

A

Benefits Analysis

"The Greenway is one aspect of living in Raleigh that has increased my standard of living significantly. Please keep expanding, because I love to bike, but not on the road!" - Public Comment



INTRODUCTION

Constructing the Wake County Greenway System will connect communities within Wake County and provide residents and visitors a fun, healthy way to experience the culture and natural beauty of the region.

Planned with the dual purposes of outdoor recreation and transportation, the countywide greenway system consists of 145 miles of existing trails and approximately 100 miles trails that are proposed in the first 10 years¹. The full build-out of the greenway system will impact a variety of health, environmental, and transportation factors that directly affect the quality of life of Wake County residents and visitors. Quantifying these factors and understanding the magnitude of their impact on the county enables a more informed discussion on whether and how best to invest in the trail network.

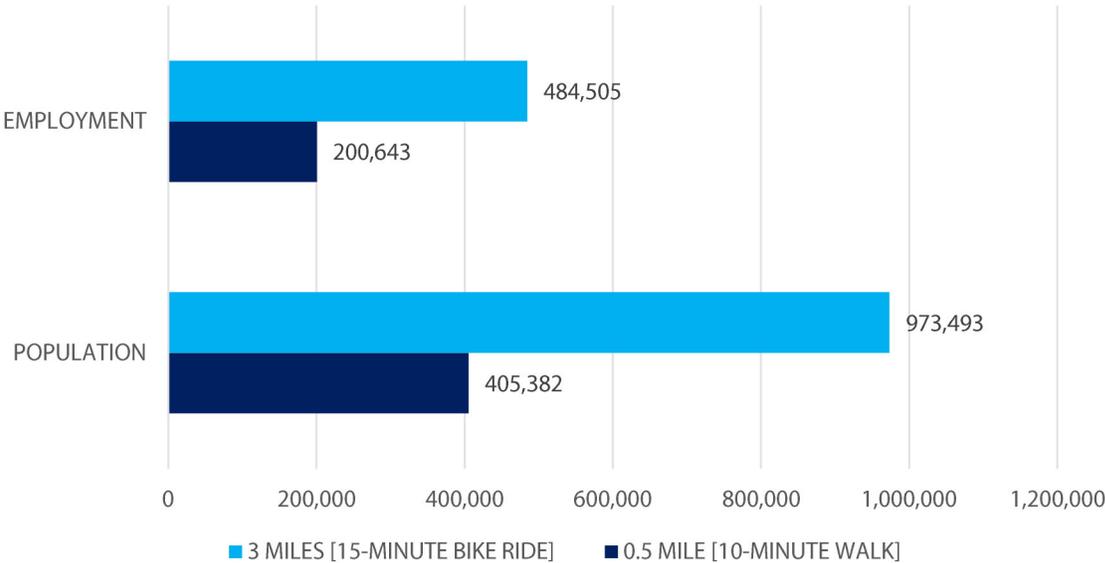
STUDY AREA

While the construction of the Wake County Greenway System will benefit all residents of and visitors to the region, those living within a 3-mile buffer (a conservative estimate of the average distance an able-bodied person can travel by bicycle in 15 minutes)² and a 0.5-mile buffer (a conservative

estimate of the average distance an able-bodied person can travel by foot in 10 minutes)³ of the greenway will have the most convenient access and will gain the most from the greenway system's completion. To calculate these benefits, the study area for the analysis was limited to residents living within a 3-mile buffer for bicycling benefits and a 0.5-mile buffer for walking benefits.

Figure 1 shows the total and employed population within the two buffer areas. The **additional tables** at the end of this appendix provide additional socio-demographic data of residents living within the two buffer areas.

Figure 1: Total and Employed Population



METHODS

This health and economic impact analysis was conducted by Alta Planning + Design, using a standard methodology for calculating health, environmental, economic, and transportation-related benefits. All **projections are based on the most recent five-year estimates from the American Community Survey (ACS)**, which are then **extrapolated through the use of various multipliers** derived from national studies and quantified in terms of monetary value, where appropriate. The estimated monetary values are then **calibrated to baseline values and compared to bicycle and walk mode commute mode shares of peer counties**.

Selecting Peer Counties

In order to estimate potential future increases in bicycling and walking that may result from the implementation of the greenway system within Wake County (NC), travel patterns in seven peer counties were examined: Sacramento (CA), Hennepin County (MN), St. Louis County (MO), Mecklenburg (NC), Travis County (TX), Fairfax County (VA), and King County (WA). These seven peer counties were selected based on similarities in the design of their roadway networks, regional proximity, climates, terrain, population size and demographics, and the presence of bicycle and pedestrian infrastructure similar to the proposed infrastructure in Wake County (See **Figure 2** and **Table 1**).

Figure 2: Peer Counties

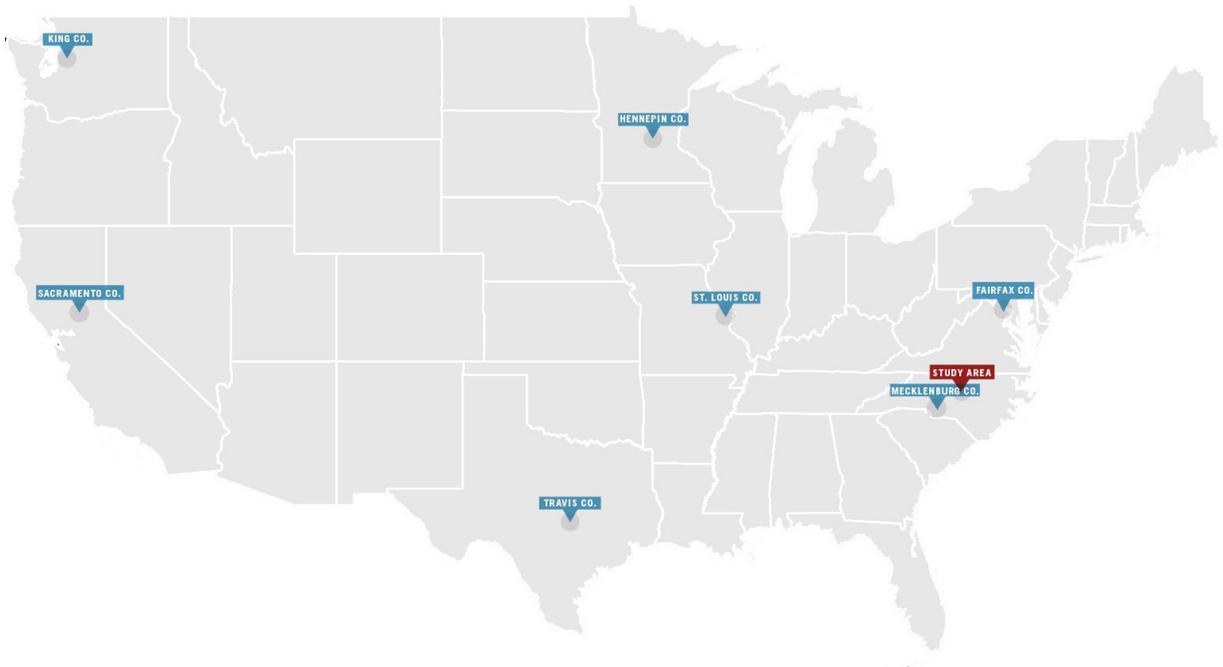


Table 1: Peer County Comparison

Locations	Region	Climate ⁴	Population ⁵	Population Density ⁶	Percent Minority Population ⁷	Bicycle Friendly Community Award ⁸	Walk Friendly Community Award ⁹
Wake County (NC)	Mid-Atlantic	<i>Cfa</i>	952,513	1,079/sq. mi.	31.0%	Bronze ¹⁰	Bronze ¹¹
Sacramento County (CA)	West	<i>Csa</i>	1,450,277	1,471/sq. mi.	65.4%	Silver ¹² / Bronze ¹³	Honorable Mention ¹⁴
Hennepin County (MN)	Midwest	<i>Dfa</i>	1,184,091	2,082/sq. mi.	24.1%	Gold ¹⁵ / Bronze ¹⁶	Gold ¹⁷
St. Louis County (MO)	Midwest	<i>Dfa/Cfa</i>	1,000,423	1,967/sq. mi.	30.1%	Bronze ¹⁸	None
Mecklenburg County (NC)	Mid-Atlantic	<i>Cfa</i>	968,500	1,756/sq. mi.	40.8%	Bronze ¹⁹	Bronze ²⁰
Travis County (TX)	South	<i>Cfa</i>	1,092,810	1,034/sq. mi.	19.3%	Silver ²¹	Bronze ²²
Fairfax County (VA)	Mid-Atlantic	<i>Cfa</i>	1,117,072	2,767/sq. mi.	33.4%	Bronze ²³	Honorable Mention ²⁴
King County (WA)	Northwest	<i>Csb</i>	2,008,997	913/sq. mi.	29.9%	Gold ²⁵ / Silver ²⁶ / Bronze ²⁷	Gold ²⁸ / Silver ²⁹

After the identification of peer counties based on general characteristics, the existing bicycle and walk commute data from each county was examined. Compared to the selected peer counties, Wake County has the third lowest bicycle commute mode share (0.3 percent), according to 2010-2014 ACS data.

Table 2 shows the existing bicycle commute mode shares for Wake County and its seven peer counties, as well as the mid-range of forecasted bicycle commute mode shares for the study area.

Table 2: Existing and Forecasted Bicycle Commute Mode Share

Cities	Employed Population	Existing Bicycle Commute Trips per Day	Existing Bicycle Commute Mode Share	Forecasted Future Bicycle Commute Mode Share		
				Low ³⁰	Mid ³¹	High ³²
Wake County (NC)	476,327	1,302	0.3%	0.3%	1.2%	1.4%
Sacramento County (CA)	602,052	7,411	1.2%			
Hennepin County (MN)	623,276	10,316	1.7%			
St. Louis County (MO)	479,121	1,122	0.2%			
Mecklenburg County (NC)	474,551	1,213	0.3%			
Travis County (TX)	568,094	6,643	1.2%			
Fairfax County (VA)	588,445	1,886	0.3%			
King County (WA)	1,030,879	16,413	1.6%			

If the study area increased its bicycle commute mode share to the 25th percentile of its seven peer counties, it would see a 7 percent increase in the number of bicycle commuters (0.27 percent to 0.29 percent). If the study area increased its bicycle commute mode share to the 50th percentile of its seven peer counties, it would see a 300 percent increase in the number of bicycle commuters (0.3 percent to 1.2 percent). If the study area increased its bicycle commute mode share to the 75th percentile of its seven peer counties, it would see a 367 percent increase in the number of bicycle commuters (0.3 percent to 1.4 percent).

Table 3 shows the existing walk commute mode share for Wake County and its seven peer counties, as well as the range of forecasted walk commute

mode shares for the study area. Compared to its peer counties, Wake County has the lowest walk commute mode share (1.4 percent), according to 2010-2014 ACS data. If the study area increased its walk commute mode share to the 25th percentile of its seven peer counties, it would see a 36 percent increase in the number of walk commuters (1.4 percent to 1.9 percent). If study area increased its walk commute mode share to the 50th percentile of its seven peer counties, it would see a 50 percent increase in the number of walking commuters (1.4 percent to 2.1percent). If the study area increased its walk commute mode share to the 75th percentile of its seven peer counties, it would see a 100 percent increase in the number of walking commuters (1.4 percent to 2.8 percent).

