

Community Profile  
January, 2019

CITY PLANNING

CBN

# Capital Boulevard North

Corridor Study

[raleighnc.gov](http://raleighnc.gov)



Raleigh



**\$150k** median home value



**#1** transit route by ridership

**300+** private businesses



**80k** vehicle trips per day

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# Introduction

## Purpose of the Community Profile

The Community Profile gives a description of the area that may be affected by the recommendations of the Capital Boulevard North Corridor Study. This area includes the length of Capital Boulevard from I-440 to I-540 as well as nearby properties to the east and west. Before creating ideas for the future of the corridor, it is important to understand what it is like in the present. Information about the current conditions in the area is also useful for deciding what topics to research and analyze and how those topics relate to one another.

Each of the sections in this document provides a depiction of the current state of a particular element of the Capital Boulevard North corridor. The background information contained here includes of past trends; existing infrastructure and developments; and policies and projections for the future.

## Study Area

The corridor study covers about five miles of Capital Boulevard, from just south of its interchange with I-440 to its interchange with I-540. This part of Capital Boulevard is also US Route 1 (US 1) and, for the area south of Louisburg Road, US Route 401 (US 401). US 401 continues on Louisburg Road north of the split with Capital Boulevard.

South of Louisburg Road, the width of the Study Area is made up of the commercially developed properties adjacent to Capital Boulevard. North of Louisburg Road, the Study Area widens to encompass larger retail areas like Mini City and Triangle Town Center as well as office and residential uses located farther from the corridor.

An area of influence has been defined that includes residential neighborhoods that lie just outside the study area. These communities might not be the subject of recommendations from the study, but will likely experience effects from changes along Capital Boulevard.

Capital Boulevard is a main thoroughfare for personal vehicle and bus trips between Downtown Raleigh, I-440, and I-540. The portion of Capital Boulevard in the study carries a large volume of local and regional travellers. Its busiest section moves 80,000 car trips per day. The local bus route that runs the length of the study area, GoRaleigh Route 1, provided approximately 5,000 passenger trips each weekday in 2018. This is the highest overall ridership in the GoRaleigh system.

GoRaleigh also has four connector routes that serve the Study Area, allowing transit riders to reach destinations to the east and west. Glenwood Avenue, New Bern Avenue, North Hills, and Wake Tech's North Campus can be reached directly by routes serving Capital Boulevard. GoTriangle, the regional transit agency, has two regional routes through the Study Area, though only one has a stop within the study area. Transit ridership in the corridor has seen significant growth in recent years.

Pedestrians travelling in the corridor are served by sidewalks on both sides of the street for nearly the entire length of Capital Boulevard. The west side of the corridor, particularly south of Millbrook Road, has a well-connected network of sidewalks. Many thoroughfares that cross Capital Boulevard also have sidewalks present on both sides.



However, many of the commercial developments and neighborhoods in the study area and area of influence were constructed before the City mandated sidewalk construction. Additionally, some neighborhoods to the east of the corridor are in unincorporated areas of Wake County. For these areas, sidewalks are generally not present. Many shopping centers also have little or no internal pedestrian network, forcing pedestrians to walk among cars when passing from storefronts to the street.

In the situations described above, connections between neighborhoods, commercial areas, and transit stops are indirect and unsafe in some locations. Attempts to use more direct pedestrian routes can be seen in the area in the form of “goat paths,” holes illegally opened in fences, and other informal pedestrian connections. Pedestrians often cross Capital Boulevard outside of designated intersection crossings. This can often be seen near transit stops or particular destinations, such as restaurants.

Bicycle facilities are less prevalent than pedestrian facilities in the study area. The Crabtree Creek Trail crosses Capital Boulevard just south of I-440, and a segment of greenway trail runs along the east side of Brentwood Park. On-road bicycle facilities are currently present on Spring Forest Road and Sumner Boulevard. The BikeRaleigh Plan and the Capital Area Greenway Plan call for many additional bicycle facilities on and around Capital Boulevard.

Land uses along Capital Boulevard are mostly commercial, with some industrial and office uses. Residential uses are frequently located behind the commercial uses, with a mixture of single-family and multi-family housing. The commercial uses serving the corridor are predominantly shopping centers of varying sizes, often with fast food restaurants or gas stations close to the street.

Many businesses in the corridor have vehicular access directly from Capital Boulevard or through private drive aisles within parking lots. Residential areas tend to be removed from the corridor and accessed by cross streets.

Within the study area or area of influence there are four City of Raleigh parks: Brentwood, Green Road, Hill Street, and Spring Forest. All four parks are large enough to serve multiple neighborhoods, though two of them, Brentwood and Hill Streets, are embedded within neighborhoods.

In addition to the four parks, an undeveloped City of Raleigh park property is located on Kyle Drive. Marsh Creek Park is located about one mile east of the Study Area.

## Corridor Segments

To make it easier to analyze, the corridor has been divided into four segments:

**Segment 1:** Crabtree Creek to Trawick Road

**Segment 2:** Trawick Road to New Hope Church Road / Buffaloe Road

**Segment 3:** Buffaloe Road to Spring Forest Road

**Segment 4:** Spring Forest Road to I-540

Detailed information for each segment is shown in the last section of this report. The segments are shown in the map on page 7.



# Boundaries and Demographics

## Geographic Boundaries and Neighborhoods

The corridor is within Raleigh city limits in Wake County, North Carolina. Capital Boulevard, Spring Forest Road, Millbrook Road, New Hope Road, US 401, Deana Lane, Buffaloe Road, Old Trawick Lane, Trawick Road, and I-440 are state roads.

There are five CACs represented in or near the Capital Boulevard North Study Area. Portions of the Atlantic, North, and Northeast CACs form a large majority of the study area. A small area at the southeast quadrant of Capital Boulevard and I -440 falls within the East CAC. The Forestville CAC is adjacent to much of the northern boundary of the study area.

## Neighborhood Resources

Community resources are distributed within and near the study area. The corridor is home to several businesses serving the larger region, including car dealerships and major shopping centers. Resources catering to the residential communities near the corridor; such as grocery stores, medical offices, and child care facilities; tend to be limited or unevenly distributed. These resources are indicated in the map on page 9.

## Census Data

Pages 12-14 contain tables of demographic information about the residents of the study area and area of influence. This data is shown by US Census Block Groups and comes from the American Community Survey 2011-2015. Data is displayed for race, ethnicity, poverty, Limited English Proficiency, and the number of households without access to a personal vehicle. Additional data is provided in Appendix A, Section 1.

In general, economic indicators for the Capital Boulevard North area lag behind the city overall. Poverty is 3.7 percentage points higher. Twelve of the 19 block groups in and around the corridor had median household incomes below \$50,000. Raleigh median income is \$64,456.

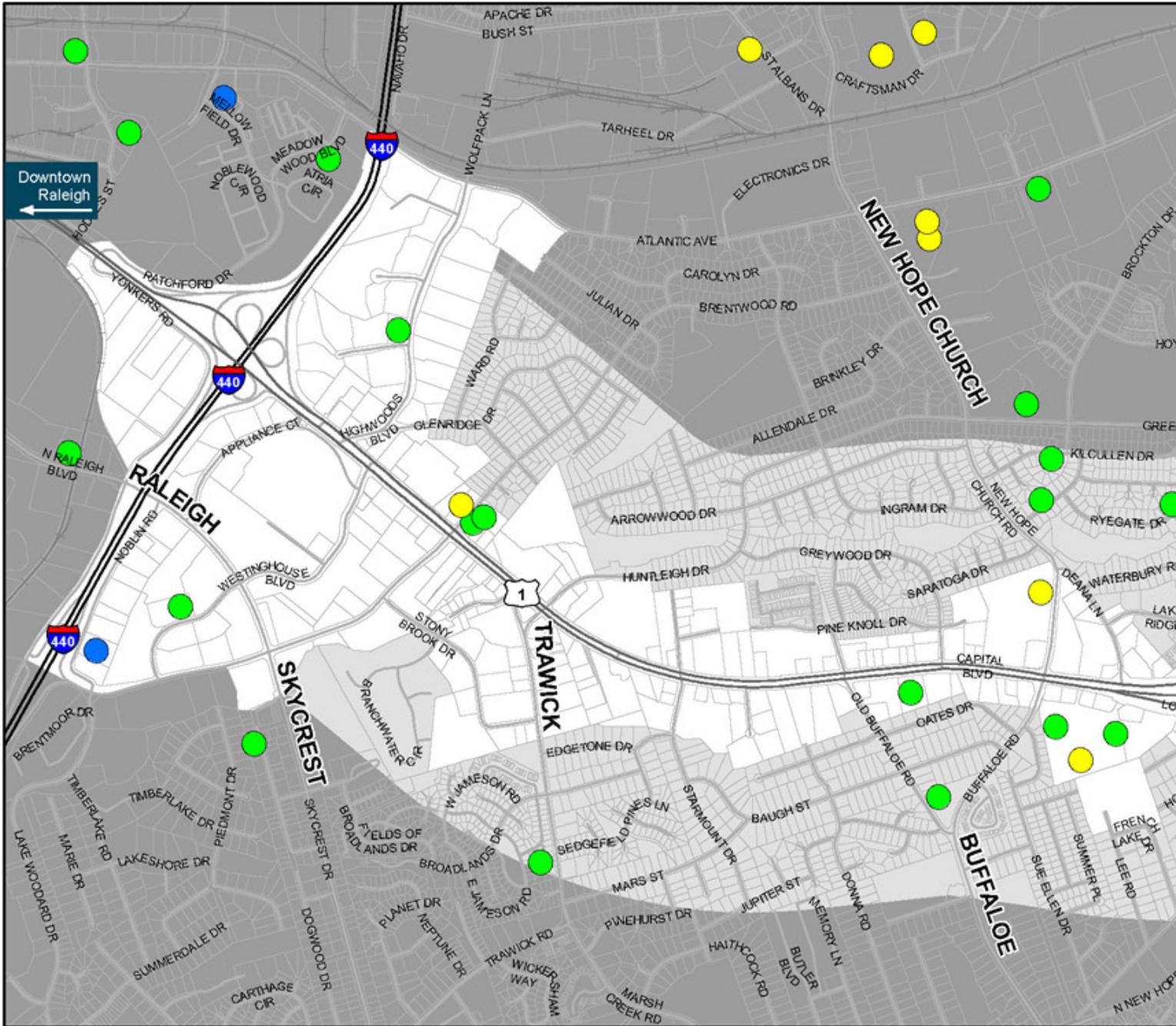
Unemployment for the block groups studied was 8.1%, compared to 4.1% unemployment for all of Raleigh in 2015. Aside from the Census data, recent sales data show median house or condo value is approximately \$150,000 along the corridor while the median value is \$242,500 for the entire city (see Market Analysis in Appendix B).

There is significant demographic variation across the corridor, including for the economic factors discussed above. Median income is highest in the northeastern portion of the corridor, with median household incomes reaching \$80,000 in one block group. The block groups just north of the Capital Blvd/Louisburg Rd split have the lowest median ages and the highest rates of poverty and unemployment.

Overall the corridor is more racially and ethnically diverse than the City of Raleigh as a whole. Census data shows a higher proportion of Asian residents in the Brentwood and Starmount neighborhoods as well as along Spring Forest Road. African American and Hispanic residents are also represent a greater percentage of the study area population than Raleigh as a whole, particularly in the area surrounding the Capital Blvd/Louisburg Rd split.

Residents along the corridor are more likely to report Limited English Proficiency than residents of the city of Raleigh. Spanish and Asian/Pacific languages are the languages most likely to be spoken by residents with Limited English proficiency.

[Maps of Census data are available in Appendix A, Section 1.]



