



2020 DATA BOOK

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Introduction

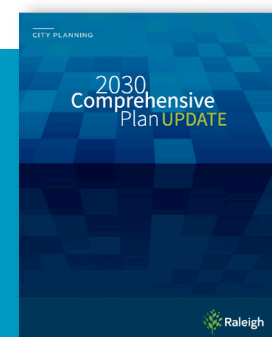
The Raleigh Data Book is an annual publication of updated community information collected by City of Raleigh Department of City Planning staff. The Data Book builds upon the larger, more comprehensive "Community Inventory Report: Background Studies for the Comprehensive Plan", published in 2008. The Community Inventory Report remains the analytical basis for the City of Raleigh's 2030 Comprehensive Plan and is accessible online: www.raleighnc.gov/cp

Annual Updates of City Data: Raleigh Data Book

The City of Raleigh 2030 Comprehensive Plan, adopted in November 2009, provides implementation instructions regarding the monitoring of existing conditions (Action Item IM 3.3). More specifically, Action Item IM 3.4, "Data Book Updates", states that data in the report will be updated every year.

The Raleigh Data Book is published online each year, in conjunction with population estimates compiled by city staff. It focuses on topical areas of the Community Inventory Report which have been reviewed through comprehensive planning initiatives during the previous calendar year, with a data benchmark point of December 31st whenever possible. All figures and tables are for the City of Raleigh corporate limits unless otherwise specified.

The Community Inventory Report remains the analytical basis for the City of Raleigh's 2030 Comprehensive Plan and is accessible online: www.raleighnc.gov/cp





Equity and the Data book

Following the 2019 Data Book, this edition and future editions will continue to work to illustrate the systemic inequities that exist in the City of Raleigh by disaggregating data by race, where available. The goal of disaggregating by race is to illustrate the systemic racial inequities that exist in society. The reason why these inequities exist were varied and complex, but stem from laws and policies that have historically enforced racial inequity. To promote a more equitable society, many laws and policies may need to be evaluated and reshaped to undo the damage that centuries of laws and policies that have either unintentionally or intentionally by design, been used to exclude, stigmatize, marginalize, and oppress Black and Indigenous

peoples as well as other communities of color. To understand what inequities exist we need to understand the disparities in outcomes. The data will attempt to illustrate those disparities to better understand what should be addressed with the limited resources that the City has. These outcomes are shown by disparities in educational attainment, income, and homeownership rates among other data points. While none of the metrics included in the data book are groundbreaking, they are a starting point for recognizing the kind of inequities that marginalized communities' experience. While information itself is not action, it can help identify the most pressing needs and help to focus resources to effectively combat the issues illustrated.



Demographics & Household Trends

Raleigh is a rapidly growing city with a steady population increase of 15.8% from 2010 to 2020. This chapter provides the most up-to-date data available for understanding the characteristics of the individuals and households that make up the population of Raleigh.

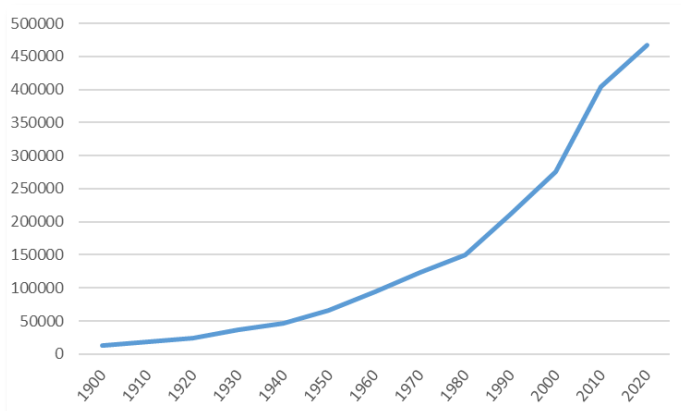
The data presented in this chapter has been drawn from two main products from the US Census. The Decennial Census provides the baseline for household and population estimates released in the intervening years since 2010. The American Community Survey (ACS) provides detailed estimates derived from a population

sample. All data has been drawn for Raleigh City, a "Designated Place" geography of the US Census. The Decennial Census was conducted in 2020. Some basic population data from that count is included in this year's edition of the Data Book, though complete data from the 2020 Census had not been released at the time of this report. Data from 2019 has been used where data from 2020 was not yet available.

In addition to Census data, building permit data from the City of Raleigh provides overview of recent trends in housing construction to add context to the City's population growth.

FIGURE 2.1

RALEIGH CITY POPULATION,
1900-2020



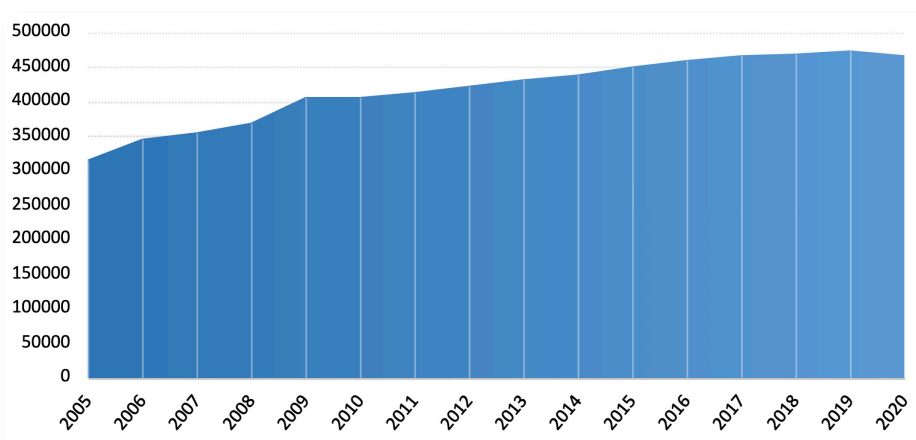
SOURCE: US CENSUS BUREAU DECENNIAL CENSUS

2010 to 2020
+15.8%
POPULATION INCREASE

City Population & Household Trends

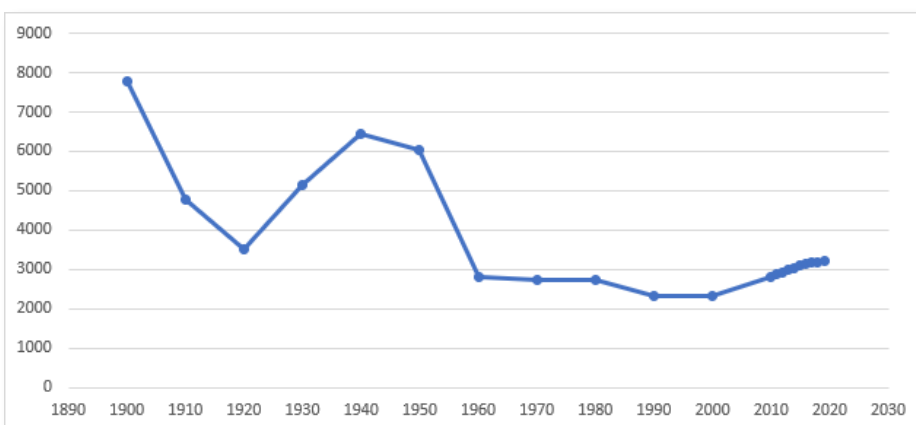
Recent population estimates reflect Raleigh's continued growth (see Figures 2.1 and 2.2). In 2019, Raleigh was estimated to have a population of 474,069 a 1.6% increase from 2018 (see Figure 2.2). Following the release of official 2020 Census figures, Raleigh's population was tallied slightly lower than estimates recorded in 2019, reaching 467,592 people according to the US Census Population and Housing Estimates program. Over the same period, the number of housing units has also increased with an estimate of units 202,417 in 2019, a 1.6% increase from 2018 (see Figure 2.5). The population and housing unit density has also increased (see Figures 2.4-2.6).

FIGURE 2.2
RALEIGH CITY POPULATION
ESTIMATES, 2005-2020



SOURCE: US CENSUS POPULATION ESTIMATE

FIGURE 2.3
POPULATION DENSITY



SOURCE: US CENSUS BUREAU, CITY OF RALEIGH DEPARTMENT OF CITY PLANNING

2018-2019

+1.6%
population increase

2019-2020

+1.0%
population increase

FIGURE 2.4

RALEIGH CITY POPULATION, POPULATION CHANGE,
AND POPULATION DENSITY, 1990-2020

| Year | Population | Annual Percent Change | Land Area in Square Miles | Population Density (people per square mile) |
|------|------------|-----------------------|---------------------------|---|
| 1900 | 13,643 | | 1.76 | 7,765 |
| 1910 | 19,218 | 3.49% | 4.03 | 4,773 |
| 1920 | 24,418 | 2.42% | 6.96 | 3,508 |
| 1930 | 37,379 | 4.35% | 7.25 | 5,153 |
| 1940 | 46,879 | 2.29% | 7.25 | 6,463 |
| 1950 | 65,679 | 3.43% | 10.88 | 6,035 |
| 1960 | 93,931 | 3.64% | 33.67 | 2,790 |
| 1970 | 122,830 | 2.72% | 44.93 | 2,734 |
| 1980 | 150,255 | 2.04% | 55.17 | 2,724 |
| 1990 | 212,092 | 3.51% | 91.40 | 2,321 |
| 2000 | 276,093 | 2.67% | 118.71 | 2,326 |
| 2010 | 403,892 | 3.88% | 143.85 | 2,808 |
| 2020 | 467,665 | 1.48% | 148.73 | 3,144 |

202,417

total housing units

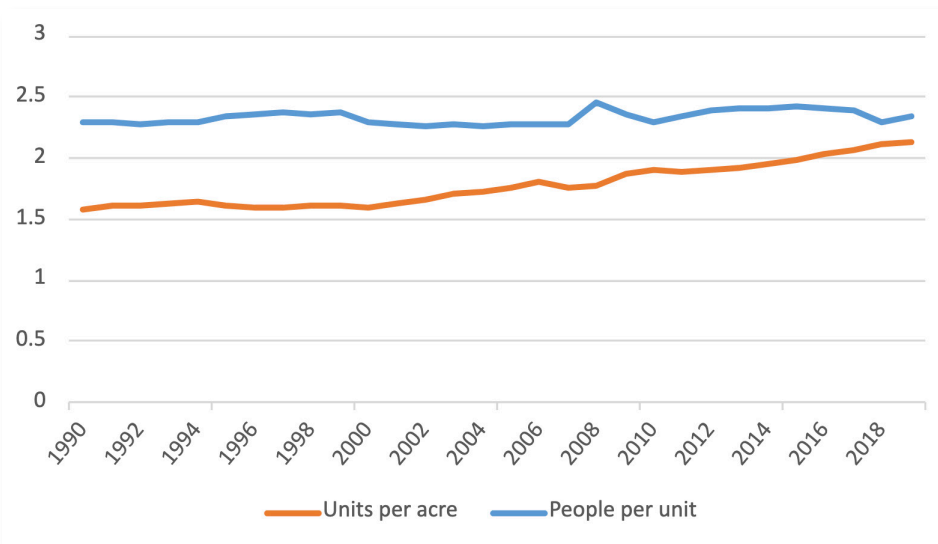
+1.6%

increase in housing units
2018-2019

FIGURE 2.5
RALEIGH CITY HOUSING DENSITY, 2010-2019

| Year | Total Housing Units | Annual Percent Growth Rate | Land Area in Acres | Housing Density (units per acre) |
|------|---------------------|----------------------------|--------------------|----------------------------------|
| 2010 | 176,124 | 4.6% | 92,435 | 1.91 |
| 2011 | 175,325 | -0.5% | 92,710 | 1.89 |
| 2012 | 176,564 | 0.7% | 92,838 | 1.90 |
| 2013 | 178,910 | 1.3% | 93,047 | 1.92 |
| 2014 | 182,734 | 2.1% | 93,306 | 1.96 |
| 2015 | 186,002 | 1.8% | 93,652 | 1.99 |
| 2016 | 190,286 | 2.3% | 93,775 | 2.03 |
| 2017 | 194,768 | 2.4% | 94,088 | 2.07 |
| 2018 | 199,214 | 2.3% | 94,291 | 2.11 |
| 2019 | 202,417 | 1.6% | 95,183 | 2.13 |

SOURCE: US CENSUS BUREAU, 2019 ACS 5-YEAR ESTIMATES; CITY OF RALEIGH DEPARTMENT OF CITY PLANNING

FIGURE 2.6**RALEIGH CITY HOUSING DENSITY, 1990 – 2019**

SOURCE: US CENSUS BUREAU, 2019 ACS 5-YEAR ESTIMATES; CITY OF RALEIGH DEPARTMENT OF CITY PLANNING

FIGURE 2.7**TOTAL HOUSING UNITS
IN RALEIGH CITY BY STRUCTURE, 2019****Residential Development**

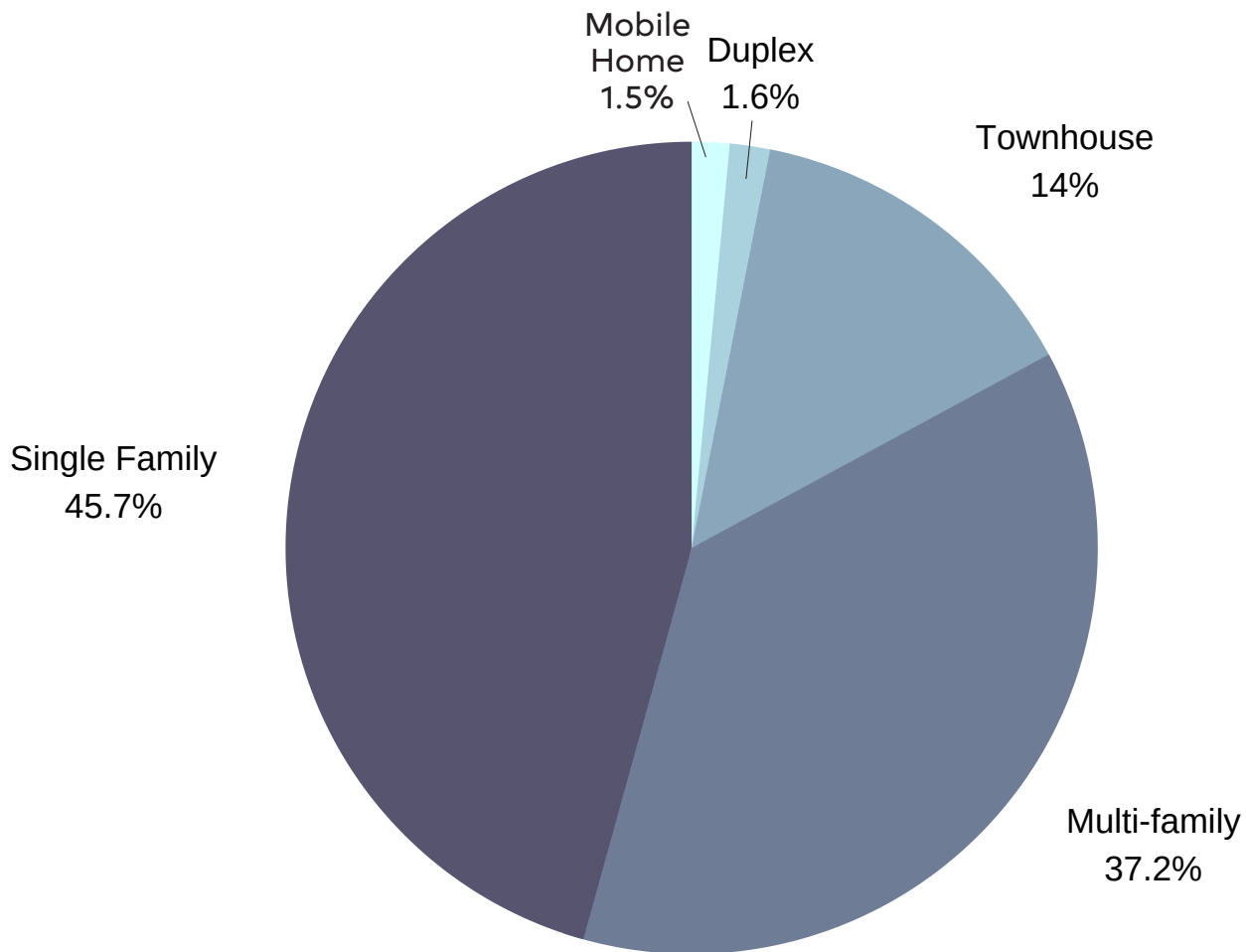
Single family detached dwelling units comprise 45.7% of housing in Raleigh based on 2019 5-year estimates from the ACS (Figures 2.7 & 2.8). Based on residential permit data from the City of Raleigh in 2020, multi-family apartments comprised 37.2%, followed by townhouses (14.0%), duplexes (1.6%), and mobile homes (1.5%) (see Figure 2.8). From 2010 to 2020, apartments made up 57% of all issued residential building permits. In 2020, apartment development comprised the largest share – 70% – of residential building permits issued in Raleigh (see Figures 2.9 and 2.10). Single family development came in second at 21%.