Table 3: Existing and Forecasted Commute Walk Mode Share

Cities	Employed Population	Existing Walk Commute Trips per Day	Existing Walk Commute Mode Share	Forecasted Future Walk Commute Mode Share		
				Low ³³	Mid ³⁴	High ³⁵
Wake County (NC)	476,327	6,589	1.4%	1.9%	2.1%	2.8%
Sacramento County (CA)	602,052	12,565	2.1%			
Hennepin County (MN)	623,276	20,622	3.3%			
St. Louis County (MO)	479,121	7,497	1.6%			
Mecklenburg County (NC)	474,551	9,400	2.0%			
Travis County (TX)	568,094	12,751	2.2%			
Fairfax County (VA)	588,445	10,895	1.9%			
King County (WA)	1,030,879	48,300	4.7%			

Multipliers

Multipliers were developed through an analysis of the relationship between two or more model inputs, such as the number of vehicle-miles traveled and the cost of road maintenance. The model used for this study includes more than 50 multipliers in order to extrapolate annual trip rates, trip distance, vehicle trips replaced, emission rates, physical activity rates, and other externalities linked to increases in bicycling and walking trips and decreases in motor vehicle trips. The factors are conservative and based on guidance from the FHWA, AAA, and the most up-to-date research on healthcare cost savings resulting from increased physical activity.

Limitations

The primary purpose of the analysis is to enable a more informed discussion on whether and how best to invest in a greenway system in Wake County. Even with extensive primary and secondary research incorporated into the impact analysis model, it is impossible to accurately predict the exact impacts of various factors. Accordingly, all estimated benefit values are rounded and should be considered **order of magnitude estimates, rather than exact amounts.**

HEALTH AND ENVIRONMENTAL BENEFITS

Constructing a well-designed, connected greenway system across Wake County will encourage a shift from energy-intensive modes of transportation such as cars and trucks to active modes of transportation such as bicycling and walking. While many of the active living-related benefits of a greenway system – such as improved mental health, educational growth, connection to nature, and sense of place – can be difficult to quantify, a growing body of literature links parks and trails

to increased physical activity, decreased health-care costs, and improved air quality.³⁶ In addition, studies show that increased physical activity helps seniors stay mentally fit,³⁷ reduces the risk of coronary heart disease, and even decreases the amount of insulin needed by people with Type I diabetes.³⁸

Health Calculations

Alta Planning + Design's Benefit Impact Model was used to evaluate and quantify an estimated increase in bicycling and walking trips, an estimated increase in hours of physical activity, and annual savings resulting from reduced healthcare costs. The primary inputs into the health component of the Benefit Impact Model are derived from ACS journey to work data (2010-2014),³⁹ National Household Travel Survey data (2009),⁴⁰ and historic Safe Routes to School data from schools across the United States⁴¹. Existing bicycle and walk commute data was multiplied by national trip purpose ratios to generate mode share data that includes all trip purposes. This balanced mode share data was indexed against the mode share data of Wake County's seven peer counties and multiplied by various health factors.

The completed Wake County Greenway System will dramatically shape the ability of residents in Wake County to get out and live more active, healthier lifestyles. The proposed greenway alignment will help to generate between 7,167,000 and 43,686,000 more bicycling and walking trips, spur 586,000 to 4,325,000 new hours of physical activity, and encourage 4,500 to 33,100 more people to meet the Centers for Disease Control and Prevention's recommended hours of physical activity. This boost to wellness will help save between \$768,000 and \$6,146,000 in regional healthcare expenses per year. **Table 4** summarizes the annual health benefits for the study area.

Table 4: Annual Health Benefits

	Baseline		Low Estimate		Mid Estimate		High Estimate	
	Total	Total	Difference	Total	Difference	Total	Difference	
Annual Bicycle Trips	4,331,000	4,679,000	348,000	24,767,000	20,436,000	30,291,000	25,960,000	
Annual Walk Trips	14,273,000	21,092,000	6,819,000	23,226,000	8,953,000	31,999,000	17,726,000	
Annual Miles Bicycled	9,065,000	9,454,000	389,000	31,917,000	22,852,000	38,094,000	29,029,000	
Annual Miles Walked	8,923,000	10,565,000	1,642,000	11,078,000	2,155,000	13,190,000	4,267,000	
Annual Vehicle Miles Traveled Reduced	7,978,000	10,342,000	2,364,000	27,897,000	19,919,000	35,209,000	27,231,000	
Annual Hours of Physical Activity	3,881,000	4,467,000	586,000	6,885,000	3,004,000	8,206,000	4,325,000	
People Getting Enough Exercise⁴²	29,900	34,400	4,500	53,000	23,100	63,000	33,100	
Exercise Need Met through Biking/Walking	6.4%	7.4%	1.1%	9.5%	3.2%	11.4%	5.0%	
Annual Healthcare Cost Savings from Bicycling and Walking	\$2,207,000	\$2,975,000	\$768,000	\$6,523,000	\$4,316,000	\$8,353,000	\$6,146,000	

Environmental Calculations

Using the estimate of vehicle miles traveled (VMT) reductions calculated in the health benefits component of the analysis, changes in hydrocarbon, particulate matter, nitrous oxides, carbon monoxide, and carbon dioxide were analyzed. The replacement of motor vehicle trips with active transportation trips may result in 3,150,000 to 73,173,000 fewer pounds of CO2 emissions per year and between 77,000 and 883,000 fewer

pounds of other vehicle emissions. These additional environmental benefits will help Wake County save between \$79,000 and \$911,000 per year (see **Table 5**). Other potential ecological services associated with the trail projects such as water regulation, carbon sequestration, carbon storage, and waste treatment exist, but the quantifiable value of these services are negligible on the overall impact of the recommended project list.

Table 5: Annual Environmental Benefits

	Baseline	Low Estimate		Mid Estimate		High Estimate	
	Total	Total	Difference	Total	Difference	Total	Difference
CO₂ Emissions Diverted (lbs)	15,938,000	19,088,000	3,150,000	71,891,000	55,953,000	89,111,000	73,173,000
Other Vehicle Emissions Diverted (lbs)⁴³	259,000	336,000	77,000	905,000	646,000	1,142,000	883,000
Total Environmental Cost Savings	\$267,000	\$346,000	\$79,000	\$934,000	\$667,000	\$1,178,000	\$911,000

TRANSPORTATION BENEFITS

The most readily-identifiable benefits of the Wake County Greenway System or any large trail network derive from their use as a transportation corridor. While no money changes hands, real savings can be estimated from the reduced costs associated with congestion, vehicle crashes, road maintenance, and household vehicle operations.

Transportation Calculations

Using the same annual VMT reduction estimates highlighted in the health and environmental components of the analysis, transportation-related cost savings were calculated by multiplying VMT reduced by established multipliers for traffic congestion, vehicle collisions, road maintenance, and vehicle operating costs. In total, an annual transportation cost savings between \$2,741,000 and \$31,588,000 is estimated for the countywide greenway system (See **Table 6**).

Table 6: Annual Transportation Benefits

	Baseline	Low Estimate		Mid Estimate		High Estimate	
	Total	Total	Difference	Total	Difference	Total	Difference
Annual VMT Reduced	7,978,000	10,342,000	2,364,000	27,897,000	19,919,000	35,209,000	27,231,000
Reduced Traffic Congestion Costs	\$639,000	\$827,000	\$188,000	\$2,232,000	\$1,593,000	\$2,817,000	\$2,178,000
Reduced Vehicle Collision Costs	\$2,872,000	\$3,723,000	\$851,000	\$10,043,000	\$7,171,000	\$12,676,000	\$9,804,000
Reduced Road Maintenance Costs	\$1,197,000	\$1,552,000	\$355,000	\$4,185,000	\$2,988,000	\$5,281,000	\$4,084,000
Household Vehicle Cost Savings	\$4,548,000	\$5,895,000	\$1,347,000	\$15,902,000	\$11,354,000	\$20,070,000	\$15,522,000
Total Vehicle Cost Savings	\$9,256,000	\$11,997,000	\$2,741,000	\$32,362,000	\$23,106,000	\$40,844,000	\$31,588,000

TOTAL BENEFITS

Table 7 summarizes the total health, environmental, and transportation benefits estimated to result from the full build-out of the Wake County Greenway System. In total, the greenway is expected to produce between \$3,588,000 million and \$38,645,000 in additional benefits per year.

Table 7 summarizes the indirect or non-reoccurring benefits associated with construction of the trail network.

Summary/Conclusion

This analysis uses a standard methodology for calculating health, environmental, economic, and transportation-related benefits. All projections are based on estimates of the number of people who walk and bike to work in Wake County, as compared to those who drive or take the bus, for example. The different numbers of people that take different modes of travel to work is referred to as “mode share”, which is reported in the American Community Survey (ACS). These mode share figures are then used in a calculation of the number of total trips taken by walking and bicycling (for both work and non-work trips), through the use of various multipliers derived from national studies. These estimates of total trips taken by walking and bicycling are then quantified in terms of their monetary value, where appropriate. The estimated monetary values (benefits) are then totaled for Wake County, and compared

to low, medium, and high projections that are based on the performance of Wake County’s peer communities.

All estimated benefit values should be considered order of magnitude estimates, rather than exact amounts. The magnitude of difference in the low to high ranges is rooted in the use of the 25th, 50th, and 75th percentile mode shares of the peer communities as points of comparison. They vary substantially because the peer communities include two that are relatively high-performing in terms of bicycle and pedestrian infrastructure: Hennepin County and King County, which include bicycle- and pedestrian-friendly Minneapolis and Seattle, respectively. **However, Wake County and its municipalities should (and could) reach the goal of performing to at least the 50th percentile of all seven of the peer communities examined, resulting in benefits reflected in the mid-range of estimates.** For example, Wake County and its municipalities already have an extensive system of existing greenways on the ground, but there is much room for improvement in terms of connectivity between trails and between town centers and other destinations. The Wake County Greenway System Plan is designed to address those issues, making walking and bicycling for both transportation and recreation more accessible, practical, and enjoyable for more people.

Table 7: Total Annual Benefits

	Baseline	Low Estimate		Mid Estimate		High Estimate	
	Total	Total	Difference	Total	Difference	Total	Difference
Health	\$2,207,000	\$2,975,000	\$768,000	\$6,523,000	\$4,316,000	\$8,353,000	\$6,146,000
Environmental	\$267,000	\$346,000	\$79,000	\$934,000	\$667,000	\$1,178,000	\$911,000
Transportation	\$9,256,000	\$11,997,000	\$2,741,000	\$32,362,000	\$23,106,000	\$40,844,000	\$31,588,000
Total Benefits	\$11,730,000	\$15,318,000	\$3,588,000	\$39,819,000	\$28,089,000	\$50,375,000	\$38,645,000

Wake County and its municipalities should (and could) reach the goal of performing to at least the 50th percentile of all seven of the peer communities examined

It also important to note that there are many benefits of a connected and comprehensive greenway system in addition to those calculated in this analysis. These include protected wildlife habitat, water quality protection from the preservation of vegetated buffers along waterways, the mental health benefits and reduced stress from increased exercise and spending time in nature, the positive impacts of access to parks and greenways on property values and quality of life, and the potential for increases in tourism associated with a world-class system of greenways.