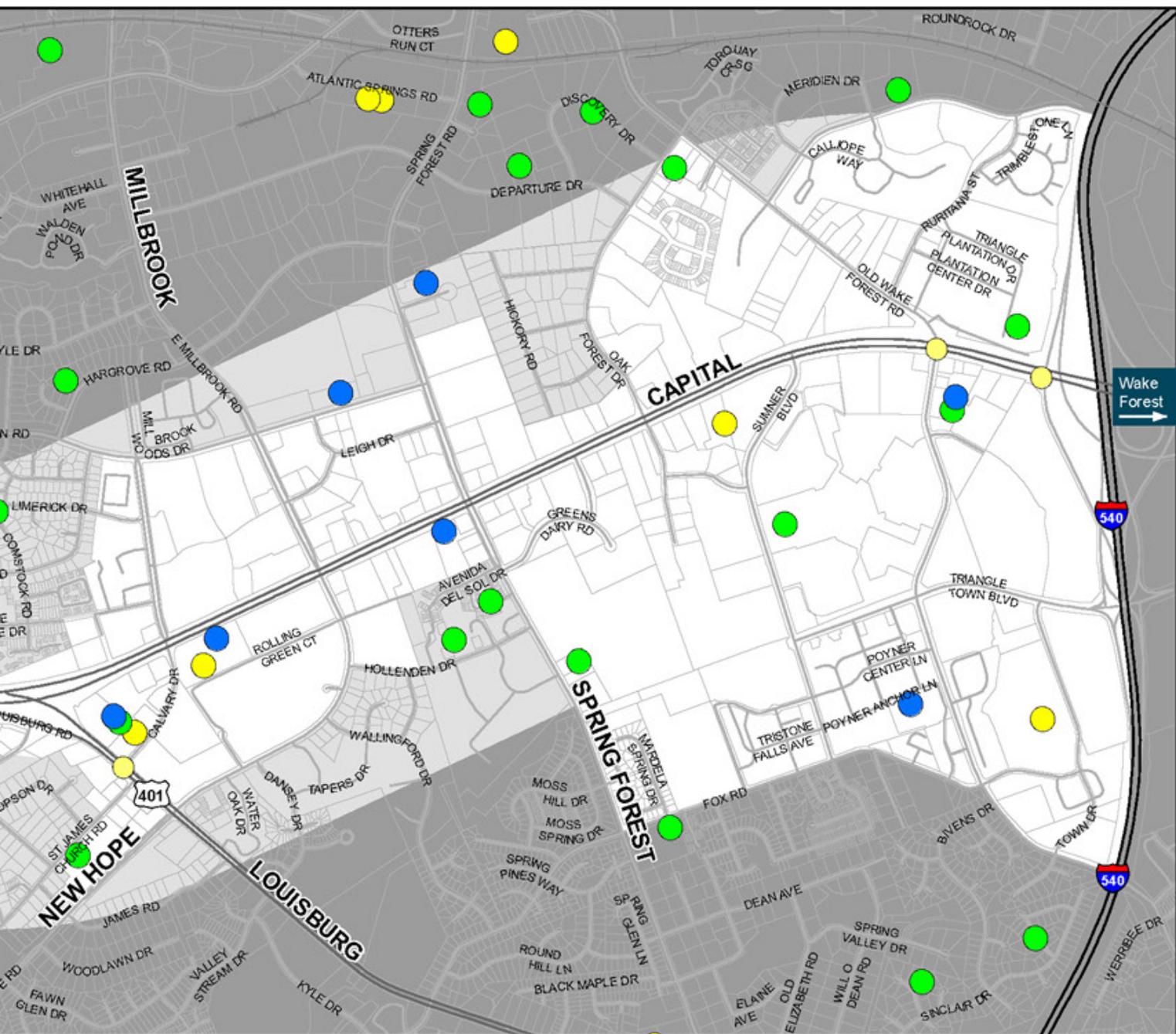
**Neighborhood Resources**

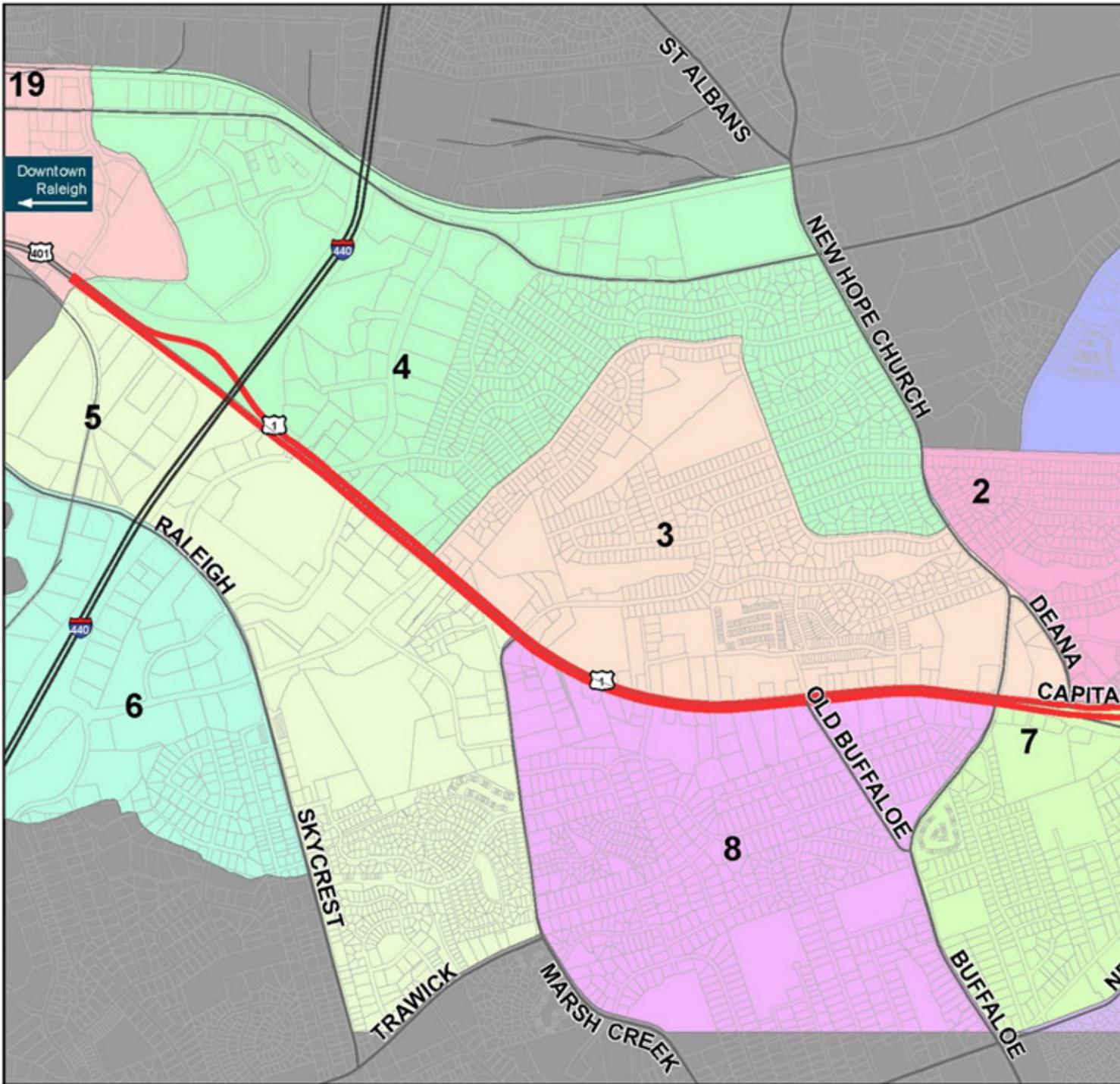
- Medical Facilities
- Child Care Facilities and Recreation Centers
- Grocery Stores

- Railroads
- Study Area
- Area of Influence

0 0.25

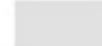




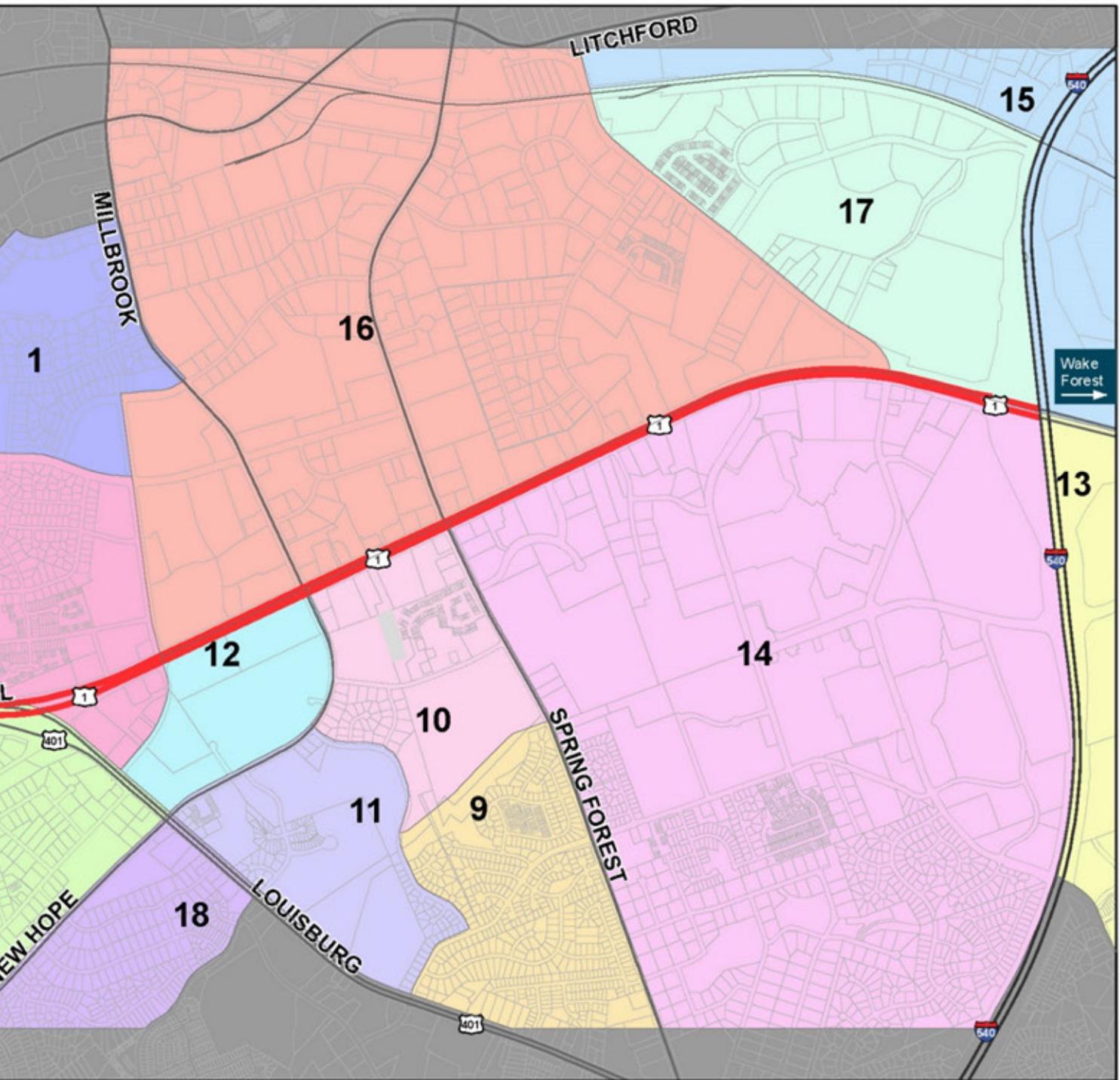


**Block Groups**

-  Block Groups
-  Capital Boulevard North Corridor

-  Railroads
-  Study Area
-  Area of Influence





0.5 0.75 1 Mile

## Race

ID (1-19)	Block Group	Total Population	White		Black or African American		American Indian and Alaska Native Alone	
			#	%	#	%	#	%
1	Block Group 2, Census Tract 527.04	2,093	326	15.6%	1,725	82.4%	33	1.6%
2	Block Group 3, Census Tract 527.04	2,032	935	46.0%	596	29.3%	35	1.7%
3	Block Group 1, Census Tract 527.05	1,626	966	59.4%	432	26.6%	-	0.0%
4	Block Group 2, Census Tract 527.05	2,793	2,135	76.4%	419	15.0%	-	0.0%
5	Block Group 1, Census Tract 527.06	1,791	872	48.7%	716	40.0%	-	0.0%
6	Block Group 2, Census Tract 527.06	1,274	680	53.4%	314	24.6%	-	0.0%
7	Block Group 1, Census Tract 527.07	1,050	854	81.3%	177	16.9%	-	0.0%
8	Block Group 2, Census Tract 527.07	1,407	926	65.8%	345	24.5%	-	0.0%
9	Block Group 1, Census Tract 540.08	1,121	568	50.7%	295	26.3%	-	0.0%
10	Block Group 2, Census Tract 540.08	3,138	1,078	34.4%	1,666	53.1%	9	0.3%
11	Block Group 3, Census Tract 540.08	1,293	321	24.8%	593	45.9%	-	0.0%
12	Block Group 4, Census Tract 540.08	1,298	509	39.2%	470	36.2%	-	0.0%
13	Block Group 3, Census Tract 540.14	2,724	1,642	60.3%	701	25.7%	-	0.0%
14	Block Group 1, Census Tract 540.15	2,501	1,387	55.5%	735	29.4%	-	0.0%
15	Block Group 1, Census Tract 540.17	3,052	1,915	62.7%	956	31.3%	-	0.0%
16	Block Group 1, Census Tract 540.18	1,397	443	31.7%	591	42.3%	-	0.0%
17	Block Group 2, Census Tract 540.18	2,276	664	29.2%	1,311	57.6%	-	0.0%
18	Block Group 4, Census Tract 541.04	1,642	734	44.7%	516	31.4%	36	2.2%
19	Block Group 1, Census Tract 518	1,090	1,018	93.4%	-	0.0%	-	0.0%
20	Demographic Study Area	35,598	17,973	50.5%	12,558	35.3%	113	0.3%
21	City of Raleigh	432,520	260,263	60.2%	126,558	29.3%	1,216	0.3%
22	Wake County	976,019	660,230	67.6%	202,452	20.7%	2,997	0.3%
23	North Carolina	9,845,333	6,839,831	69.5%	2,115,338	21.5%	116,143	1.2%

