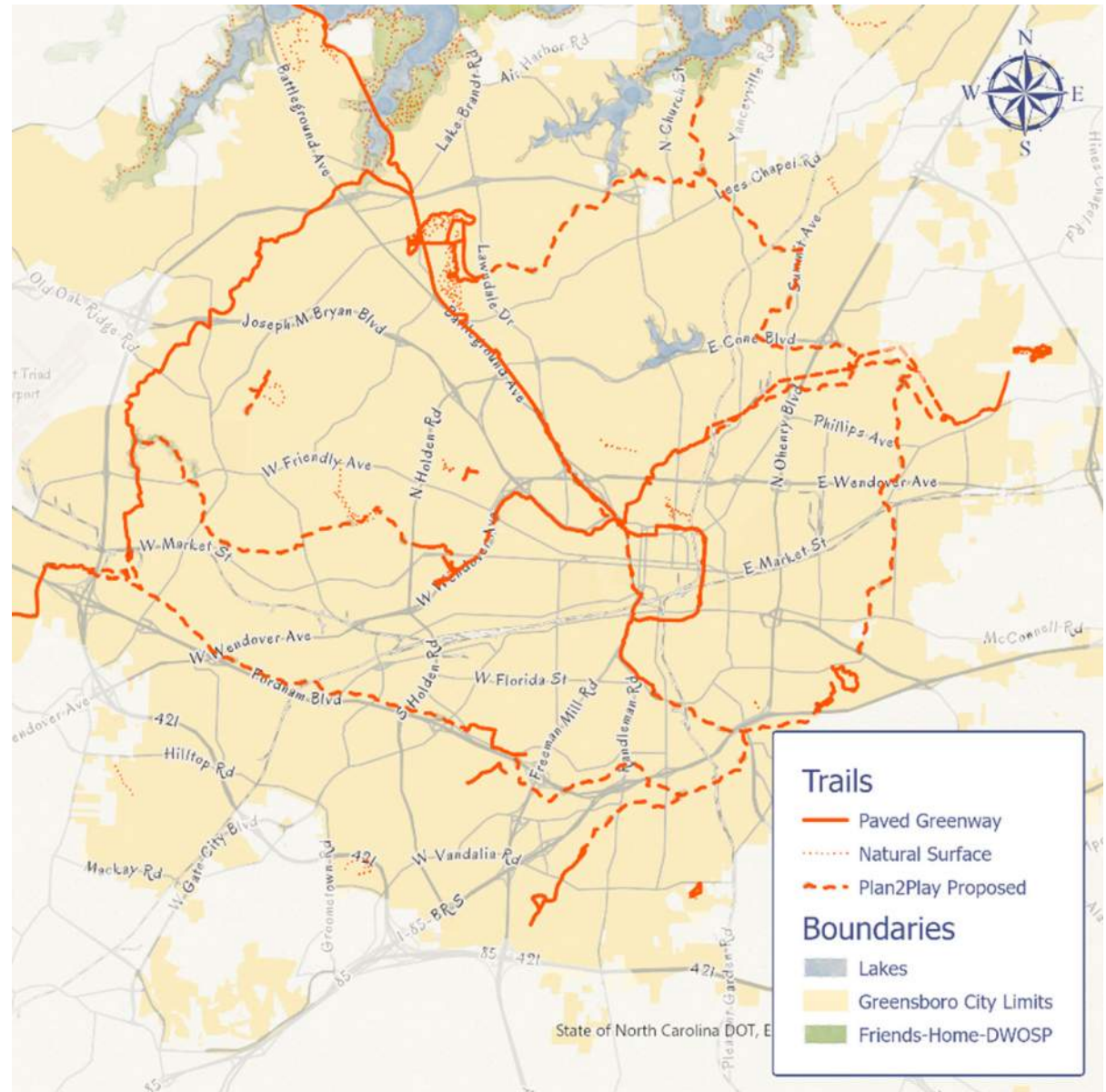
EXECUTIVE SUMMARY

PROJECT OVERVIEW

In 2019, City Council adopted Plan2Play, a Comprehensive Parks and Recreation Master Plan. The plan was driven by public engagement, touching over 7,000 residents and backed by a statistically significant survey. 72% of residents identified paved greenways as the highest need in the City system, followed by natural trails at 62%. Additionally, Plan2Play was completed before the COVID-19 global pandemic. Since the beginning of 2020, the trail usage has increased by up to 500% on some greenways within the City system.

