



BIKE WALK AUDIT REPORT



AARP® COMMUNITY CHALLENGE GRANT 2024

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INTRODUCTION

Raleigh, North Carolina, is rapidly growing, increasing the demand for safe and efficient transportation options. Oaks and Spokes, a biking and walking advocacy organization, conducts annual audits to assess street and greenway safety, identifying ways to improve roadways and trails for all users—whether they walk, bike, or drive.

Why Conduct Biking and Walking Audits in Raleigh?

Raleigh's rapid growth presents both opportunities and challenges. More people and development mean greater demand on our transportation infrastructure. Ensuring safe and accessible routes for biking and walking is essential for:

- Reducing traffic injuries and fatalities.
- Reducing congestion.
- Reducing environmental and social harm.
- Supporting a more sustainable and equitable city.

Conducting audits allows us to identify areas where infrastructure can be improved to ensure safety and accessibility for all roadway users.

The Purpose of Biking and Walking Audits:

Conducting audits allows us to identify areas where infrastructure can be improved to ensure safety and accessibility for all roadway users. But our biking and walking audits are more than just assessments—they are a way for our community to take an active role in shaping Raleigh's transportation future.

These audits:

- Highlight areas where biking and walking infrastructure is insufficient or unsafe.
- Provide actionable recommendations to city planners and officials.
- Encourage public awareness and dialogue about roadway safety.
- Engage volunteers and concerned citizens in meaningful advocacy efforts.

Goals of the Audits:

Through these audits, Oaks and Spokes aims to:

- Identify specific locations where infrastructure improvements are needed.
- Advocate for safer crosswalks, bike lanes, and pedestrian pathways.
- Promote equity by ensuring all neighborhoods have safe biking and walking access.
- Collaborate with local government staff and elected officials to prioritize safety for vulnerable roadway users such as children and legacy residents.
- Build a community of informed and engaged volunteers who are passionate about making Raleigh safer and more accessible.





BACKGROUND OAKS AND SPOKES

OUR MISSION

Oaks and Spokes is transforming Raleigh into a city where biking and walking are safe, accessible, and integral to everyday life.

We value community, equity, safety, health, and engagement:

- **Community:** Building a vibrant, active transportation culture to enhance community life.
- **Equity:** Ensuring all individuals, regardless of background, have equal access to active transportation through affordable resources.
- **Safety:** Advocating for safer roadways via better infrastructure, funding, and design for all users.
- **Health:** Promoting active transportation to reduce car dependency and its negative impacts on personal and environmental health.
- **Engagement:** Empowering civic involvement through education, outreach, and advocacy with government and officials.

OUR PURPOSE

Oaks and Spokes envisions a transportation network that is both just and sustainable, featuring safe streets and seamless connectivity. We advocate for equitable access to safe, active transportation options to reduce car dependency and foster a community that enhances the quality of life for all.



30%

OF RESIDENTS IN
WAKE COUNTY
**DO NOT
DRIVE A CAR**



OUR AUDIT PROCESS

Biking and walking audits go beyond assessing roadway safety; they are tools for engagement and advocacy. They help connect with community leaders and partners while providing data to advocate for active transportation improvements with communities and officials.

1

Planning with informed intent:

When planning an audit, we work with the city's Department of Transportation, analyze collision data, and gather community input to identify key areas for improvement. In doing so, we weigh quantitative and qualitative data equally. We also use the city's strategic bicycle and pedestrian plan to prioritize and expedite targeted projects.

2

Community partnership:

After identifying an audit location, we engage the community by collaborating with local homeowners, leaders, and partner organizations. This approach rallies volunteers, provides an educational and social outlet for all ages, and offers opportunities for Oaks and Spokes members to support our work.

3

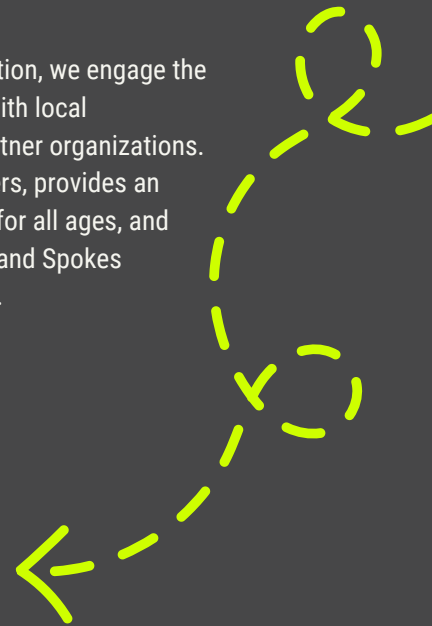
The audit:

On the day of the audit, volunteers can choose to work all day or in shifts. Audits typically last six hours, with each shift including group walks and bike rides along the corridor under assessment. Sufficient observational time is provided to thoroughly evaluate roadway user frequency, behavior, demographics, and more. Volunteers help identify, photograph, and take videos of the areas needing improvement.