| Units in Structure | Number | Percent |
|--------------------|----------------|---------------|
| 1 Unit Detached | 92,562 | 45.7% |
| 1 Unit Attached | 28,310 | 14.0% |
| 2 Units | 3,289 | 1.6% |
| 3-4 Units | 8,276 | 4.1% |
| 5-9 Units | 14,785 | 7.3% |
| 10-19 Units | 23,099 | 11.4% |
| 20 or More Units | 29,086 | 14.4% |
| Mobile Homes | 3,010 | 1.5% |
| Total Units | 202,417 | 100.0% |

SOURCE: US CENSUS BUREAU, 2019 ACS 5-YR ESTIMATES

FIGURE 2.8

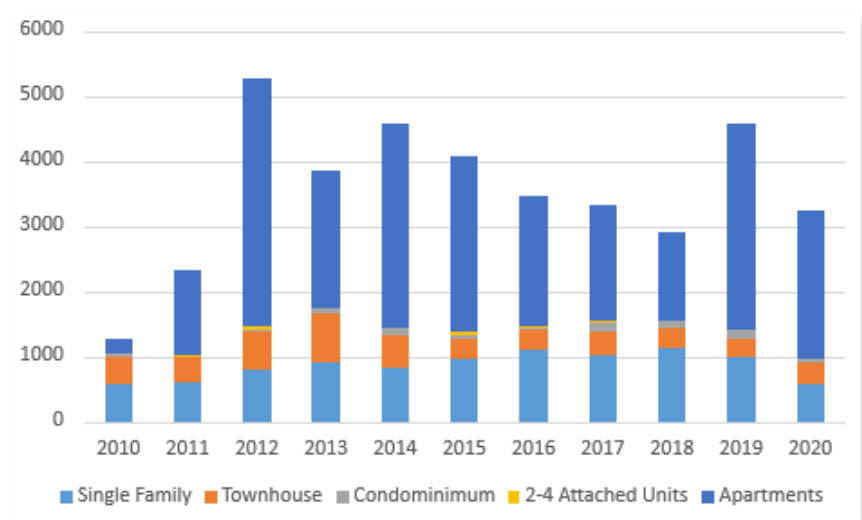
RALEIGH CITY HOUSING SHARE BY BUILDING TYPE, 2019



SOURCE: US CENSUS BUREAU, 2019 ACS 5-YEAR ESTIMATES

Raleigh's housing stock is relatively young, with approximately **82%** of its housing units built in the last 50 years.

FIGURE 2.9
RESIDENTIAL UNITS
PERMITTED IN RALEIGH,
2010-2020



SOURCE: CITY OF RALEIGH DEVELOPMENT SERVICES DEPARTMENT

FIGURE 2.10
RESIDENTIAL UNITS PERMITTED

| Year | Single Family | Townhouse | Condominium | 2-4 Attached Units | Apartments | Totals |
|------------------|---------------|-----------|-------------|--------------------|------------|--------|
| 2010 | 570 | 427 | 56 | 2 | 205 | 1,260 |
| 2011 | 592 | 405 | 0 | 20 | 1,299 | 2,316 |
| 2012 | 783 | 608 | 23 | 43 | 3,806 | 5,263 |
| 2013 | 909 | 750 | 80 | 8 | 2,096 | 3,843 |
| 2014 | 829 | 491 | 125 | 0 | 3,140 | 4,585 |
| 2015 | 965 | 308 | 42 | 0 | 2,723 | 4,038 |
| 2016 | 1,097 | 312 | 24 | 26 | 1,991 | 3,450 |
| 2017 | 1,017 | 370 | 129 | 18 | 1,791 | 3,325 |
| 2018 | 1,120 | 303 | 112 | 1 | 1,371 | 2,907 |
| 2019 | 978 | 275 | 147 | 16 | 3,164 | 4,580 |
| 2020 | 584 | 327 | 38 | 21 | 2,257 | 3,227 |
| 10-year total | 8,860 | 4,251 | 738 | 134 | 21,586 | 37,593 |
| Percent of Total | 24% | 11% | 2% | 0% | 57% | 100% |
| 10-year average | 886 | 425 | 74 | 18 | 2,159 | 3,759 |

SOURCE: CITY OF RALEIGH DEVELOPMENT SERVICES DEPARTMENT

Raleigh's housing stock is relatively young, with approximately 82% of its housing units built in the last 50 years (see Figure 2.11). The overall household vacancy rate (homeowners and renters) is 9.4% (Figure 2.12), which is down from a high of 11.3% in 2010. The homeownership rate stands at 51.5%, which is down from the rate of 53.5% in 2010 (see Figure 2.13). When looking at housing tenure by race of householder (Figure 2.15), there is a significant difference in homeownership, with 61.0% of White householders owning their homes, compared to 36.8% of Black householders and 34.6% of Latino householders owning their homes. Sliced a different way, White residents comprise 68.7% of Raleigh's homeowners, compared to Black and Latino residents who comprise 19.0% and 5.2% of Raleigh's homeowners, respectively (Figure 2.15). Overall, homeownership across racial/ethnic groups has declined in the past decade after a steady increase in the preceding years (Figure 2.16).

FIGURE 2.11
RALEIGH CITY HOUSING UNITS
BY YEAR BUILT, 2019

| Year | Number | Percent |
|-----------------------|----------------|---------------|
| Built 1939 or earlier | 6,229 | 3.1% |
| Built 1940 to 1949 | 4,300 | 2.1% |
| Built 1950 to 1959 | 9,032 | 4.5% |
| Built 1960 to 1969 | 15,636 | 7.7% |
| Built 1970 to 1979 | 21,454 | 10.6% |
| Built 1980 to 1989 | 35,044 | 17.3% |
| Built 1990 to 1999 | 38,500 | 19.0% |
| Built 2000 to 2009 | 50,590 | 25.0% |
| Built 2010 or later | 21,632 | 10.7% |
| Total units | 202,417 | 100.0% |

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 2.12
OCCUPANCY BY TENURE IN RALEIGH CITY, 2019

| | |
|------------------------|---------|
| Total Housing Units | 202,417 |
| Occupied Housing Units | 183,335 |
| Vacant Housing Units | 19,082 |
| Overall Vacancy Rate | 9.4% |
| Homeowner Vacancy Rate | 1.2% |
| Rental Vacancy Rate | 6.2% |

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

The overall household vacancy rate (homeowners and renters) is **9.4%**, which is down from a high of **11.3%** in 2010.

FIGURE 2.13

HOUSING TENURE FOR OCCUPIED UNITS IN RALEIGH CITY, 2019

| | 2000 | | 2010 | | 2019 | |
|-----------------------------|----------------|---------------|----------------|---------------|----------------|---------------|
| | Number | Percent | Number | Percent | Number | Percent |
| Owner Occupied | 58,079 | 51.6% | 87,284 | 53.5% | 94,432 | 51.5% |
| Renter Occupied | 54,529 | 48.4% | 75,715 | 46.5% | 88,903 | 48.5% |
| Total Occupied Units | 112,608 | 100.0% | 169,999 | 100.0% | 183,335 | 100.0% |

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 2.14

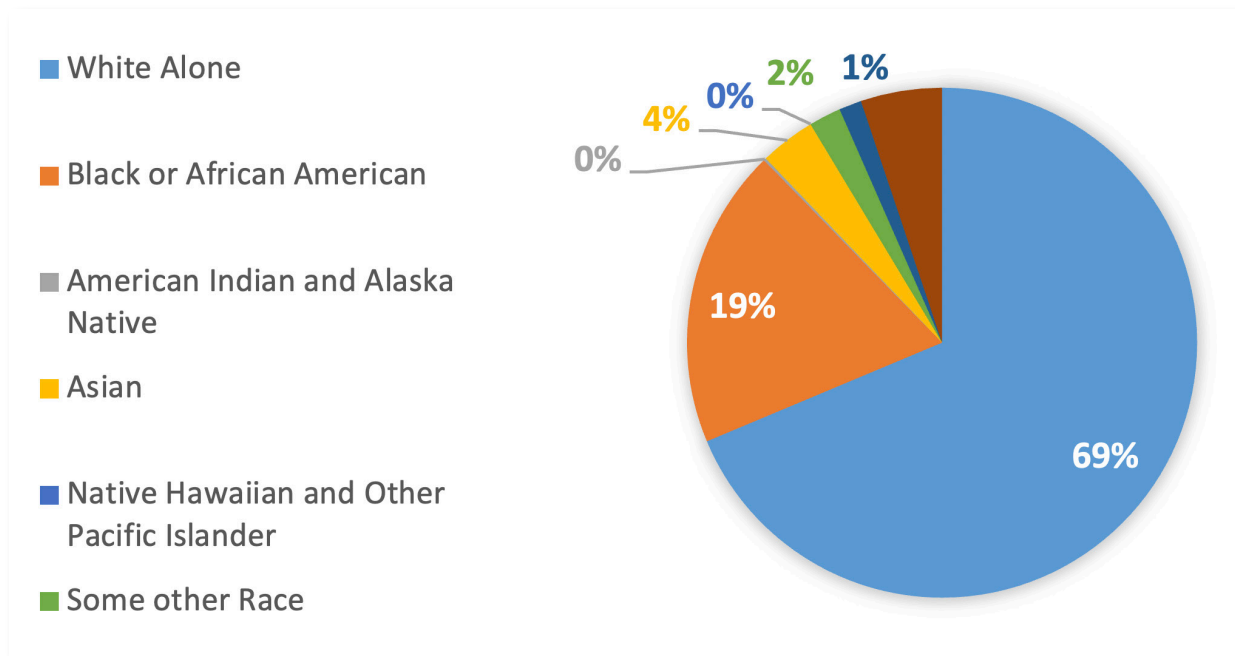
HOUSING TENURE BY RACE AND ETHNICITY IN RALEIGH CITY, 2019

| | Owner Occupied | | Renter Occupied | |
|--|----------------|-------|-----------------|--------|
| White Alone | 66,545 | 61.0% | 42,593 | 39.0% |
| Black or African American | 18,422 | 36.8% | 31,608 | 63.2% |
| American Indian and Alaska Native | 159 | 29.0% | 389 | 71.0% |
| Asian | 3,409 | 50.3% | 3,366 | 49.7% |
| Native Hawaiian and Other Pacific Islander | - | 0.0% | 30 | 100.0% |
| Some other Race | 1,980 | 31.4% | 4,316 | 68.6% |
| Two or More Races | 1,386 | 37.3% | 2,332 | 62.7% |
| Hispanic or Latino Origin | 4,996 | 34.6% | 9,426 | 65.4% |

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 2.15

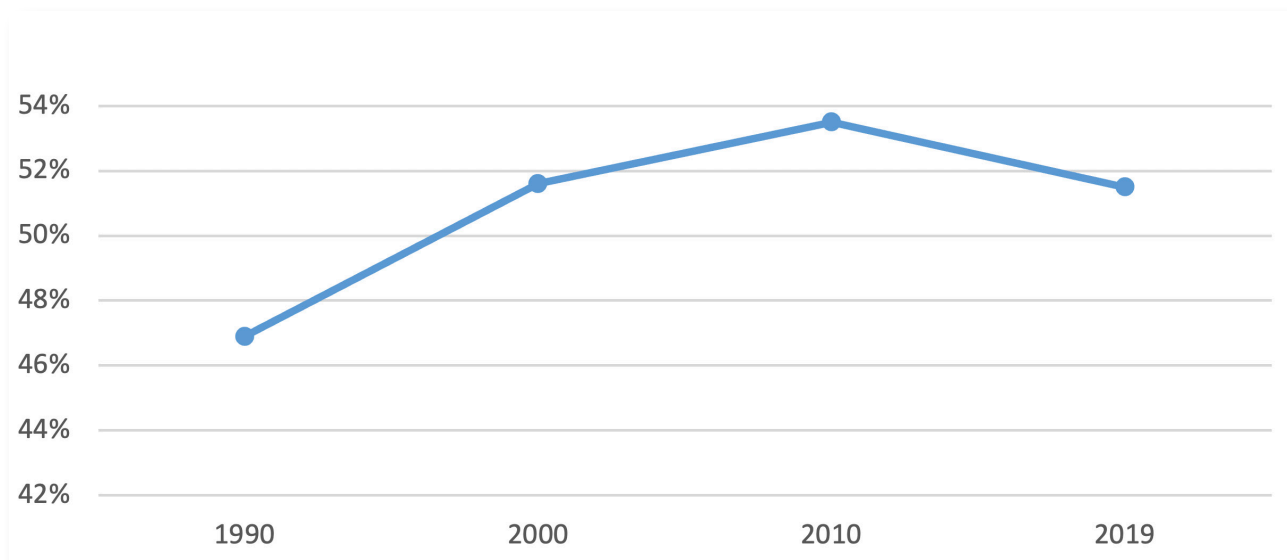
PERCENTAGE OF OWNER-OCCUPIED UNITS BY RACE IN RALEIGH CITY, 2019



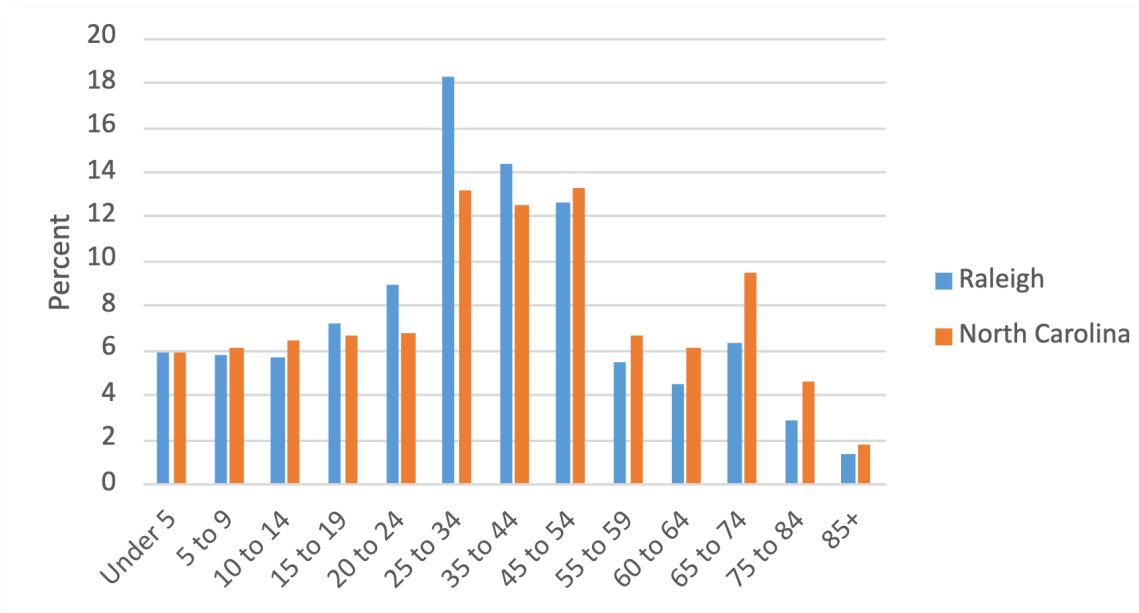
SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 2.16

HOMEOWNERSHIP RATE IN RALEIGH CITY, 1990-2019



SOURCE: US CENSUS BUREAU, 2019 ACS 5-YEAR ESTIMATES

FIGURE 2.17**POPULATION DISTRIBUTION BY AGE GROUP IN RALEIGH AND NORTH CAROLINA, 2019**

SOURCE: US CENSUS BUREAU, 2019 ACS 5-YEAR ESTIMATES

City Profile

Looking at population distribution by age group, Raleigh is younger than North Carolina as a whole, with higher percentages of teenagers aged 15-19, as well as adults aged 20 to 44 (see Figure 2.17). Raleigh's age distribution has changed somewhat from 2000 to 2019 with the percentage of 20- to 44-year-olds slightly declining as a share of the overall population. In contrast, the percentage of 45- to 84-year-olds has seen small but significant gains, particularly in the 65- to 74-year-old category (see Figure 2.18).