## Race (continued)

ID (1-19)	Asian		Native Hawaiian/ Pacific Islander		Some Other Race		Two or More Races		Total Non-White	
	#	%	#	%	#	%	#	%	#	%
1	-	0.0%	-	0.0%	-	0.0%	9	0.4%	1,767	84.4%
2	119	5.9%	-	0.0%	320	15.7%	27	1.3%	1,097	54.0%
3	154	9.5%	-	0.0%	15	0.9%	59	3.6%	660	40.6%
4	169	6.1%	-	0.0%	41	1.5%	29	1.0%	658	23.6%
5	45	2.5%	-	0.0%	108	6.0%	50	2.8%	919	51.3%
6	-	0.0%	-	0.0%	280	22.0%	-	0.0%	594	46.6%
7	9	0.9%	-	0.0%	-	0.0%	10	1.0%	196	18.7%
8	123	8.7%	-	0.0%	-	0.0%	13	0.9%	481	34.2%
9	173	15.4%	-	0.0%	62	5.5%	23	2.1%	553	49.3%
10	97	3.1%	-	0.0%	158	5.0%	130	4.1%	2,060	65.6%
11	-	0.0%	-	0.0%	347	26.8%	32	2.5%	972	75.2%
12	15	1.2%	-	0.0%	290	22.3%	14	1.1%	789	60.8%
13	111	4.1%	-	0.0%	175	6.4%	95	3.5%	1,082	39.7%
14	103	4.1%	17	0.7%	241	9.6%	18	0.7%	1,114	44.5%
15	24	0.8%	-	0.0%	147	4.8%	10	0.3%	1,137	37.3%
16	152	10.9%	-	0.0%	193	13.8%	18	1.3%	954	68.3%
17	32	1.4%	-	0.0%	118	5.2%	151	6.6%	1,612	70.8%
18	142	8.6%	-	0.0%	196	11.9%	8	1.1%	908	55.3%
19	14	1.3%	-	0.0%	58	5.3%	-	0.0%	72	6.6%
20	1,482	4.2%	17	0.0%	2,749	7.7%	706	2.0%	17,625	49.5%
21	19,115	4.4%	393	0.1%	15,191	3.5%	9,784	2.3%	172,257	39.8%
22	59,211	6.1%	463	0.0%	27,325	2.8%	23,341	2.4%	315,789	32.4%
23	244,076	2.5%	6,244	0.1%	292,310	3.0%	231,391	2.4%	3,005,502	30.5%

## Non-white and Hispanic Population

Geography	Total Population	White, Non-Hispanic		Non-white and Hispanic Population *	
		#	%	#	%
Demographic Study Area	35,598	12,947	36.4%	22,651	63.6%
City of Raleigh	432,520	230,372	53.3%	202,148	46.7%
Wake County	976,019	595,920	61.1%	380,099	38.9%
North Carolina	9,845,333	6,324,373	64.2%	3,520,960	35.8%

\* Includes all races that are Non-White and Hispanic populations that are also White.

Source: US Census Bureau, American Community Survey 5-year Estimates (2011-2015), Table B03002, "Hispanic or Latino Origin by Race."

## Poverty

Poverty	Total Population for whom Poverty Status is Determined	Below Poverty Level		Very Poor: Under 50% of Poverty Level		Near Poor: Between 100% and 149% of Poverty Level	
		#	%	#	%	#	%
Demographic Study Area	35,206	6,940	19.7%	2,865	8.1%	4,728	13.4%
City of Raleigh	412,347	66,136	16.0%	30,202	7.3%	40,811	9.9%
Wake County	953,275	107,687	11.3%	48,010	5.0%	73,150	7.7%
North Carolina	9,592,619	1,667,465	17.4%	725,635	7.6%	1,049,151	10.9%

Source: US Census Bureau, American Community Survey 5-year Estimates (2011-2015), Table C17002, "Ratio of Income to Poverty Level in the Past 12 Months."

## Zero Car Households

Geography	Total Households	No Vehicle Available		One Vehicle Available		Two or More Vehicles Available	
		#	%	#	%	#	%
Demographic Study Area	14,398	916	6.4%	6,591	45.8%	6,891	47.9%
City of Raleigh	170,366	10,367	6.1%	69,429	40.8%	90,570	53.2%
Wake County	364,669	16,125	4.4%	117,694	32.3%	230,850	63.3%
North Carolina	3,775,581	246,069	6.5%	1,231,712	32.6%	2,297,800	60.9%

Source: US Census Bureau, American Community Survey 5-year Estimates (2011-2015), Table B25044, "Tenure by Vehicles Available."

# Vehicular Transportation

## Functional Classification

There are three primary Federal Highway Administration (FHWA) functional classifications: arterial, collector, and local roads. All streets and highways are grouped into one of these classes, depending on the character of the traffic (i.e., local or long distance) and the degree of land access that they allow.

- Arterial - Provides the highest level of service at the greatest speed for the longest uninterrupted distance, with some degree of access control.
- Collector - Provides a less highly developed level of service at a lower speed for shorter distances by collecting traffic from local roads and connecting them with arterials.
- Local - Consists of all roads not defined as arterials or collectors; primarily provides access to land with little or no through movement.

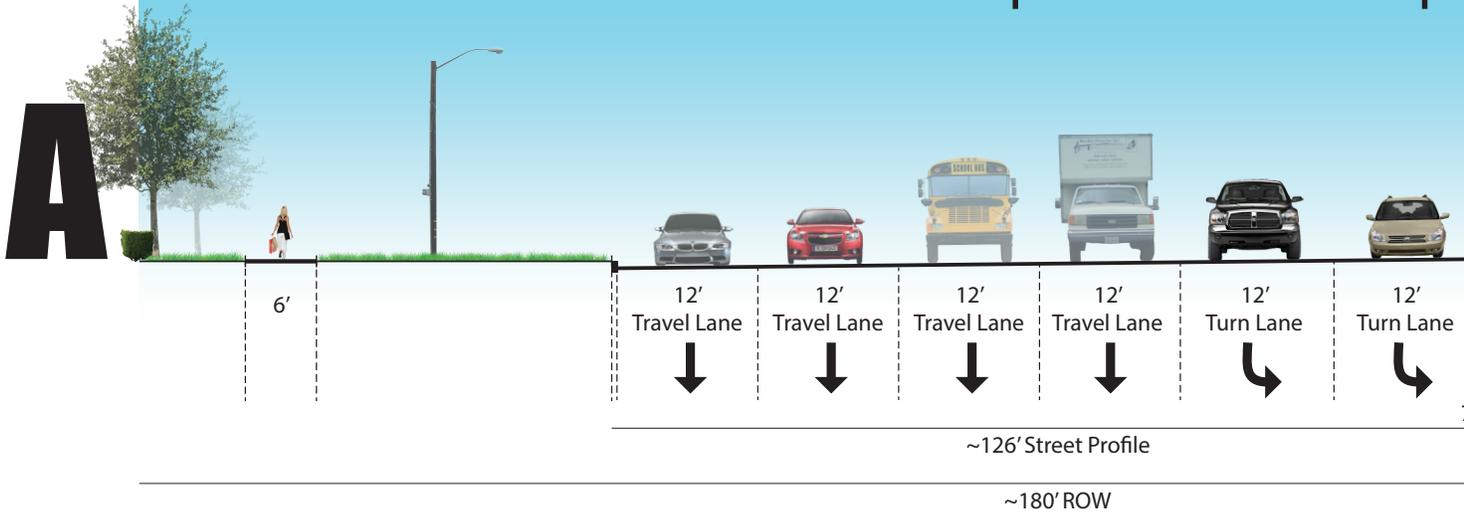
Capital Boulevard is classified as a Principal Arterial and serves commuters travelling between downtown Raleigh and areas north of I-540, such as Wake Forest. Collector streets link adjacent commercial developments and connect to the residential areas east and west of the corridor. Neighborhoods along the corridor contain mostly local streets.

## Raleigh Street Plan Typology

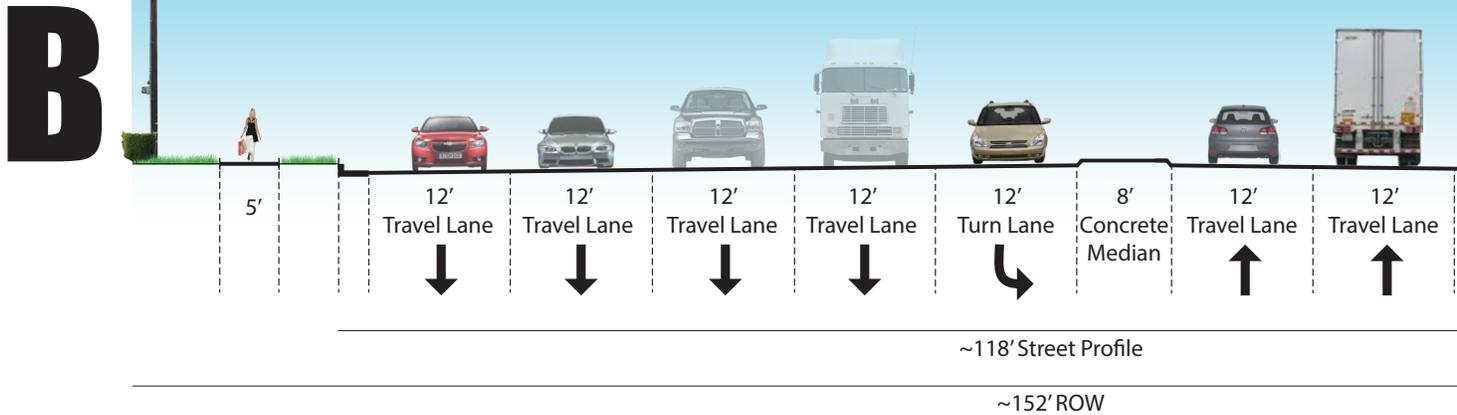
The City of Raleigh Street Design Manual has road classifications that differ from the FHWA's functional classifications. These street types were adopted in 2013 as part of Raleigh's Unified Development Ordinance (UDO) and Street Design Manual. The City of Raleigh road types found in the Study Area are listed below. The Pre-UDO classification is also provided.

- Avenue 6-Lane, Divided (Formerly "Principal Arterial"): These are major streets that feature medians and space signalized intersections further apart to better facilitate vehicular mobility. Capital Boulevard, N New Hope Road, and Louisburg Road are all classified as this.
- Avenue 4-Lane, Divided (Formerly "Major Thoroughfare"): These are major streets that feature medians and space signalized intersections further apart to better facilitate vehicular mobility. New Hope Church Road/ Buffaloe Road and Spring Forest Road are two examples of this within the Study Area.
- Avenue 2-Lane, Divided (Formerly "Minor Thoroughfare"): These are walkable, lower speed streets that provide access to abutting commercial and mixed land uses as well as multi-unit residential development. Calvary Drive and Trawick Road are two examples of this within the Study Area.
- Avenue 2-Lane, Undivided (Formerly "Collector"): These are walkable, lower speed streets that provide access to abutting commercial and mixed land uses as well as multi-unit residential development. Greywood Drive and Old Buffaloe Road are two examples of this within the Study Area.
- Neighborhood Street (Formerly "Collector"): Local streets provide access to individual lots, accommodate pedestrians and serve as low speed bicycle and vehicle routes. Huntleigh Drive and Brentwood Road are two examples of this within the Study Area.

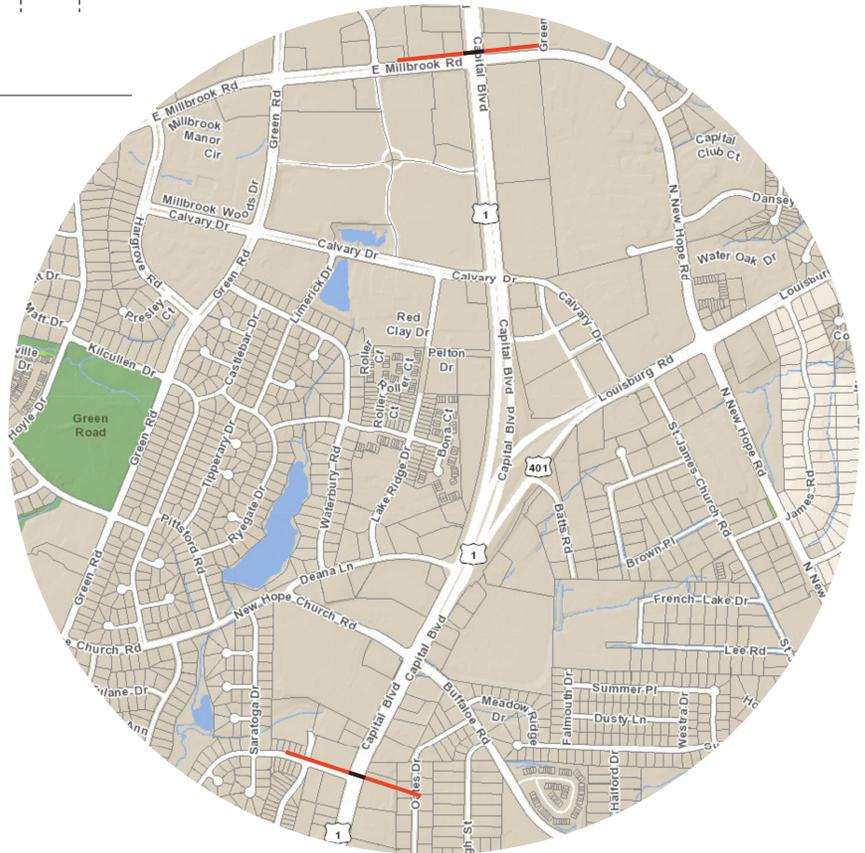
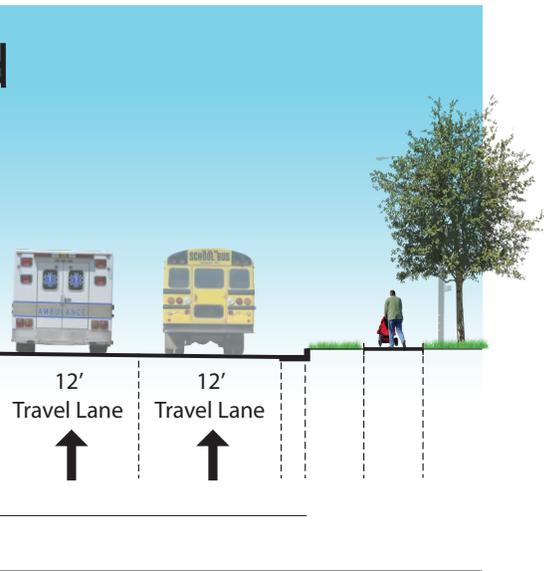
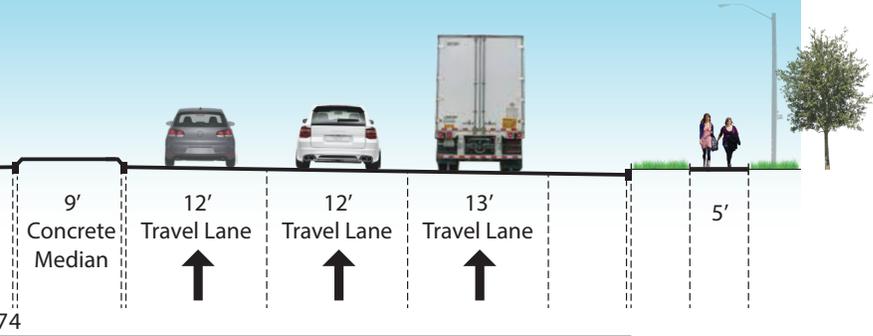
## N. New Hope Road and Capital