ADDITIONAL TABLES

- Table 8: Age and Gender (ACS, 2010-2014)
- Table 9: Self-identified Race of Individuals (ACS, 2010-2014)
- Table 10: Commute Mode Share of Employed Individuals, 16 years or older (ACS, 2010-2014)
- Table 11: Average Travel Time of Commute Trips - All Modes (ACS, 2010-2014)
- Table 12: Time Leaving Home to go to Work (ACS, 2010-2014)
- Table 13: Educational Attainment for the Population 25 Years and Older (ACS, 2010-2014)
- Table 14: Income and Equity (ACS, 2010-2014)

Table 8: Age and Gender (ACS, 2010-2014)

Age	Within 0.5 Mile of Greenway				Within 3 Miles of Greenway			
	Male		Female		Male		Female	
Under 5	13,743	3.4%	12,465	3.1%	33,460	3.4%	32,540	3.3%
5 to 9	15,839	3.9%	15,092	3.7%	36,745	3.8%	35,882	3.7%
10 to 14	16,051	4.0%	15,364	3.8%	38,192	3.9%	36,174	3.7%
15 to 19	14,198	3.5%	12,698	3.1%	32,614	3.4%	29,876	3.1%
20 to 24	11,687	2.9%	11,256	2.8%	26,697	2.7%	26,688	2.7%
25 to 29	13,597	3.4%	14,122	3.5%	32,583	3.3%	34,818	3.6%
30 to 34	14,418	3.6%	14,977	3.7%	34,473	3.5%	35,932	3.7%
35 to 39	15,586	3.8%	16,156	4.0%	36,350	3.7%	38,328	3.9%
40 to 44	17,428	4.3%	17,245	4.3%	39,194	4.0%	40,300	4.1%
45 to 49	15,107	3.7%	15,691	3.9%	35,559	3.7%	37,918	3.9%
50 to 54	14,265	3.5%	14,194	3.5%	34,258	3.5%	35,031	3.6%
55 to 59	11,637	2.9%	12,186	3.0%	27,788	2.9%	30,528	3.1%
60 to 64	9,125	2.3%	10,400	2.6%	21,962	2.3%	25,955	2.7%
65 to 69	6,714	1.7%	7,422	1.8%	16,761	1.7%	18,654	1.9%
70 to 74	4,762	1.2%	5,701	1.4%	11,722	1.2%	13,868	1.4%
75 to 79	3,147	0.8%	3,833	0.9%	7,871	0.8%	10,182	1.0%
80 to 84	1,925	0.5%	3,015	0.7%	5,074	0.5%	7,882	0.8%
Over 84	1,412	0.3%	2,924	0.7%	4,042	0.4%	7,592	0.8%
Subtotal	200,642	49.5%	204,740	50.5%	475,345	48.8%	498,148	51.2%
Total	405,382 (100.0%)				973,493 (100.0%)			

Table 9: Self-identified Race of Individuals (ACS, 2010-2014)

Race	Within 0.5 Mile of Greenway		Within 3 Miles of Greenway	
	Count	Percentage	Count	Percentage
White, alone	297,198	73.3%	716,385	73.6%
Black or African American, alone	57,461	14.2%	142,592	14.6%
American Indian or Alaska Native, alone	1,429	0.4%	3,390	0.3%
Asian, alone	26,541	6.5%	55,600	5.7%
Hawaiian Native or other Pacific Islander, alone	313	0.1%	807	0.1%
Some other race	12,521	3.1%	31,343	3.2%
Two or more races	9,918	2.4%	23,376	2.4%
Total	405,382	100.0%	973,493	100.0%

Table 10: Commute Mode Share of Employed Individuals, 16 years or older (ACS,2010-2014)

Mode Choice	Commuters within 0.5 Mile of Greenway		Commuters within 3 Miles of Greenway	
Drive Alone	163,625	81.6%	395,089	81.5%
Carpool	18,406	9.2%	45,274	9.3%
Transit	2,523	1.3%	5,399	1.1%
Taxi	213	0.1%	658	0.1%
Motorcycle	277	0.1%	810	0.2%
Bicycle	365	0.2%	920	0.2%
Walk	2,251	1.1%	5,279	1.1%
Other	1,208	0.6%	3,101	0.6%
Worked at Home	11,775	5.9%	27,974	5.8%
Employed Population	200,643	100.0%	484,505	100.0%

Table 11: Average Travel Time of Commute Trips - All Modes (ACS,2010-2014)

Travel Time	Commuters within 0.5 Mile of Greenway		Commuters within 3 Miles of Greenway	
Less than 10 minutes	19,490	10.3%	48,242	10.6%
10 to 14 minutes	25,219	13.4%	62,078	13.6%
15 to 19 minutes	32,030	17.0%	78,110	17.1%
20 to 24 minutes	34,530	18.3%	83,921	18.4%
25 to 29 minutes	15,293	8.1%	37,178	8.1%
30 to 34 minutes	27,933	14.8%	66,097	14.5%
35 to 44 minutes	12,923	6.8%	30,694	6.7%
45 to 59 minutes	11,604	6.1%	28,165	6.2%
60 or more minutes	9,846	5.2%	22,046	4.8%
Total	188,869	100.0%	456,531	100.0%

Table 12: Time Leaving Home to go to Work (ACS,2010-2014)

Time Leaving Home to go to Work	Commuters within 0.5 Mile of Greenway		Commuters within 3 Miles of Greenway	
	Count	Percentage	Count	Percentage
12:00 a.m. to 4:59 a.m.	5,401	2.9%	12,889	2.8%
5:00 a.m. to 5:29 a.m.	4,427	2.3%	10,591	2.3%
5:30 a.m. to 5:59 a.m.	5,872	3.1%	14,530	3.2%
6:00 a.m. to 6:29 a.m.	12,984	6.9%	33,796	7.4%
6:30 a.m. to 6:59 a.m.	18,172	9.6%	43,887	9.6%
7:00 a.m. to 7:29 a.m.	30,956	16.4%	74,872	16.4%
7:30 a.m. to 7:59 a.m.	29,647	15.7%	70,721	15.5%
8:00 a.m. to 8:29 a.m.	25,451	13.5%	61,505	13.5%
8:30 a.m. to 8:59 a.m.	13,567	7.2%	31,925	7.0%
9:00 a.m. to 9:59 a.m.	12,935	6.8%	31,274	6.9%
10:00 a.m. to 10:59 a.m.	5,505	2.9%	12,771	2.8%
11:00 a.m. to 11:59 a.m.	2,295	1.2%	5,509	1.2%
12:00 p.m. to 3:59 p.m.	10,111	5.4%	24,333	5.3%
4:00 p.m. to 11:59 p.m.	11,545	6.1%	27,928	6.1%
Total	188,869	100.0%	456,531	100.0%

Table 13: Educational Attainment for the Population 25 Years and Older (ACS,2010-2014)

Highest Grade Level	Within 0.5 Mile of Greenway		Within 3 Miles of Greenway	
	Count	Percentage	Count	Percentage
No Formal Education	2,229	0.8%	4,906	0.8%
Nursery	46	0.0%	124	0.0%
Kindergarten	16	0.0%	47	0.0%
1 st Grade	161	0.1%	378	0.1%
2 nd Grade	124	0.0%	329	0.1%
3 rd Grade	433	0.2%	1,044	0.2%
4 th Grade	204	0.1%	722	0.1%
5 th Grade	733	0.3%	1,846	0.3%
6 th Grade	2,538	1.0%	5,608	0.9%
7 th Grade	728	0.3%	1,733	0.3%
8 th Grade	2,167	0.8%	5,694	0.9%
9 th Grade	2,805	1.1%	6,730	1.0%
10 th Grade	3,549	1.3%	7,826	1.2%
11 th Grade	3,572	1.3%	8,141	1.3%
12 th Grade	2,956	1.1%	7,113	1.1%
High School Diploma	41,283	15.5%	101,432	15.7%
GED or Equivalent	7,336	2.7%	17,485	2.7%
Some College	51,860	19.4%	128,509	34.3%
Associate's Degree	22,180	8.3%	54,378	8.4%
Bachelor's Degree	78,289	29.3%	188,047	29.2%
Master's Degree	32,413	12.1%	75,525	11.7%
Professional Degree	6,801	2.5%	16,391	2.5%
Doctorate	4,564	1.7%	10,616	1.6%
Total	266,987	100.0%	644,625	100.0%

Table 14: Income and Equity (ACS,2010-2014)

Income/Equity Measure	Within 0.5 Mile of Greenway	Within 3 Miles of Greenway
Individuals below poverty level	12,364 (8.3%)	30,764 (8.5%)
Median Household Income	\$73,701	\$75,115
GINI Index*	0.39	0.39
Households Receiving Food Stamps/SNAP in the past 12 months	9,207 (6.2%)	22,664 (6.2%)
Unemployed	14,446 (4.6%)	35,069 (4.7%)
Not in Labor Force	92,649 (29.8%)	219,350 (29.4%)
Households with No Vehicle Available	5,587 (3.7%)	13,917 (3.8%)
Residents without US Citizenship	31,906 (7.9%)	72,363 (7.4%)

* Weighted average by population

NOTES AND SOURCES

1. In addition to the approximately 145 miles of existing trail identified as part of the county-wide greenway system, there are approximately 150 miles of additional existing trails in outside of that system, mainly consisting of smaller local trails, and smaller trails within parks.
2. Hunter, W. W., Srinivasan, R., and C. Martel (2009). "An Examination of Bicycle Counts and Speeds Associated with the Installation of Bike Lanes in St. Petersburg, Florida." http://www.stpete.org/transportation/citytrails/docs/Examination_of_bicycle_counts_and_speeds_associated_with_bike_lanes.pdf
3. Regional Plan Association (1997). "Building Transit-Friendly Communities: A Design and Development Strategy for the Tri-State Metropolitan Region." <http://www.rpa.org/pdf/tfc01.pdf>
4. Köppen Climate Classification System: Cfa (humid subtropical), Csa /Csb (Mediterranean), Dfa (Hot summer continental)
5. US Census, American Community Survey, five-year estimates (2010-2014)
6. US Census, Quick Facts, Population (2010), <<http://www.census.gov/quickfacts/table>>
7. US Census, Quick Facts, Population Density (2010), <<http://www.census.gov/quickfacts/table>>
8. "Current Bicycle Friendly Communities 2015." The League of American Bicyclists. <http://www.bikeleague.org/sites/default/files/BFC_Master_Spring_2015.pdf>
9. FHWA, UNC – Highway Safety Research Center, and FedEx (2015), <http://www.bikeleague.org/sites/default/files/BFC_Master_Spring_2015.pdf>
10. The City of Raleigh (NC) and Cary (NC) receive a bronze-level Bicycle Friendly Community Award for 2015
11. The City of Cary (NC) received a bronze-level Walk Friendly Community Award for 2015
12. The City of Sacramento (CA) receive a silver-level Bike Friendly Community Award for 2015
13. The City of Rancho Cordova (CA) received a bronze-level Bicycle Friendly Community Award for 2015
14. The City of Minneapolis (MN) received a gold-level Walk Friendly Community Award in 2015
15. The City of Minneapolis (MN) received a gold-level Bicycle Friendly Community Award for 2015
16. The City Edina (MN) received a bronze-level Bicycle Friendly Community Award for 2015
17. The City of Rancho Cordova (CA) received an honorable mention as a Walk Friendly Community in 2015
18. The City of St. Louis received a bronze-level Bicycle Friendly Community Award for 2015
19. The City of Charlotte (NC) received a bronze-level Bicycle Friendly Community Award for 2015
20. The City of Charlotte (NC) received a bronze-level Walk Friendly Community Award for 2015
21. The City Austin (TX) received a silver-level Bicycle Friendly Community Award for 2015
22. The City Austin (TX) received a bronze-level Walk Friendly Community in 2015