In terms of population by census designated racial categories, the share of White population in Raleigh has decreased between 2010 and 2020 from 59.0% to 58.3% (see Figure 2.19). During the same period, the African American population also decrease slightly from 29.5% to 29.0%. Asian population grew from 4.4% to 4.6%. The Hispanic/Latino population, defined by the US Census Bureau as an ethnic group and not a racial group, grew in total numbers by 31.9% from 2010 to 2020, and increased its share of the total population from 11.4% to 12.9% (see Figure 2.20).

In terms of educational attainment, Raleigh has

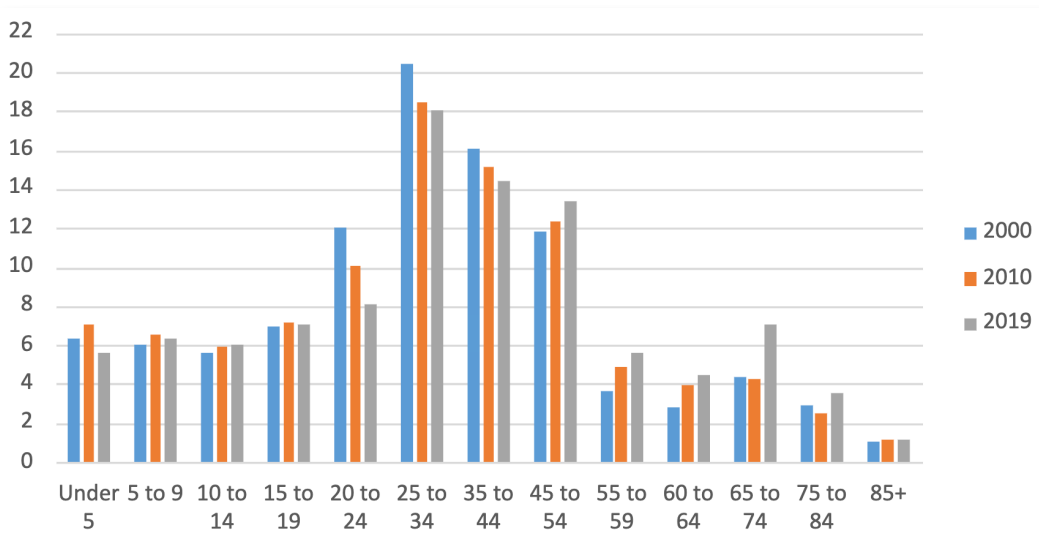
Raleigh is younger than North Carolina as a whole, with higher percentages of teenagers aged 15-19, as well as adults aged 20 to 44.

a higher percentage of residents with a high school diploma or higher (90.4%) and residents with a bachelor's degree or higher (46.6%) than the State of North Carolina and the Nation (see Figure 2.21). Nearly 1 in 6 people in Raleigh (15.7%) holds a graduate or professional degree, which is significantly higher than the statewide average. When looking at educational attainment by race, White residents have a higher percentage of residents with both a high school diploma and a bachelor's degree than residents of other races (see Figure 2.22).

Citywide, adjusted for inflation, median household incomes have increased from \$46,612 in 2000 to \$67,266 in 2019. Per capita incomes have also increased from \$25,113 in 2000 to

\$38,494 in 2019 (see Figure 2.23). After peaking in 2010, the percentage of people and families living below the poverty level has dropped significantly (see Figure 2.25). In 2010, the percentage of people in poverty peaked at an estimated 18.4% before falling to 12.6% in 2019. The percentage of families living in poverty decreased from 13.9% in 2010 to 8.0% in 2019. Stratified by race, Native Hawaiian & Other Pacific Islanders have the highest poverty rate at 41.8%, though that estimate is within the margin of error because of the small size of that group. Outside Native Hawaiian & Pacific Islander, Hispanic or Latino has the highest rate of poverty at 22.5% (see Figure 2.24).

FIGURE 2.18
AGE DISTRIBUTION IN RALEIGH CITY, 2000-2019



SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

Raleigh has a higher percentage of residents with a high school diploma or higher (90.4%) and residents with a bachelor's degree or higher (46.6%) than the State of North Carolina and the Nation

FIGURE 2.19

POPULATION BY RACE AND ETHNICITY
IN RALEIGH CITY, 2010-2020

| Race | 2010 | | 2020 | |
|-----------------------------------|----------------|-------------|----------------|-------------|
| | Number | Percent | Number | Percent |
| White | 215,204 | 53.3% | 241,308 | 51.6% |
| Black or African American | 115,976 | 28.7% | 120,480 | 25.7% |
| American Indian and Alaska Native | 1,019 | 0.3% | 1,094 | 0.2% |
| Asian or Pacific Islander | 17,448 | 4.3% | 23,623 | 5.1% |
| Some other race | 828 | 0.2% | 2,647 | 0.6% |
| Two or More Races | 4,549 | 1.1% | 17,999 | 3.9% |
| Hispanic or Latino | 45,686 | 11.3% | 60,514 | 12.9% |
| Total population | 400,710 | 100% | 467,665 | 100% |

SOURCE: US CENSUS BUREAU, DECENNIAL CENSUS

FIGURE 2.20

COMPONENTS OF HISPANIC POPULATION IN RALEIGH CITY, 2019

| Ethnicity | Number | Percent of Total Population | Percent of Hispanic Population |
|------------------|--------|-----------------------------|--------------------------------|
| Mexican | 23,729 | 5.0% | 47.2% |
| Puerto Rican | 5,539 | 1.2% | 11.0% |
| Cuban | 1,667 | 0.4% | 3.3% |
| Dominican | 3,585 | 0.8% | 7.1% |
| Central American | 9,321 | 2.0% | 18.5% |
| South American | 4,079 | 0.9% | 8.1% |
| Other | 3,893 | 0.8% | 7.7% |

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 2.21**EDUCATIONAL ATTAINMENT AGE 25 AND OLDER IN RALEIGH CITY, 2019**

| | 2010 | | | 2019 | | |
|----------------|----------------------------|-----------------------------|---------------------------------|----------------------------|-----------------------------|---------------------------------|
| | High School Grad or Higher | Bachelor's Degree or Higher | Graduate or Professional Degree | High School Grad or Higher | Bachelor's Degree or Higher | Graduate or Professional Degree |
| Raleigh | 90.4% | 46.6% | 15.7% | 91.8% | 50.9% | 18.5% |
| North Carolina | 83.60% | 26.1% | 8.7% | 87.8% | 31.3% | 11.3% |
| United States | 85.0% | 27.9% | 10.3% | 88.6% | 33.1% | 12.8% |

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 2.22**EDUCATIONAL ATTAINMENT AGE 25 AND OLDER BY RACE IN RALEIGH CITY, 2019**

| Race | Number | Percent High School Grade or Higher | Percent Bachelor's Degree or Higher |
|--|---------|-------------------------------------|-------------------------------------|
| White | 175,828 | 95.9% | 61.8% |
| Black or African American | 84,958 | 89.7% | 31% |
| American Indian or Alaskan Native | 1,126 | 77.2% | 22.4% |
| Asian | 14,290 | 86.8% | 60% |
| Native Hawaiian & Other Pacific Islander | 106 | 85.8% | 50.9% |
| Hispanic or Latino | 27,620 | 61.2% | 21.9% |

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 2.23**POVERTY, INCOME, AND EMPLOYMENT INDICATORS IN
RALEIGH CITY, 2019**

| | 1990 | 2000 | 2010 | 2019 |
|--|----------|----------|----------|----------|
| Percent of persons below poverty | 11.8% | 11.5% | 18.4% | 12.6% |
| Percent of families below poverty | 9.0% | 7.1% | 13.9% | 8.0% |
| Median Household Income (2019 dollars) | \$61,192 | \$67,720 | \$55,362 | \$67,266 |
| Per Capita Income (2019 dollars) | \$32,984 | \$36,491 | \$31,104 | \$38,494 |
| Unemployment Rate | 4.0% | 3.8% | 7.5% | 3.3% |
| Labor Force Participation Rate | 66.4% | 72.7% | 69.9% | 70.1% |

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 2.24**POVERTY STATUS BY RACE IN RALEIGH CITY, 2019**

| Race | Total | Number Below Poverty | Percentage below poverty level |
|--|---------|----------------------|--------------------------------|
| White | 258,103 | 23,588 | 9.1% |
| Black or African American | 129,501 | 22,208 | 17.1% |
| American Indian or Alaskan Native | 1,494 | 153 | 10.2% |
| Asian | 20,498 | 3,536 | 17.3% |
| Native Hawaiian & Other Pacific Islander | 201 | 84 | 41.8% |
| Some other Race | 21,893 | 4,584 | 20.9% |
| Hispanic or Latino (of any race) | 50,839 | 11,426 | 22.5% |

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES



Raleigh's city-wide average life expectancy of 80.25 years is higher than both North Carolina's (78.1 years) and The United States (78.7 years) average life expectancy.

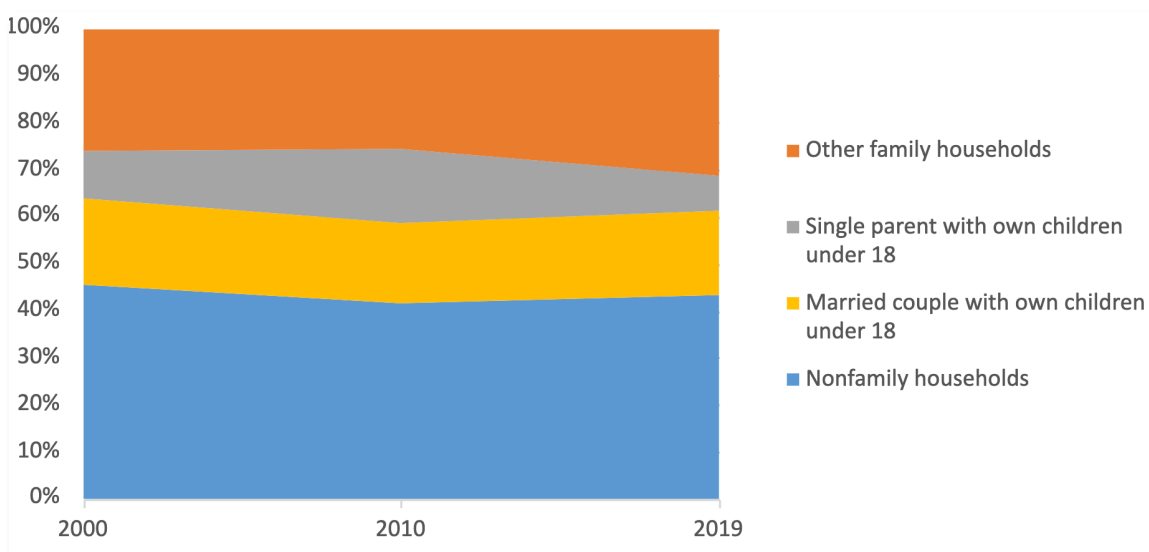
Household composition has also shifted during the last two decades (see Figure 2.25 & 2.26). The number of single parent households has declined since 2010 while "other family households" as a category have increased. Married couple households with children have decreased slightly (approximately 0.4 percentage points) since 2010. Overall, the number of people per households – has trended upward from 2000 to 2019 (see Figure 2.25).

Raleigh's city-wide average life expectancy of **80.25 years** is higher than both North Carolina's (78.1 years) and The United States (78.7 years) average life expectancy.

FIGURE 2.25**HOUSEHOLD TRENDS IN RALEIGH CITY, 2019**

| | Number | | | Percent of Households | | |
|---|---------|---------|---------|-----------------------|-------|-------|
| | 2000 | 2010 | 2019 | 2000 | 2010 | 2019 |
| Family Households | 61,327 | 86,323 | 102,931 | 35.3% | 35.0% | 36.2% |
| Married couple with own children under 18 years old | 20,914 | 28,226 | 32,281 | 12.0% | 11.4% | 11.3% |
| Single parent with own children under 18 years old | 11,122 | 19,723 | 13,481 | 6.4% | 8.0% | 4.7% |
| Other Family Households | 29,291 | 43,968 | 56,958 | 16.8% | 17.8% | 20.0% |
| Nonfamily Households | 51,281 | 68,354 | 78,777 | 29.5% | 27.7% | 27.7% |
| Total Households | 173,935 | 246,594 | 284,428 | - | - | - |
| Persons per Household | 2.3 | 2.35 | 2.43 | - | - | - |

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 2.26**HOUSEHOLD SHARE BY TYPE IN RALEIGH CITY, 2019**

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

Commuting modes in Raleigh have remained steady over the past five years with a large majority (76%) of people driving to work alone in a personal vehicle and approximately 7.8% of people carpooling to work (see Figure 2.27). Remaining commuters either take public transit (1.9%), walk (1.5%), use other means (1.6%), or work at home (8.3%). Raleigh's commute

patterns roughly mirror those of its peer cities' Charlotte, NC and Austin, TX (Figure 2.29).

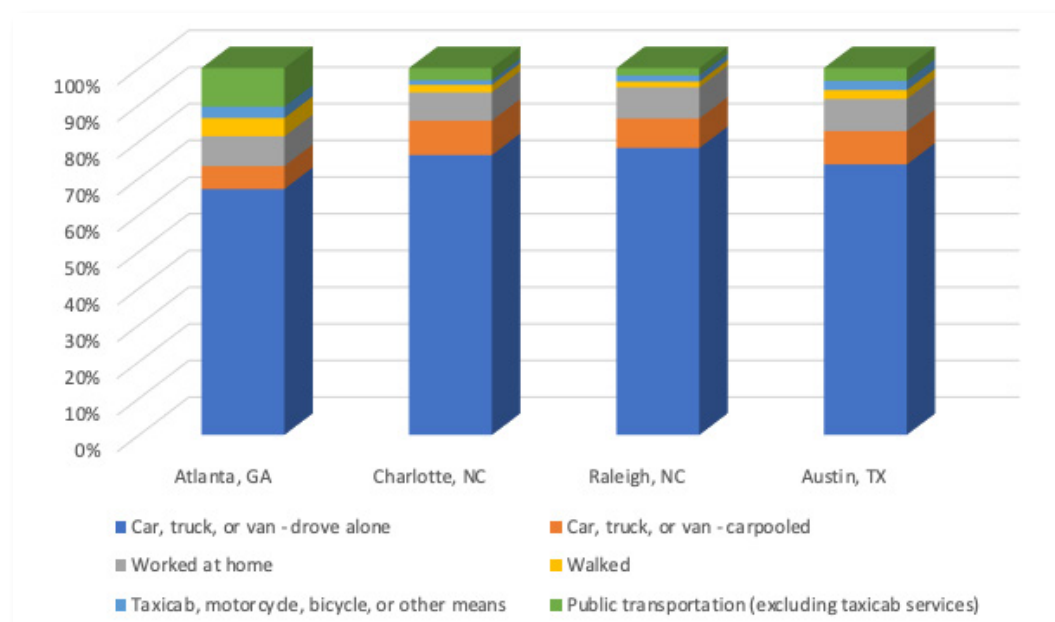
Rounding out the City Profile, figures 2.29-2.30 provide information on language spoken at home, individuals with disabilities, broadband internet access, and health insurance status among Raleigh residents.