4

Continued advocacy:

After completing an audit, we compile a report using data collected by volunteers. This report is shared with volunteers, members, community partners, city staff, and elected officials. We also present it to the Bicycle and Pedestrian Advisory Commission (BPAC) to highlight needed improvements and request their recommendations to proceed with next steps to ensure that these improvements are made.

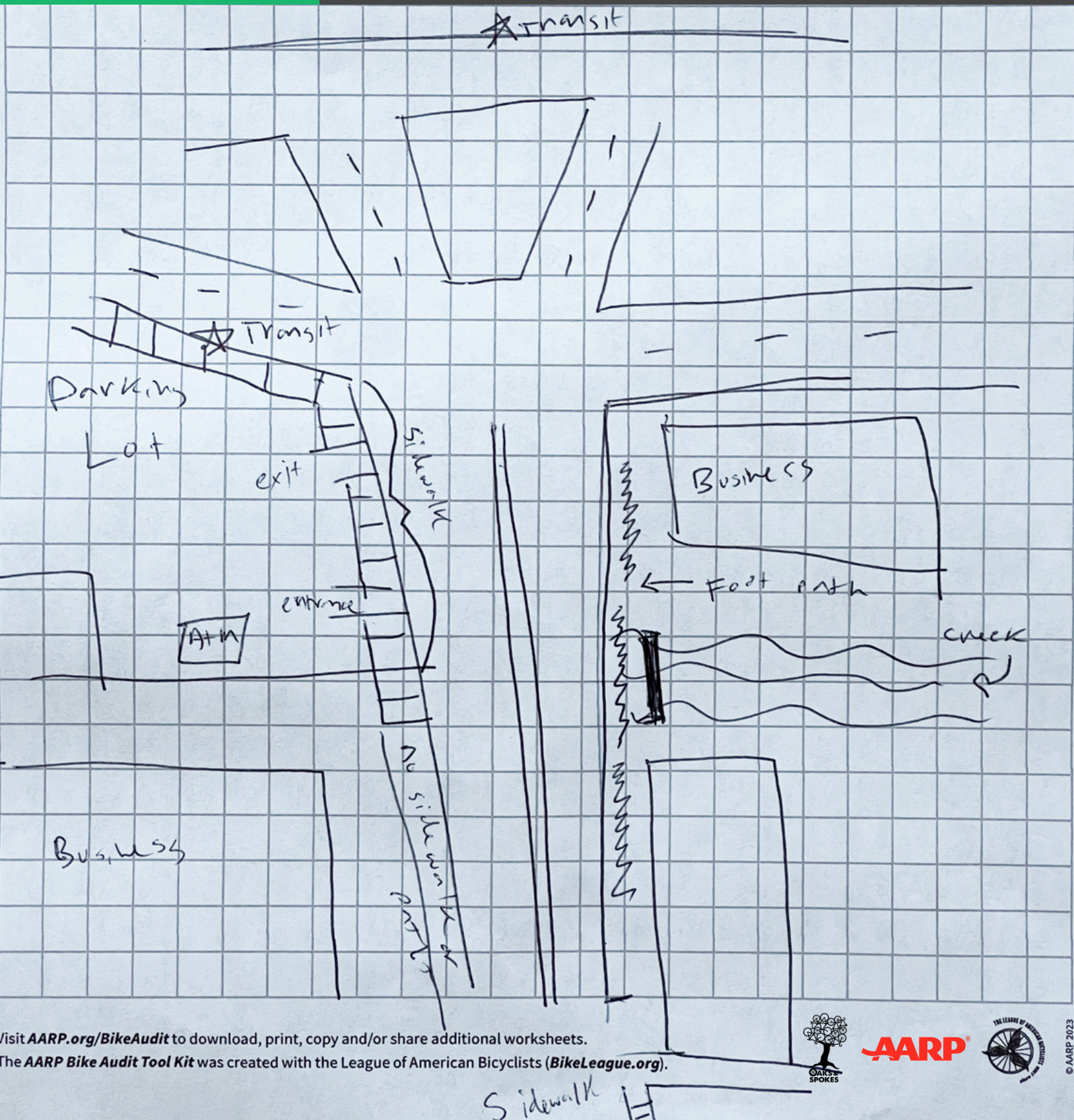


AUDIT 1

October 10, 2024

BROOKSIDE DRIVE

East Raleigh: North to South,
Between Watauga St and Wake Forest Rd





BROOKSIDE DR

A SNAPSHOT

Community Name: Oakwood

Location: East Raleigh - Brookside Dr,
between Watauga St and Wake Forest Rd

Distance: 1 mile

Zoning Type: Residential, Residential Mixed-Use, Industrial Mixed-Use

Speed Limit: 25 MPH

Road Type: Neighborhood Collector

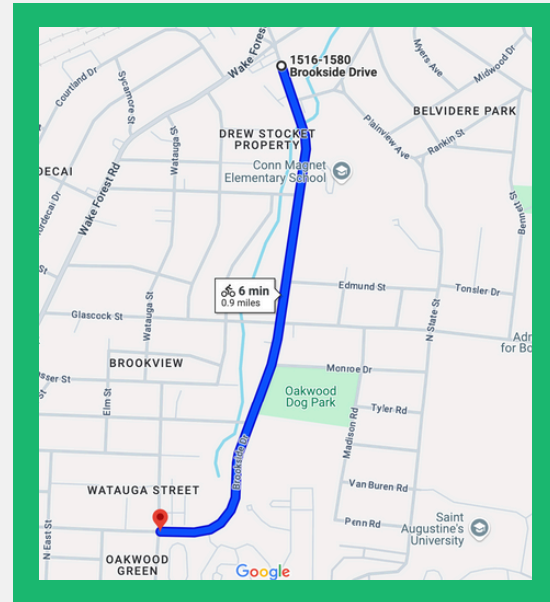
Travel Lanes: 2

Bike Lanes: Present on 10% of the corridor

Sidewalks: Yes, but only on the southern portion

Transit Stops: 3

Points of Interest: Conn Elementary School, Oakwood Park and Dog Park, Small Shopping Center