23. The City of Reston (VA) received a bronze-level Bicycle Friendly Community Award for 2015
24. The City of Reston (VA) received an honorable mention as a Walk Friendly Community in 2015
25. The City of Seattle (WA) received a gold-level Bicycle Friendly Community Award for 2015
26. The City of Redmond (WA) received a silver-level Bicycle Friendly Community Award for 2015
27. The City of Bellevue (WA) received a bronze-level Bicycle Friendly Community Award for 2015
28. The City of Seattle (WA) received the only platinum-level Walk Friendly Community Award for 2015
29. The City of Bellevue (WA) received a silver-level Walk Friendly Community Award for 2015
30. The low estimate for future bike commute mode share is the difference between Wake County's existing bike commute mode share and the **25th percentile** bike mode split of the seven selected peer counties
31. The mid estimate for future bike commute mode share is the difference between Wake County's existing bike commute mode share and the **50th percentile** bike mode split of the seven selected peer counties
32. The high estimate for future bike commute mode share is the difference between Wake County's existing bike commute mode share and the **75th percentile** bike mode share of the seven selected peer counties
33. The low estimate for future walk commute mode share is the difference between Wake County's existing walk commute mode share and the **25th percentile** walk mode share of the seven selected peer counties
34. The mid estimate for future walk commute mode share is the difference between Wake County's existing walk commute mode share and the **50th percentile** walk mode share of the seven selected peer counties
35. The high estimate for future walk commute mode share is the difference between Wake County's existing walk commute mode share and the **75th percentile** walk mode share of the seven selected peer counties
36. <<http://atfiles.org/files/pdf/BenefitsPA2002.pdf>; http://safety.fhwa.dot.gov/ped_bike/docs/case15.pdf>
37. <<http://www.americantrails.org/resources/benefits/VAcognitive.html>>
38. <<http://atfiles.org/files/pdf/AHShalthben.pdf>>
39. "When to use 1-year, 3-year, or 5-year estimates." US Census Bureau. <http://www.census.gov/acs/www/guidance_for_data_users/estimates/>
40. <<http://nhts.ornl.gov/>>
41. <http://saferoutesinfo.org/sites/default/files/resources/NHTS_school_travel_report_2011_0.pdf>
42. The Centers for Disease Control and Prevention recommend 150 minutes of moderate intensity aerobic activity (i.e., brisk walking) for adults every week. <<http://www.cdc.gov/physicalactivity/basics/adults/>>
43. Other vehicle emissions include hydrocarbons, particulate matter, nitrous oxides, and carbon monoxide

B

Funding Resources

For more on funding strategies for this plan, refer to pages 128-132 of the main document.

Stakeholders learning about trail system funding strategies from across the U.S.

OVERVIEW

When considering possible funding sources for bicycle, pedestrian, and greenway trail projects, it is important to remember that not all construction activities or programs can be accomplished with a single funding source. It will be necessary to consider many 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 appendix 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, cycles, and the programs themselves may change over time. For more on funding strategies for this plan, refer to pages 128-132 of the main document.

FEDERAL FUNDING SOURCES

Federal funding is typically directed through state agencies to local governments either in the form of grants or direct appropriations. Federal funding typically requires a local match of five percent to 50 percent, but there are sometimes exceptions. The following is a list of possible Federal funding sources that could be used to support construction of pedestrian and bicycle improvements.

Fixing America's Surface Transportation (FAST Act)

In December 2015, President Obama signed the FAST Act into law, which replaces the previous Moving Ahead for Progress in the Twenty-First Century (MAP-21). The Act provides a long-term funding source of \$305 billion for surface transportation and planning for FY 2016-2020. Overall, the FAST Act retains eligibility for big programs - Transportation Investments Generating Eco-

nomics Recovery (TIGER), Surface Transportation Program (STP), Congestion Mitigation and Air Quality (CMAQ), and Highway Safety Improvement Program (HSIP) - and funding levels between highways and transit.

In North Carolina, federal monies are administered through the North Carolina Department of Transportation (NCDOT) and Metropolitan Planning Organizations (MPOs). Most, but not all, of these programs are oriented toward transportation versus recreation, with an emphasis on reducing auto trips and providing inter-modal connections. Federal funding is intended for capital improvements and safety and education programs, and projects must relate to the surface transportation system. For more information, visit: <https://www.transportation.gov/fastact>

Transportation Alternatives

Transportation Alternatives (TA) is a funding source under the FAST Act that consolidates three formerly separate programs under SAFETEA-LU: Transportation Enhancements (TE), Safe Routes to School (SRTS), and the Recreational Trails Program (RTP). These funds may be used for a variety of pedestrian, bicycle, and streetscape projects including sidewalks, bikeways, multi-use paths, and rail-trails. TA funds may also be used for selected education and encouragement programming such as Safe Routes to School, despite the fact that TA does not provide a guaranteed set-aside for this activity as SAFETEA-LU did.

Funding for the Surface Transportation Block Grant Program (STPBG) will grow from the current level of \$819 million per year to \$835 million in 2016 and 2017 and to \$850 million in 2018 through 2020.

The FAST Act provides \$84 million for the Recreational Trails Program. Funding is prorated among the 50 states and Washington D.C. in proportion to the relative amount of off-highway recreational fuel tax that its residents paid. To administer the funding, states hold a statewide competitive process. The legislation stipulates that funds must conform to the distribution formula of 30% for motorized projects, 30% for non-motorized projects, and 40% for mixed used projects. Each state governor is given the opportunity to “opt out” of the RTP. For the complete list of eligible activities, visit: <http://www.fhwa.dot.gov/fastact/factsheets/stbgfs.cfm>. For funding levels, visit: <http://trade.railstotrails.org/index>.

Surface Transportation Program

The Surface Transportation Program (STP) provides states with flexible funds which may be used for a variety of highway, road, bridge, and transit projects. A wide variety of pedestrian improvements are eligible, including trails, sidewalks, crosswalks, pedestrian signals, and other ancillary facilities. Modification of sidewalks to comply with the requirements of the Americans with Disabilities Act (ADA) is also an eligible activity. Unlike most highway projects, STP-funded pedestrian facilities may be located on local and collector roads which are not part of the Federal-aid Highway System. 50 percent of each state’s STP funds are allocated by population to the MPOs; the remaining 50 percent may be spent in any area of the state. For more information, visit <http://www.fhwa.dot.gov/specialfunding/stp/>

Highway Safety Improvement Program

HSIP provides \$2.4 billion for projects and programs that help communities achieve significant reductions in traffic fatalities and serious injuries on all public roads, bikeways, and walkways. Bicycle and pedestrian safety improvements, enforcement activities, traffic calming projects, and crossing treatments for non-motorized users in school zones are eligible for these funds. For more information: <http://www.fhwa.dot.gov/fastact/factsheets/hsipfs.cfm>

Congestion Mitigation/Air Quality Program

The Congestion Mitigation/Air Quality Improvement Program (CMAQ) provides funding for projects and programs in air quality non-attainment and maintenance areas for ozone, carbon monoxide, and particulate matter which reduce transportation related emissions. States with no non-attainment areas may use their CMAQ funds for any CMAQ or STP eligible project. These federal dollars can be used to build bicycle and pedestrian facilities that reduce travel by automobile. Purely recreational facilities generally are not eligible. Communities located in attainment areas who do not receive CMAQ funding apportionments may apply for CMAQ funding to implement projects that will reduce travel by automobile. For more information: <http://www.fhwa.dot.gov/fastact/factsheets/cmaqfs.cfm>

Federal Transit Administration Enhanced Mobility of Seniors and Individuals with Disabilities

This program can be used for capital expenses that support transportation to meet the special needs of older adults and persons with disabilities, including providing access to an eligible public transportation facility when the transportation service provided is unavailable, insufficient, or inappropriate to meeting these needs. For more information: <https://www.transit.dot.gov/funding/grants/enhanced-mobility-seniors-individuals-disabilities-section-5310>

Safe Routes to School (SRTS) Program

SRTS enables and encourages children to walk and bike to school. The program helps make walking and bicycling to school a safe and more appealing method of transportation for children. SRTS facilitates the planning, development, and implementation of projects and activities that will improve safety and reduce traffic, fuel consumption, and air pollution in the vicinity of schools. Most of the types of eligible SRTS projects include sidewalks or a shared-use path. However, intersection improvements (i.e. signalization, marking/upgrading crosswalks, etc.), on street bicycle facilities (bike lanes, wide paved shoulders, etc.) or off-street shared-use paths are also eligible for SRTS funds.

For more information: <http://saferoutespartnership.org/healthy-communities/policy-change/federal/FAST-act-background-resources>

OTHER FEDERAL FUNDING SOURCES

Partnership for Sustainable Communities

Founded in 2009, the Partnership for Sustainable Communities (PSC) is a joint project of the Environmental Protection Agency (EPA), the U.S. Department of Housing and Urban Development (HUD), and the U.S. Department of Transportation (USDOT). The partnership aims to “improve access to affordable housing, more transportation options, and lower transportation costs while protecting the environment in communities nationwide.”

The Partnership is based on five Livability Principles, one of which explicitly addresses the need for bicycle and pedestrian infrastructure (“Provide more transportation choices: Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation’s dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health”). The Partnership is not a formal agency with a regular annual grant program. Nevertheless, it is an important effort that has already led to some new grant opportunities (including both TIGER I and TIGER II grants). North Carolina jurisdictions should track Partnership communications and be prepared to respond proactively to announcements of new grant programs. Initiatives that speak to multiple livability goals are more likely to score well than initiatives that are narrowly limited in scope to pedestrian improvement efforts. PSC 2015 Priorities include: using PSC agency resources to advance Ladders of Opportunity for every American and every community; helping communities adapt to a changing climate, while mitigating future disaster losses; and supporting implementation of community-based development priorities.

For more information:

<http://www.sustainablecommunities.gov/>

<http://www2.epa.gov/smart-growth/hud-dot-epa-partnership-sustainable-communities>

Resource for Rural Communities: http://www.sustainablecommunities.gov/sites/sustainablecommunities.gov/files/docs/federal_resources_rural.pdf

Federal Land and Water Conservation Fund

The Land and Water Conservation Fund (LWCF) provides grants for planning and acquiring outdoor recreation areas and facilities, including trails. Funds can be used for right-of-way acquisition and construction. The program is administered by the Department of Environment and Natural Resources as a grant program for states and local governments. Maximum annual grant awards for county governments, incorporated municipalities, public authorities, and federally recognized Indian tribes are \$250,000. The local match may be provided with in-kind services or cash. For more information: http://www.ncparks.gov/About/grants/lwcf_main.php

Rivers, Trails, and Conservation Assistance Program

The Rivers, Trails, and Conservation Assistance Program (RTCA) is a National Parks Service (NPS) program providing technical assistance via direct NPS staff involvement to establish and restore greenways, rivers, trails, watersheds and open space. The RTCA program provides only for planning assistance—there are no implementation funds available. Projects are prioritized for assistance based on criteria including conserving significant community resources, fostering cooper-

ation between agencies, serving a large number of users, encouraging public involvement in planning and implementation, and focusing on lasting accomplishments. This program may benefit trail development in North Carolina locales indirectly through technical assistance, particularly for community organizations, but is not a capital funding source. Annual application deadline is August 1st. For more information: <http://www.nps.gov/nrcr/programs/rtca/> or contact the Southeast Region RTCA Program Manager Deirdre “Dee” Hewitt at (404) 507- 5691

National Scenic Byways Discretionary Grant Program

The National Scenic Byways Discretionary Grants program provides merit-based funding for byway-related projects each year, utilizing one or more of eight specific activities for roads designated as National Scenic Byways, All-American Roads, State scenic byways, or Indian tribe scenic byways. The activities are described in 23 USC 162(c). This is a discretionary program; all projects are selected by the US Secretary of Transportation.