FIGURE 2.27
JOURNEY TO WORK

| | Number | Percent |
|--|---------|---------|
| Car, truck, or van - drove alone | 196,142 | 78.0% |
| Car, truck, or van - carpooled | 20,147 | 8.0% |
| Worked at home | 21,352 | 8.5% |
| Walked | 3,893 | 1.5% |
| Taxicab, motorcycle, bicycle, or other means | 4,243 | 1.7% |
| Public transportation (excluding taxicab) | 4,988 | 1.9% |

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 2.28
JOURNEY TO WORK - COMPARISON WITH PEER CITIES 2019



SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 2.29**LANGUAGE SPOKEN AT HOME BY HOUSEHOLD IN RALEIGH, 2019**

| Language | All Households | | Limited English-Speaking Households | |
|-------------------------------|----------------|----------|-------------------------------------|--------------|
| | Number | Percent | Number | Percent |
| Spanish | 15,735 | 8.6% | 2,973 | 18.9% |
| Other Indo-European languages | 7,021 | 3.8% | 545 | 7.8% |
| Asian and PI languages | 5,240 | 2.9% | 1,266 | 24.2% |
| Other languages | 3,437 | 1.9% | 439 | 12.8% |
| Total | 31,433 | - | 5,223 | 12.8% |

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 2.30**INDIVIDUALS WHO IDENTIFY AS DISABLED IN RALEIGH, 2019**

| Race | Number who Identify as Disabled | Percent Identify as Disabled |
|--|---------------------------------|------------------------------|
| White | 21,894 | 8.1% |
| Black or African American | 15,167 | 11.5% |
| American Indian & Alaska Native | 410 | 26.9% |
| Asian Alone | 1,296 | 6.1% |
| Native Hawaiian & Other Pacific Islander | 0 | 0% |
| Some other race alone | 973 | 4.40% |
| Two or more races | 1,389 | 10.6% |
| Hispanic or Latino (of any race) | 2,855 | 5.6% |
| Total | 43,984 | 9.6% |

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 2.31**HOUSEHOLD BROADBAND USE IN RALEIGH, 2019**

| Type of service | Number | Percent |
|--|---------|---------|
| Broadband of any type | 164,753 | 89.9% |
| Cellular plan of any type | 137,587 | 75% |
| Cellular data plan with no internet subscription | 12,896 | 7% |
| Broadband such as cable, fiber optic or DSL | 146,963 | 80.2% |
| Satellite internet service | 10,208 | 5.6% |
| Without an internet subscription | 18,103 | 9.9% |

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 2.32**RALEIGH POPULATION UNINSURED BY RACE, 2019**

| Race | Number Uninsured | Estimated Total Population | Percent Uninsured |
|--|------------------|----------------------------|-------------------|
| Total Uninsured | 58,136 | 485,531 | 11.8% |
| White | 12,155 | 243,812 | 5.0% |
| Black or African American | 14,579 | 131,946 | 11% |
| American Indian & Alaska Native | 157 | 1,522 | 10.3% |
| Asian | 1,823 | 21,212 | 8.6% |
| Native Hawaiian & Other Pacific Islander | 15 | 201 | 7.5% |
| Some other race alone | 9,496 | 22,338 | 42.5% |
| Two or more races | 1,057 | 13,079 | 8.1% |
| Hispanic or Latino (of any race) | 17,854 | 51,421 | 34.7% |

*Estimated Total Population may differ from Decennial Census counts

SOURCE: US CENSUS BUREAU, 2019 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

Land Use & Zoning

Land use is fundamental to the physical form and function of the city. The Comprehensive Plan is the primary document Raleigh uses to guide how the city grows, and what development looks and feels like. As set forth in the state enabling statute, the Comprehensive Plan is also the foundation for zoning.

While the Comprehensive Plan is a policy guide, the Unified Development Ordinance is law. This code provides the regulatory framework for specific land uses and how the uses interact with each other. It addresses the allowed use of property, as well as the scale, massing and placement of buildings, site design, landscaping, and the quantity of off-street parking required. Adopted in 2013, the Unified Development Ordinance (UDO) encourages mixed-use and pedestrian-friendly development. To fully implement the UDO, the city engaged in a multi-year remapping process whereby commercial and high-density residential districts were rezoned from the old code's legacy districts to new UDO zoning districts. Many of those properties were rezoned in November 2015 with an effective date February 14, 2016. Sixty-five parcels totaling approximately 490 acres were reviewed separately by City Council and rezoned to Unified Development Ordinance zoning districts in April and May of 2016.

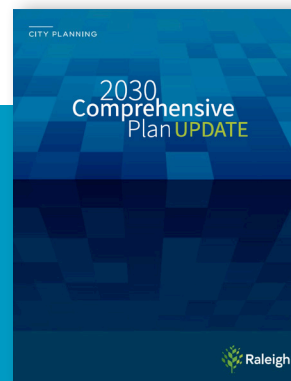
The City of Raleigh currently exercises planning

and zoning authority within its incorporated limits (its taxing and service area) as well as its Extraterritorial Jurisdiction (ETJ), an area outside of the incorporated limits where the City has been granted land use authority by Wake County for the purposes of providing infrastructure and services that may be annexed into the City in the future. This chapter primarily addresses the land area within the ETJ boundary, as this is the area where the City currently has the power to plan and zone. It is also the area for which detailed land use data is available. All references to the ETJ in this chapter refer to the full area within the ETJ boundary line.

The City also has annexation agreements with Wake County and adjacent municipalities delineating areas outside the current ETJ that are programmed for eventual annexation. These are divided into Short- and Long-Range Urban Service Areas (USAs), depending upon the anticipated time horizon for utility extension. These areas currently consist primarily of undeveloped land, farm fields, and low-density residential uses, and are only addressed generally in this chapter.

For further information see,
The 2030 Comprehensive Plan:
www.raleighnc.gov/cp

Raleigh Zoning:
www.raleighnc.gov/zoning



Land Use and Zoning Allocation

Zoning districts that accommodate residential uses make up approximately 64% of the total land area in Raleigh's planning jurisdiction.

Districts that primarily accommodate commercial uses, the mixed-use zones make up almost 25% of total land area (see Figure 3.1 and 3.2). Mixed-use zones that primarily accommodate retail (NX-, CX-, and DX-) comprise 6.5% of total land area, those that are considered industrial comprise 8.1% (IX-), and those that accommodate office

uses (OX- and OP-) make up 6.4%. In addition to the residential and mixed-use zones, there are also six special districts, which are meant for land conservation, specialized uses (heavy industry), and flexible uses (campus and planned developments). These special districts account for over 11.6% of Raleigh's total land area (see Figure 3.3). Overlay zoning districts such as historic overlay districts and special highway overlay districts impose additional development standards and cover 29.8% of total land area (see Figure 3.4).

FIGURE 3.1
RESIDENTIAL ZONING ALLOCATION

| Zoning District | Acres | Percent of Total Land Area |
|--------------------------|---------------|----------------------------|
| R-1 : Residential-1 | 4,631 | 4.0% |
| R-2 : Residential-2 | 2,036 | 1.8% |
| R-4 : Residential-4 | 39,754 | 34.2% |
| R-6 : Residential-6 | 17,264 | 14.9% |
| R-10 : Residential-10 | 10,359 | 8.9% |
| Total Residential | 74,044 | 63.8% |

SOURCE: CITY OF RALEIGH DEPARTMENT OF CITY PLANNING, 2020

FIGURE 3.2
MIXED-USE ZONING ALLOCATION

| Zoning District | Acres | Percent of Total Land Area |
|------------------------------|---------------|----------------------------|
| RX- : Residential Mixed Use | 4,069 | 3.5% |
| OP- : Office Park | 508 | 0.4% |
| OX- : Office Mixed Use | 7,021 | 6.0% |
| NX- : Neighborhood Mixed Use | 786 | 0.7% |
| CX- : Commercial Mixed Use | 6,150 | 5.3% |
| DX- : Downtown Mixed Use | 586 | 0.5% |
| IX- : Industrial Mixed Use | 9,459 | 8.1% |
| Total Mixed-Use | 28,579 | 24.5% |

SOURCE: CITY OF RALEIGH DEPARTMENT OF CITY PLANNING, 2020

FIGURE 3.3
SPECIAL DISTRICTS ZONING ALLOCATION

| Zoning District | Acres | Percent of Total Land Area |
|--------------------------------|---------------|----------------------------|
| CM : Conservation Management | 2,042 | 1.8% |
| AP : Agricultural Productive | 1,856 | 1.6% |
| IH : Heavy Industrial | 3,267 | 2.8% |
| MH : Manufactured Housing | 819 | 0.7% |
| CMP: Campus | 1,087 | 0.9% |
| PD : Planned Development | 4,387 | 3.8% |
| Total Special Districts | 13,458 | 11.6% |

SOURCE: CITY OF RALEIGH DEPARTMENT OF CITY PLANNING, 2020

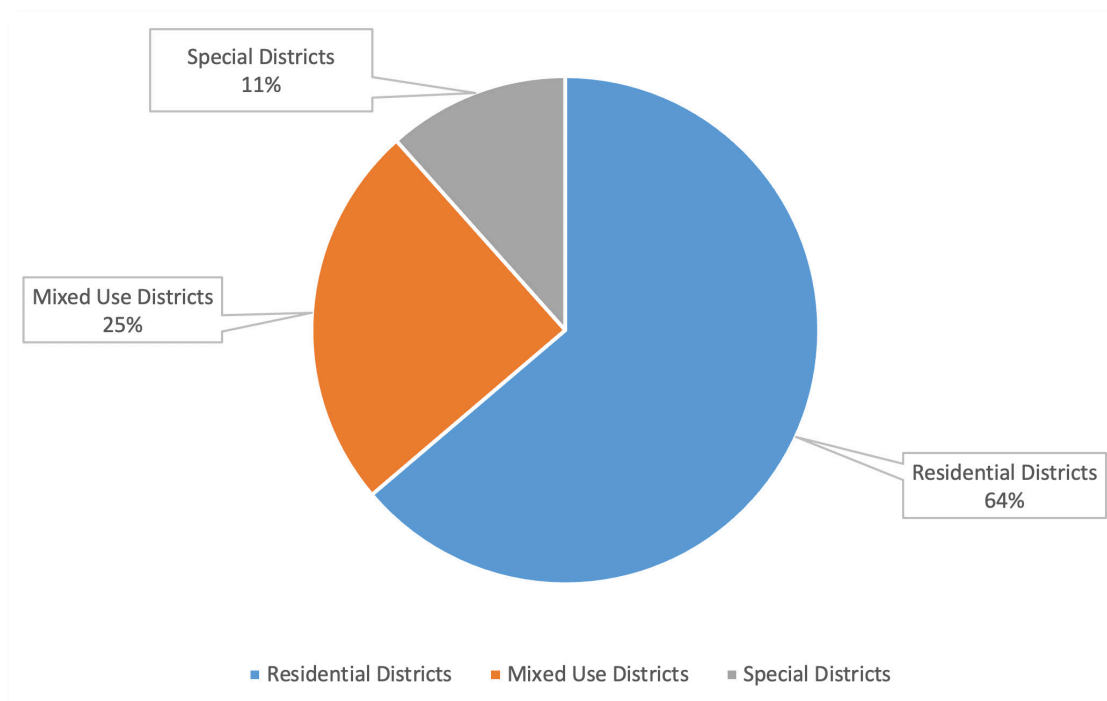
FIGURE 3.4
OVERLAY ZONING DISTRICT ALLOCATION

| Zoning District | Acres | Percent of Total Land Area |
|---|---------------|----------------------------|
| AOD : Airport Overlay District | 2,166 | 1.9% |
| HOD : Historic Overlay District | 421 | 0.4% |
| MPOD : Metro-Park Overlay District | 1,448 | 1.2% |
| NCOD : Neighborhood Conservation Overlay District | 3,203 | 2.8% |
| SHOD-1 : Special Highway Overlay District 1 | 7,901 | 6.8% |
| SHOD-2 : Special Highway Overlay District 2 | 5,051 | 4.4% |
| SRPOD : Special Residential Parking Overlay District | 8,231 | 7.1% |
| TOD : Transit Overlay District | 10.21 | 0.0% |
| WPOD : Watershed Protection Area Overlay District | 9,334* | 8.0% |
| Total Overlay Districts (not accounting for overlap) | 37,767 | 32.5% |
| Total Overlay Districts (accounting for overlap) | 34,551 | 29.8% |

*The area in Raleigh's watershed protection districts decreased due to the transfer of some of the City's extraterritorial jurisdiction (ETJ) to Wake County. Some of the ETJ previously included was relinquished.

SOURCE: CITY OF RALEIGH DEPARTMENT OF CITY PLANNING, 2020

FIGURE 3.5
GENERALIZED ZONING ALLOCATION



SOURCE: CITY OF RALEIGH
DEPARTMENT OF CITY PLANNING, 2020

A property's zoning district specifies the range of uses allowed on the property. The table below shows the actual uses of properties in Raleigh based on data collected in 2015. Figure 3.6 shows parcels whose primary use is residential account for 44.3% of the City's total acreage. In particular, Single-Unit Living is the predominant

use in this category (34.4%). Other significant uses include Public and Institutional (18.2%), Commercial (10.6%), and Industrial (5.6%). Properties that account for approximately 20% of Raleigh's land area are considered vacant, meaning that there is no discernible use of the property.