## Greywood Drive and Capital Blvd



# tal Blvd



Scale - 1/8" = 1'



## Speed Limit

The speed limit along Capital Boulevard is 45 miles per hour (mph). Connecting cross streets are posted at 35 mph or 45 mph, and neighborhood streets are generally posted at 25 or 35 mph.

## Right of Way

The right of way width varies along Capital Boulevard from approximately 150' to 190' wide. It is widest at the interchange with Louisburg Road/Hwy 401 where it is up to 700' wide. (See diagram on pages 16 and 17.)

## Number of Lanes

Capital Boulevard is characterized by four travel lanes in each direction between the I-440 interchange and the US 401 split. Between the US 401 split and the I-540 interchange, Capital Boulevard has three travel lanes in each direction, but expands to four and five lanes in each direction at the interchange. Major cross streets typically have two travel lanes in each direction, and local streets generally provide one travel lane for each direction.

Medians are present along the entire corridor, except at intersections. In some locations, such as the Food Lion shopping center at Huntleigh Drive, a median crossover allows left turns into a shopping center.

Some examples of typical dimensions and medians include:

- North of Trawick Road: 12-foot lanes in each direction and 14-foot median
- Near Mini City Shopping Center: 12-foot lanes in each direction and 22-foot median
- North of Spring Forest Road: 12-foot lanes in each direction and 22-foot median

## Intersections / Access Control

There are 17 signalized intersections along the corridor from Yonkers Road to the I-540 interchange, including one along US 401. Non-signalized intersections include right turns at cross-streets and driveways. There is one right-in / right-out at Capital Crossings Driveway that sits between two signalized intersections at East Millbrook Road and Calvary Drive. There is also a median crossover along Capital Boulevard in front of Capital Square to allow left turns into the shopping center. Left turn lanes are provided at all traffic signals, but right turn lanes are not as frequent. Between the I-440 interchange and the Capital Boulevard / Louisburg Road split, almost all rights turns are combined with a through lane. After the US 401 split, all traffic signals have dedicated right turn lanes.

Most of the intersections along Capital Boulevard have marked pedestrian crosswalks to cross over Capital Boulevard. There are several in Segment 4 that do not have marked pedestrian crosswalks, including the intersections of Capital Boulevard with: Oak Forest Drive, Sumner Boulevard, Old Wake Forest Road. Several of the intersections also have pedestrian refuge islands within the medians to assist pedestrians crossing Capital Boulevard. Locations with pedestrian refuge islands include the intersections with: Brentwood Road, New Hope Church Road / Buffalo Road, Calvary Drive, Millbrook Road / New Hope Road, and Spring Forest Road.

## Traffic Volumes

The Annual Average Daily Traffic (AADT) Count Location table and Capital Boulevard Annual Average Daily Traffic graph highlight the average annual daily traffic (AADT) at North Carolina Department of Transportation (NCDOT) traffic count locations along the corridor. The highest AADT along Capital Boulevard is 80,000 vehicles/day, just north of the I-440 interchange. The majority of other locations within the corridor have AADTs between 45,000 and 65,000 vehicles/day.

Traveling along the corridor from south to north, the graph on page 20 shows how traffic volumes decrease further away from the I-440 interchange, until about Millbrook Road when volumes generally begin increasing as traffic moves closer to I-540. Capital Boulevard is often used to travel to communities located north of Raleigh, like Wake Forest, Youngsville and Franklinton.

## Crash Data

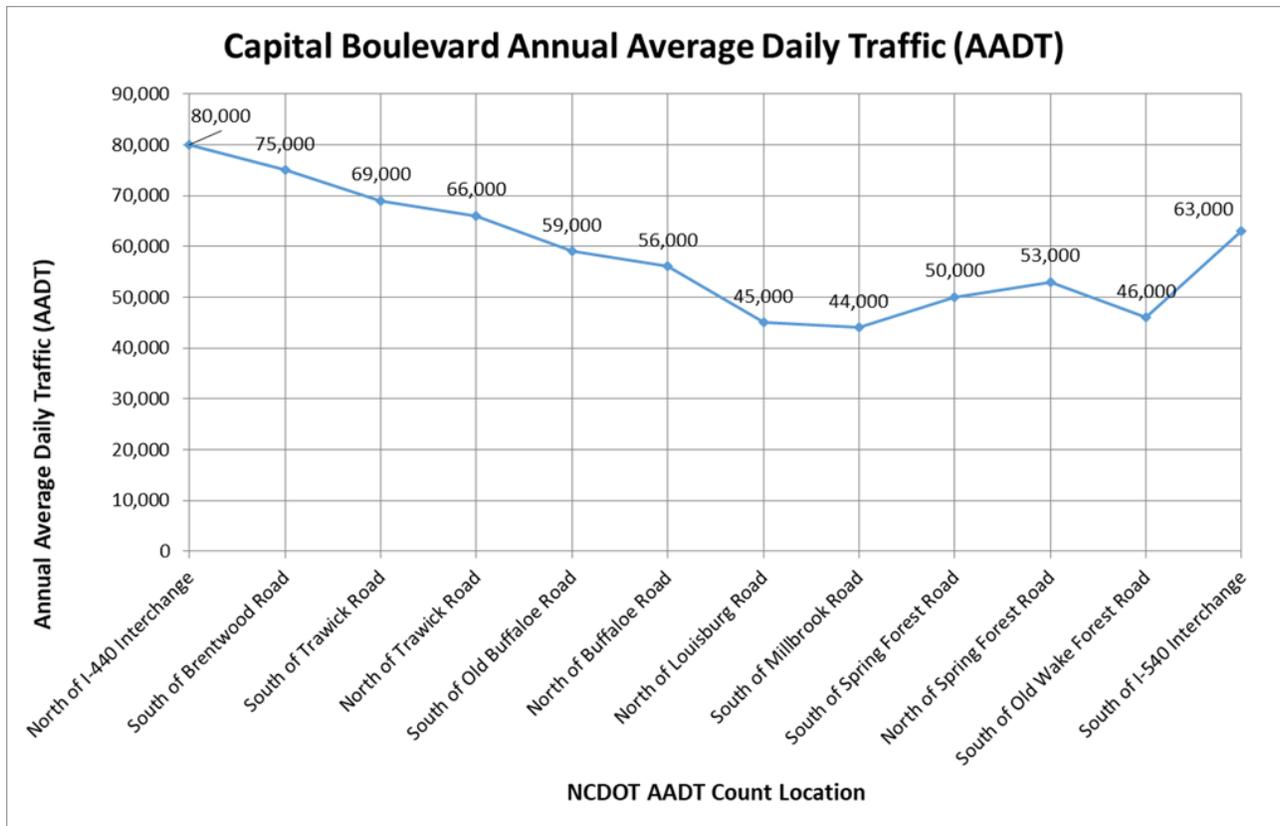
Crash data can be categorized by both the number of crashes and the severity index. The severity index is calculated as the equivalent property damage only (EPDO) divided by the number of crashes. It is helpful in assessing the extent of the problem for a Study Area. For Capital Boulevard, the average crash severity is 3.3. The table below highlights crash data from January 1, 2012 to June 30, 2017 along Capital Boulevard.

The largest number of crashes along the corridor occurred along I-440, with 516 of 3,565 or 14 percent, but the severity is relatively low 2.3, compared with the Raleigh severity index average of 3.1. This indicates that while there are a high number of crashes in the vicinity of the I-440 interchange, those crashes are less severe than the City of Raleigh average. However, crash records show that crashes at Hobby Court and Trust Drive tend to be more severe in nature; both intersections are unsignalized. The severity index at Hobby Court is 5.6 with only 23 crashes and the severity index at Trust Drive is 7.4 with only 20 crashes.

[Transportation maps can be found in Appendix A, Section 2.]

## Annual Average Daily Traffic

AADT Count Location	AADT (vehicles/day)	Year of AADT
I-440 west of Capital Boulevard	131,000	2016
I-440 east of Capital Boulevard	112,000	2016
Capital Boulevard north of I-440 Interchange	80,000	2015
Capital Boulevard south of Brentwood Road	75,000	2015
Capital Boulevard south of Trawick Road	69,000	2013
Capital Boulevard north of Trawick Road	66,000	2015
Capital Boulevard south of Old Buffaloe Road	59,000	2015
Capital Boulevard north of Buffaloe Road	56,000	2015
Capital Boulevard north of Louisburg Road	45,000	2014
Capital Boulevard south of Millbrook Road	44,000	2015
Capital Boulevard south of Spring Forest Road	50,000	2015
Capital Boulevard north of Spring Forest Road	53,000	2015
Capital Boulevard south of Old Wake Forest Road	46,000	2015
Capital Boulevard south of I-540 Interchange	63,000	2015
I-540 west of Capital Boulevard	87,000	2016
I-540 east of Capital Boulevard	76,000	2016



## Crashes Between January 1, 2012 and June 30, 2017

Intersection with Capital	Number of Crashes	Percent of Crashes	Severity Index
I-440 Interchange	516	14%	2.3
Appliance Court	15	0%	2.0
Highwoods Blvd	187	5%	3.5
Westinghouse Blvd	153	4%	3.0
Brentwood Road	232	7%	3.7
Old Trawick Lane	34	1%	2.3
Huntleigh Drive / Trawick Road	246	7%	3.5
Mayflower Drive / Starmount Drive	147	4%	2.8
Hobby Court	23	1%	5.6
Old Buffalo Road	153	4%	4.2
Greywood Drive	76	2%	4.2
New Hope Church Road / Buffalo Road	306	9%	2.7
Deanna Lane	106	3%	2.4
Louisburg Road	22	1%	3.7
Calvary Drive	211	6%	3.6
Millbrook Road / New Hope Road	293	8%	2.7
Spring Forest Road	245	7%	3.1
Trust Drive	20	1%	7.4
Oak Forest Drive	80	2%	2.6
Sumner Blvd	79	2%	2.1
Old Wake Forest Road	246	7%	2.4
I-540 Interchange	175	5%	2.1
	<b>3,565</b>	<b>100%</b>	
<b>Capital Boulevard Average Severity</b>			<b>3.3</b>

# Pedestrians, Bicycles, and Transit

## Pedestrian Facilities

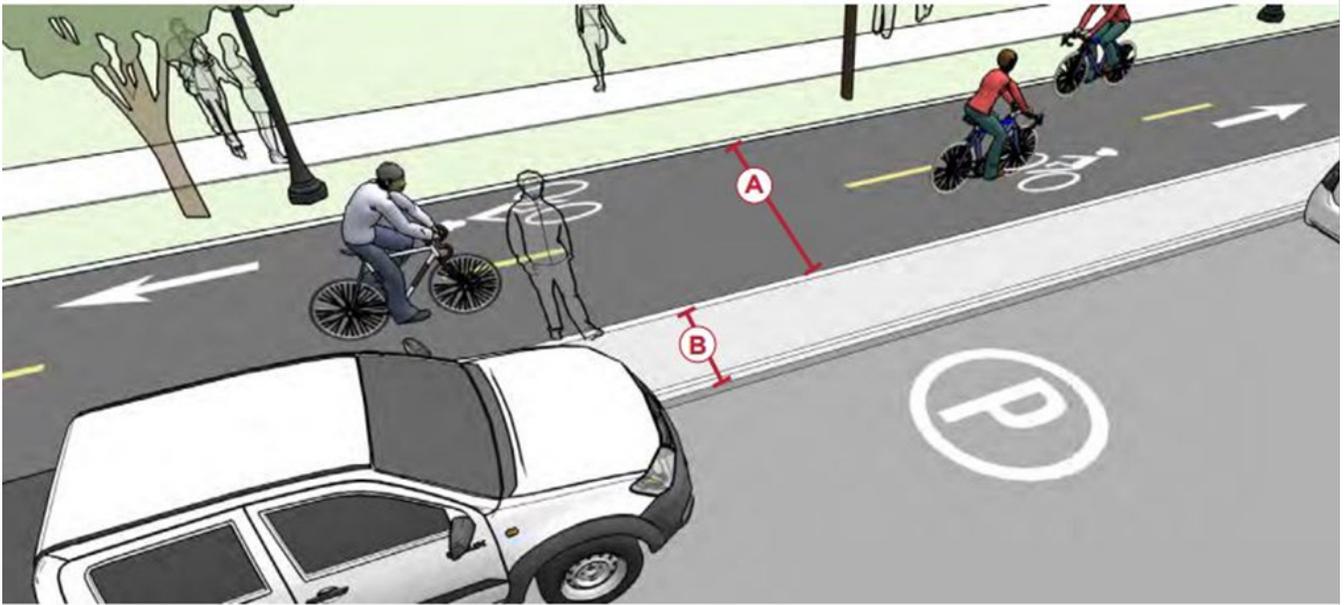
Sidewalks are present on both sides of Capital Boulevard for much of its length south of the Capital Boulevard/US 401 split. In this area, a fairly extensive sidewalk network exists for neighborhoods on the west side of Capital Boulevard. Neighborhoods on the east side have a lower concentration of sidewalks. North of the Capital Boulevard/US 401 split, sidewalks are less common as the roadway takes on a character more like a highway. Bicycle infrastructure is found on surrounding streets but not on Capital Boulevard itself. Spring Forest Road has the most mileage of bike lanes of any nearby street.