Eligible projects include construction along a scenic byway of a facility for pedestrians and bicyclists and improvements to a scenic byway that will enhance access to an area for the purpose of recreation. Construction includes the development of the environmental documents, design, engineering, purchase of right-of-way, land, or property, as well as supervising, inspecting, and actual construction. For more information: <http://www.bywaysonline.org/grants/>

Energy Efficiency and Conservation Block Grants

The Department of Energy's Energy Efficiency and Conservation Block Grants (EECBG) may be used to reduce energy consumptions and fossil fuel emissions and for improvements in energy efficiency. Section 7 of the funding announcement states that these grants provide opportunities for the development and implementation of transportation programs to conserve energy used in transportation including development of infrastructure such as bike lanes and pathways and pedestrian walkways. Although the current grant period has passed, more opportunities may arise in the future. For more information: <http://www1.eere.energy.gov/wip/eecbg.html>

TIGER Discretionary Grants

The U.S. Department of Transportation's (DOT) Transportation Investment Generating Economic Recovery (TIGER) discretionary grants are intended to fund capital investments in surface transportation infrastructure. The grant program focuses on "capital projects that generate economic development and improve access to reliable, safe, and affordable transportation for disconnected both urban and rural, while emphasizing improved connection to employment, education, services and other opportunities, workforce development, or community revitalization." Infrastructure improvement projects such as recreational trails and greenways with an emphasis on multi-modal transit qualify for this grant. Pre-Application deadlines are typically in May, with final application deadlines in June. For more information: <http://www.dot.gov/tiger>

Economic Development Administration

Under Economic Development Administration's (EDA) Public Works and Economic Adjustment Assistance programs, grant applications are accepted for construction, non-construction, technical assistance, and revolving loan fund projects. "Grants and cooperative agreements made under these programs are designed to leverage existing regional assets and support the implementation of economic development strategies that advance new ideas and creative approaches to advance economic prosperity in distressed communities." Application deadlines are typically in March and June. For more information: <http://www.eda.gov/funding-opportunities/files/2015-EDAP-FFO-Fact-Sheet.pdf>

Historic Preservation Fund Grants

The State, Tribal, and Local Plans & Grants (STLPG) division manages several grant programs to assist with a variety of historic preservation and community projects focused on heritage preservation. For more information on the different grant programs visit: <http://www.nps.gov/preservation-grants/>

Environmental Contamination Cleanup Funding Sources

EPA's Brownfields Program provides direct funding for brownfields assessment, cleanup, revolving loans, and environmental job training. EPA's Brownfields Program collaborates with other EPA programs, other federal partners, and state agencies to identify and leverage more resources for brownfields activities. Technical assistance relating to brownfields financing is an additional service provided. For more information: http://epa.gov/brownfields/grant_info/index.htm

***National Fish and Wildlife Foundation:
Five Star & Urban Waters Restoration
Grant Program***

The Five Star & Urban Waters Restoration Grant Program seeks to develop community capacity to sustain local natural resources for future generations by providing modest financial assistance to diverse local partnerships for wetland, riparian, forest and coastal habitat restoration, urban wildlife conservation, stormwater management as well as outreach, education and stewardship. Projects should focus on water quality, watersheds and the habitats they support. NFWF may use a mix of public and private funding sources to support any grant made through this program. Request for proposals application are typically due in late January/early February. For more information: http://www.nfwf.org/fivestar/Pages/home.aspx#.VS_eq_nF-Bw

***Environmental Solutions for Communities
Grant Program***

The National Fish and Wildlife Foundation (NFWF) and Wells Fargo seek to promote sustainable communities through Environmental Solutions for Communities by supporting highly-visible projects that link economic development and community well-being to the stewardship and health of the environment. Priority for grants to projects that successfully address one or more of the following:

- » Support innovative, cost-effective programs that enhance stewardship on private agricultural lands to enhance water quality and quantity and/or improve wildlife habitat for species of concern, while maintaining or increasing agricultural productivity.
- » Support community-based conservation projects that protect and restore local habitats and natural areas, enhance water quality, promote urban forestry, educate and train community leaders on sustainable practices, promote related job creation and training, and engage diverse partners and volunteers.
- » Support visible and accessible demonstration projects that showcase innovative, cost-effective and environmentally-friendly approaches to improve environmental conditions within urban communities by 'greening' traditional infrastructure and public projects such as storm water management and flood control, public park enhancements, and renovations to public facilities.
- » Support projects that increase the resiliency of the Nation's coastal communities and ecosystems by restoring coastal habitats, living resources, and water quality to enhance livelihoods and quality of life in these communities.
- » In North Carolina, strong preference will be given to projects located in the regions of Charlotte, Raleigh, or Winston Salem.

For more information: <http://www.nfwf.org/environmentalsolutions/Pages/2015rfp.aspx#.VS-8SPnF-Bw>

STATE FUNDING SOURCES

There are multiple sources for state funding of bicycle and pedestrian transportation projects. However, beginning July 1, 2015, state transportation funds cannot be used to match federally-funded transportation projects, according to a law passed by the North Carolina Legislature.

North Carolina Department of Transportation (NCDOT) Strategic Transportation Investments (STI)

The NCDOT’s State Transportation Improvement Program is based on the Strategic Transportation Investments Bill, signed into law in 2013. The Strategic Transportation Investments (STI) Initiative introduces the Strategic Mobility Formula, a new way to fund and prioritize transportation projects.

The new Strategic Transportation Investments Initiative is scheduled to be fully implemented by July 1, 2015. Projects scheduled for construction

before then will proceed as scheduled under the current Equity Formula. Projects slated for construction after that time will be ranked and programed according to the new formula. The new Strategic mobility formula assigns projects for all modes into one of three categories: 1) Statewide Mobility, 2) Regional Impact, and 3) Division Needs.

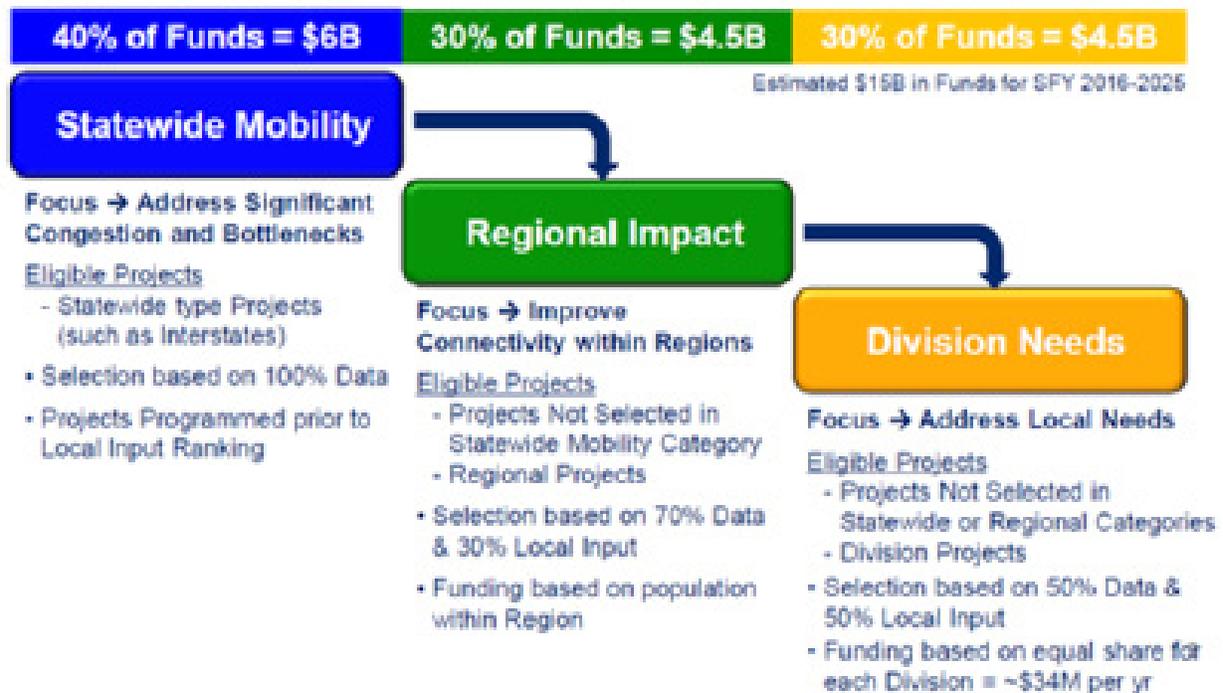
All independent bicycle and pedestrian projects are placed in the “Division Needs” category, and are currently ranked based on 50% data (safety, access, demand, connectivity, and cost effectiveness) and 50% local input, with a breakdown as follows:

Safety 15%

- » Definition: Projects or improvements where bicycle or pedestrian accommodations are non-existent or inadequate for safety of users

HOW THE STI WORKS

(Source: NCDOT Bicycle and Pedestrian Prioritization, June 2015)



- » How it's measured: Crash history, posted speed limits, and estimated safety benefit
- » Calculation:
- » Bicycle/pedestrian crashes along the corridor within last five years: 40% weight
- » Posted speed limits, with higher points for higher limits: 40% weight
- » Project safety benefit, measured by each specific improvement: 20% weight

Access 10%

- » Definition: Destinations that draw or generate high volumes of bikes/pedestrians
- » How it's measured: Type of and distance to destination

Demand 10%

- » Definition: Projects serving large resident or employee user groups
- » How its measured: # of households and employees per square mile within 1 ½ mile bicycle or ½ mile pedestrian facility + factor for unoccupied housing units (second homes)

Connectivity 10%

- » Definition: Measure impact of project on reliability and quality of network
- » How it's measured: Creates score per each SIT based on degree of bike/ped separation from roadway and connectivity to similar or better project type

Cost Effectiveness 5%

- » Definition: Ratio of calculated user benefit divided by NCDOT project cost
- » How it's measured: Safety + Demand + Access + Connectivity/Estimated Project Cost to NCDOT

Local Input 50%

- » Definition: Input from MPO/RPOs and NCDOT Divisions, which comes in the form points assigned to projects.
- » How it is measured: Base points + points for population size. A given project is more likely to get funded if it is assigned base points from both the MPO/RPO and the Division, making the need for communicating the importance of projects to these groups critical. Further, projects that have a local match will score higher.

Additional bicycle and pedestrian project requirements:

- » Federal funding typically requires a 20% non-federal match
- » State law prohibits state match for bicycle and pedestrian projects (except for Powell Bill)
- » Limited number of project submittals per MPO/RPO/Division
- » Minimum project cost requirement is \$100,000
- » Bike/Ped projects typically include: bicycle lanes, multi-use path/greenway, paved shoulders, sidewalks, pedestrian signals, SRTS infrastructure projects, and other streetscape/multi-site improvements (such as median refuge, signage, etc.)