FIGURE 3.6
LAND USE ALLOCATION

| Land Use Category | Parcels | Acreage | Percentage of Area |
|--------------------------------------|----------------|------------------|--------------------|
| Residential | 117,517 | 44,349.90 | 44.3% |
| Household Living: Single-unit Living | 88,960 | 34,408 | 34.4% |
| Household Living: Townhouse Living | 24,527 | 1,488.60 | 1.5% |
| Household Living: Two-unit Living | 1,922 | 714.8 | 0.7% |
| Household Living: Manufactured | 24 | 429.4 | 0.4% |
| Household Living: Multi-unit Living | 1,979 | 6,464.60 | 6.5% |
| Group Living | 71 | 213.1 | 0.2% |
| Social Service | 34 | 630.7 | 0.6% |
| | | | |
| Public and Institutional | 3,690 | 18,238.70 | 18.2% |
| Civic | 476 | 5,264.30 | 5.3% |
| Parks, Open Space, and Greenways | 3,134 | 12,538.90 | 12.5% |
| Utilities | 80 | 435.6 | 0.4% |
| | | | |
| Commercial | 3,509 | 10,662.30 | 10.6% |
| Day Care | 93 | 157 | 0.2% |
| Indoor Recreation | 100 | 441.8 | 0.4% |
| Medical | 135 | 365.4 | 0.4% |
| Office | 1,240 | 3,779.00 | 3.8% |
| Outdoor Recreation | 114 | 2,033.40 | 2.0% |

FIGURE 3.6, continued
LAND USE ALLOCATION

| Land Use Category | Parcels | Acreage | Percentage of Area |
|--------------------------|----------------|-------------------|--------------------|
| Overnight Lodging | 80 | 210.7 | 0.2% |
| Parking | 313 | 343.3 | 0.3% |
| Passenger Terminal | 10 | 15.1 | 0.0% |
| Personal Service | 158 | 145.1 | 0.1% |
| Restaurant/Bar | 348 | 310.1 | 0.3% |
| Retail Sales | 762 | 2,371.40 | 2.4% |
| Vehicle Sales/Rental | 156 | 489.9 | 0.5% |
| Industrial | 1,421 | 5,637.70 | 5.6% |
| Heavy Industrial | 133 | 1,800.40 | 1.8% |
| Light Industrial | 296 | 690.2 | 0.7% |
| Light Manufacturing | 68 | 146.7 | 0.1% |
| Research & Development | 10 | 106.5 | 0.1% |
| Self-Service Storage | 59 | 265.9 | 0.3% |
| Vehicle Service | 333 | 365.8 | 0.4% |
| Warehouse & Distribution | 294 | 1,230.20 | 1.2% |
| Waste-Related Service | 6 | 424 | 0.4% |
| Wholesale Trade | 222 | 607.9 | 0.6% |
| Open | 18 | 1,473.90 | 1.5% |
| Agriculture | 14 | 1,084.40 | 1.1% |
| Resource Extraction | 4 | 389.5 | 0.4% |
| Mixed Use | 115 | 123.6 | 0.1% |
| Vacant | 8,990 | 19,655.90 | 19.6% |
| Grand Total | 135,260 | 100,142.00 | 100.0% |

SOURCE: CITY OF RALEIGH CITY PLANNING DEPARTMENT, 2015

Land Capacity, Annexation, and Growth Potential

Figure 3.7 shows the estimated acreage of undeveloped land and development capacity under current zoning entitlement. This analysis shows an estimate of land capacity by zoning district, including undeveloped land, possible dwelling units, and possible nonresidential area.

This table illustrates the gross potential of undeveloped land and does not consider specific factors or characteristics of each undeveloped parcel that might reduce the maximum entitlement allowed. Over 14,000 acres of land is undeveloped in Raleigh, which could support over 100,000 dwelling units city-wide. Undeveloped land in R-4, RX-3, and IX-3 districts contributed significantly to this capacity.

FIGURE 3.7

LAND CAPACITY ESTIMATES BY ZONING DISTRICT

| Zone | Undeveloped Land (Acres) | Dwelling Units | Non-Residential Area (Acres) |
|-------|--------------------------|----------------|------------------------------|
| AP | 442 | 154 | - |
| CM | 560 | - | - |
| CX-12 | 23 | 1,568 | 1,725,219 |
| CX-3 | 559 | 7,860 | 8,645,856 |
| CX-4 | 44 | 717 | 788,692 |
| CX-5 | 283 | 5,040 | 5,543,856 |
| CX-7 | 12 | 651 | 716,585 |
| DX-12 | 3 | 231 | 253,639 |
| DX-20 | 3 | 220 | 241,723 |
| DX-3 | 4 | 54 | 59,745 |
| DX-40 | 1 | 74 | 81,535 |
| DX-5 | - | 6 | 6,471 |
| DX-7 | 2 | 94 | 103,895 |
| IH | 615 | - | 21,448,386 |
| IX-12 | - | 16 | 17,802 |
| IX-3 | 1,135 | 15,957 | 17,552,589 |

SOURCE: CITY OF RALEIGH CITY PLANNING DEPARTMENT, 2018

(For purpose of this analysis, general and conditional use districts have been treated the same and are aggregated together in this table for simplicity.)

*Totals do not include underdeveloped land.

*Zoning Districts with residential and commercial types have been allocated at a 50/50 split.

FIGURE 3.7, continued**LAND CAPACITY ESTIMATES BY ZONING DISTRICT**

| Zone | Undeveloped Land (Acres) | Dwelling Units | Non-Residential Area (Acres) |
|-------------|---------------------------------|-----------------------|-------------------------------------|
| IX-4 | - | 6 | 6,585 |
| IX-5 | 53 | 948 | 1,042,944 |
| IX-7 | - | 7 | 7,227 |
| MH | 206 | 1,235 | - |
| NX-3 | 120 | 1,685 | 1,853,469 |
| NX-4 | - | 8 | 8,353 |
| NX-5 | - | 8 | 8,846 |
| OP-12 | 2 | 157 | 172,237 |
| OP-3 | 4 | 55 | 60,231 |
| OP-4 | - | 6 | 6,377 |
| OP-5 | - | - | - |
| OP-7 | 5 | 253 | 277,897 |
| OX-12 | 8 | 508 | 558,859 |
| OX-3 | 222 | 3,121 | 3,432,629 |
| OX-4 | 41 | 674 | 741,122 |
| OX-5 | 71 | 1,266 | 1,392,775 |
| OX-7 | 40 | 2,109 | 2,319,357 |
| PD | 926 | 13,018 | 14,319,626 |

SOURCE: CITY OF RALEIGH CITY PLANNING DEPARTMENT, 2018

(For purpose of this analysis, general and conditional use districts have been treated the same and are aggregated together in this table for simplicity.)

*Totals do not include underdeveloped land.

*Zoning Districts with residential and commercial types have been allocated at a 50/50 split.

FIGURE 3.7, continued**LAND CAPACITY ESTIMATES BY ZONING DISTRICT**

| Zone | Undeveloped Land (Acres) | Dwelling Units | Non-Residential Area (Acres) |
|---------------|--------------------------|----------------|------------------------------|
| R-1 | 1,161 | 1,161 | - |
| R-10 | 584 | 5,836 | - |
| R-2 | 425 | 850 | - |
| R-4 | 4,898 | 19,592 | - |
| R-6 | 1,175 | 7,048 | - |
| RX-12 | - | - | - |
| RX-3 | 431 | 12,110 | - |
| RX-4 | 14 | 464 | - |
| RX-5 | 2 | 58 | - |
| RX-7 | - | - | - |
| Totals | 14,074 | 104,825 | 83,394,527 |

SOURCE: CITY OF RALEIGH CITY PLANNING DEPARTMENT, 2018

(For purpose of this analysis, general and conditional use districts have been treated the same and are aggregated together in this table for simplicity.)

*Totals do not include underdeveloped land.

*Zoning Districts with residential and commercial types have been allocated at a 50/50 split.

In 2020, the city added 376 acres through annexation (see Figure 3.8). Changes in state laws restricting city-initiated annexations have resulted in petition-only annexations by owner, usually of smaller parcels by individual owners. The total future annexation potential for Raleigh is 39,820 acres (see Figure 3.9). This includes both ETJ areas and Urban Services Areas (USA). Combined with the city's current acreage of 94,985, the total potential city limits acreage is 134,805 acres.

FIGURE 3.8**ANNEXATION, GROWTH OF THE CITY OF RALEIGH**

| Year | Acres in City Limits | Acres Added |
|------|----------------------|-------------|
| 1792 | 400 | - |
| 1857 | 1,124 | 724 |
| 1907 | 2,577 | 1,453 |
| 1920 | 4,455 | 1,878 |

FIGURE 3.8, continued**ANNEXATION, GROWTH OF THE CITY OF RALEIGH**

| Year | Acres in City Limits | Acres Added |
|------|----------------------|-------------|
| 1941 | 6,940 | 2,485 |
| 1951 | 6,974 | 35 |
| 1960 | 21,548 | 14,574 |
| 1970 | 28,755 | 7,207 |
| 1980 | 35,305 | 6,550 |
| 1990 | 58,493 | 23,188 |
| 2000 | 75,972 | 17,479 |
| 2010 | 92,435 | 16,463 |
| 2011 | 92,710 | 275 |
| 2012 | 92,838 | 129 |
| 2013 | 93,047 | 208 |
| 2014 | 93,306 | 262 |
| 2015 | 93,652 | 343 |
| 2016 | 93,775 | 123 |
| 2017 | 94,088 | 156 |
| 2018 | 94,343 | 255 |
| 2019 | 94,609 | 266 |
| 2020 | 94,985 | 376 |

| Geography | Acres |
|------------------------------------|----------------|
| Current City Limits | 94,985 |
| Potential ETJ Growth Area | 21,196 |
| Potential USA Growth Area | 18,624 |
| Total Future Annexation Potential | 39,820 |
| Total Potential City Limits | 134,805 |

FIGURE 3.9
FUTURE RALEIGH
CITY LIMITS
GROWTH POTENTIAL

SOURCE: CITY OF RALEIGH DEPARTMENT OF CITY PLANNING, 2020

Economic Development & Employment Trends

As one of the nation's fastest growing regions, the Research Triangle benefits from historic investment in major educational and healthcare institutions as well as the Research Triangle Park. The expanding base of technology industries continues to generate new jobs and attract skilled workers to fill them. The area's highly touted quality of life provides regional employers with a competitive advantage for attracting and retaining qualified workers. The Triangle's jurisdictions are increasingly connected as employees cross commute, new businesses develop to serve companies throughout the region, and existing industry spins off new businesses. In conjunction with the region as a whole, Raleigh's employment

base has shifted to one that is more technology-based from a primarily government and manufacturing base.

Wake County continues to share in the region's economic health with a growing job base, however the dichotomy of the county's employment is changing, as technology, retail, and service jobs replace manufacturing and agricultural jobs whose overall share of the market declined. In 2000 there were 28,238 manufacturing jobs which contracted to 19,324 in 2011. Since 2011, the county has added back 6,918 additional manufacturing jobs, an important figure considering that this sector accounts for much of the county and region's overall economic output.

In terms of real Gross Domestic Product (GDP) growth, the Raleigh-Cary Metropolitan area grew by 3% ranking 24th in terms of growth out of the nation's 384 metropolitan statistical areas from 2018-2019 (see Figure 4.1). Over the same period, most sectors for which there is unsuppressed data saw increases in real GDP.

FIGURE 4.1
RALEIGH-CARY MSA REAL GDP GROWTH

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| GDP in Thousands of Chained (2012) Dollars | 54,605,416 | 57,452,356 | 61,166,220 | 65,232,455 | 70,553,425 | 74,344,199 | 77,603,202 | 83,665,937 | 84,678,690 |
| Rank GDP in Current Dollars Among Metro Areas | 50 | 49 | 48 | 48 | 47 | 44 | 45 | 44 | 41 |
| GDP Percentage Growth | 2.0% | 5.2% | 6.5% | 6.6% | 8.2% | 5.4% | 4.4% | 7.8% | 3.0% |
| Rank: GDP Percentage Growth | 251 | 81 | 51 | 50 | 25 | 43 | 131 | 24 | 96 |

SOURCE: BUREAU OF ECONOMIC ANALYSIS: GDP BY METROPOLITAN AREA, 2019

The information sector saw the largest growth at 9.0%, followed by nondurable goods at 7.6% and education, healthcare, and social services at 5.2%. Construction and finance, insurance, real estate, rental, and leasing sectors both saw slight declines (see Figure 4.2).

Within Raleigh, the state government, North Carolina State University, other educational institutions, and major health care centers have a higher proportion of the employment base. Job growth projections point to a major

expansion of jobs in the city by 2045 with even faster growth in the balance of the county. University research and the growing technology sectors within Raleigh are supporting even greater business development in emerging industries. This section evaluates employment trends for the county, identifies key economic sectors and major employers, and provides projections for Raleigh's future employment based on regional land use coordination efforts.

FIGURE 4.2

RALEIGH-CARY MSA PERCENTAGE GDP GROWTH BY SECTOR, 2019

| Sector | Percent Change |
|---|----------------|
| <i>Goods Producing</i> | * |
| Natural resources and mining | * |
| Construction | -0.1% |
| Durable goods manufacturing | 6.5% |
| Nondurable goods manufacturing | 7.6% |
| <i>Service Providing</i> | * |
| Retail Trade | 4.3% |
| Transportation and warehousing | * |
| Information | 9.0% |
| Finance, insurance, real estate, rental, and leasing | -1.9% |
| Professional and business services | 3.5% |
| Educational services, healthcare, and social assistance | 5.2% |
| Arts, entertainment, recreation, accommodation, and food services | 4.4% |
| Other services, except government | 3.9% |
| Government | 1.4% |
| Total | 3.0% |

* Not shown to avoid disclosure of confidential information.

SOURCE: BUREAU OF ECONOMIC ANALYSIS: GDP BY METROPOLITAN AREA, 2020

GDP Growth & Employment by Industry

Overall, jobs in the service-providing sector account for a larger share of Wake County's employment than the goods-producing sector with 89.7% and 10.3% of total employment, respectively. That being said, jobs in the goods-producing sector are increasing at a slightly higher rate than jobs in the service-providing sector. In the last decade, goods-producing jobs – such as those in agriculture, construction, and manufacturing – saw an annual average change of 2.9%, compared to jobs in service-providing

industries, which have increased at a rate of 2.7% (see Figures 4.3 and 4.4).

Despite that growth, the top three employment industries continue to be those that are service-providing: professional and business services; education and health services, and; trade, transportation, and utilities. Professional and technical services also saw the largest annual percent change in employment (7.5%) from 2010-2020, followed by utilities (6.8%) and transportation and warehousing (5.4%). These patterns are on par with employment by sector in Wake County, North Carolina, and the United States as a whole (Figure 4.5).

FIGURE 4.3
WAKE COUNTY AVERAGE ANNUAL CHANGE IN
EMPLOYMENT BY INDUSTRY 2010-2020

| Industry | 2010 | Percent of total (2010) | 2020 | Percent of total (2020) | Average annual change 2010-2020 |
|--|----------------|-------------------------|----------------|-------------------------|---------------------------------|
| Goods Producing | 44,227 | 10.2% | 56,877 | 10.3% | 2.9% |
| Natural Resources | 1,032 | 0.2% | 1,269 | 0.2% | 2.3% |
| Agriculture, forestry, fishing & hunting | 770 | 0.2% | 976 | 0.2% | 3.2% |
| Mining | 263 | 0.1% | * | * | * |
| Construction | 24,078 | 5.6% | 35,373 | 6.4% | 4.7% |
| Manufacturing | 19,116 | 4.4% | 20,235 | 3.7% | 0.6% |
| Service providing | 387,347 | 89.8% | 493,805 | % | 2.7% |
| Trade, transportation and utilities | 80,011 | 18.5% | 104,594 | 19.0% | 3.1% |
| Utilities | 1,394 | 0.3% | 2,344 | 0.4% | 6.8% |
| Wholesale trade | 18,192 | 4.2% | 24,749 | 4.5% | 3.6% |
| Retail trade | 49,775 | 11.5% | 61,092 | 11.1% | 2.3% |
| Transportation and warehousing | 10,652 | 2.5% | 16,409 | 3.0% | 5.4% |
| Information | 16,333 | 3.8% | * | * | * |

*Not shown to avoid disclosure of confidential information

SOURCE: NORTH CAROLINA DIVISION OF EMPLOYMENT SECURITY

FIGURE 4.3, continued

**WAKE COUNTY AVERAGE ANNUAL CHANGE IN EMPLOYMENT BY INDUSTRY
2010-2020**

| Industry | 2010 | Percent of total (2010) | 2020 | Percent of total (2020) | Average annual change 2010-2020 |
|--|----------------|-------------------------|----------------|-------------------------|---------------------------------|
| Financial activities | 25,666 | 5.9% | * | * | * |
| Finance and insurance | 17,971 | 4.2% | 22,068 | 4.0% | 2.3% |
| Real estate and rental and leasing | 7,695 | 1.8% | 9,632 | 1.7% | 2.5% |
| Professional and business services | 81,028 | 18.8% | 118,600 | 21.5% | 4.6% |
| Professional and technical services | 37,086 | 8.6% | 64,972 | 11.8% | 7.5% |
| Management of companies and enterprises | 9,613 | 2.2% | 10,797 | 2.0% | 1.2% |
| Administrative and waste services | 34,329 | 8.0% | 42,831 | 7.8% | 2.5% |
| Education and health services | 84,394 | 19.6% | 45,312 | 8.2% | 1.6% |
| Educational services | 38,959 | 9.0% | 45,312 | 8.2% | 1.6% |
| Health care and social assistance | 45,435 | 10.5% | 61,600 | 11.2% | 3.6% |
| Leisure and hospitality | 45,801 | 10.6% | 50,861 | 9.2% | 1.1% |
| Arts entertainment and recreation | 8,831 | 2.0% | 7,831 | 1.4% | -1.1% |
| Accommodation and food services | 36,970 | 8.6% | 43,031 | 7.8% | 1.6% |
| Public administration | 40,553 | 9.4% | 41,951 | 7.6% | 0.3% |
| Other services excluding public administration | 13,293 | 3.1% | 17,164 | 3.1% | 2.9% |
| Unclassified | 269 | 0.1% | * | * | * |
| Total | 431,571 | 100.0% | 550,682 | 100.0% | 2.8% |

*Not shown to avoid disclosure of confidential information.