This desire for more paved greenways and trails is a national trend, and Plan2Play calls for an additional 103 miles of trail by 2038 to keep up with projected population growth. The City will essentially need to double the system to remain competitive with similar sized cities around the Country.

Figure 1: Network Recommendations

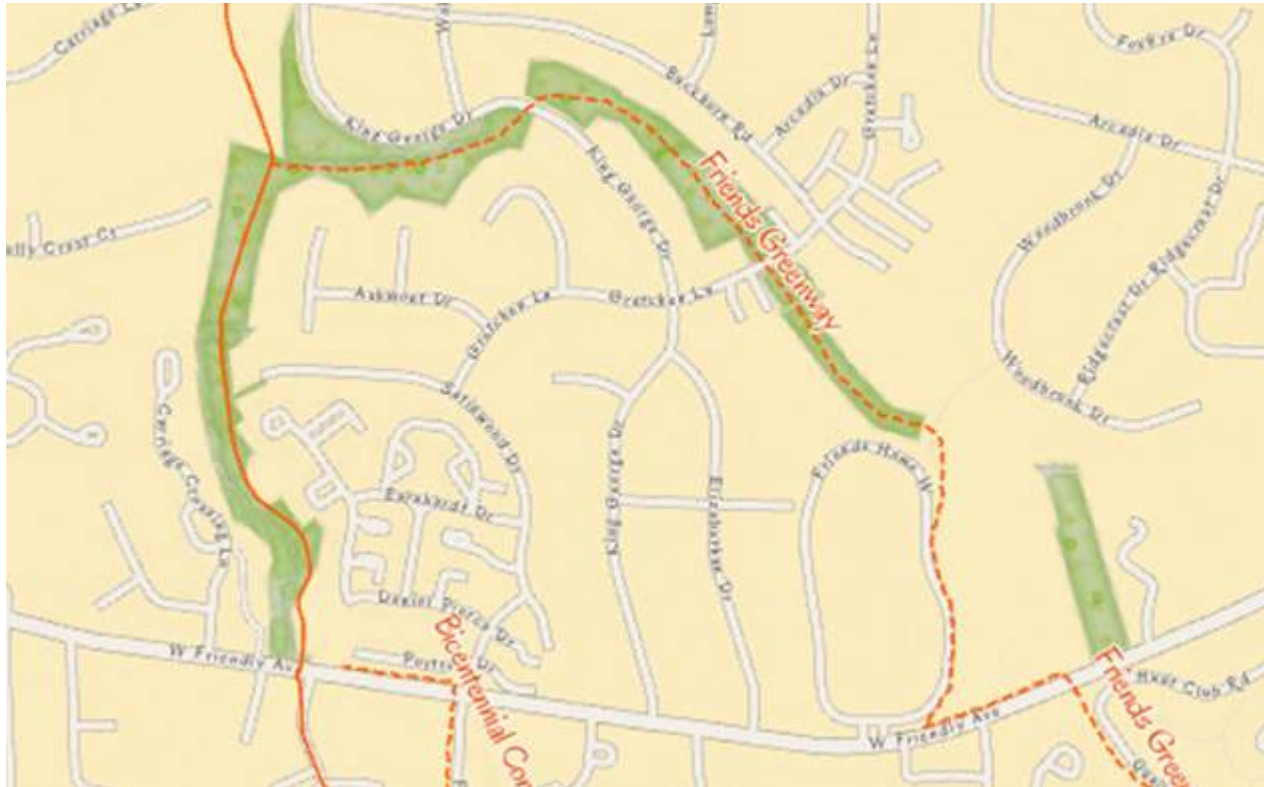


PLAN VISION

The City’s vision is to connect the whole greenway system by completing a city-wide outer “Community Loop” that connects to regional trails and the Downtown Greenways. This vision is built on the Greensboro Department of Transportation 2015 Bicycle, Pedestrian, Trails & Greenways Plan which was last updated in July 2018 and builds these connections using existing and planned trails and greenways. The Friends Greenway was identified as a project in that plan and meets a long term vision of connecting west Greensboro to the Downtown Greenway