## Bicycle Facilities

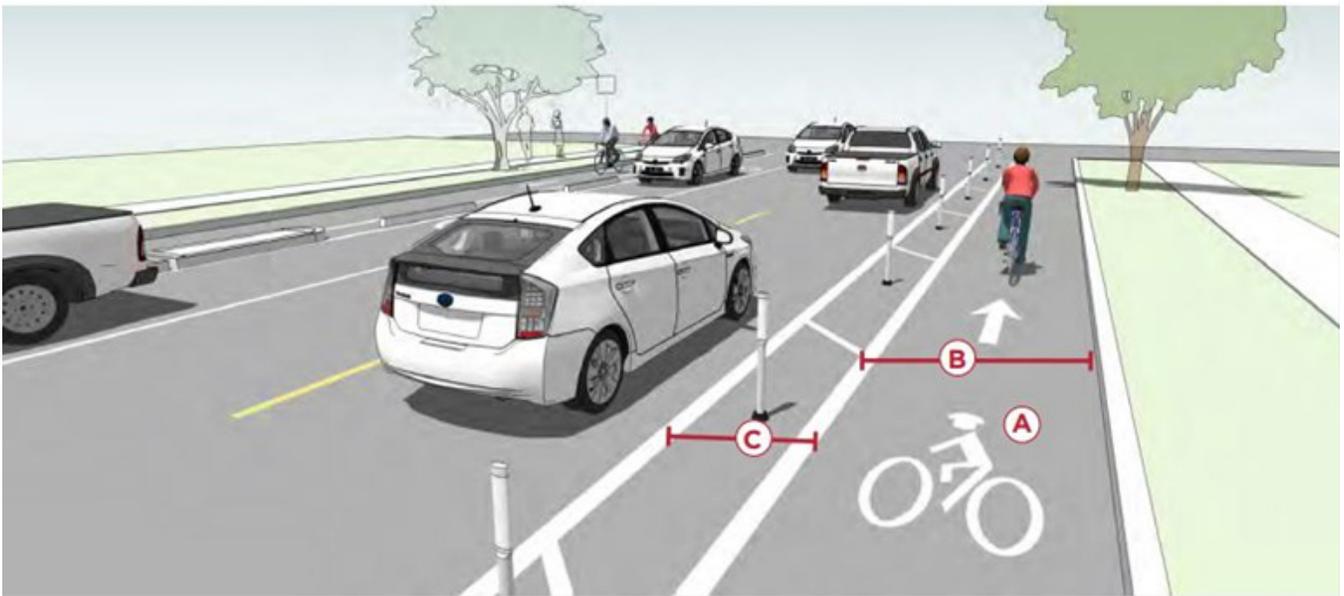
Future conditions, from the BikeRaleigh Plan, propose improvements to bicycle infrastructure throughout Raleigh. Sharrows, bicycle lanes, or separated bikeways are recommended along designated streets in the plan. In the Study Area, Capital Boulevard, Louisburg Road, Buffaloe Road/ New Hope Church Road and Old Wake Forest are all proposed to have Separated Bikeways.

Neighborhood Bikeways are called for in neighborhoods on the east and west sides of the southern portion of the Study Area. Bicycle Lanes are recommended for non-residential areas along cross streets and to connect neighborhood streets with the Separated Bikeways. Page 23 contains images showing examples of a separated bikeway and a bicycle lane.





**A separated bikeway**



**A bicycle lane**

## Existing Conditions

There is very little existing bicycle infrastructure within the Study Area, and no bicycle facilities directly on or along Capital Boulevard. Bicycle lanes on Spring Forest Road and Sumner Road are the only on-street bicycle facilities in the Study Area. The Spring Forest Trail, a paved greenway between Sumner Boulevard and Old Wake Forest Road, is the only off-street bicycle facility. It runs in a north-south direction along the west side of Triangle Town Boulevard. The 2016 BikeRaleigh Plan recommends implementing a separated bicycle facility along the length of Capital Boulevard and bicycle lanes on almost all intersecting streets. (See Map A3.1 in Appendix A)

Sidewalks exist throughout much of the Study Area; however, there are several locations where sidewalks are missing on one side of the street. A pressing issue with existing sidewalks is compliance with ADA accessibility standards. Large portions of the Study Area were identified as “missing sidewalk” in the 2012 Pedestrian Master Plan. Calvary Drive was the only sidewalk project at that time with committed funding. Maps A3.2 in Appendix A illustrates existing bicycle and pedestrian facilities within the Study Area.

Intersections along Capital Boulevard have been assessed to determine if elements such as crosswalks, ADA curb ramps, and pedestrian signals are present. While several intersections have all these elements for each street crossing, others are missing one or more element for a specific approach. Note: the sidewalk data illustrated on the map does not reflect all of the most recent sidewalks installed in the study area.

## Bicycle and Pedestrian Crash Data

Between 2007 and 2015, 155 pedestrians and 40 bicyclists were involved in crashes that occurred within the Capital Boulevard North Corridor Study Area. Map A3.4 in Appendix A shows the locations of pedestrian or bicycle related crashes within the Study Area. While not all of the crashes occurred along Capital Boulevard, a high percentage occurred near the corridor and seven of the nine fatal pedestrian crashes were located on Capital Boulevard.

Many of the pedestrian crashes occurred within the travel lane, but an almost equal number were designated “non-roadway”. These occurred in or around parking lots. Parking area makes up 28% of the land area within the Study Area and was the location for 48 crashes. Non-roadway categorized crashes may or may not be related to Capital Boulevard street characteristics but are included to represent all crashes in the Study Area.

Intersections along Capital Boulevard are clearly crash “hot spots” throughout the corridor. Clusters of both bicycle and pedestrian crashes occurred at the intersections of Brentwood Road, Trawick Road, Calvary Drive and E Millbrook Road, and 32% of pedestrian crashes were designated as “intersection” or “intersection related.”

## Overall Crash Density

The heat map in Map A3.5 in Appendix A indicates the overall density of both bicycle and pedestrian crashes within the Study Area. Darker spots on the map indicate a higher concentration of crashes. As previously noted, the highest density of crashes occurred at intersections and are concentrated along the Capital Boulevard corridor.

## Bicycle and Pedestrian Crash Summary Statistics

Bicycle and pedestrian crashes are often the result of multiple factors related to street design, environmental conditions, or human error. Crash characteristics were reviewed to identify common themes for crashes throughout the Capital Boulevard North Corridor Study Area. The summary table on page 26 gives an overview of the crash data by corridor segment.

Segment 3 has nearly double the amount of pedestrian crashes and fatalities than any other segment and four times the amount of bicycle crashes. Disabling injuries are also included by segment. Of the ten total disabling injuries, six were pedestrians and four were people on bicycles.

The Key Pedestrian Crash Characteristics and Key Bicycle Crash Characteristics tables on page 27 provide summary statistics for several crash characteristics for pedestrians and bicyclists. Besides location, these tables document the location, lighting conditions, time of day, and causes for each crash. The race of the crash victim is also included in the crash data attributes in the detailed tables.

Characteristics listed in the tables gives an understanding of historical trends in these types of crashes. In particular, three patterns are apparent in the data. A disproportionate number of Black and Hispanic pedestrians and bicyclists have been involved in crashes in the Capital Boulevard North Corridor Study Area. Additionally, crashes were more common in low light and in the afternoon.

African Americans make up 37% of the population in the study area but account for 55% and 57% of the pedestrian and bicycle crashes respectively. It is also notable that over 30% of the bicycle and pedestrian crashes were in low light conditions, even though a majority of those crashes occurred on lighted roadways. Another trend emerged in the timing of the crashes, with a majority of crashes reported between noon and 6PM.

## Bicycle and Pedestrian Crashes

	Segment 1		Segment 2		Segment 3		Segment 4		Total Crashes
Bicycle Crashes	4	10%	6	15%	24	60%	6	15%	40
Pedestrian Crashes	30	19%	26	17%	67	43%	32	21%	155
Total Crashes by Segment	34		32		101		38		195
Pedestrian Fatalities	2		3		4		0		9
Disabling Injuries	1 – bicycle 1 – pedestrian		2 – bicycle 2 – pedestrian		1 – bicycle 2 – pedestrian		0 – bicycle 1 – pedestrian		10

## Key Bicycle Crash Characteristics

Category	Characteristic	Number of Crashes	Percent of Category Crashes
Location	Crosswalk/Sidewalk/ Driveway crossing	13	32%
	Travel Lane	17	43%
	Other (multiple)	10	25%
Cause	Motorist Failed to Yield	9	22%
	Bicyclist Failed to Yield	9	22%
	Motorist Overtaking Bicyclist	5	13%
	Other (multiple)	17	43%
Demographics*	White	12	30%
	Black	23	58%
	Hispanic or Other	5	12%
Lighting	Low Light Conditions	14 (8 of these on 'lighted' roadways)	35%
Time of Day	Midnight to 6am	2	5%
	6am to Noon	6	15%
	Noon to 6pm	20	50%
	6pm to Midnight	12	30%

## Key Pedestrian Crash Characteristics

Category	Characteristic	Number of Crashes	Percent of Category Crashes
Location	Crosswalk Area	32	21%
	Travel Lane	49	32%
	Non-Roadway	48	31%
	Other (multiple)	26	16%
Cause	Crossing Roadway	31	20%
Demographics*	White	44	28%
	Black	86	56%
	Hispanic or Other	25	16%
Lighting	Low Light Conditions	58 (40 of these on "lighted" roadways)	37%
Time of Day	Midnight to 6am	11	7%
	6am to Noon	34	22%
	Noon to 6pm	58	37%
	6pm to Midnight	52	34%

\* Average demographics for the Study Area based on the 2010 US census are 47% White, 37% Black and 6% Hispanic or other.

## ADA Compliance

Even in areas where sidewalks are present in the study area, they are not always accessible to everyone. Of the existing sidewalks in the Capital Boulevard North Corridor Study Area, several sections are not compliant with the Americans with Disabilities Act. Non-compliance can make traveling without a vehicle in the area more difficult for citizens who are disabled or have difficulty walking.

Non-compliant sidewalks are typically too steep, have severe cross slopes ( where a sidewalk slopes from one side to the other, perpendicular to the direction of travel), or are broken or falling apart. Besides a small section in Segment 2, all of the existing sidewalks directly on Capital Boulevard are ADA accessible but many of the connecting nearby roads are not, primarily along Segments 2 and 3. (A map of Segments is found in the Introduction.)

## Existing Transit Routes and Stops

Capital Boulevard is served by a number of transit routes in the Study Area, including both GoRaleigh and GoTriangle service. The northern portion of the Study Area is crossed by multiple routes connecting to destinations east and west of the corridor. In addition, north-south routes are present parallel to the corridor on the east and west sides. There are numerous transit stops on Capital Boulevard with varying degrees of amenities, including shelters and benches.

The concentration of commercial uses on Capital Boulevard makes it a draw for workers and shoppers travelling by transit, many of whom are individuals in households without access to a personal vehicle. Transit on the corridor also provides a connection between Downtown Raleigh and points north of I-540, such as the Town of Wake Forest.

GoRaleigh routes that serve the corridor include:

- 1 - Capital
- 23L - Millbrook Connector
- 24L - North Crosstown Connector
- 15L - Trawick Connector
- 25L - Triangle Town Center Connector

GoTriangle routes that serve the corridor include:

- 201 - North Raleigh-RTC
- WRX - Wake Forest-Raleigh Express

GoRaleigh provides paratransit service along the corridor and within the Study Area.