SOURCE: NORTH CAROLINA DIVISION OF EMPLOYMENT SECURITY

FIGURE 4.4**EMPLOYMENT BY INDUSTRY IN WAKE COUNTY, 2012-2020**

| Industry | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Goods producing | 44,795 | 49,412 | 50,942 | 54,792 | 56,564 | 59,180 | 62,099 | 62,954 | 56,877 |
| Natural Resources | 1,028 | 1,126 | 1,092 | 1,084 | 1,074 | 1,138 | 1,200 | 1,231 | 1,269 |
| Agriculture, forestry, fishing & hunting | 788 | 881 | 858 | 868 | 844 | 938 | 976 | 1,006 | 1,015 |
| Mining | 240 | 245 | 234 | 215 | 231 | 200 | 224 | 225 | 254 |
| Construction | 25,204 | 25,762 | 27,264 | 28,717 | 30,377 | 32,526 | 34,658 | 35,268 | 35,373 |
| Manufacturing | 18,563 | 22,525 | 22,586 | 24,992 | 25,113 | 25,516 | 26,242 | 26,455 | 20,235 |
| | | | | | | | | | |
| Service providing | 411,018 | 424,539 | 439,664 | 456,738 | 473,587 | 484,276 | 498,185 | 512,035 | 493,803 |
| Trade, transportation and utilities | 84,709 | * | 89,438 | 94,149 | 97,719 | 100,402 | 101,870 | 102,709 | 104,593 |
| Utilities | 1,212 | * | 2,323 | 2,400 | 2,389 | 2,397 | 2,431 | 2,321 | 2,344 |
| Wholesale trade | 20,990 | 20,540 | 21,014 | 22,189 | 23,317 | 24,176 | 24,251 | 24,582 | 24,749 |
| Retail trade | 52,040 | 53,622 | 56,100 | 59,105 | 61,153 | 62,184 | 62,634 | 62,455 | 61,091 |
| Transportation and warehousing | 10,468 | * | 10,000 | 10,456 | 10,860 | 11,645 | 12,555 | 13,350 | 16,408 |
| Information | 17,447 | 17,664 | 18,434 | 19,500 | 20,898 | 21,521 | 21,816 | 22,205 | 22,026 |
| Financial activities | 25,031 | 24,951 | 25,565 | 27,584 | 28,908 | 29,438 | 30,591 | 31,676 | 31,700 |
| Finance and insurance | 17,299 | 17,009 | 17,416 | 18,751 | 19,419 | 19,927 | 20,940 | 21,835 | 22,068 |
| Real estate and rental and leasing | 7,732 | 7,942 | 8,149 | 8,833 | 9,489 | 9,510 | 9,651 | 9,841 | 9,632 |
| Professional and business services | 91,440 | 99,449 | 102,731 | 104,472 | 107,081 | 108,515 | 114,027 | 118,638 | 118,600 |
| Professional and technical services | 42,176 | 45,291 | 47,242 | 48,673 | 50,315 | 53,773 | 59,394 | 63,544 | 64,972 |

*Not shown to avoid disclosure of confidential information

SOURCE: NORTH CAROLINA DIVISION OF EMPLOYMENT SECURITY

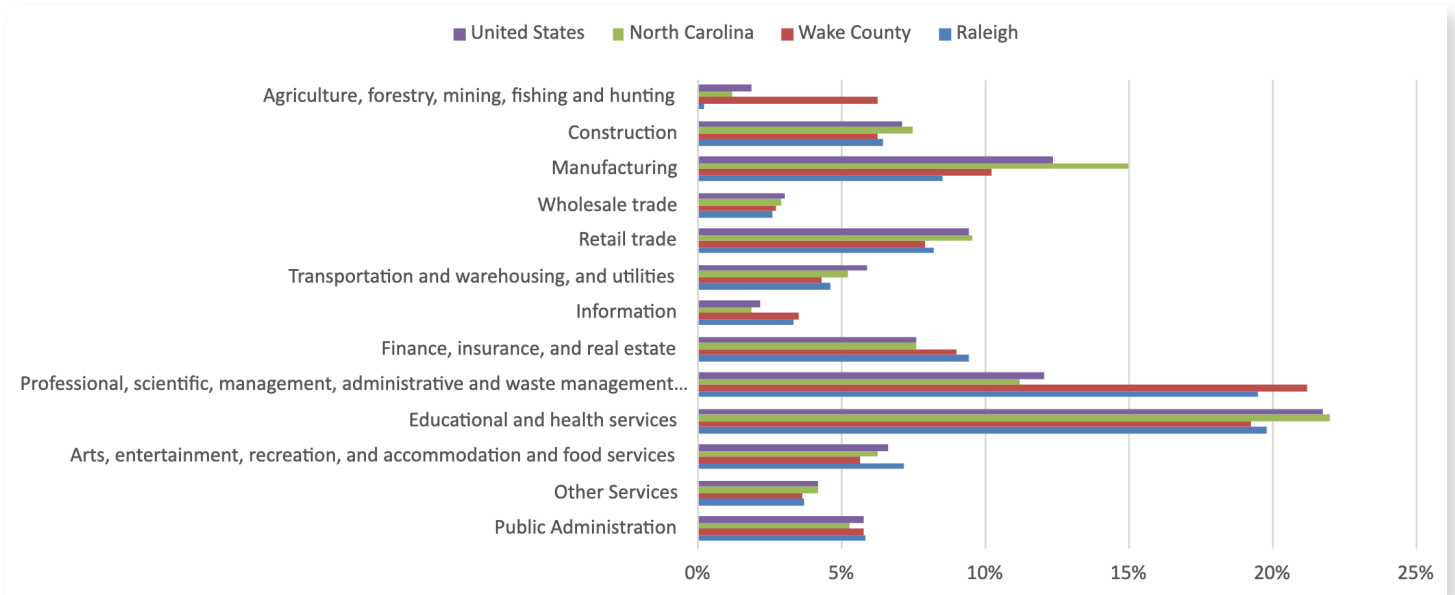
FIGURE 4.4, continued

EMPLOYMENT BY INDUSTRY IN WAKE COUNTY, 2011-2020

| Industry | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Management of companies and enterprises | 10,142 | 10,660 | 10,272 | 10,598 | 10,395 | 9,965 | 10,145 | 10,999 | 10,797 |
| Administrative and waste services | 39,121 | 43,498 | 45,216 | 45,202 | 46,372 | 44,777 | 44,488 | 44,096 | 42,831 |
| Education and health services | 88,180 | 90,079 | 92,458 | 96,201 | 100,172 | 103,147 | 106,362 | 109,997 | 106,911 |
| Educational services | 40,419 | 40,715 | 42,058 | 42,841 | 43,883 | 44,864 | 45,889 | 46,705 | 45,311 |
| Health care and social assistance | 47,761 | 49,364 | 50,400 | 53,360 | 56,289 | 58,283 | 60,473 | 63,292 | 61,599 |
| Leisure and hospitality | 50,765 | 53,179 | 55,500 | 58,754 | 61,556 | 63,602 | 64,606 | 66,420 | 50,861 |
| Arts entertainment and recreation | 9,292 | 9,893 | 9,972 | 10,822 | 11,088 | 11,363 | 11,553 | 12,518 | 7,830 |
| Accommodation and food services | 41,473 | 43,286 | 45,528 | 47,933 | 50,469 | 52,240 | 53,053 | 53,902 | 43,030 |
| Public administration | 38,789 | 39,767 | 40,285 | 40,622 | 40,630 | 41,129 | 41,776 | 42,377 | 41,951 |
| Other services excluding public administration | 14,659 | 14,819 | 15,253 | 15,456 | 16,622 | 16,522 | 17,136 | 18,013 | 17,163 |
| Unclassified | * | | | 11 | | * | * | * | |
| Combined Total | 455,813 | 473,951 | 490,606 | 511,530 | 530,151 | 543,456 | 560,284 | 574,989 | 550,680 |

*Not shown to avoid disclosure of confidential information

SOURCE: NORTH CAROLINA DIVISION OF EMPLOYMENT SECURITY

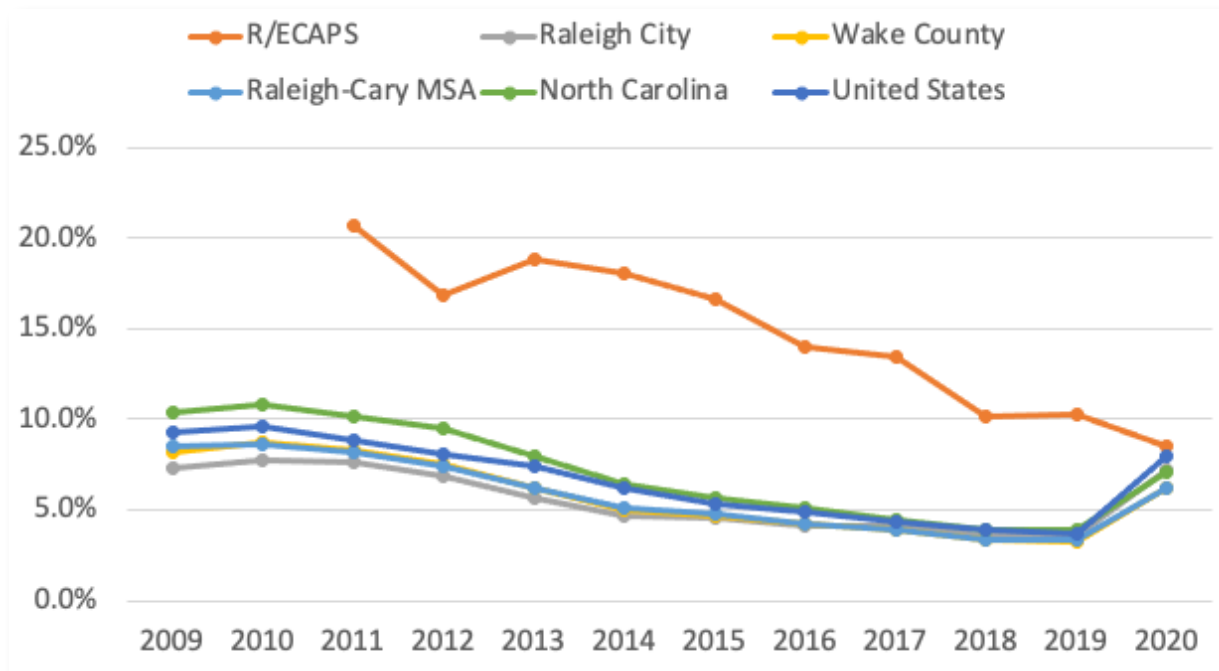
FIGURE 4.5**JOBS BY INDUSTRY COMPARISON, 2020**

SOURCE: CENSUS BUREAU, 2020 AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

Unemployment Rates and Employment Projections

Raleigh's unemployment rate spiked in 2020, rising to 7.2% after a steady decline over the past decade, mirroring the trend in unemployment in the county, state, and country, though still marginally below the countywide, statewide, and nationwide annual average. Though still above the unemployment rate for the City as a whole, the average unemployment rate in census tracts defined as racially and ethnically concentrated areas of poverty (RECAPs) has continued to decline, even through 2020 (see Figure 4.6). The uptick in Raleigh's unemployment is likely a result of employment shifts due to the COVID-19 pandemic. The continued decline in unemployment in RECAP tracts suggests that the residents of these tracts were predominately essential workers.

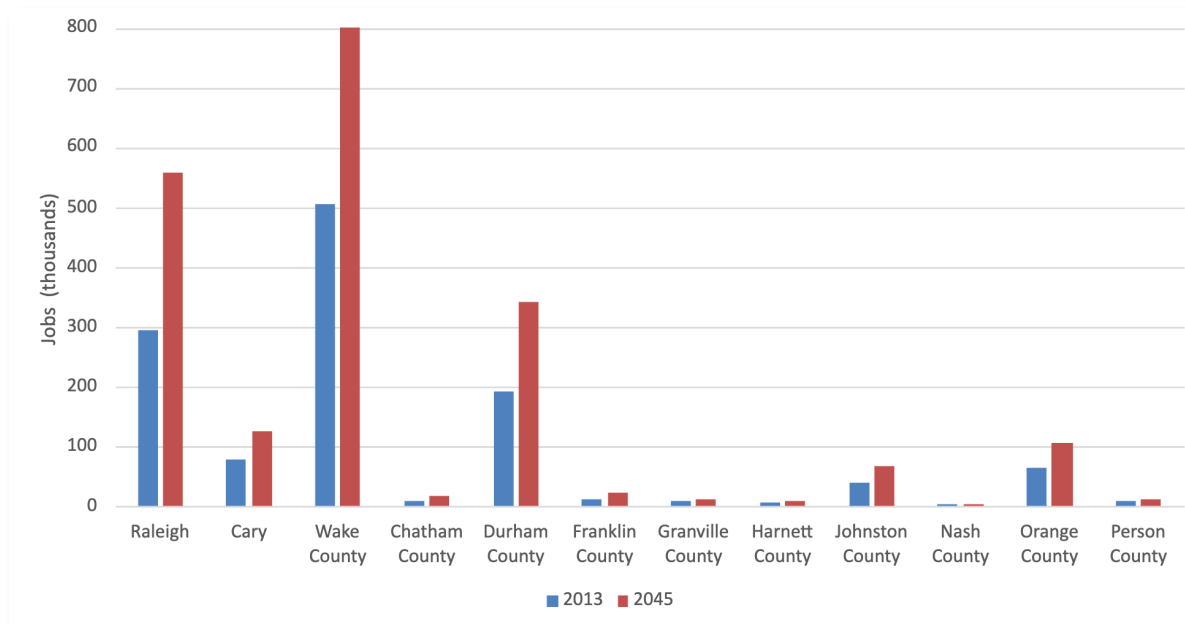
Despite these trends, according to a model created by the Capital Area Metropolitan Planning Organization (CAMPO) with input from municipalities across the Triangle region, Raleigh is expected to add over 200,000 jobs from 2013 to 2045, an average increase of 2.8% every year (see Table 4.7 and Figure 4.8). Wake County is expected to add the most jobs in the region in terms of raw numbers with other exurban counties adding jobs at a similar rate. Looking at the types of projected new jobs, the model shows the following breakdown for new jobs projected to be created in Raleigh during the 2013-2045 time period: 37% in office, 34% in the service sector, 20% in retail, and 9% in industrial (see Figure 4.9). More information on the employment projection model can be found [here](#).