In Plan2Play, 79% of respondents indicated it is important to use drainageway and open space properties in floodplains to provide a major connected network of walking, biking, and nature trails. The Friends Greenway, as most of our trail and greenway projects utilizes drainageway and open space.

Figure 2: Friends Greenway Recommendations



Under the City Land Development Ordinance, dedicated drainageway and open space may be used for drainage, open space, greenways, bikeways, trails, and other similar recreation activities, including park- and trail-related improvements in accordance with applicable regulations. These are recorded by plat and labeled “Dedicated to the City of Greensboro and the public for drainageway and Open Space purposes.”

Properties such as these are the first step in determining where proposed greenway projects will be constructed. Greenways have many noted economic benefits including the highest rate of job creation (17 per million dollars invested) compared to other types of transportation projects; community health benefits of nearly \$3 per \$1 spent on trails; and regional trails providing nearly \$110 per visitor in local spending per year.¹

1 - Rails to Trails Conservancy - https://www.railstotrails.org/resourcehandler.ashx?name=trail-investment-a-good-deal-for-the-american-economy&id=14675&fileName=RTC_Trail_Benefits_Fact_Sheet_All_Use.pdf



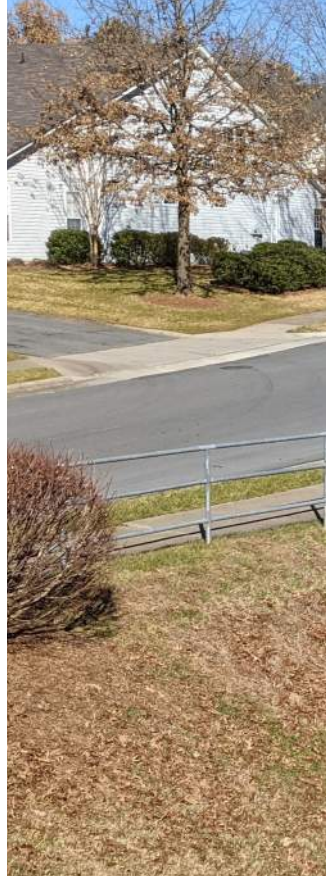


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COMMUNITY ENGAGEMENT



01

PUBLIC INPUT

Public input is an essential part of any planning process. The most effective plans are firmly rooted in the realities and visions of the communities that created them. This feasibility study collected public input through an online questionnaire, an online presentation, and two online open house sessions to answer questions and gather input. This section summarizes all public input received during the project.

DATES

- › Online presentation – available on YouTube starting October 28th, 2021.
- › Online open house sessions – November 16th, 2021, at 12pm and 6pm
- › Online Questionnaire distributed through October, November, and December 2021

NUMBER OF ATTENDEES

Online open house meetings: 22 attendees combined
Online questionnaire received 11 responses

PURPOSE

To inform the public about the project, educate about greenway design and construction in general and gather input regarding the public's overall opinion of the project and desired alternative.

SUMMARY OF FINDINGS

The presentation and open house meetings enabled City staff and the project team to present the trail alignment and solicit feedback regarding residents' opinions, questions, and concerns. The meeting was held via Zoom Webinar.

Meeting results indicate overall positive support of the project, some people expressing concerns with the proposed connection of the alignment that to Woodbrook Drive.



Responses indicated they were excited about expanding the greenway trail system and connecting to the Leonard Recreation Center along the Bi-Centennial Greenway. All the people who filled out the survey answered that they enjoy trails for walking and most of the neighborhood residents that filled out the survey have indicated that they are excited for another greenway option.