[Maps related to this section are found in Appendix A, Section 3.]

# Land Use and Built Environment

## Existing Land Use

The current land uses along the Capital Boulevard North corridor include small and large format retail, “heavy” commercial such as car dealerships, light industrial, and warehouses. Some office buildings are present at the southern end and at the edges of the central portion of Study Area. Map A4.1 in Appendix A shows existing land uses. In the map, office uses are considered “Commercial”.

In some areas, denser residential developments like apartments and townhouses form a transition between commercial uses and lower density residential. Most of the Study Area is developed, though there are several large, vacant parcels in the area around Triangle Town Center. For much of the corridor, single family residential neighborhoods begin just beyond the Study Area boundary.

The 2030 Comprehensive Plan identifies Growth Centers throughout the city in an effort to focus anticipated regional growth in areas with a complimentary mix of uses and adequate multi-modal transportation facilities. Growth Centers are intended to become places where employment, housing, goods, and services can be conveniently accessed by any mode of transportation.

The northern portion of the Study Area is identified as a City Growth Center. Triangle Town Center is a significant feature within the City Growth Center. Triangle Town Center is a regional, indoor shopping mall that covers approximately 100 acres divided several parcels. The mall includes multiple “anchor stores” that typically are contained within a single property and have dedicated parking areas.

## Built Environment

The size and density of existing buildings within the Study Area occur on a wide spectrum of commercial/retail uses ranging from small retail establishments in stand-alone buildings to strip malls to large big box stores. In general, development tends to be at a scale that is most appropriate for vehicles and less comfortable for pedestrians. Large commercial buildings are often located directly along Capital Boulevard and spread apart from each other by parking lots. Pedestrians, generally, must cross parking lots to reach buildings from the street. Many parking lots do not have comfortable pedestrian spaces designated, and people on foot often walk in vehicle lanes within parking lots.

The size of building footprints varies for commercial land uses moving north to south along the corridor. Near the intersection with I-540, buildings and parking lots are larger. Linear shopping centers are composed of “big box stores” where the footprint of each store is around 20,000 square feet. Large car dealerships have buildings around 50,000 square feet with parking lots approximately 10 acres. The northern portion of the corridor includes a conventional mall, Triangle Town Center, with a footprint of approximately 900,000 square feet.

Moving south, the size of the commercial buildings lining the street become smaller. Linear shopping centers typically hold storefronts of less than 5,000 square feet each. Car dealership buildings are in this area are 5,000 square feet, often in adaptive reuse buildings.

At the north end of the corridor offices, apartments and townhouses are commonly present between shopping centers and lower density neighborhoods. In the southern portion, low density neighborhoods can be found directly behind the businesses fronting Capital Boulevard.

Even so, residential density throughout the corridor is usually less than 10 units per acre and rarely exceeds 15 units per acre. Higher density residential development usually has widely spaced buildings and surface parking.

The building stock along the corridor is older with higher vacancy rates in the southern portion of the Study Area. Recent development in the northern portion of the Study Area around Triangle Town Center was spurred by adjacency to I-540 and increased growth in North Raleigh.

## Existing Zoning

Zoning in the Study Area is mostly a combination of Commercial Mixed Use (CX) and Industrial Mixed Use (IX). These districts both allow offices as well as many commercial uses, including hotels and pawn shops. Multi-family residential is allowed in CX. Residential units cannot be located on the ground floor in IX, so residential development in IX must be part of a mixed-use building.

In addition to office and commercial, IX allows more intense highway-oriented commercial uses such as car dealerships. Light industrial, light manufacturing, warehouses, and distribution uses are also permitted in IX. Some Office Mixed Use (OX) zoning is present at the southern end of the corridor. Office and residential developments can be located in this district, as well as a small amount of ancillary retail.

There are several small areas of moderate density residential zoning (R-10 and RX) that occur along the edges of the Study Area mostly between Old Buffalo Road and Spring Forest Road. Low density residential (R-4 and R-6) is found on much of the east side of the Study Area and to the west of the southern portion. Farther to the west is industrial zoning that is associated with the railroad corridor.

## Future Land Use

The Future Land Use Map primarily calls for multi-family housing, office uses, and various retail formats. Some areas directly adjacent to the corridor call for heavier commercial and light industrial uses with less housing.

The northernmost part of the Study Area, including Triangle Town Center, is designated for Regional Mixed Use. This designation suggests large scale retail formats. Office uses are envisioned at the southern end of Capital Boulevard along Highwoods Boulevard.

For much of the southern part of the corridor, low density residential is recommended immediately behind commercial parcels. The northeastern portion of the Study Area has more transition proposed through multi-family and public facilities. Where Capital Boulevard approaches Atlantic Avenue to the northwest, the Future Land Use Map does not foresee any low density residential neighborhoods.

Parks, greenway corridors, and streams are recommended to remain “Public Parks & Open Space.” East Millbrook Middle School is designated as a “Public Facility.”

## Urban Form Map

Capital Boulevard is identified as a Transit Emphasis Corridor, meaning it is “programmed for a much higher level of bus-based service, including frequent buses, amenities at every stop, the completion of the pedestrian network, and potentially traffic signal priority for transit.” Due to its arterial and multi-modal character, the Urban Form Map indicates that buildings should offer easy pedestrian access from Capital Boulevard but don’t need to be located at the right-of-way.

The US 401 split and the northern-most portion of Capital Boulevard are designated Parkway Corridors. Multi-modal access is not emphasized and instead, a highly vegetated street edge is encouraged.

[Maps for Land Use and Urban Form are located in Appendix A, Section 4.]

# Parks and Natural Environment

## Parks

There are four City of Raleigh parks near the Study Area, all of which are community parks, and one property that is undeveloped. Of these, only Spring Forest Road Park is located within the Study Area. An additional park property owned by the City of Raleigh is located on Kyle Drive, southeast of Louisburg Road near Valley Stream Drive.

The Crabtree Creek Trail is the only existing greenway that crosses Capital Boulevard. The Capital Area Greenway Plan calls for greenway trails along Marsh Creek as well as one of its tributaries that runs parallel to Departure Drive. Another greenway trail is planned to connect the upper portion of Perry Creek with Beaverdam Creek. This link would run east of Capital Boulevard between I-540 and Louisburg Road. Small portions of both of these trails have been built. The planned greenway trails will be integrated with City of Raleigh parks.

## Elevation

Generally, the corridor increases in elevation from 190 feet above sea level at the southern end to 330 feet at Spring Forest Road and back down to 300 feet at I-540. Capital Boulevard is not grade separated from the adjacent landscape with the exception of interchanges with another major roadway: at I-440, Highway 401, and I-540.

The topography is varied with few level areas. Developed areas have typically been graded to slopes between 0 and 10% to support larger buildings. Sites with existing grades between 2% and 8% support development more readily than areas with slopes above 8%.

Steeply sloping sites may require significant effort to create level terrain that allows commercial and mixed use buildings and meets accessibility requirements. Creative design using smaller building footprints, retaining walls, pedestrian ramps and stairs will likely be required in some areas to provide vehicle and pedestrian access on steeply sloping sites.

Sites with grades approaching 12-15% and higher will be increasingly restrictive and may be cost prohibitive to develop. In addition, the soils in the area make the area prone to erosion. The entire corridor is in the Neuse River Basin; the Neuse River is approximately 2.5 miles east of the Study Area.

## Hydrology

The southern boundary of the Study Area begins just north of Crabtree Creek, which flows from northwest to southeast. Capital Boulevard crosses Crabtree Creek just north of Yonkers Road/Ratchford Drive. Much of the area around Capital Boulevard on the south side of I-440 is within the floodway or the 100-year floodplain.

Moving north along Capital Boulevard from Crabtree Creek, the elevation rises to approximately 270 feet above sea level before descending toward the crossing of Marsh Creek between Brentwood Road and Trawick Road (elev. 200). Marsh Creek flows from north to south along the west side of the study area. Marsh Creek periodically rises above the roadway during very heavy rainfall events, making Capital Boulevard temporarily impassable.

Marsh Creek and its tributaries provide drainage for most of the west side of the corridor as well as the east side of the southern portion. A tributary of Marsh Creek runs south from Calvary Drive and joins Marsh Creek just south of Beaman Lake.

Beaman Lake is the southernmost of three water bodies along this tributary that have stormwater control benefits. The northernmost of these, in the Northshore community, has a dam that can be actively managed by the City of Raleigh Stormwater Division to reduce downstream flood risk.

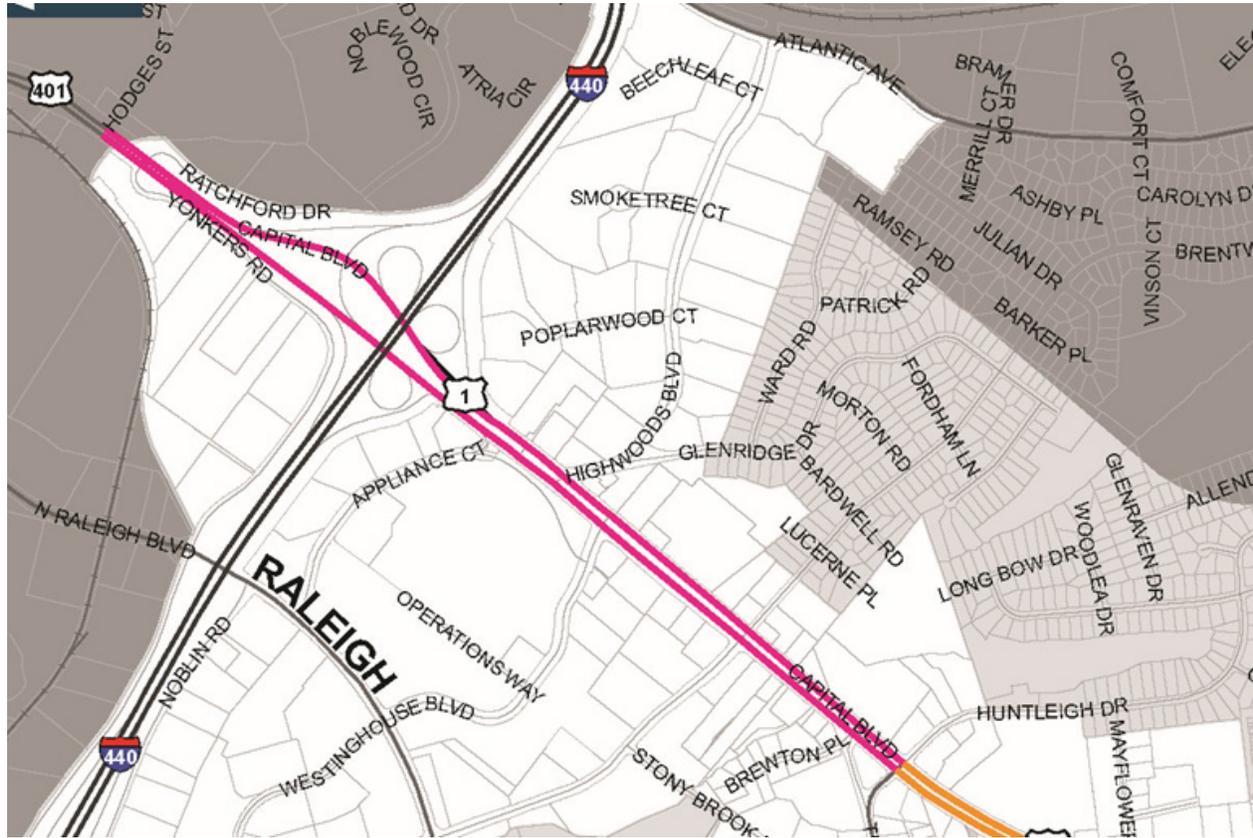
The northern part of the corridor area drains to Beaverdam Creek or Perry Creek. Rain falling between Spring Forest Road and N. New Hope Road flows east to Beaverdam Creek. Perry Creek flows east from Greshams Lake to the Neuse River and drains much of the area north of Spring Forest Road.

Riparian buffers exist along all major streams in the area as well as along several of their tributaries. These buffers are required by North Carolina statute and enforced by the City of Raleigh zoning code.

## Vegetation

Vegetation is thinnest adjacent to Capital Boulevard and is denser further away from the roadway. Tree cover is most significant in the single family residential areas, along Marsh Creek, within City parks, adjacent to highway interchanges, at East Millbrook Middle School and in the undeveloped area between Triangle Town Center and I-540.

# Segment Analysis



## Segment 1

Segment 1 is the southernmost segment within the Study Area between Crabtree Creek, just southeast of I-440 and Trawick Road. This segment is notable for the I-440 / Capital Blvd interchange. Land use is generally categorized as commercial. Sidewalks exist along portions of Capital Boulevard in this segment.

### Vehicular Transportation

AADTs along this segment ranges between 69,000 and 80,000 vehicles/day. For this segment, the highest AADT is close to the I-440 interchange and lowest around Trawick Road. Thirty-two percent of all crashes that occurred within the corridor from January 1, 2012 to June 30, 2017 were in this section.