FIGURE 4.6**AVERAGE ANNUAL UNEMPLOYMENT RATES**

SOURCE: NORTH CAROLINA DIVISION OF EMPLOYMENT SECURITY

FIGURE 4.7**TRIANGLE REGION EMPLOYMENT PROJECTIONS**

| Place | 2013 | 2025 | 2035 | 2045 | Average annual projected growth 2013-2045 |
|------------------|---------|---------|---------|---------|---|
| Raleigh | 295,201 | 393,324 | 475,073 | 556,758 | 2.8% |
| Cary | 78,670 | 95,870 | 110,230 | 124,534 | 1.8% |
| Wake County | 505,966 | 668,690 | 804,133 | 939,481 | 2.7% |
| Chatham County | 9,339 | 12,559 | 15,247 | 17,926 | 2.9% |
| Durham County | 192,877 | 249,241 | 296,178 | 343,082 | 2.4% |
| Franklin County | 12,993 | 16,538 | 19,504 | 22,450 | 2.3% |
| Granville County | 8,373 | 9,751 | 10,896 | 12,037 | 1.4% |
| Harnett County | 5,689 | 7,167 | 8,401 | 9,627 | 2.2% |
| Johnston County | 40,805 | 50,674 | 58,924 | 67,135 | 2.0% |
| Nash County | 335 | 376 | 412 | 446 | 1.0% |
| Orange County | 64,212 | 80,304 | 93,693 | 107,073 | 2.1% |
| Person County | 9,979 | 10,621 | 11,151 | 11,680 | 0.5% |

FIGURE 4.8**TRIANGLE REGION EMPLOYMENT PROJECTIONS, 2010 & 2045**

SOURCE: CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION (CAMPO)

FIGURE 4.9**SECTOR SHARE OF PROJECTED NET JOBS 2010 – 2045**

| | Industrial | Office | Service | Retail | Total |
|----------------------------|------------|--------|---------|--------|-------|
| Raleigh | 9% | 37% | 34% | 20% | 100% |
| Unincorporated Wake County | 48% | 17% | 26% | 9% | 100% |
| Other jurisdictions | 19% | 35% | 27% | 19% | 100% |
| Countywide total | 14% | 35% | 32% | 19% | 100% |

SOURCE: CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION (CAMPO)

Major Employers and Expanding Companies

The major employers in Wake County are concentrated in the following industries: public administration; education & health services and retail trade. The ten largest individual employers in Raleigh include the State of North Carolina, Wake County Public Schools, and WakeMed Hospitals; together these ten organizations account for over 100,000 jobs countywide (Figure 4.10)

In 2019, 102 major companies announced either new operations or expansions of present operations in Raleigh creating 6,633 new jobs (Figure 4.11).

FIGURE 4.10

MAJOR EMPLOYERS LOCATED IN RALEIGH, 2019

| Rank | Name | Countywide Employment | Industry |
|------|----------------------------------|-----------------------|-------------------------------|
| 1 | State of North Carolina | 24,083 | Public Administration |
| 2 | Wake County Public School System | 17,000 | Education & Health Services |
| 3 | Wal-Mart | 17,000 | Retail Trade |
| 4 | WakeMed Health & Hospitals | 9,773 | Education & Health Services |
| 5 | North Carolina State University | 9,019 | Education & Health Services |
| 6 | Food Lion | 8,600 | Retail Trade |
| 7 | Target | 8,000 | Retail Trade |
| 8 | UNC Rex Healthcare | 6,900 | Education and Health Services |
| 9 | Harris Teeter | 5,346 | Retail Trade |
| 10 | Wake County Government | 4,389 | Public Administration |

SOURCE: WAKE COUNTY ECONOMIC DEVELOPMENT

FIGURE 4.11

NEW & EXPANDING COMPANIES RALEIGH, 2019

| | Number of Companies | New Jobs | Total Investment |
|-----------|---------------------|----------|------------------|
| New | 26 | 2,471 | \$185,100,000 |
| Expanding | 78 | 4,162 | \$429,350,000 |

SOURCE: WAKE COUNTY ECONOMIC DEVELOPMENT

Non-residential Building Activity & Cost of Living

After a significant increase in non-residential development in 2018, Raleigh has seen a dip in non-residential building, with only 9 permits issued for commercial building in 2020. The amount of overall commercial square footage has decreased in the last year by nearly 14%. At the same time, the value of total construction

has increased by about \$10.2 million (Figure 4.12). Permits for office building remained the same in 2020 as 2019 at 21 with an increase in the square footage of office space but a decrease in overall construction value (Figure 4.13). Industrial, institutional, and total non-residential building activity over the past 11 years is summarized in Figures 4.14 – 4.17.

FIGURE 4.12
RALEIGH COMMERCIAL BUILDING ACTIVITY

| Year | Number of permits | Square Feet | Construction Value |
|--------------|-------------------|------------------|----------------------|
| 2009 | 30 | 691,702 | \$93,302,124 |
| 2010 | 25 | 407,133 | \$89,959,676 |
| 2011 | 20 | 317,563 | \$30,390,667 |
| 2012 | 10 | 277,020 | \$28,680,914 |
| 2013 | 16 | 246,234 | \$27,798,301 |
| 2014 | 24 | 528,509 | \$63,953,067 |
| 2015 | 24 | 718,558 | \$102,134,455 |
| 2016 | 17 | 210,008 | \$21,380,365 |
| 2017 | 15 | 151,247 | \$16,673,962 |
| 2018 | 27 | 1,007,176 | \$127,305,237 |
| 2019 | 20 | 294,096 | \$40,009,472 |
| 2020 | 9 | 253,158 | \$50,289,371 |
| Total | 237 | 5,102,404 | \$691,877,611 |

SOURCE: CITY OF RALEIGH OPEN DATA

FIGURE 4.13
RALEIGH OFFICE BUILDING ACTIVITY

| Year | Number of permits | Square Feet | Construction Value |
|--------------|-------------------|------------------|------------------------|
| 2009 | 30 | 499,932 | \$44,230,191 |
| 2010 | 11 | 1,050,200 | \$237,682,996 |
| 2011 | 18 | 219,434 | \$38,756,590 |
| 2012 | 19 | 686,796 | \$52,249,057 |
| 2013 | 9 | 366,455 | \$26,180,658 |
| 2014 | 20 | 1,139,144 | \$109,896,279 |
| 2015 | 16 | 959,373 | \$83,576,256 |
| 2016 | 14 | 1,325,832 | \$92,937,403 |
| 2017 | 8 | 358,913 | \$42,021,677 |
| 2018 | 17 | 1,263,912 | \$194,143,626 |
| 2019 | 21 | 604,874 | \$214,468,318 |
| 2020 | 21 | 709,292 | \$93,943,125 |
| Total | 204 | 9,184,157 | \$1,230,086,176 |

SOURCE: CITY OF RALEIGH OPEN DATA



FIGURE 4.14
RALEIGH INDUSTRIAL BUILDING ACTIVITY

| Year | Number of permits | Square Feet | Construction Value |
|--------------|-------------------|------------------|----------------------|
| 2009 | 9 | 118,650 | \$7,789,500 |
| 2010 | 7 | 170,680 | \$10,182,575 |
| 2011 | 7 | 33,913 | \$1,276,400 |
| 2012 | 5 | 124,327 | \$5,485,533 |
| 2013 | 5 | 149,230 | \$7,017,000 |
| 2014 | 9 | 142,889 | \$8,609,361 |
| 2015 | 16 | 395,375 | \$20,555,006 |
| 2016 | 39 | 1,256,019 | \$56,523,605 |
| 2017 | 12 | 526,700 | \$35,715,548 |
| 2018 | 11 | 127,552 | \$10,585,416 |
| 2019 | 1 | 6,000 | \$453,831 |
| 2020 | 0 | - | - |
| Total | 121 | 3,051,335 | \$164,193,775 |

SOURCE: CITY OF RALEIGH OPEN DATA



FIGURE 4.15
RALEIGH INSTITUTIONAL BUILDING ACTIVITY

| Year | Number of permits | Square Feet | Construction Value |
|--------------|-------------------|------------------|----------------------|
| 2009 | 31 | 306,995 | \$63,514,172 |
| 2010 | 13 | 199,762 | \$46,024,529 |
| 2011 | 11 | 227,696 | \$44,009,779 |
| 2012 | 4 | 60,086 | \$7,241,251 |
| 2013 | 5 | 145,296 | \$23,130,800 |
| 2014 | 24 | 1,133,703 | \$295,164,184 |
| 2015 | 22 | 1,020,669 | \$91,869,876 |
| 2016 | 9 | 82,564 | \$29,681,114 |
| 2017 | 13 | 314,647 | \$55,646,654 |
| 2018 | 11 | 229,497 | \$57,740,020 |
| 2019 | 5 | 228,227 | \$57,933,796 |
| 2020 | 10 | 216,951 | \$30,561,837 |
| Total | 158 | 4,166,093 | \$802,518,012 |

SOURCE: CITY OF RALEIGH OPEN DATA



FIGURE 4.16

RALEIGH OTHER NONRESIDENTIAL BUILDING ACTIVITY

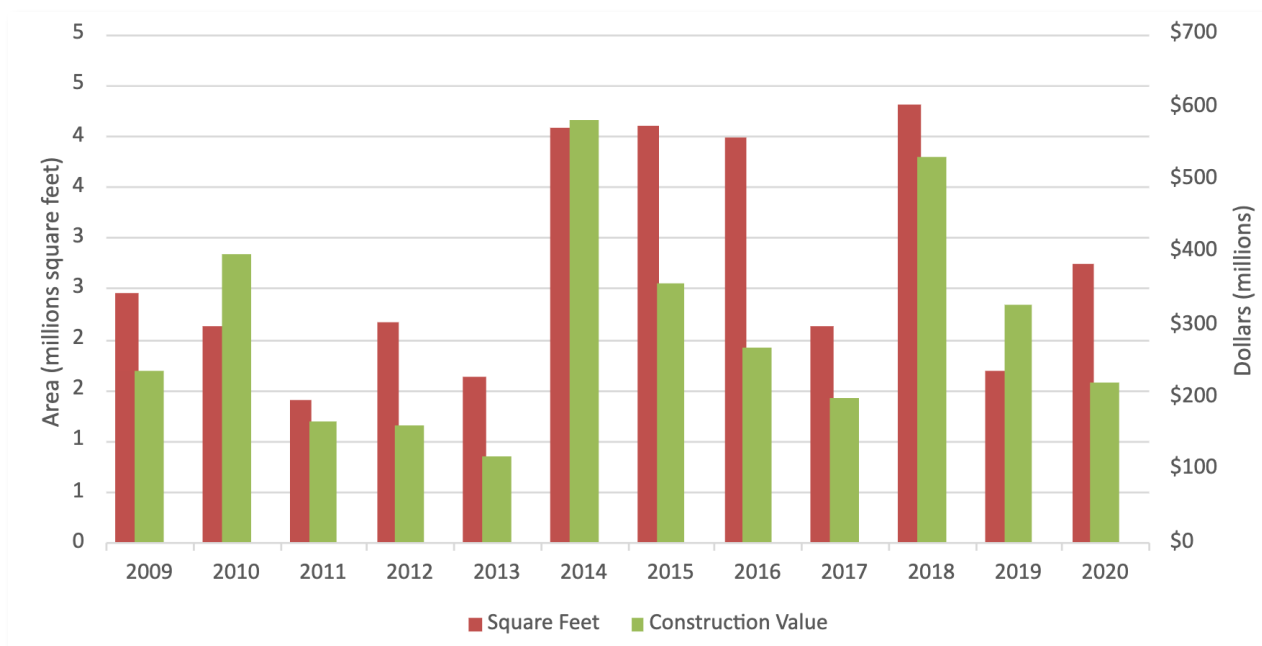
| Year | Number of permits | Square Feet | Construction Value |
|--------------|-------------------|-------------------|----------------------|
| 2009 | 73 | 827,966 | \$27,099,801 |
| 2010 | 89 | 297,607 | \$11,342,959 |
| 2011 | 127 | 605,134 | \$52,685,823 |
| 2012 | 138 | 1,018,767 | \$65,907,043 |
| 2013 | 115 | 719,405 | \$35,178,056 |
| 2014 | 121 | 1,133,703 | \$103,744,402 |
| 2015 | 144 | 996,763 | \$57,006,973 |
| 2016 | 123 | 1,100,482 | \$68,678,633 |
| 2017 | 111 | 777,555 | \$47,809,735 |
| 2018 | 124 | 1,682,506 | \$140,672,580 |
| 2019 | 52 | 544,172 | \$13,359,243 |
| 2020 | 38 | 1,553,480 | \$44,844,897 |
| Total | 1,255 | 11,257,540 | \$668,330,145 |

SOURCE: CITY OF RALEIGH OPEN DATA

FIGURE 4.17**RALEIGH TOTAL NONRESIDENTIAL BUILDING ACTIVITY**

| Year | Number of permits | Square Feet | Construction Value |
|--------------|-------------------|-------------------|------------------------|
| 2009 | 173 | 2,445,245 | \$235,935,788 |
| 2010 | 145 | 2,125,382 | \$395,192,735 |
| 2011 | 183 | 1,403,740 | \$167,119,259 |
| 2012 | 176 | 2,166,996 | \$159,563,798 |
| 2013 | 150 | 1,626,620 | \$119,304,815 |
| 2014 | 198 | 4,077,948 | \$581,367,293 |
| 2015 | 222 | 4,090,738 | \$355,142,566 |
| 2016 | 202 | 3,974,905 | \$269,201,120 |
| 2017 | 159 | 2,129,062 | \$197,867,576 |
| 2018 | 190 | 4,310,643 | \$530,446,879 |
| 2019 | 99 | 1,467,108 | \$332,499,407 |
| 2020 | 78 | 2,732,881 | \$219,639,230 |
| Total | 1,798 | 28,351,279 | \$3,011,141,829 |

SOURCE: CITY OF RALEIGH OPEN DATA

FIGURE 4.18**RALEIGH TOTAL BUILDING ACTIVITY**

SOURCE: CITY OF RALEIGH OPEN DATA



Raleigh has a lower composite cost of living score than peer cities

Cost of Living Comparison to Similar Cities

Founded in 1961, the Council for Community and Economic Research (C2ER) has been conducting city-to-city cost-of-living comparisons for over 50 years. Their 2020 Annual Average Cost of Living Index assessed Raleigh as having a lower composite cost of living score than peer cities such as Atlanta, GA, Charlotte, NC, and Austin, TX (see Figure 4.19). Raleigh had a low cost of housing score and a low cost of groceries score as compared to these other peer cities.