Suggested improvements to the City’s greenway system from the survey included expanded access to downtown, additional benches, and educational signage.

Residents who indicated they were not excited about the project cited concerns about proximity to private property, the project’s impact on the natural environment, and as a lack of connectivity to Friendly Avenue. Accessibility was also a concern of some who filled out the survey.

PROPERTY OWNER MEETINGS

The project team also met with property owners along the proposed corridor where an easement to cross would be required for a trail connection. These meetings had two purposes; one, to introduce the project and, two, to gauge the interest in land owners in selling easements to be used for greenways to the City. The City is only interested in working with willing property owners and ultimately the preferred route to Friendly Avenue will need to wait on opportunities to purchase easements to become available.





CUTSHEET



02

PROPOSED GREENWAY - ALIGNMENT

BICENTENNIAL GREENWAY TO WOODBROOK DRIVE



Legend

-  Existing Greenway
-  Proposed Alignment
-  Open Space
-  Parcels
-  Stream Center Line
-  FEMA Floodplain
-  Friends Home Parcels

TYPICAL SECTION - BRIDGE



A: 12' GREENWAY BRIDGE

- Wood, composite or concrete decking material.
- For use by cyclists and pedestrians.
- Pier height varies.

PROPOSED GREENWAY - DETAILS

The Friends Greenway creates an off road connection from the Bi-Centennial Greenway, through the Quaker Acres neighbourhood to Woodbrook Drive. This greenway will follow the creek and sewer line for the most part, staying in City of Greensboro dedicated Open Space for the majority of the project. There are two at-grade road crossing that will need a cross walk at King George Drive and Gretchen Lane. The trail itself is proposed to be paved with 10-ft of asphalt or concrete.

PROJECT SNAPSHOT

- › Location: Quaker Acres between the Bi-Centennial Greenway and Woodbrook Drive
- › Project Type: Greenway
- › Stakeholders: Friends Homes, neighborhood residents, property owners
- › Structures: Existing Road Bridges
- › Road Crossings: 2
- › Length of Project: <1 mile
- › Estimated Construction Year: 2025

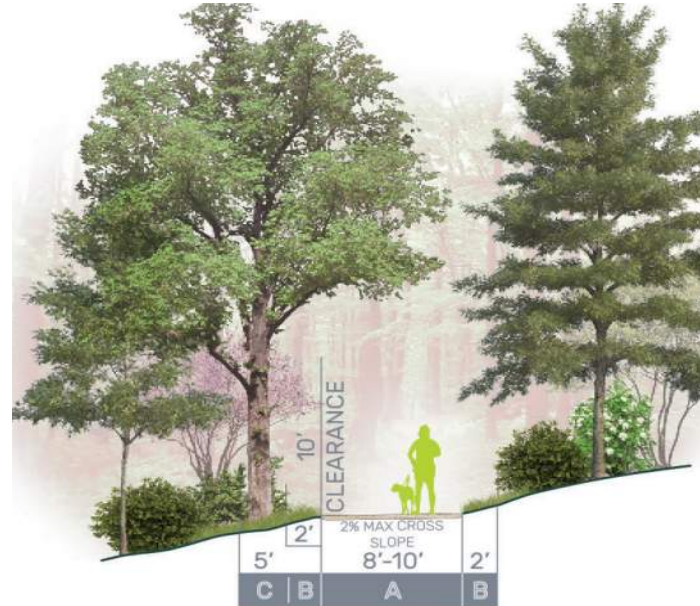
POTENTIAL PERMITTING NEEDS

- › Erosion Control
- › 401/404 permitting
- › Floodplain Development Permit

POTENTIAL RIGHT-OF-WAY

- › Total estimated area needed: 1.26 AC
- › Number of impacted parcels (private):
 - 3 Temporary Construction Easements
 - 3 Permanent Greenway Easements
- › Number of impacted property owners: 2
- › Easements along the Friends Homes property are going to be key for this project and should be re-negotiated to connect to Woodbrook Drive

TYPICAL SECTION - GREENWAY



A: 10' MULTI USE PATH

- Concrete, asphalt, or natural surface.
- For use by cyclists and pedestrians.