Capital Boulevard at I-440 saw the most crashes of any single location along the corridor; 516 crashes or 14 percent of overall crashes. The severity of crashes in this segment were, on average, less than the Raleigh average, except at Brentwood Road, where the crash severity of 3.66 is higher than the Citywide average of 3.3.

### Pedestrians and Bicycles

The Crabtree Creek Trail is the only greenway in Segment 1. It follows Crabtree Creek on the segment's south end. Sidewalks are located on the east side of Capital Boulevard between Westinghouse Boulevard and Trawick Road. Sidewalks exist along the west side of Capital Boulevard between Brentwood Road and Huntleigh Drive. While these sections of sidewalks are contiguous, they are crossed by a number of driveways. No bicycle facilities are provided in this segment of the corridor.

The BikeRaleigh Plan calls for a separated bikeway along Capital Boulevard for the entire length of this segment, with additional bicycle lanes along cross streets. The Capital Area Greenway Master Plan also includes the Marsh Creek Greenway crossing Capital Boulevard in this segment between Brentwood Road and Brewton Place, following Marsh Creek.

Segment 1 had four bicycle crashes and 30 pedestrian crashes, for a total of 34 crashes; two included pedestrian fatalities.

#### *Existing Pedestrian Facilities*

- Sidewalk on Capital Boulevard on east side between Westinghouse Boulevard and Brentwood Road
- Sidewalk on Capital Boulevard on both sides between Brentwood Road and Huntleigh Drive/Trawick Road

#### *Proposed Pedestrian Facilities*

- Sidewalk on Capital Boulevard between the I-440 interchange and Westinghouse Boulevard
- Sidewalk on Highwoods Boulevard between Atlantic Avenue and Capital Boulevard
- Sidewalk on Trawick Road between Capital Boulevard and Broadlands Drive
- Sidewalk on Westinghouse Boulevard between Capital Boulevard and Raleigh Boulevard

#### *Existing Bicycle Facilities*

- There are no existing bicycle facilities

#### *Proposed Bicycle Facilities*

- Separated bikeway on Capital Boulevard (continuing through all segments)
- Bicycle lane on Highwoods Boulevard
- Bicycle lane on Westinghouse Boulevard
- Bicycle lane on Brentwood Road (East of Capital Boulevard)
- Bicycle lane on Trawick Road

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## Transit

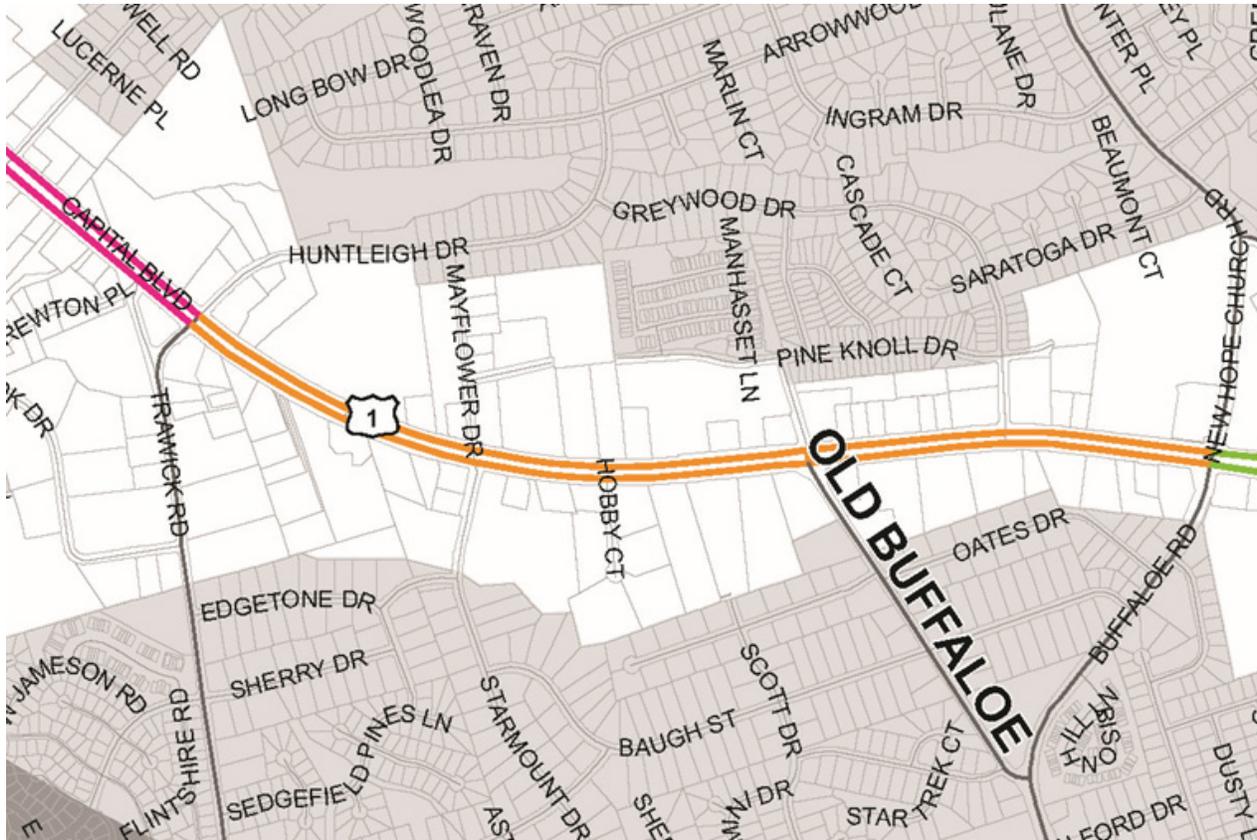
There are two transit routes that serve this section of Capital Boulevard: GoRaleigh Route 1 Capital and GoRaleigh Route 15L – Trawick. These two routes serve nine bus stops along Capital Boulevard within Segment 1.

GoRaleigh Route 1 Capital operates between GoRaleigh Station and Triangle Town Center, serving Capital Park, William Peace University, Highwoods, Tarrymore, Square, Mini City-Park & Ride, Triangle Town Center-Park & Ride, Wake Tech-Adult Education Center, and Capital Crossing Shopping Center. The route operates from 4:30 am to 12:05 am Monday through Friday and from 5:45 am to 12:05 am on the weekends. GoRaleigh Route 15L – Trawick begins and ends at the New Hope Commons Shopping Center. This route serves New Hope Commons Shopping Center, Tower Shopping Center, Beacon Plaza Shopping Center, Wilder's Grove Shopping Center, and Capital Boulevard. The route operates from 5:35 am to 11:05 pm Monday through Friday and from 5:50 am to 11:12 pm on the weekends.

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## Land Use

Existing land use within Segment 1 is characterized by mostly commercial, with some industrial and vacant properties. The commercial serving this section of the corridor is predominantly retail, with many fast food restaurants and hotels. Most of these businesses and retail centers face the roadway, with any residential areas further away from the roadway but often accessible off a side road. Stony Brook Shopping Center and the North Carolina Education Lottery Headquarters are two major destinations along this segment.



## Segment 2

Segment 2 is a segment within the middle of the Study Area between Trawick Road and New Hope Church Road / Buffalo Road. This segment is notable for the commercial uses that front Capital Boulevard and several older strip malls. Land use is generally categorized as commercial along Capital Boulevard, with residential directly behind the commercial uses. Sidewalks exist along portions of Capital Boulevard in this segment.

### Vehicular Transportation

AADT along this segment ranges between 66,000 and 59,000 vehicles/day. For this segment, the highest AADT is near Trawick Road and lowest around Old Buffalo Road. Eighteen percent of all crashes that occurred within the corridor from January 1, 2012 to June 30, 2017 were in this section. The severity of crashes in this segment ranged between 3.5 and 5.6, which are all above the Citywide average of 3.3.

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## Pedestrians and Bicycles

Sidewalks exist along the entirety of Capital Boulevard within this segment, but there are no bicycle facilities or greenways within this segment.

The BikeRaleigh Plan calls for a separated bikeway along Capital Boulevard the entire length of this segment, with additional bicycle lanes along cross streets. There is also a planned three-lane section with bicycle lanes along New Hope Church Road.

Segment 2 had six bicycle crashes and 26 pedestrian crashes, for a total of 32 crashes; three included pedestrian fatalities.

### *Existing Facilities*

- Sidewalk on Capital Boulevard on both sides between Huntleigh Drive/Trawick Road and New Hope Church Road/Bufaloe Road

### *Proposed Facilities*

- Sidewalk on Old Bufaloe Road between Capital Boulevard and Bufaloe Road

### *Existing Facilities*

- There are no existing bicycle facilities

### *Proposed Facilities*

- Separated bikeway on Capital Boulevard (continuing through all segments)
- Greenway trail along Marsh Creek leading to Brentwood School
- Bicycle lane on Mayflower Drive
- Neighborhood Bikeway on Starmount Drive
- Bicycle lane on Old Bufaloe Road
- Bicycle lane on Greywood Drive
- Separated Bikeway on New Hope Church Road
- Separated Bikeway on Bufaloe Road

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## Transit

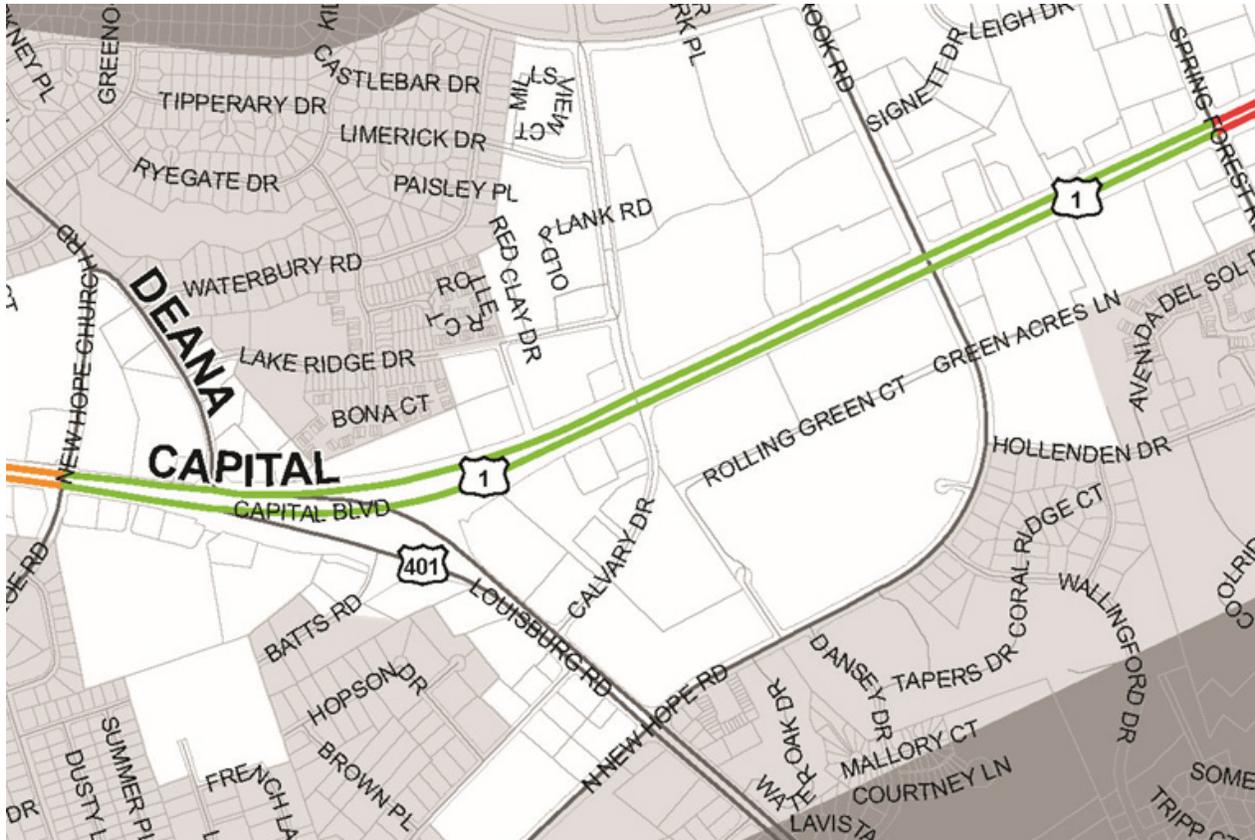
There are two transit routes that serve this section of Capital Boulevard, GoRaleigh Route 1 Capital and GoRaleigh Route 15L – Trawick. These three routes serve seven bus stops along Capital Boulevard within Segment 2.

GoRaleigh Route 1 Capital operates between GoRaleigh Station and Triangle Town Center, serving Capital Park, William Peace University, Highwoods, Tarrymore, Square, Mini City-Park & Ride, Triangle Town Center-Park & Ride, Wake Tech-Adult Education Center, and Capital Crossing Shopping Center. The route operates from 4:30 am to 12:05 am Monday through Friday and from 5:45 am to 12:05 am on the weekends. GoRaleigh Route 15L – Trawick begins and ends at the New Hope Commons Shopping Center. This route serves New Hope Commons Shopping Center, Tower Shopping Center, Beacon Plaza Shopping Center, Wilder's Grove Shopping Center, and Capital Boulevard. The route operates from 5:35 am to 11:05 pm Monday through Friday and from 5:50 am to 11:12 pm on the weekends.