Brookside Dr is a mixed-use, predominantly residential collector road serving the urban neighborhoods of Oakwood and Brookview. It connects residents to Oakwood Park, Brookside Market Shopping Center, Conn Elementary, and major roads like Wake Forest Rd and Capital Blvd, providing access to central and northern Raleigh. The corridor lacks dedicated bike facilities. Sidewalks are present from Watuga St to Frank St but disappear in the more industrial northern section. Existing Sidewalks are in poor condition.



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BROOKSIDE DR

BIKING CONDITIONS

Heading
North
.....→



Narrow
Space
.....→



Bike Lane
Space
.....→



Bike
Parking
.....→



Missing
Curb
.....→



Short
Bike Lane
←.....



Speed
Limit
←.....



Traffic
Volume
←.....



Plenty of
Space
←.....

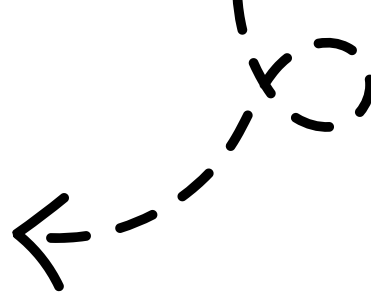


No
Options
←.....

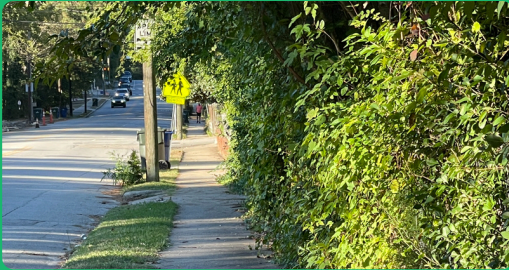


BROOKSIDE DR

WALKING CONDITIONS



Sight Line



Ramp Condition



Ramp Angle



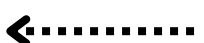
Debris + Cracks



Over Growth



More Cracks



Close Crossing



Poor Condition



Fall Hazard



Sidewalk Ends





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BROOKSIDE DR

WALKING CONDITIONS CONT.