These rankings largely determine which projects will be included in NCDOT's State Transportation Improvement Program (STIP). The STIP is a federally mandated transportation planning document that details transportation planning improvements prioritized by the stakeholders for inclusion in NCDOT's Work Program over the next 10 years. More than 900 non-highway construction projects were prioritized for years 2015-2020, totaling an estimated \$9 billion. NCDOT will only have an estimated \$1.5 billion to spend during this time period.

The STIP is updated every 2 years. The STIP contains funding information for various transportation divisions of NCDOT, including, highways, rail, bicycle and pedestrian, public transportation and aviation. For more information on STIP: www.ncdot.gov/strategictransportationinvestments/

To access the STIP: <https://connect.ncdot.gov/projects/planning/Pages/State-Transportation-Improvement-Program.aspx>

For more about the STI process: http://www.ncdot.gov/download/performance/performance_TheProcess.pdf

Incidental Projects

Bicycle and Pedestrian accommodations such as; bike lanes, wide paved shoulders, sidewalks, intersection improvements, bicycle and pedestrian safe bridge design, etc. are frequently included as “incidental” features of larger highway/roadway projects. This is increasingly common with the adoption of NCDOT’s “Complete Streets” Policy.

In addition, bicycle safe drainage grates and handicapped accessible sidewalk ramps are now a standard feature of all NCDOT highway construction. Most pedestrian safety accommodations built by NCDOT are included as part of scheduled highway improvement projects funded with a combination of federal and state roadway construction funds, and usually with a local match. On-road bicycle accommodations, if warranted, typically do not require a local match.

“Incidental Projects” are often constructed as part of a larger transportation project, when they are justified by local plans that show these improvements as part of a larger, multi-modal transportation system. Having a local bicycle or pedestrian plan is important, because it allows

NCDOT to identify where bike and pedestrian improvements are needed, and can be included as part of highway or street improvement project. It also helps local government identify what their priorities are and how they might be able to pay for these projects. Under “Complete Streets” local governments may be responsible for a portion of the costs for bicycle and pedestrian projects. For more information: <http://www.ncdot.gov/bikeped/funding/process/>

Duke Energy Water Resources Fund

Duke Energy is investing \$10 million in a fund for projects that benefit waterways in the Carolinas. The fund supports science-based, research-supported projects and programs that provide direct benefit to at least one of the following focus areas:

- » Improve water quality, quantity and conservation;
- » Enhance fish and wildlife habitats;
- » Expand public use and access to waterways; and
- » Increase citizens’ awareness about their roles in protecting these resources.

Newport could consider this resource for its proposed creekside greenways. For more information: <http://www.duke-energy.com/community/foundation/water-resources-fund.asp>

Clean Water Management Trust Fund

The Clean Water Management Trust Fund is available to any state agency, local government, or non-profit whose primary purpose is the conservation, preservation, and restoration of North Carolina’s environmental and natural resources. Grant assistance is provided to conservation projects that:

- » enhance or restore degraded waters;
- » protect unpolluted waters, and/or
- » contribute toward a network of riparian buffers and greenways for environmental, educational, and recreational benefits;
- » provide buffers around military bases to protect the military mission;
- » acquire land that represents the ecological diversity of North Carolina; and
- » acquire land that contributes to the development of a balanced State program of historic properties.

The application deadline is typically in February. For more information: <http://www.cwmtf.net/#ap-main.htm>

SPOT Safety Program

The Spot Safety Program is a state funded public safety investment and improvement program that provides highly effective low cost safety improvements for intersections, and sections of North Carolina's 79,000 miles of state maintained roads in all 100 counties of North Carolina. The Spot Safety Program is used to develop smaller improvement projects to address safety, potential safety, and operational issues. The program is funded with state funds and currently receives approximately \$9 million per state fiscal year. Other monetary sources (such as Small Construction or Contingency funds) can assist in funding Spot Safety projects, however, the maximum allowable contribution of Spot Safety funds per project is \$250,000.

The Spot Safety Program targets hazardous locations for expedited low cost safety improvements such as traffic signals, turn lanes, improved shoulders, intersection upgrades, positive guidance enhancements (rumble strips, improved channelization, raised pavement markers, long life highly

visible pavement markings), improved warning and regulatory signing, roadside safety improvements, school safety improvements, and safety appurtenances (like guardrail and crash attenuators).

A Safety Oversight Committee (SOC) reviews and recommends Spot Safety projects to the Board of Transportation (BOT) for approval and funding. Criteria used by the SOC to select projects for recommendation to the BOT include, but are not limited to, the frequency of correctable crashes, severity of crashes, delay, congestion, number of signal warrants met, effect on pedestrians and schools, division and region priorities, and public interest. For more information: <https://connect.ncdot.gov/resources/safety/Pages/NC-Highway-Safety-Program-and-Projects.aspx>

Powell Bill Funds

Annually, State street-aid (Powell Bill) allocations are made to incorporated municipalities which establish their eligibility and qualify as provided by G.S. 136-41.1 through 136-41.4. Powell Bill funds shall be expended only for the purposes of maintaining, repairing, constructing, reconstructing or widening of local streets that are the responsibility of the municipalities or for planning, construction, and maintenance of bikeways or sidewalks along public streets and highways. Beginning July 1, 2015 under the Strategic Transportation Investments initiative, Powell Bill funds may no longer be used to provide a match for federal transportation funds such as Transportation Alternatives. Certified Statement, street listing, add/delete sheet and certified map from all municipalities are due between July 1st and July 21st of each year. Additional documentation is due shortly after. More information: <https://connect.ncdot.gov/municipalities/State-Street-Aid/Pages/default.aspx>

Highway Hazard Elimination Program

The Hazard Elimination Program is used to develop larger improvement projects to address safety and potential safety issues. The program is funded with 90 percent federal funds and 10 percent state funds. The cost of Hazard Elimination Program projects typically ranges between \$400,000 and \$1 million. A Safety Oversight Committee (SOC) reviews and recommends Hazard Elimination projects to the Board of Transportation (BOT) for approval and funding. These projects are prioritized for funding according to a safety benefit to cost (B/C) ratio, with the safety benefit being based on crash reduction. Once approved and funded by the BOT, these projects become part of the department's State Transportation Improvement Program (STIP). For more information: <https://connect.ncdot.gov/resources/safety/Pages/NC-Highway-Safety-Program-and-Projects.aspx>

Governor's Highway Safety Program

The Governor's Highway Safety Program (GHSP) funds safety improvement projects on state highways throughout North Carolina. All funding is performance-based. Substantial progress in reducing crashes, injuries, and fatalities is required as a condition of continued funding. This funding source is considered to be "seed money" to get programs started. The grantee is expected to provide a portion of the project costs and is expected to continue the program after GHSP funding ends. State Highway Applicants must use the web-based grant system to submit applications. For more information: <http://www.ncdot.org/programs/ghsp/>

Eat Smart, Move More North Carolina Community Grants

The Eat Smart, Move More (ESMM) NC Community Grants program provides funding to local communities to support their efforts to develop

community-based interventions that encourage, promote, and facilitate physical activity. The current focus of the funds is for projects addressing youth physical activity. Funds have been used to construct trails and conduct educational programs. For more information: <http://www.eatsmartmove-morenc.com/Funding/Funding.html>

The North Carolina Division of Parks and Recreation – Recreational Trails and Adopt-a-Trail Grants

The North Carolina Division of Parks and Recreation and the State Trails Program offer funds to help citizens, organizations and agencies plan, develop and manage all types of trails ranging from greenways and trails for hiking, biking, and horseback riding to river trails and off-highway vehicle trails. "The Adopt-a-Trail Grant Program (AAT) awards \$108,000 annually to government agencies, nonprofit organizations and private trail groups for trail projects. The Recreational Trails Program (RTP) is a \$1.3 million grant program funded by Congress with money from the federal gas taxes paid on fuel used by off-highway vehicles. Grant applicants must be able to contribute 20% of the project cost or in-kind contributions. Both grant applications are typically due in January or February. For more information: http://www.ncparks.gov/About/trails_grants.php

NC Parks and Recreation Trust Fund (PARTF)

The Parks and Recreation Trust Fund (PARTF) provide dollar-for-dollar matching grants to local governments for parks and recreational projects to serve the general public. Counties, incorporated municipalities, and public authorities, as defined by G.S. 159-7, are eligible applicants. A local government can request a maximum of \$500,000 with each application. An applicant must match the grant dollar-for-dollar, 50 percent of the total cost

of the project, and may contribute more than 50 percent. The appraised value of land to be donated to the applicant can be used as part of the match. The value of in-kind services, such as volunteer work, cannot be used as part of the match. Grant applications are typically due in February. For more information: http://www.ncparks.gov/About/grants/partf_main.php

Community Development Block Grant Funds

Community Development Block Grant (CDBG) funds are available to local municipal or county governments that qualify for projects to enhance the viability of communities by providing decent housing and suitable living environments and by expanding economic opportunities, principally for persons of low and moderate income. State CDBG funds are provided by the U.S. Department of Housing and Urban Development (HUD) to the state of North Carolina. Some urban counties and cities in North Carolina receive CDBG funding directly from HUD. Each year, CDBG provides funding to local governments for hundreds of critically-needed community improvement projects throughout the state. These community improvement projects are administered by the Division of Community Assistance and the Commerce Finance Center under eight grant categories. Two categories might be of support to pedestrian and bicycle projects in 'entitlement communities': Infrastructure and Community Revitalization. More information: http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/programs

Clean Water Management Trust Fund (CWMTF)

This fund was established in 1996 and has become one of the largest sources of money in North Carolina for land and water protection, eligible for application by a state agency, local government, or

non-profit. At the end of each year, a minimum of \$30 million is placed in the CWMTF. The revenue of this fund is allocated as grants to local governments, state agencies, and conservation non-profits to help finance projects that specifically address water pollution problems. Funds may be used for planning and land acquisition to establish a network of riparian buffers and greenways for environmental, educational, and recreational benefits. Deadlines are typically in February. For more information: <http://www.cwmtf.net/#appmain.htm>

Safe Routes to School (SRTS)

SRTS is managed by NCDOT, but is federally funded; See Federal Funding Sources above for more information.

Urban and Community Forestry Grant

The North Carolina Division of Forest Resources Urban and Community Forestry grant can provide funding for a variety of projects that will help toward planning and establishing street trees as well as trees for urban open space. The goal is to improve public understanding of the benefits of preserving existing tree cover in communities and assist local governments with projects which will lead to a more effective and efficient management of urban and community forests. Grant requests should range between \$1,000 and \$15,000 and must be matched equally with non-federal funds. Grant funds may be awarded to any unit of local or state government, public educational institutions, approved non-profit 501(c)(3) organizations, and other tax-exempt organizations. First time municipal applicant and municipalities seeking Tree City USA status are given priority for funding. Grant applications are due by March 31 at 5:00 pm and recipients are notified by mid-July each year. For more about Tree City USA status, including application instructions, visit: http://ncforestservice.gov/Urban/urban_grant_overview.htm

LOCAL GOVERNMENT FUNDING

Municipalities often plan for the funding of pedestrian and bicycle facilities or improvements through development of Capital Improvement Projects (CIP) or occasionally, through their annual Operating Budgets. In Raleigh, for example, the greenways system has been developed over many years through a dedicated source of annual funding that has ranged from \$100,000 to \$500,000, administered through the Recreation and Parks Department. CIPs should include all types of capital improvements (water, sewer, buildings, streets, etc.) versus programs for single purposes. This allows municipal decision-makers to balance all capital needs. Typical capital funding mechanisms include the capital reserve fund, capital protection ordinances, municipal service district, tax increment financing, taxes, fees, and bonds. Each category is described below. A variety of possible funding options available to North Carolina jurisdictions for implementing pedestrian and bicycle projects are also described below. However, many will require specific local action as a means of establishing a program, if not already in place.