B: 2' SHOULDER

- Maximum slope of 4:1 (25%).

C: TRAIL SIDE CLEARANCE

- Minimum of 2 feet.
- This prevents conflicts between cyclists and pedestrians with stationary objects.

ESTIMATED PROJECT COST

2022 Construction Cost Estimate (Basis for Calculations)	\$ 1,105,000
Escalated Construction Cost Estimate (FY2025)	\$ 1,208,000
20% Contingency	\$ 241,600
Estimated Right-of-Way Costs	\$ 41,000
Estimated Survey, Design, Bidding at 13% of Construction Cost	\$ 144,000
Estimated CEI Services at 12% of Escalated Construction Cost	\$ 145,000
TOTAL ESTIMATED BUDGET RECOMMENDATION:	\$ 1,780,000



RECOMMENDATIONS



03

RECOMMENDATIONS

CORRIDOR SEGMENT

The most comprehensive evaluation is presented in a detailed corridor segment where a cut sheet is provided to set up preferred corridor segments for future implementation. The segment was developed based on public input priority corridors and Staff recommendations. Information contained in the cut sheet includes:

- › Detailed segment map which identifies streams and wetlands, roads, neighborhoods, schools, parks, and existing pedestrian / bicycle facilities as well as adjacent greenway projects (some of which are detailed in subsequent cut sheets)
- › Recommendations
 - Proposed alignment (note: where streams, creeks, or wetlands were inaccessible, assumptions were made to reach an alignment solution)
 - Pedestrian bridges and boardwalks
 - Pedestrian crosswalk locations
- › Project Snapshot including:
 - Project Location
 - Project Type
 - Length of Project
 - Estimated Construction Year
- › Potential Right-of-Way Needs
 - Total estimated area needed
 - Number of impacted parcels that are privately owned (not State, County, or municipal)
 - Number of impacted property owners
 - Existing easements that will need to be re-negotiated (Friends Homes)
 - City should also pursue opportunities along the creek for easements as they become available that would connect to Friendly Avenue for future connections
- › Potential Permitting Needs



- › Estimated Project Cost (description on how to use the estimated costs is provided below)
 - 2022 Estimated Construction Costs
 - Escalated Construction Costs (adjusted to reflect the estimated construction year)
 - 25% Contingency
 - Estimated Right-of-Way Costs
 - Estimated Design Services
 - Estimated Construction Engineering and Inspection (CEI) services
- › Potential Funding Sources

DISCLAIMER

This is a preliminary document. All results, recommendations, cost opinions, and commentary contained herein are based on limited available data at the time of preparation. Further engineering analysis and design are necessary prior to implementing any of the recommendations contained herein.

This document is an instrument of professional service. Reuse or alteration is at the user's sole risk.

HOW TO USE ESTIMATED COSTS

When reviewing the estimated project costs contained in the subsequent cut sheets, please consider the following:

- › The estimated costs are indicative of a planning-level analysis. Utility Coordination, subsurface investigations, geotechnical data or environmental delineations were not part of this process and should be performed upon further design.
- › Elements of the project are priced by using a linear foot (LF) or mile (MI) unit cost from the US dollar value in 2022. Each item is inclusive of all costs associated with their construction. However, these costs should not be taken as a final estimate and should only be used for planning purposes. Where possible, actual unit quantities were used to compile the cost estimate.
- › Detailed construction cost estimates should be completed during the design phase of each project.
- › The estimated subtotal of construction costs is escalated out to the fiscal year that each segment is expected to be constructed (see below for how this was calculated by the design team).