Many
Peds



Forced in
Road



In Road
w/ Truck



Strollers
and Dogs



Only
Street



No
Refuge



No
Refuge



Some
Repairs



No
Detour



More
Debris



BROOKSIDE DR OBSERVATIONS

3:00 - 6:00 PM



Number of cyclists seen: 22

- 10% Children
- 0% Teenage
- 30% Young Adult
- 30% Middle Aged Adult
- 30% Older Adult
- 90% Male Presenting
- 10% Female Presenting

Number of pedestrians seen: 68

- 20% Children
- 10% Teenage
- 10% Young Adult
- 40% Middle Aged Adult
- 20% Older Adult
- 50% Male Presenting
- 50% Female Presenting
- 3 Dogs

Number of active mobility users seen: 2

- 0% Children
- 0% Teenage
- 50% Young Adult
- 50% Middle Aged Adult
- 0% Older Adult
- 50% Male Presenting
- 50% Female Presenting

Driver behavior observed in a one hour period:

- Drivers not yielding to pedestrians at crosswalks: 5
- Drivers rolling through stop signs: 50
- Drivers stopping past the stop line: 46
- Drivers stopping in the middle of an intersection: 1
- Drivers looking at their phones: 36
- Drivers speeding more than 5 MPH over the speed limit: 5

Cyclist behavior in a one hour period:

- Cyclists not stopping at stop sign: 1
- Cyclists riding on road: 13
- Cyclists riding on sidewalk: 2

Other behavior in a one hour period:

- Scooter rider running a stop sign: 1
- Large children with families presence around 3:00 PM due to school being let out.

22
CYCLISTS

68
PEDESTRIANS

2
SCOOTERS

BROOKSIDE DR BUILDING A BETTER BLOCK



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Needed improvements for South Brookside Dr:

- Extend the bike lane on the western side all the way to Glascock Street, adding a buffer and protection in place of on-street parking.
- Add a bike lane on the eastern side.
- Paint the bike lanes green.
- Install speed cushions along this portion of Brookside to reduce speeding vehicles traveling downhill to the north.
- Add ramps and a crosswalk in front of the entrance to Oakwood Park.
- Clear overgrowth and debris from existing sidewalks on the eastern side.
- Add bike lane protection along the entire western side to accommodate cyclists and pedestrians, as there is no sidewalk.
- Repaint crosswalk lines at Glascock St.
- Make the crosswalk at the Glascock intersection raised and striped to discourage stop sign rolling and improve pedestrian visibility.

Needed improvements for North Brookside Dr:

- Add protected bike lanes on both the east and west sides from Glascock St to the Wake Forest Rd intersection.
- Remove the separate left-hand turn lane at the four-way stop at Glascock St.
- Repair and clear sidewalks from Glascock St to Frank St.
- Add curb bump-outs at Edmund St to narrow entry and exit, enhancing safety for crossing pedestrians.
- Add striping across Edmund St.
- Ensure new developments include sidewalk and bike lane detours during construction.
- Extend the sidewalk on both the east and west sides of Brookside Dr north of Frank St.
- Repair damaged ramps.
- Move the stop line at Frank St further back to keep stopped traffic away from the crosswalk.
- Repaint crosswalk striping.
- Add a raised crosswalk to enhance safety for school children.
- Install speed cushions north of Frank St to slow traffic approaching the blind curve heading south toward the school crosswalk at Frank St.