Capital Reserve Fund

Municipalities have statutory authority to create capital reserve funds for any capital purpose, including pedestrian facilities. The reserve fund must be created through ordinance or resolution that states the purpose of the fund, the duration of the fund, the approximate amount of the fund, and the source of revenue for the fund. Sources of revenue can include general fund allocations, fund balance allocations, grants, and donations for the specified use.

Capital Project Ordinances

Municipalities can pass Capital Project Ordinances that are project specific. The ordinance identifies and makes appropriations for the project.

Local Improvement District (LID)

Local Improvement Districts (LIDs) are most often used by cities to construct localized projects such as streets, sidewalks, or bikeways. Through the LID process, the costs of local improvements are generally spread out among a group of property owners within a specified area. The cost can be allocated based on property frontage or other methods such as traffic trip generation.

Municipal Service District

Municipalities have statutory authority to establish municipal service districts, to levy a property tax in the district additional to the town-wide property tax, and to use the proceeds to provide services in the district. Downtown revitalization projects are one of the eligible uses of service districts, and can include projects such as street, sidewalk, or bikeway improvements within the downtown taxing district.

Tax Increment Financing

Project Development Financing bonds, also known as Tax Increment Financing (TIF) is a relatively new tool in North Carolina, allowing localities to use future gains in taxes to finance the current improvements that will create those gains. When a public project (e.g., sidewalk improvements) is constructed, surrounding property values generally increase and encourage surrounding development or redevelopment. The increased tax revenues are then dedicated to finance the debt created by the original public improvement project. Streets, streetscapes, and sidewalk improvements are specifically autho-

alized for TIF funding in North Carolina. Tax Increment Financing typically occurs within designated development financing districts that meet certain economic criteria that are approved by a local governing body. TIF funds are generally spent inside the boundaries of the TIF district, but they can also be spent outside the district if necessary to encourage development within it. Although larger cities use this type of financing more often, Woodfin, NC is an example of another small town that has used this type of financing.

Other Local Funding Options

- » Bonds/Loans
- » Taxes
- » Impact fees
- » Exactions
- » Installment purchase financing
- » In-lieu-of fees
- » Partnerships

PRIVATE & NON-PROFIT FUNDING

Many communities have solicited greenway funding assistance from private foundations and other conservation-minded benefactors. Below are several examples of private funding opportunities available.

Novozymes North America

Novozymes North America is a company leading in several industries: biofuels, detergent, food, feed and bioagriculture. Out of its Franklinton, NC location, the company operates the largest multi-purpose enzyme manufacturing facility in the USA. Each year, Novozymes invests nearly 14 percent of its global revenue in research and development.

Union Bank

Union Bank is a community bank serving the north central North Carolina region with a location in Newport. Union Bank strives to make the commu-

nities it serves better by providing strong financial and customer service. With its strong commitment to the communities it serves, Union Bank is involved in a variety of different local projects.

Land for Tomorrow Campaign

Land for Tomorrow is a diverse partnership of businesses, conservationists, farmers, environmental groups, health professionals, and community groups committed to securing support from the public and General Assembly for protecting land, water, and historic places. The campaign was successful in 2013 in asking the North Carolina General Assembly to continue to support conservation efforts in the state. The state budget bill includes about \$50 million in funds for key conservation efforts in North Carolina. Land for Tomorrow works to enable North Carolina to reach a goal of ensuring that working farms and forests, sanctuaries for wildlife, land bordering streams, parks, and greenways, land that helps strengthen communities and promotes job growth, and historic downtowns and neighborhoods will be there to enhance the quality of life for generations to come. For more information: <http://www.land4tomorrow.org/>

The Robert Wood Johnson Foundation

The Robert Wood Johnson Foundation was established as a national philanthropy in 1972 and today it is the largest U.S. foundation devoted to improving the health and health care of all Americans. Grant making is concentrated in four areas:

- » To ensure that all Americans have access to basic health care at a reasonable cost
- » To improve care and support for people with chronic health conditions
- » To promote healthy communities and lifestyles
- » To reduce the personal, social and economic harm caused by substance abuse: tobacco, alcohol, and illicit drugs

Projects considered for funding typically are innovative and aim to create meaningful, transformative change. Project examples include: service demonstrations; gathering and monitoring of health-related statistics; public education; training and fellowship programs; policy analysis; health services research; technical assistance; communications activities; and evaluations. For more specific information about what types of projects are funded and how to apply, visit <http://www.rwjf.org/en/how-we-work/grants/what-we-fund.html>

North Carolina Community Foundation

The North Carolina Community Foundation, established in 1988, is a statewide foundation seeking gifts from individuals, corporations, and other foundations to build endowments and ensure financial security for non-profit organizations and institutions throughout the state. Based in Raleigh, the foundation also manages a number of community affiliates throughout North Carolina, that make grants in the areas of human services, education, health, arts, religion, civic affairs, and the conservation and preservation of historical, cultural, and environmental resources. The foundation also manages various scholarship programs statewide. For more information: <http://nccommunityfoundation.org/>

Walmart State Giving Program

The Walmart Foundation financially supports projects that create opportunities for better living. Grants are awarded for projects that support and promote education, workforce development/economic opportunity, health and wellness, and environmental sustainability. Both programmatic and infrastructure projects are eligible for funding. State Giving Program provides grants to 501(c)(3) organizations, ranging from \$25,000 to \$250,000. The program grant application dead-

line is May 1st. Online resource: <http://foundation.walmart.com/apply-for-grants/state-giving>

Rite Aid Foundation Grants

The Rite Aid Foundation is a foundation that supports projects that promote health and wellness in the communities that Rite Aid serves. Award amounts vary and grants are awarded on a one year basis to communities in which Rite Aid operates. The Rite Aid Foundation focuses on three core areas for charitable giving: children's health and well-being; special community health and wellness needs; and Ride Aid's own community of associates during times of special need. Online resource: <https://www.riteaid.com/about-us/rite-aid-foundation>

Z. Smith Reynolds Foundation

This Winston-Salem-based Foundation has been assisting the environmental projects of local governments and non-profits in North Carolina for many years. The Foundation focuses its grant making on five focus areas: Community Economic Development; Environment; Public Education; Social Justice and Equity; and Strengthening Democracy. Deadline to apply is typically in August. For more information: www.zsr.org

Bank of America Charitable Foundation, Inc.

The Bank of America Charitable Foundation is one of the largest in the nation. There are numerous different initiatives and grant programs, yet the ones most relevant to increased recreational opportunities and trails are the Revitalizing Neighborhoods and Environment Programs. Starting in 2013, a new 10-year, \$50 billion goal to be a catalyst for climate change was launched. This initiative aims to spark the "innovation economy and advance a transition to a low-carbon future." For more information: www.bankofamerica.com/foundation

Duke Energy Foundation

Funded by Duke Energy shareholders, this non-profit organization makes charitable grants to selected non-profits or governmental subdivisions. Each annual grant must have:

- » An internal Duke Energy business “sponsor”
- » A clear business reason for making the contribution

The grant program has several investment priorities: Education; Environment; Economic and Workforce Development; and Community Impact and Cultural Enrichment. Related to this project, the Foundation would support programs that support conservation, training, and research around environmental and energy efficiency initiatives. For more information: <http://www.duke-energy.com/community/foundation.asp>

American Greenways Eastman Kodak Awards

The Conservation Fund’s American Greenways Program has teamed with the Eastman Kodak Corporation and the National Geographic Society to award small grants (\$250 to \$2,000) to stimulate the planning, design, and development of greenways. These grants can be used for activities such as mapping, conducting ecological assessments, surveying land, holding conferences, developing brochures, producing interpretive displays, incorporating land trusts, and building trails. Grants cannot be used for academic research, institutional support, lobbying, or political activities. For more information: <http://www.rlch.org/funding/kodak-american-greenways-grants>

National Trails Fund

American Hiking Society created the National Trails Fund in 1998, the only privately supported national grants program providing funding to grass-

roots organizations working toward establishing, protecting and maintaining foot trails in America. 73 million people enjoy foot trails annually, yet many of our favorite trails need major repairs due to a \$200 million backlog of badly needed maintenance. National Trails Fund grants help give local organizations the resources they need to secure access, volunteers, tools and materials to protect America’s cherished public trails. To date, American Hiking has granted more than \$588,000 to 192 different trail projects across the U.S. for land acquisition, constituency building campaigns, and traditional trail work projects. Awards range from \$500 to \$10,000 per project.

Projects the American Hiking Society will consider include:

- » Securing trail lands, including acquisition of trails and trail corridors, and the costs associated with acquiring conservation easements.
- » Building and maintaining trails which will result in visible and substantial ease of access, improved hiker safety, and/or avoidance of environmental damage.
- » Constituency building surrounding specific trail projects - including volunteer recruitment and support.

For more information: <http://www.americanhiking.org/national-trails-fund/>

The Conservation Alliance

The Conservation Alliance is a non-profit organization of outdoor businesses whose collective annual membership dues support grassroots citizen-action groups and their efforts to protect wild and natural areas. Grants are typically about \$35,000 each. Since its inception in 1989, The Conservation Alliance has contributed \$4,775,059 to environmental groups across the nation, saving over 34 million acres of wild lands.

The Conservation Alliance Funding Criteria:

- » The Project should be focused primarily on direct citizen action to protect and enhance our natural resources for recreation.
- » The Alliance does not look for mainstream education or scientific research projects, but rather for active campaigns.
- » All projects should be quantifiable, with specific goals, objectives, and action plans and should include a measure for evaluating success.
- » The project should have a good chance for closure or significant measurable results over a fairly short term (within four years).

For more information: <http://www.conservationalliance.com/grants>

National Fish and Wildlife Foundation (NFWF)

The National Fish and Wildlife Foundation (NFWF) is a private, non-profit, tax exempt organization chartered by Congress in 1984. The National Fish and Wildlife Foundation sustains, restores, and enhances the Nation's fish, wildlife, plants, and habitats. Through leadership conservation investments with public and private partners, the Foundation is dedicated to achieving maximum conservation impact by developing and applying best practices and innovative methods for measurable outcomes.