Typical elements for each estimate include but are not limited to:

- › Cost per linear foot (LF) of 10-foot-wide asphalt trail - \$180/LF. This price includes grading, base materials, basic drainage, and asphalt.
- › Cost per linear foot (LF) of 10-foot-wide boardwalk - \$1,200/LF. This price includes piles for foundation, boardwalk substructure, decking, and handrails.
- › Cost per linear foot (LF) of 10-foot-wide bridge - \$3,400/LF. This price includes bridge foundations, end bents/caps, prefabricated bridge and bridge erection.

- › Cost per linear foot (LF) of erosion control: \$25/LF. This price includes silt fence and outlets, temporary crossings, construction entrances, etc.
- › Cost per mile (MI) of temporary traffic control for construction: \$9,500/MI. This price includes signs, traffic cones/barrels, temporary concrete barriers, flagmen, etc.

Each estimate was projected to a fiscal year (FY) of probable construction. For example, the fiscal year 2025 is identified as “FY2025”. As more detailed information becomes available during the design process, costs will evolve. Costs are listed in the base year of 2022 and should be escalated at a rate of 3.0% (current industry standard) each year thereafter.

The formula used is a linear compound interest formula: $A = P (1 + r)^t$

- › where P is the original cost in 2022 dollars;
- › r is the rate of 3% (0.03) escalation; and
- › t is difference in years from 2020 to construction year (i.e. the t value for a project constructed in 2025 would be: $t = (2025 - 2022) = 3$).

Each estimate includes a 25% contingency line for unforeseen or unknown costs that may arise during design and construction of projects. Unforeseen or unknown costs may include any flood study permit fees, such as CLOMR/LOMR, or any additional construction material costs that may vary over time.

FUNDING

Funding for trails is available from several different avenues. There are also strategies to combine funding from multiple sources to complete design and construction which including:

- › Prioritize project for funding via GUAMPO (Greensboro Urban Area Metropolitan Planning Organization) LAPP (Locally Administered Projects Programs)
- › Federal Funding: TA (Transportation Alternatives), CMAQ (Congestion Mitigation and Air Quality)
- › Bond Funding – Guilford County and City of Greensboro
- › Public/Private Partnership – Greensboro/Friends Home

FEDERAL FUNDING

North Carolina communities have partnered with Federal agencies to build multi-use paths, greenways, sidewalks, bike lanes and improve crossings. Federal funding is primarily distributed to municipalities through state agencies and Metropolitan



Planning Organizations (MPO), as well as through discretionary grant programs.

STATE AND MPO ADMINISTERED FUNDING

Transportation Alternatives (TA)

Transportation Alternatives provides federal funds for community-based projects that expand travel choices and enhance the transportation experience by integrating modes and improving the cultural, historic, and environmental aspects of our transportation infrastructure. In North Carolina, TA funds are administered by NCDOT. Program-eligible projects must be submitted through the SPOT (Strategic Prioritization Of Transportation) competitive scoring process and will require a 20 percent local match.

Eligible project types include:

- › on and off-road pedestrian and bicycle facilities.
- › infrastructure projects for improving non-driver access to public transportation and enhanced mobility.
- › community improvement activities.
- › environmental mitigation
- › safe routes to school projects
- › streetscape improvements
- › refurbishment of historic transportation facilities
- › other investments that enhance communities



NCDOT has created a bicycle and pedestrian scoping guidance document for local governments that have been awarded Transportation Alternatives funding. The Bike/Ped Project Scoping Guidance for Local Governments provides an overview of the four scoping tools used for locally managed, federally funded transportation projects in North Carolina. The document provides guidance on the project delivery process, scoping, identifying project risks, and project cost estimation. The document is available at the link below.