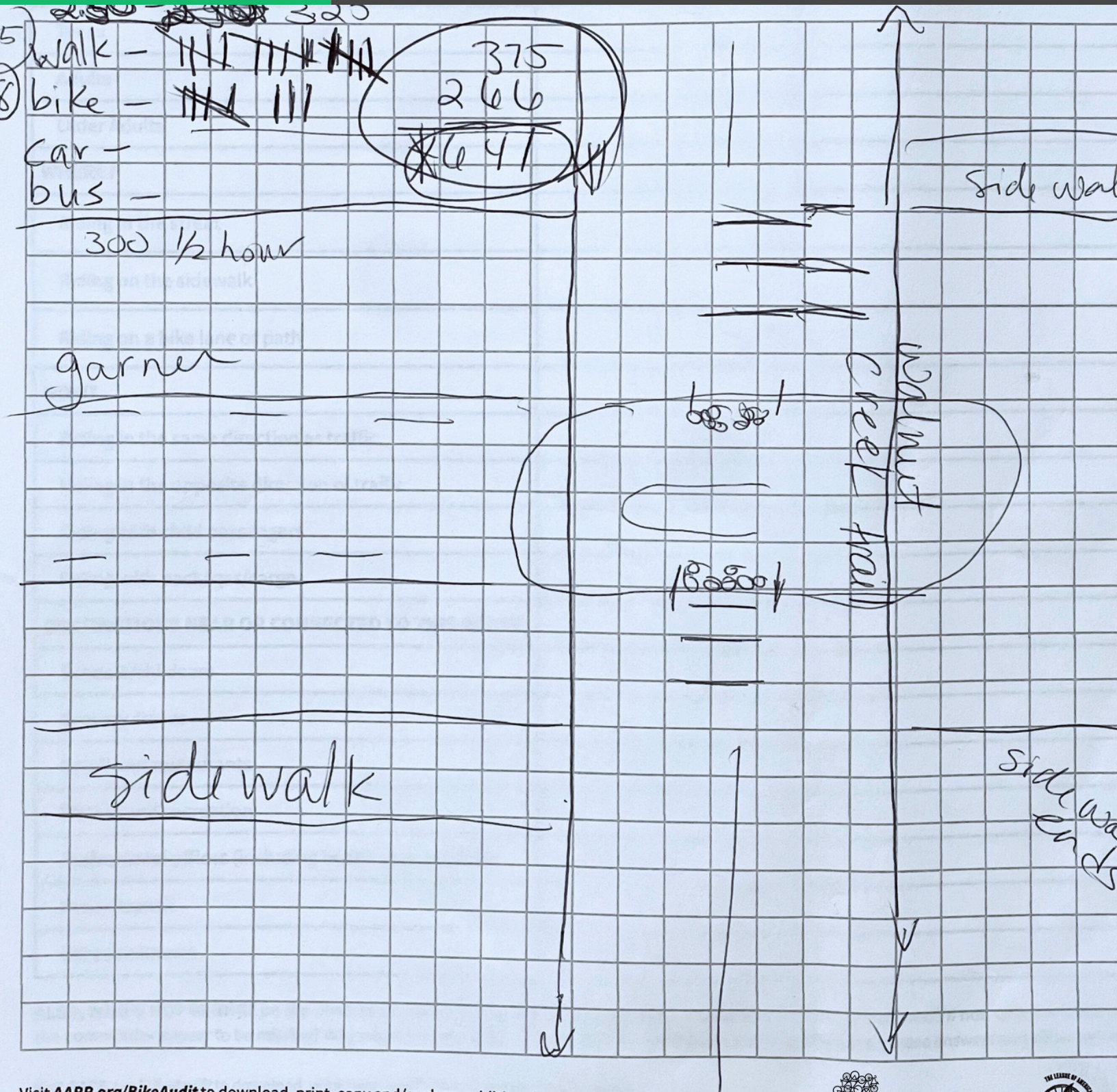
BUILDING A BETTER BLOCK
**GROWS BIKING
AND WALKING**

AUDIT 2

November 13, 2024

GARNER ROAD

Sotheast Raleigh: North to South,
Between Martin Luther King Jr BLV and the Walnut Creek Greenway



Visit [AARP.org/BikeAudit](https://www.aarp.org/BikeAudit) to download, print, copy and/or share additional worksheets.

The AARP Bike Audit Tool Kit was created with the League of American Bicyclists ([BikeLeague.org](https://www.bikeleague.org)).



GARNER RD A SNAPSHOT

Community Name: Southpark.

Location: Southeast Raleigh - Garner Rd, between Martin Luther King Jr. BLVD and the Walnut Creek Greenway.