The Foundation provides grants through more than 70 diverse conservation grant programs. A few of the most relevant programs for bicycle and pedestrian projects include Acres for America, Conservation Partners Program, and Environmental Solutions for Communities. Funding priorities include bird, fish, marine/coastal, and wildlife and habitat conservation. Other projects that are considered include controlling invasive

species, enhancing delivery of ecosystem services in agricultural systems, minimizing the impact on wildlife of emerging energy sources, and developing future conservation leaders and professionals. For more information: <http://www.nfwf.org/whatwedo/grants/Pages/home.aspx>

The Trust for Public Land

Land conservation is central to the mission of the Trust for Public Land (TPL). Founded in 1972, the TPL is the only national non-profit working exclusively to protect land for human enjoyment and well-being. TPL helps acquire land and transfer it to public agencies, land trusts, or other groups that have intentions to conserve land for recreation and spiritual nourishment and to improve the health and quality of life of American communities. For more information: <http://www.tpl.org>

Blue Cross Blue Shield of North Carolina Foundation (BCBS)

Blue Cross Blue Shield (BCBS) focuses on programs that use an outcome approach to improve the health and well-being of residents. Healthy Places grant concentrates on increased physical activity and active play through support of improved build environment such as sidewalks, and safe places to bike. Eligible grant applicants must be located in North Carolina, be able to provide recent tax forms and, depending on the size of the non-profit, provide an audit. For more information: <http://www.bcbsncfoundation.org/>

Alliance for Biking & Walking: Advocacy Advance Grants

Bicycle and pedestrian advocacy organizations play the most important role in improving and increasing biking and walking in local communities. Rapid Response Grants enable state and local

bicycle and pedestrian advocacy organizations to develop, transform, and provide innovative strategies in their communities. Since 2011, Rapid Response grant recipients have won \$100 million in public funding for biking and walking. The Advocacy Advance Partnership with the League of American Bicyclists also provides necessary technical assistance, coaching, and training to supplement the grants. For more information, visit www.peoplepoweredmovement.org

Local Trail Sponsors

A sponsorship program for trail amenities allows smaller donations to be received from both individuals and businesses. Cash donations could be placed into a trust fund to be accessed for certain construction or acquisition projects associated with the greenways and open space system. Some recognition of the donors is appropriate and can be accomplished through the placement of a plaque, the naming of a trail segment, and/or special recognition at an opening ceremony. Types of gifts other than cash could include donations of services, equipment, labor, or reduced costs for supplies.

Corporate Donations

Corporate donations are often received in the form of liquid investments (i.e. cash, stock, bonds) and in the form of land. Municipalities typically create funds to facilitate and simplify a transaction from a corporation's donation to the given municipality. Donations are mainly received when a widely supported capital improvement program is implemented.

Private Individual Donations

Private individual donations can come in the form of liquid investments (i.e. cash, stock, bonds) or land. Municipalities typically create funds to facilitate and simplify a transaction from an individual's donation to the given municipality. Donations are mainly received when a widely supported capital improvement program is implemented.

Fundraising/Campaign Drives

Organizations and individuals can participate in a fundraiser or a campaign drive. It is essential to market the purpose of a fundraiser to rally support and financial backing. Often times fundraising satisfies the need for public awareness, public education, and financial support.

Volunteer Work

It is expected that many citizens will be excited about the development of a greenway corridor. Individual volunteers from the community can be brought together with groups of volunteers from church groups, civic groups, scout troops and environmental groups to work on greenway development on special community workdays. Volunteers can also be used for fund-raising, maintenance, and programming needs.

INNOVATIVE FUNDING OPTIONS

Crowdsourcing "is the process of obtaining needed services, ideas, or content by soliciting contributions from a large group of people, and especially from an online community, rather than from traditional employees or suppliers."

For some success stories and ideas for innovative fundraising techniques: <http://www.americantrails.org/resources/funding/TipsFund.html>

TRAIL PARTNERSHIP CASE STUDIES IN THE CAROLINAS

Wilmington/New Hanover County & Blue Cross Blue Shield (BCBS)

BCBSNC and their GO NC! program donated funds to complete the final phase of the 15-mile Gary Shell CrossCity Trail from Wade Park to the drawbridge at Wrightsville Beach. In addition to completing the trail, other enhancements include mile markers along the 15-mile trail and five bicycle fix-it stations along the trail. This partnership came about during development of the WMPO's Wilmington/New Hanover County Comprehensive Greenway Plan in 2012. Project contact: Amy Betty, Superintendent, City of Wilmington Recreation & Downtown Services, 302 Willard Street, Wilmington, NC 28401; Phone: 910.341.7855.

Spartanburg, SC & the Mary Black Foundation

The Mary Black Foundation Rail Trail was a collaboration between the Mary Black Foundation, Palmetto Conservation Foundation, City of Spartanburg, Partners for Active Living, SPATS, and local citizens. It extends from downtown Spartanburg at Henry Street, between Union and Pine Streets, and continues two miles to Country Club Road. Since its inception there has been buzz about redeveloping the Rail Trail corridor. The commuter and recreational trail brings together all walks of life, and connects neighborhoods, businesses, restaurants, a school, a bike shop, the YMCA, a grocery store, and a skate park. As the Hub City Connector segment of the Palmetto Trail through Spartanburg County, the Rail Trail is an outdoor

transportation spine for Spartanburg from which other projects are expected to spin off. One great example is the first phase of B-cycle bicycle-sharing program located at the Henry Street trailhead. Project contact: Lisa Bollinger, Spartanburg Area Transportation Study, 366 North Church Street, Suite 700, Spartanburg, SC 29303; Phone: 864-596-3570.

Swamp Rabbit Trail and Greenville Health System, Greenville, SC

The Greenville Health System Swamp Rabbit Trail is a shared-use-path that runs along the Reedy River through Greenville County, connecting parks, schools, and local businesses. The GHS Swamp Rabbit has become very popular among residents and visitors for recreational and transportation purposes. The Greenville Health System has become a private sponsor because of the health benefits offered by the trail as well as the branding opportunity achieved by having its name and logo on the trail's signs. The GHS Swamp Rabbit Trail continues to increase in size and popularity, with communities in neighboring counties making plans to extend the trail into their towns. Project contact: Ty Houck, Director of Greenways, Natural and Historic Resources, Greenville County Parks, Recreation and Tourism, 4806 Old Spartanburg Road, Taylors, SC 29687. Phone: 864-676-2180 ext. 141.



C

Standard Trail Cross Sections



*Bridge over the Neuse River, by Kristy Jackson of
the Institute for Transportation Research and
Education (ITRE).*

OVERVIEW

As Wake County's largest municipality, and as the city with the most miles of greenways on the ground in North Carolina, the City of Raleigh is a natural leader to look to for example trail design guidance. The following images were developed by Alta Planning + Design for the City of Raleigh's *Capital Area Greenway Planning and Design Guide*. Please reference that document in full for more information: <https://www.raleighnc.gov/parks/content/PRecDesignDevelop/Articles/CapitalAreaGreenwayTrailSystem.html>

CROSS CITY GREENWAY TRAILS



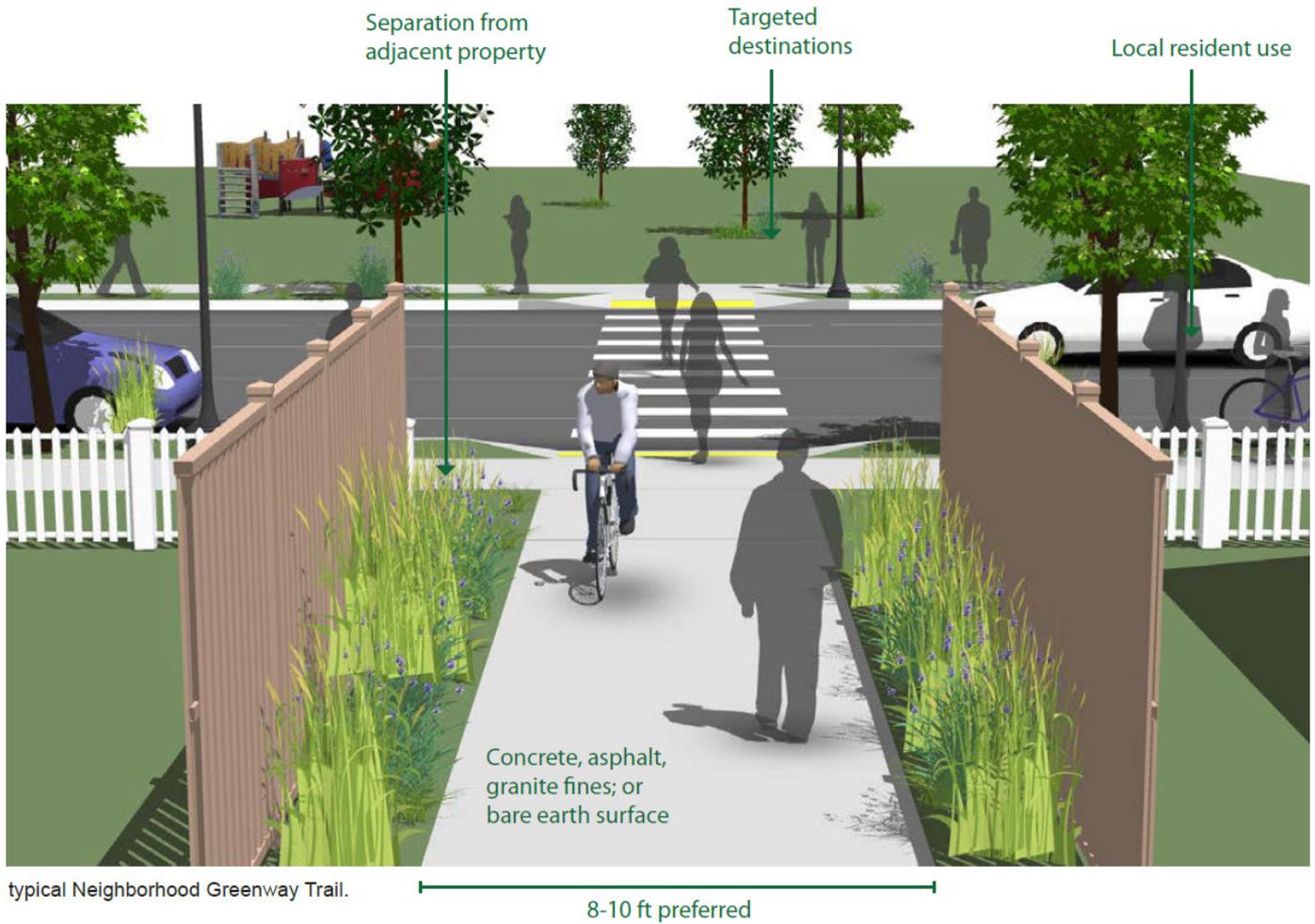
Typical Cross City Greenway Trail. 10-14 ft

GREENWAY CONNECTOR TRAILS



A typical Greenway Collector Trail. 10 ft preferred

NEIGHBORHOOD GREENWAY TRAILS



GREENWAY CONNECTORS

Transportation focused
use; few amenities

Enhanced Intersection
crossings/ driveways



A typical Greenway Connector Trail.

10 ft preferred

Image on back cover: Bridge over the Neuse River, by Kristy Jackson of the Institute for Transportation Research and Education (ITRE).

D

*Updated Greenway
Trail Information*



OVERVIEW

This appendix is used to track changes from the original 2017 Wake County System Greenway Plan.

September 2018 Updates

This round of updates was centered around the addition and inclusion of the proposed Triangle Bikeway, which provides a direct connection between the vast existing bikeway and greenway systems in Raleigh, Cary, and Durham (see the *Triangle Bikeway Preliminary Feasibility Report* (2017) for more information). The text, maps, and tables that were updated are listed below:

- » Added "*Updated September 2018*" to the plan cover
- » Added "Appendix D" to the table of contents
- » Page 6: Updated mileage and text description for Map 3.1
- » Page 7: Updated Countywide Greenway System map
- » Chapter 3: Updated Maps 3.1, 3.2, 3.3, and 3.4
- » Page 60: Updated mileage and description in the "Bridge the Gaps" section.
- » Page 114: Updated Table 3.1 Summary of Projects (added project 1X: Triangle Bikeway)
- » Page 127: Updated mileage and description in the "Bridge the Gaps" section.
- » Added this new Appendix D



WAKE COUNTY
GREENWAY SYSTEM PLAN
2017