<https://connect.ncdot.gov/projects/BikePed/Documents/BikePed%20Project%20Scoping%20Guidance%20for%20Local%20Governments.pdf>

https://www.fhwa.dot.gov/environment/transportation_alternatives/

Congestion Mitigation & Air Quality (CMAQ)

CMAQ is a federal program that funds transportation projects and programs in air quality nonattainment and maintenance areas to help achieve and maintain national standards for air quality. In North Carolina, NCDOT serves as the administrator for this program. Funding is apportioned to North Carolina based on the population in non-attainment and maintenance areas of the state and the severity of air quality problem. North Carolina's allocation of CMAQ funding is split in three pots available for funding, as follows:

- › Statewide CMAQ funds are administered by NCDOT and are awarded to prioritized NCDOT-driven CMAQ eligible projects either on a statewide tier facility or involving a system wide improvement within nonattainment and maintenance areas. Statewide CMAQ funds are not subject to regional or subregional allocations or the allocation formula. This category accounts for 35% of the total North Carolina CMAQ apportionment.
- › Regional CMAQ funds are locally administered and awarded to projects spanning more than one air quality region that cannot be considered subregional projects. Air quality regions are Catawba, Great Smoky Mountains National Park, Metrolina, Rocky Mount, the Triad, and the Triangle. The local project sponsor is responsible for providing the required match. This category accounts for 5% of the total North Carolina CMAQ apportionment.
- › Subregional CMAQ funds are locally administered and awarded at the MPO/RPO level to projects within eligible counties. The local project sponsor is responsible for providing the required match and meeting federal funding requirements. This category accounts for 60% of the total North Carolina CMAQ apportionment.

https://www.fhwa.dot.gov/environment/air_quality/cmaq/

LOCAL FUNDING

Bonds

Wake County, City of Raleigh, City of Wilmington, Town of Chapel Hill, Town of Cornelius, and City of Greenville have all passed bonds to protect open space corridors and build greenway networks. The City of Greensboro has issued bonds specific to greenway development (including the A&Y and Downtown greenways). Successful bond campaigns require a well-defined plan with specific projects supported by the community. Bond campaigns should be well organized with a community's public affairs department and thoroughly coordinated across all internal departments. Public outreach during the campaign is essential to educate residents about the benefits of infrastructure investment and to understand which projects garner the highest community support.



Capital Improvement Program (CIP)

A Capital Improvement Program (CIP) is one element in a municipality’s long-term planning process. It is a bridge between the municipality’s Comprehensive Plan and short-term planning for infrastructure and operations. A Capital Improvement Program analyzes major facility and equipment needs, establishes priorities, estimates fiscal resources, and schedules the development of funded projects. The City of Greensboro funds parks, greenways, and active transportation facilities through the city’s Capital Improvement Program. The Parks and Recreation Department’s CIP primary sources of funding come from Parks and Recreation Bonds, Facility Fees, General Fund (Tax Base), grants, and donations.

Impact Fees

Impact fees represent financial payments made to a local government by a developer to fund certain off-site capital improvements needed to accommodate future growth. Many communities impose impact fees for transportation, parks and recreation, and open space facility needs. The City of Durham imposes transportation impact fees to fund for a portion of the costs for new streets and sidewalks, paving, grading, resurfacing, and widening of existing streets, traffic control signals and markings, lighting, and crosswalks. The City’s development fees for open space and parks and recreation are used for the acquisition of park land and the provision of facilities, including athletic fields, parks, playgrounds, courts, recreation centers, shelters, stadiums, arenas, swimming pools, lighting, trail construction, and bike paths.

PRIVATE FUNDING

Public/Private Partnerships

The City of Greensboro is leading North Carolina in leveraging public-private partnerships to complete their Downtown Greenway Loop. Through the Action Greensboro Foundation, the project has raised over \$10 M in private funds by working with foundations and private givers. This money leverages over \$21 M in local and federal funds.

Blue Cross Blue Shield of North Carolina Foundation

The Blue Cross Blue Shield of North Carolina Foundation funds a range of programs from targeted, mini grants to multi-year partnerships. Their grantmaking supports initiatives that focus on early childhood, healthy communities, healthy food, and oral health. The Foundation does not operate regular grant cycles. Instead, the Foundation invites applications based on specific strategic objectives or announces broader opportunities to apply for funding on a periodic basis.

<https://www.bcbsncfoundation.org/grants-programs/grantmaking-overview/>



APPENDICES



04



APPENDIX CONTENTS

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RIGHT OF WAY SUMMARY