Distance: 0.6 mile

Zoning Type: Residential, Residential Mixed-Use, Industrial Mixed-Use

Speed Limit: 35 MPH

Road Type: Neighborhood, Business Collector

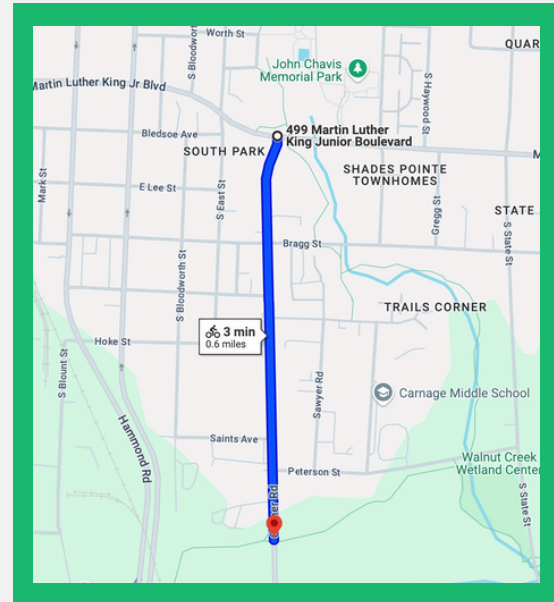
Travel Lanes: 2, 1 center turn-lane

Bike Lanes: Present on 10% of the corridor

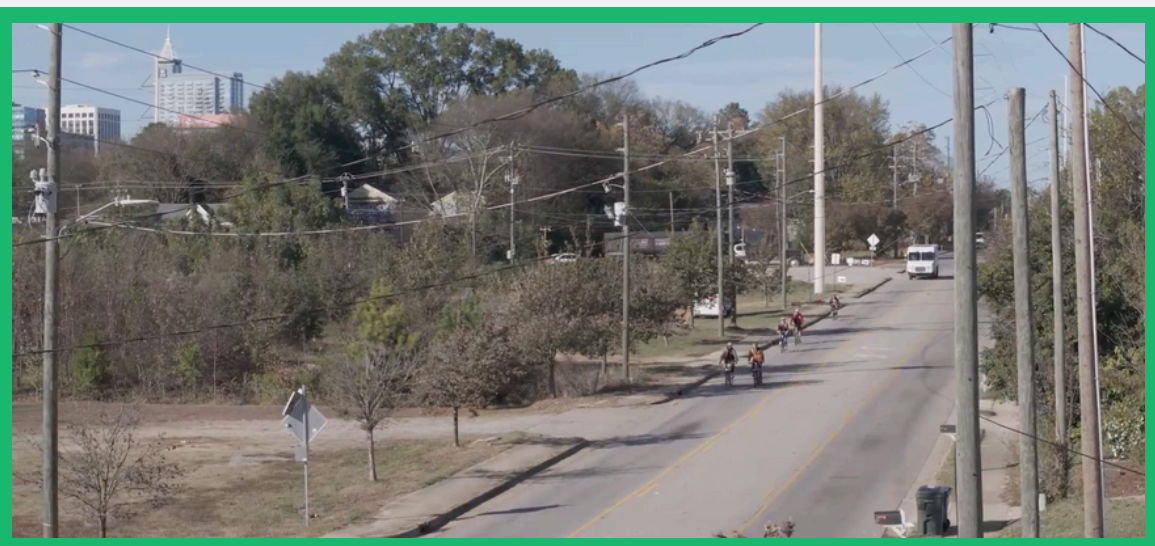
Sidewalks: Yes, on eastern side. Very disconnected on western side.

Transit Stops: 6

Nearby Points of Interest: John Chavis Memorial Park, The Walnut Creek Greenway, Carnage Middle School, Anchorlight Art Studios, Walnut Creek Wetland Center.



Garner Rd is a mixed-use, historically industrial corridor southeast of downtown Raleigh. Garner Road connects neighborhoods southeast of downtown to the city center and nearby municipalities such as Garner and Clayton, NC. The area, zoned for higher housing density, includes new residential developments, a middle school, the Walnut Creek Greenway, and several transit stops. Further south, a scrap metal recycling center generates significant heavy truck traffic along the corridor. Much of this truck traffic comes from a nearby I-40 ramp that enters the area near Garner Road.