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## Land Use

Existing land use within Segment 2 is characterized by mostly commercial and residential. The commercial serving this section of the corridor is predominantly retail, with several older strip malls set just back from Capital Boulevard. There are often outparcels, consisting of fast food or chain restaurants located between Capital Boulevard and these strip malls. Most of these businesses and retail centers face the roadway, with residential areas further away from the roadway but often accessible off a side road. The residential use in Segment 2 is predominantly single family residential, that consists of neighborhoods like Starmount and Brentwood, with some multi-family scattered throughout. Major commercial destinations along this segment include Starmount Shopping Center and Capital Square.



## Segment 3

Segment 3 is a segment within the middle of the Study Area between New Hope Church Road / Buffalo Road and Spring Forest Road. This segment is notable for the commercial uses that front Capital Boulevard and including several strip malls (Ashton Square, Mini City, and Capital Crossing). Land use is generally categorized as commercial along Capital Boulevard, with high concentrations of multi-family residential behind the commercial uses. Sidewalks exist along portions of Capital Boulevard in this segment.

### Vehicular Transportation

AADT along this segment ranges between 44,000 and 56,000 vehicles/day. For this segment, the highest AADT is around Buffalo Road and lowest around Millbrook Road. Twenty six percent of the crashes that occurred within the corridor from January 1, 2012 to June 30, 2017 were in this

section. Capital Boulevard at New Hope Church Road/ Buffalo Road had the second highest number of crashes, 306 crashes or 9 percent, at a single location along the corridor. The severity of crashes in this segment ranged between 2.4 and 3.7, which is below or just above the Citywide average of 3.3.

### Pedestrians and Bicycles

Sidewalks exist along portions of Capital Boulevard in this segment. At the US 401 split, sidewalks along Capital Boulevard become more intermittent with gaps on the western side of Capital Boulevard and hardly any on the eastern side of Capital Boulevard. There are no bicycle facilities along Capital Boulevard, but bicycle lanes do exist on Spring Forest Road. There are no greenways within this segment.

The BikeRaleigh Plan calls for a separated bikeway along Capital Boulevard the entire length of this segment, with additional bicycle lanes along cross streets.

Segment 3 had 24 bicycle crashes and 67 pedestrian crashes, for a total of 101 crashes; four included pedestrian fatalities.

#### *Existing Facilities*

- Sidewalk on Capital Boulevard on both sides between New Hope Church Road-Buffaloe Road and Deana Lane
- Sidewalk gaps on Capital Boulevard on both sides between Calvary Drive and Spring Forest Road

#### *Proposed Facilities*

- Sidewalk on Deana Lane between New Hope Church Road and Capital Boulevard
- Sidewalk on E Millbrook road between Atlantic Avenue and Wallingford Drive
- Sidewalk on Green Road between Hallmark Place and Spring Forest Road
- Sidewalk on Capital Boulevard between E Millbrook Road and Calvary Drive

#### *Existing Facilities*

- Bicycle lane on Spring Forest Drive to Capital Boulevard (between segment 3 and 4)

#### *Proposed Facilities*

- Separated bikeway on Capital Boulevard (continuing through all segments)
- Bicycle lane on Deana Lane
- Bicycle lane on Calvary Drive
- Bicycle lane on E Millbrook Road
- Bicycle lane on N New Hope Road
- Bicycle lane on Sumner Boulevard
- Separated Bikeway on Old Wake Forest Road

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## Transit

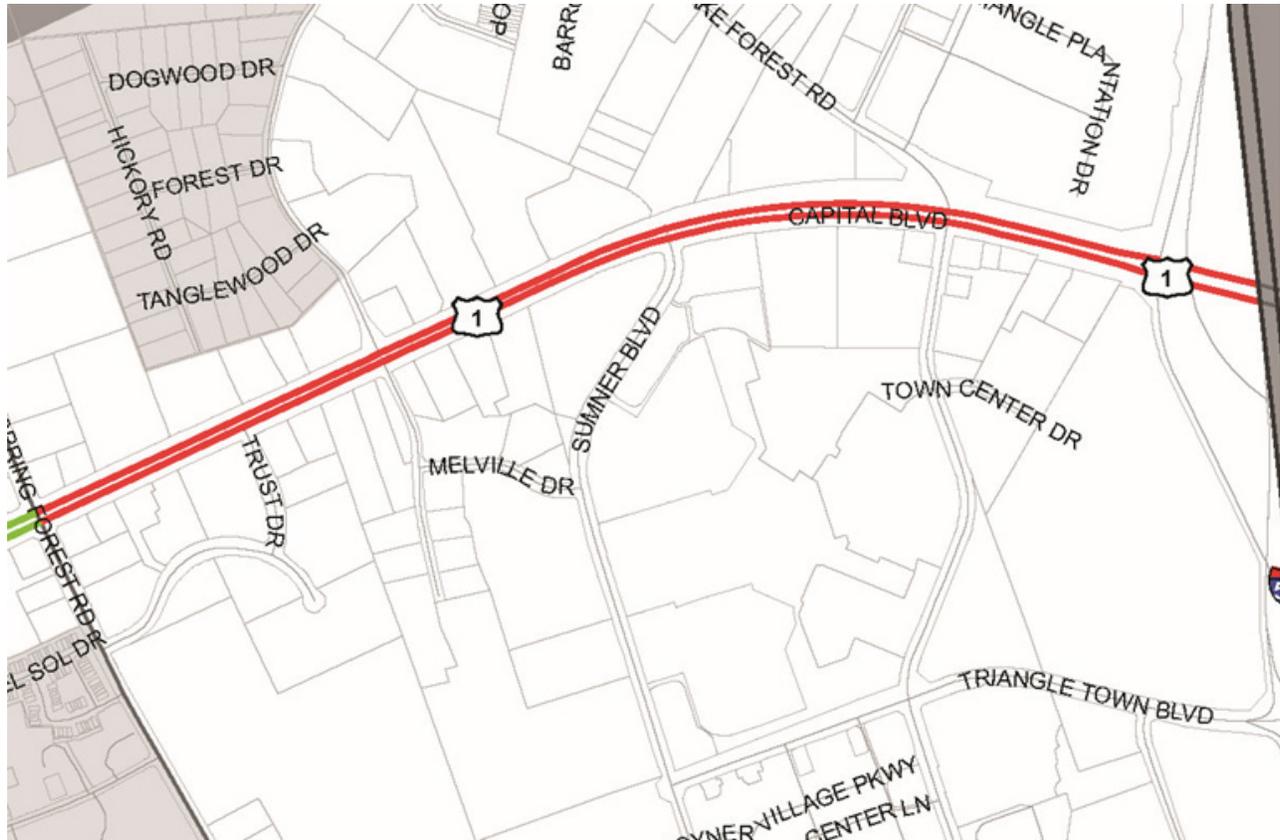
There are three transit routes that serve this section of Capital Boulevard: GoRaleigh Route 1 Capital, GoRaleigh Route 23L – Millbrook Connector, and GoRaleigh 24L – North Crosstown Connector. These three routes serve seven bus stops along Capital Boulevard within Segment 2.

GoRaleigh Route 1 Capital operates between GoRaleigh Station and Triangle Town Center, serving Capital Park, William Peace University, Highwoods, Tarrymore, Square, Mini City-Park & Ride, Triangle Town Center-Park & Ride, Wake Tech-Adult Education Center, and Capital Crossing Shopping Center. The operates from 4:30 am to 12:05 am Monday through Friday and from 5:45 am to 12:05 am on the weekends. GoRaleigh Route 23L – Millbrook Connector operates along Capital Boulevard between New Hope Church Road and Crabtree Valley Mall, serving key commercial locations within this segment including Mini City Shopping Center and Capital Crossing Shopping Center. The route operates from 6:10 am to 7:10 pm Monday through Friday and from 6:25 am to 7:00 pm on the weekends. GoRaleigh 24L – North Crosstown Connector operates between Midtown and Capital Boulevard at Spring Forest Road, serving key commercial locations within this segment including Mini City Shopping Center and Capital Crossing Shopping Center. The route operates from 6:10 am to 7:30 pm Monday through Friday and from 6:57 am to 7:15 pm on the weekends.

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## Land Use

Existing land use within Segment 3 is characterized by mostly commercial and residential. The commercial serving this section of the corridor is predominantly retail, with several older strip malls set just back from Capital Boulevard, as well as several car dealerships and car repair shops. There are often outparcels, consisting of fast food or chain restaurants located between Capital Boulevard and these strip malls. Most of these businesses and retail centers face the roadway, but are set back from the roadway with parking in between Capital Boulevard and the shopping center. Residential uses are further away from the roadway but often accessible off a side road. The residential in Segment 3 is predominantly multi-family, with multiple complexes often surrounding the commercial centers. Major commercial destinations along this segment include Ashton Square, Mini City Shopping Center, and Capital Crossing.



## Segment 4

Segment 4 is the northern most segment of the Study Area between Spring Forest Road and I-540. This segment is notable for the commercial uses that front Capital Boulevard, including numerous car dealerships and larger retail centers like Plantation Point Shopping Center and Triangle Town Center. Land use is generally categorized as commercial along Capital Boulevard, with some clusters of multi-family residential further from Capital Boulevard. Limited sidewalks exist along portions of Capital Boulevard in this segment.

### Vehicular Transportation

AADT along this segment ranges between 53,000 and 63,000 vehicles/day. For this segment, the highest AADT is around the I-540 interchange and lowest around Old Wake Forest Road. Twenty four percent of the crashes that occurred within the corridor from January 1, 2012 to June 30, 2017 were in this section. Along this segment, Capital Boulevard at Old Wake Forest Road had the most crashes, 246 crashes or 7 percent, and Capital Boulevard at Trust Drive had the highest crash severity index of the entire corridor. The crash severity of 7.4 is much higher than the Citywide average of 3.3.

### Bicycle and Pedestrian

Few, intermittent sidewalks exist along Capital Boulevard within this segment. There are no bicycle facilities along Capital Boulevard and none crossing over Capital Boulevard. No greenways exist within this segment.

The BikeRaleigh Plan calls for a separated bikeway along Capital Boulevard the entire length of this segment, with additional bicycle lanes along cross streets. The Capital Area Greenway Master Plan shows a proposed greenway adjacent to Triangle Town Boulevard, but no greenways along or crossing Capital Boulevard.

Segment 4 saw six bicycle crashes and 32 pedestrian crashes, for a total of 38 crashes; none included pedestrian fatalities.

#### *Existing Facilities*

- Inconsistent sidewalk on east side of Capital Boulevard between Spring Forest Road and Oak Forest Road

#### *Proposed Facilities*

- Sidewalk on Spring Forest Road between McHines Place and Capital Boulevard
- Sidewalk on Oak Forest Drive between Old Wake Forest Road and Melville Drive
- Sidewalk on Old Wake Forest Road between Litchford Road and Rurritania Street

#### *Existing Facilities*

- Bicycle lane on Sumner Boulevard
- Spring Forest Trail Greenway along Triangle Town Boulevard (bicycle and pedestrian)

#### *Proposed Facilities*

- Separated bikeway on Capital Boulevard (continuing through all segments)
- Bicycle lane on Spring Forest Road (West of Capital Boulevard)
- Separated Bikeway on Spring Forest Road (East of Capital Boulevard)
- Bicycle lane on Oak Forest Drive
- Bicycle lane on Sumner Boulevard connecting to Barrow Drive
- Separated Bikeway on Old Wake Forest Road

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## Transit

There are three transit routes that serve this section of Capital Boulevard: GoRaleigh Route 1 Capital, GoRaleigh Route 25L – Triangle Town Center Connector, and GoTriangle WRX. These three routes serve five bus stops along Capital Boulevard within Segment 4.

GoRaleigh Route 1 Capital operates between GoRaleigh Station to Triangle Town Center, serving Capital Park, William Peace University, Highwoods, Tarrymore, Square, Mini City-Park & Ride, Triangle Town Center-Park & Ride, Wake Tech-Adult Education Center, and Capital Crossing Shopping Center. The route operates from 4:30 am to 12:05 am Monday through Friday and from 5:45 am to 12:05 am on the weekends.

GoRaleigh Route 25L – Triangle Town Center Connector operates from Falls Pointe Shopping Center on Falls of Neuse Road to North Ridge Shopping Center, serving key commercial locations within this segment including Plantation Point Shopping Center and Triangle Town Center. The route operates from 5:19 am to 8:19 pm Monday through Friday and from 7:20 am to 8:20 pm on the weekends.

GoTriangle WRX runs from Downtown Raleigh to Wake Forest, serving Triangle Town Center in Segment 4. Triangle Town Center is the location of an existing park and ride facility for this route. The route operates from 5:55 am to 7:20 pm Monday through Friday, and only runs during the morning and evening commutes.

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## Land Use

Land use along this segment is characterized by large shopping centers and numerous car dealerships. Commercial centers along this segment of the corridor include Triangle Town Center and Plantation Pointe Shopping Center. Residential uses in this segment tend to be multi-family complexes set back from Capital Boulevard, often behind the commercial uses. This segment contains the highest concentration of proposed development along the corridor.

# CITY PLANNING

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City of Raleigh  
City Planning Department  
1 Exchange Plaza, Suite 300  
919-996-2682  
[raleighnc.gov/planning](http://raleighnc.gov/planning)



Raleigh