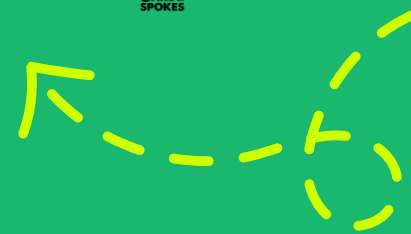
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GARNER RD

BIKING CONDITIONS



Line of Sight



Heavy Trucks



Unsafe Passing



Excessive Center Turn Lane



Density Incoming



Last Mile Needs



Greenway Exit



Greenway Xing



Long Hill

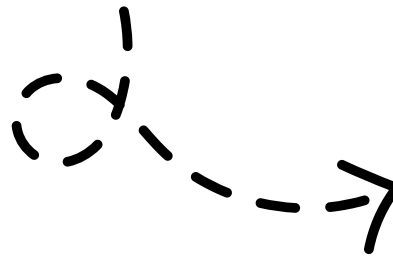


Very Exposed



GARNER RD

WALKING CONDITIONS



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Sight Line



Ramp To Where?



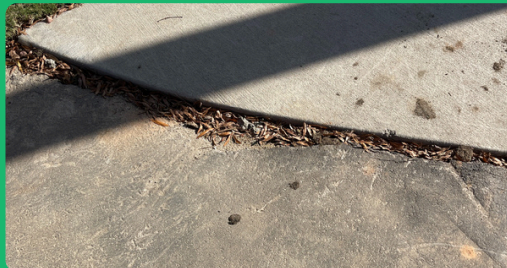
New Dev Sidewalk?



New Dev Forced In Street



Raised Lip



Gravel Sidewalk



Close Crossing



Poor Condition



Ramp Angle



Sight Obstruct

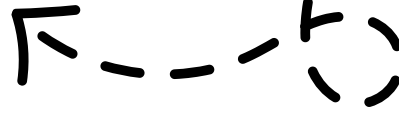


GARNER RD

WALKING CONDITIONS CONT.



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**Long
Crosswalk**
.....>



**Cross
Signal**
<.....



**Road
Barrier**
.....>



**Missing
Sidewalk**
<.....



**Missing
Sidewalk**
.....>



**Missing
Sidewalk**
<.....



**Forced In
Street**
.....>



**No
Refuge**
<.....



**No
Crosswalk**
.....>



**No
Crosswalk**
<.....



GARNER RD OBSERVATIONS

1:00 - 6:00 PM



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Number of cyclists seen: 18

- 0% Children
- 0% Teenage
- 30% Young Adult
- 40% Middle Aged Adult
- 30% Older Adult

- 90% Male Presenting
- 10% Female Presenting

Number of pedestrians seen: 60+

- 0% Children
- 10% Teenage
- 10% Young Adult
- 40% Middle Aged Adult
- 30% Older Adult

- 70% Male Presenting
- 30% Female Presenting

Number of transit users seen: 45

- 0% Children
- 5% Teenage
- 20% Young Adult
- 50% Middle Aged Adult
- 25% Older Adult

- 70% Male Presenting
- 30% Female Presenting

Driver behavior observed in a one hour period:

- Drivers not yielding to pedestrians at crosswalks: 10
- Drivers rolling through stop signs: 45
- Drivers stopping past the stop line: 40
- Drivers stopping in the middle of an intersection: 0
- Drivers looking at their phones: (not recorded)
- Drivers speeding more than 5 MPH over the speed limit: 60+
- Heavy-duty trucks in one hour: 123

Cyclist behavior in a one hour period:

- Cyclists in road: 2
- Cyclists on greenway: 6
- Cyclists using transit: 2

Other behavior in a one hour period:

- Significant presence of heavy trucks driving this corridor due to recycling center.
- Many pedestrians throughout corridor at all times.

18
CYCLISTS

60+
PEDESTRIANS

45+
TRANSIT RIDERS

GARNER RD BUILDING A BETTER BLOCK



Needed improvements for intersection at MLK Jr. BLVD:

- Repaint crosswalks.
- Add striping to crosswalks.
- Adjust light timing to optimize pedestrian crossings.
- Extend the crossing signal duration.
- Add pedestrian islands halfway across each intersection to provide refuge and narrow the intersection at the light.
- Build a crosswalk with sidewalk ramps on the eastern side of MLK Jr. Blvd.
- Add more street lighting.
- Narrow the entrance and exit of Garner Road at the intersection.
- Extend the sidewalk from the corner down the western portion of Garner Road.
- Lower the speed limit on MLK Jr. Blvd.

Needed improvements for Garner Rd:

- Narrow the intersection at MLK Jr. Blvd.
- Add pedestrian bump-outs on Garner Road at MLK Jr. Blvd.
- Complete sidewalks on both the eastern and western sides of Garner Road, extending from MLK Jr. Blvd. to the Walnut Creek Greenway.
- Update building ordinances to require sidewalk construction for new single-family developments.
- Add striped pedestrian crosswalks at all crossing areas near transit stops and sidewalk ramps.
- Improve lighting throughout the corridor.
- Install lighting in urban sections of the greenway to enhance safety and allow for all-day access.
- Install rapid flashing beacons at mid-block crossings near transit stop locations.
- Remove the middle turn lane along most of the corridor.
- Repurpose the space from the middle turn lane for protected bike lanes.
- Improve the greenway crossing to eliminate trip hazards.
- Add flashing beacons at the greenway crossing.
- Divert heavy truck traffic south on Hammond Road from I-40 to Rush Street, then north on Garner Road to the recycling center. Prohibit heavy truck traffic from traveling north to Hoke Street and then south down Garner Road.
- Clear metal scrap debris from heavy truck traffic.
- Add transit shelters and bike parking.

BUILDING A BETTER BLOCK
GROWS BIKING AND WALKING

AUDITS 3-7

Fall Semester 2024

NCSU CYCLING CITIES

A Pilot Interdisciplinary Perspectives GEP Course
Professor: Ross Bassett, w/ support from Oaks and Spokes



NC STATE A SNAPSHOT

Community Name: NC State University

Location: West Raleigh, 2 miles west of Downtown Raleigh, predominantly along the Hillsborough Street and Western Boulevard corridors.

Distance: Approximately 3 square miles

Zoning Type: Institutional zoning, university

Speed Limit: Varies

Road Type: Main thoroughfares, collectors, and university access roads

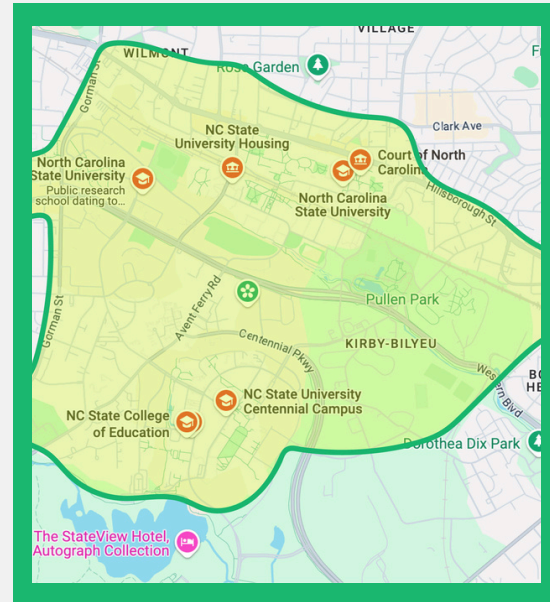
Travel Lanes: Varies

Bike Lanes: Very limited; existing lanes require significant maintenance

Sidewalks: Present throughout the area

Transit Stops: Extensive, with a large presence of the Wolfline and GoRaleigh services

Nearby Points of Interest: Main Campus, Pullen Park, Dorothea Dix Park, Centennial Campus, Hillsborough Street District, Downtown Raleigh, The Village, and Meredith College Campus



Ross Bassett, a long-time member of Oaks and Spokes and an Advocacy Committee member, introduced a new course titled Cycling Cities to NCSU's general interdisciplinary curriculum. In this class, Dr. Bassett explored with students how cycling has influenced urban development over the decades and how it continues to shape modern transportation.

As part of the course, Oaks and Spokes collaborated with six groups of students to conduct bike audits in various areas around NC State's campus. These audits focused on routes between Centennial Campus and Main Campus, on-campus pathways, greenways, Hillsborough Street, and city-wide connections. The students' final presentations are included as separate attachments.



ACKNOWLEDGEMENTS



BBiking and walking audits are both an educational tool and advocacy in action. Oaks and Spokes' mission is to ensure biking and walking are safe and integral to everyday life.

Thank you to AARP's Community Challenge Grant for providing us the ability to continue transforming Raleigh into a much more active and healthier community for all ages.

Thank you to our amazing volunteers, without whom we could not accomplish this work.

Thank you to Southeast Raleigh Promise and their high school youth ambassadors, Conn Elementary School's PTA, all the amazing neighbors in our audit locations, Ross Bassett, Jordan Birkner, and all of our NCSU Cycling Cities students!

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THANK YOU

FOR RIDING YOUR BIKE