FIGURE 4.19

METRO AREA COST OF LIVING INDEX COMPARISON

| Metro Area | 100% composite index | Grocery | Utilities | Transportation | Health | Misc. services |
|----------------------------|----------------------|---------|-----------|----------------|--------|----------------|
| Raleigh, NC | 95.1 | 86.3 | 96 | 97.8 | 98.3 | 98.5 |
| Charlotte, NC | 95.9 | 102.3 | 93.8 | 96.4 | 103 | 101.3 |
| Nashville-Murfreesboro, TN | 96.1 | 99.2 | 89.6 | 91.1 | 93.1 | 101.9 |
| Orlando, FL | 98.2 | 103.7 | 96.7 | 99.5 | 98.3 | 99.5 |
| Charleston, SC | 100.7 | 95.3 | 118.9 | 94.9 | 98.1 | 98.6 |
| Austin, TX | 102 | 93.5 | 95.1 | 86.7 | 107 | 102.6 |
| Atlanta, GA | 102.6 | 99.5 | 84 | 99.6 | 104.6 | 105 |

SOURCE: C2ER COST OF LIVING INDEX, ANNUAL AVERAGE 2020

Housing & Neighborhoods

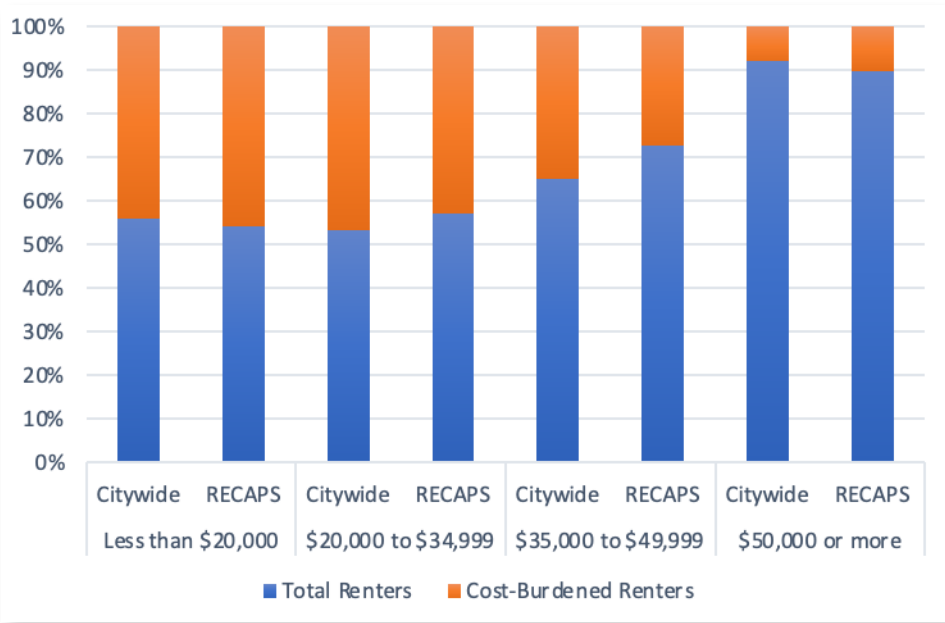
The City of Raleigh carries out several programs to increase the supply of affordable housing and stabilize and improve older neighborhoods by providing additional resources. The success of these programs can be attributed in large part to the City's partnership with other governmental entities, for-profit and nonprofit organizations, and ongoing engagement partnership with residents.

The goal of Raleigh's housing programs is to increase housing opportunities for both existing and future residents and to create diverse neighborhoods of choice that attract new investment, yet don't exclude residents due to housing costs or discriminatory practices.

Housing Affordability

Based on the 2019 American Community Survey 5-Year Estimates, 44.2% of Raleigh's renter households pay more than 30% of their income in housing costs compared to 17.4% for owner households (see Figure 5.1). Households with annual income of less than \$50,000 – both renter and owner – are particularly burdened by housing costs. Comparing the fair market rent for a 1-bedroom apartment in the Raleigh metro area to affordable housing costs (30% of income) for renter households making less than \$35,000 reveals a substantial gap in affordability (see Figure 5.2). Figures 5.1 and 5.2 below show the percentage of cost-burdened renters and homeowners, respectively categorized by income level across the city and in HUD-designated Racial or Ethnically Concentrated Areas of Poverty (RECAPS).

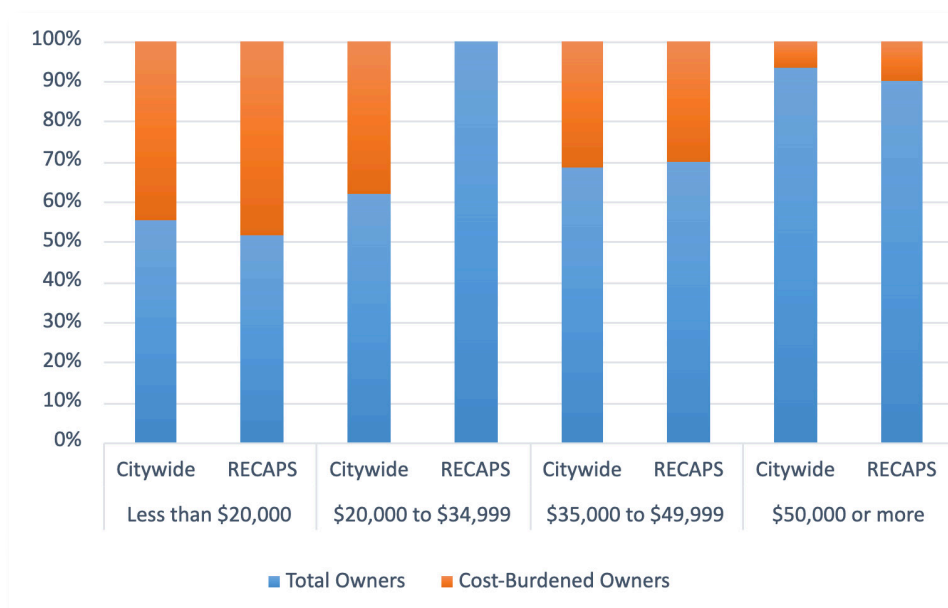
FIGURE 5.1
COST-BURDENED RENTING HOUSEHOLDS BY ANNUAL INCOME IN RALEIGH, 2019



SOURCE: US CENSUS BUREAU, 2019 ACS 5-YEAR ESTIMATE

FIGURE 5.2

COST-BURDENED HOMEOWNING HOUSEHOLDS BY ANNUAL INCOME IN RALEIGH, 2019



SOURCE: US CENSUS BUREAU, 2019 ACS 5-YEAR ESTIMATE

FIGURE 5.3

COMPARISON OF RENTER HOUSEHOLD INCOME, AFFORDABLE HOUSING COSTS, & FAIR MARKET RENT

| Annual Income Category | Total Renter Households | Affordable Housing Costs at 30% of Income | Fair Market Rent for 1 Bedroom Apartment | Affordability Gap |
|---------------------------|-------------------------|---|--|-------------------|
| Less than \$10,000 | 6,203 | \$250 | \$ 949 | \$ (699) |
| \$10,000 to \$19,999 | 9,464 | \$375 | \$ 949 | \$ (574) |
| \$20,000 to \$34,999 | 16,741 | \$687 | \$ 949 | \$ (262) |
| All Households < \$35,000 | 32,408 | | | |

SOURCE: US CENSUS BUREAU, 2019 ACS 5-YEAR ESTIMATES, US HUD FAIR MARKET RENT DOCUMENTATION SYSTEM (2019)

FIGURE 5.4**NUMBER OF ASSISTED AFFORDABLE HOUSING UNITS, 2019-2020**

| | 2019 | 2020 | Change |
|--|---------------|---------------|--------------|
| City of Raleigh Affordable Rental Units | 195 | 220 | 12.8% |
| Raleigh Housing Authority Units | 1,444 | 1,444 | 0.0% |
| Rental Units with Funding Directly from HUD | 531 | 670 | 26.2% |
| Low-Income Housing Tax Credit (LIHTC) Units (no City funds) | 1,870 | 1,870 | 0.0% |
| Rental Units with Funding from City of Raleigh (Joint Venture) | 3,056 | 4,182 | 36.8% |
| Homeownership Units with Funding from City of Raleigh | 551 | 691 | 25.4% |
| Second Mortgages Provided by City of Raleigh | 1,402 | 1,584 | 13.0% |
| Raleigh Housing Authority Housing Choice Vouchers (Section 8) | 3,921 | 3,921 | 0.0% |
| Total | 12,970 | 14,582 | 12.4% |

SOURCE: CITY OF RALEIGH HOUSING AND NEIGHBORHOOD DEPARTMENT, 2020

Home Sales, Average Rent, Residential Building Activity

2020 saw increases in median sales price for all unit housing types which matches the recent trend since 2017 of increasing median sales prices (see Figure 5.5). The median sales price for condominium and single-family detached units saw the largest annual percent increase in the past 10 years jumping up 22% and 11% respectively between 2019 and 2020.. The median sales price of townhouses saw a more moderate increase of 4% over the same period (Figure 5.6)

FIGURE 5.5**MEDIAN SALES PRICE BY UNIT TYPE (2020 DOLLARS)**

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Single-Family Detached | 251,125 | 250,850 | 247,520 | 262,051 | 265,582 | 281,600 | 292,500 | 298,000 | 330,000 |
| Townhouse | 171,421 | 175,162 | 172,787 | 180,260 | 182,980 | 189,952 | 205,000 | 220,000 | 229,000 |
| Condominium | 147,400 | 128,394 | 133,566 | 131,290 | 142,201 | 140,288 | 160,000 | 170,000 | 207,500 |

SOURCE: WAKE COUNTY REVENUE DEPARTMENT

Looking at residential sales by price range, the highest number of single-family homes sold during 2020 had a price tag of over \$400,000, with sales of homes between \$200,001 to \$250,000 a distant second (see Figure 5.7). For townhouses, the highest number of sales were in the \$200,001 to \$250,000 range. The highest

number of sales for condominiums, was the \$150,001 to \$200,000 price range. This marks a change from the previous year where the \$100,001 to \$150,000 price range included the highest number of sales. For all residential units combined, the largest number of sales were for homes that exceeded \$400,000.

FIGURE 5.6

PERCENT CHANGE IN MEDIAN SALES PRICE BY UNIT TYPE (2020 DOLLARS)

| | 2012 to 2013 | 2013 to 2014 | 2014 to 2015 | 2015 to 2016 | 2016 to 2017 | 2017 to 2018 | 2018 to 2019 | 2019 to 2020 |
|------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Single-Family Detached | -0.1% | -1.3% | 5.9% | 1.3% | 6.0% | 3.9% | 1.9% | 10.7% |
| Townhouse | 2.2% | -1.4% | 4.3% | 1.5% | 3.8% | 7.9% | 7.3% | 4.1% |
| Condominium | -11.1% | 1.9% | -1.7% | 8.3% | -1.4% | 14.1% | 6.3% | 22.1% |

SOURCE: WAKE COUNTY REVENUE DEPARTMENT

FIGURE 5.7

NUMBERS OF RESIDENTIAL SALES BY PRICE RANGE AND TYPE OF UNIT, 2020

| Price Range of Sales | Single Family | Townhouse | Condo | All Units |
|-----------------------|---------------|--------------|--------------|--------------|
| \$25,000 - \$100,000 | 7 | 14 | 46 | 67 |
| \$100,001 - \$150,000 | 60 | 107 | 162 | 329 |
| \$150,001 - \$200,000 | 369 | 591 | 281 | 1,241 |
| \$200,001 - \$250,000 | 906 | 769 | 106 | 1,781 |
| \$250,001 - \$300,000 | 872 | 441 | 122 | 1,435 |
| \$300,001 - \$350,000 | 859 | 201 | 80 | 1,140 |
| \$350,001 - \$400,000 | 540 | 74 | 41 | 655 |
| over \$400,000 | 1,856 | 171 | 165 | 2,192 |
| Total | 5,469 | 2,368 | 1,003 | 8,840 |

SOURCE: WAKE COUNTY REVENUE DEPARTMENT

Cost of living data from the American Community Survey indicates that median rents for the city of Raleigh have seen annual increases over the past 5 years (see Figure 5.8). In 2019, median gross rent in the city was estimated to be \$1,121.

Looking at residential permit activity for 2020, apartments represented the largest category by far in terms of permit numbers (2,257 units permitted, or about 70% of all residential building permits issued), and constructions value (\$365 million or about 56% of total residential construction value) (see Figure 5.9).

FIGURE 5.8

RALEIGH ANNUAL MEDIAN GROSS APARTMENT RENT

| Year | Gross Rent |
|------|------------|
| 2010 | 828 |
| 2011 | 855 |
| 2012 | 875 |
| 2013 | 897 |
| 2014 | 914 |
| 2015 | 926 |
| 2016 | 966 |
| 2017 | 1,010 |
| 2018 | 1,074 |
| 2019 | 1,121 |

SOURCE: AMERICAN COMMUNITY SURVEY 5-YEAR ESTIMATES

FIGURE 5.9

RALEIGH RESIDENTIAL BUILDING ACTIVITY, 2019-2020

| Residential Type | 2019 | | 2020 | | Change | |
|--------------------|------------------------|------------------------|------------------------|------------------------|------------------------|--------------------|
| | No. of Units Permitted | Construction Value | No. of Units Permitted | Construction Value | No. of Units Permitted | Construction Value |
| Single Family | 598 | \$197.3 million | 584 | \$208.1 million | -2.3% | 5.5% |
| Townhouse | 213 | \$46.4 million | 327 | \$73.5 million | 53.5% | 58.6% |
| 2-4 Attached units | 22 | \$4.5 million | 21 | \$3.8 million | -4.5% | -17.4% |
| Condominium | 74 | \$21.3 million | 38 | \$6.0 million | 48.6% | -71.9% |
| Apartment | 1,266 | \$210 million | 2,257 | \$365.3 million | 78.3% | 73.9% |
| Total | 2,173 | \$479.5 million | 3,227 | \$656.6 million | 48.5% | 36.9% |

SOURCE: CITY OF RALEIGH DEVELOPMENT SERVICES DEPARTMENT

Transportation

This section provides an overview of existing and planned transportation investments and identifies the primary challenges facing the City of Raleigh's transportation system within a regional context.

Context

The quality of the transportation system is a major factor for a community's economic prosperity and quality of life. An effective transportation system provides for accessibility to employment, services, goods, entertainment, and other daily needs. It also provides longer distance mobility of people and goods, and over the long-term, it influences patterns of growth

and economic activity. The 2030 Comprehensive Plan, as well as specialized transportation plans and studies, helps Raleigh guide the future development of its streets and highways, public transportation systems, bicycle and greenway trail networks, and pedestrian networks. Together, these modes of transportation provide accessibility and mobility in support of desired land use patterns, urban form, and sense of place.

The City of Raleigh depends on several organizations for transportation planning and implementation. The key organizations involved with transportation planning and implementation are:

- » **Capital Area Metropolitan Planning Organization (CAMPO):** Long-range regional planning, capital improvement planning
- » **North Carolina Department of Transportation (NCDOT):** Long-range planning on some major streets, capital improvement planning, construction/implementation on some major streets
- » **Raleigh Department of City Planning:** Long-range planning, capital improvement planning
- » **Raleigh Department of Transportation:** Construction, implementation, and operation of the transportation system
- » **GoTriangle:** Long-range regional transit planning, capital improvement planning, construction and implementation

Capital Improvement Program

Raleigh's Capital Improvement Program includes individual capital projects, equipment purchases and major studies for a local government, in conjunction with other financing plans.

"The Transportation Element includes major street construction, street improvements, pedestrian and bicycle projects, downtown parking improvements and general transit projects. All capital projects are consistent with

the adopted goals of the 2030 Comprehensive Plan and the City of Raleigh Strategic Plan. Projects incorporate "Complete Streets" principles, integrating bicycle, pedestrian, and transit system elements into each project. To continue the City's transit improvements, staff continues coordination with regional partners to implement the Wake Transit Plan."

Figure 6.1 shows the allocation of CIP funds in greater detail.

FIGURE 6.1

TRANSPORTATION CAPITAL IMPROVEMENT PROGRAM

| Project Category | FY2020 | FY2021 | FY2022 | FY2023 | FY2024 | 5-Year Total |
|---|-----------|------------|------------|-----------|-----------|--------------|
| Wake Transit Plan Projects | \$37.19 M | \$118.29 M | \$151.27 M | \$91.94 M | \$31.81 M | \$430.50 M |
| Transit Capital Investments | \$11.01 M | \$4.27 M | \$4.07 M | \$1.07 M | \$1.09 M | \$21.51 M |
| Major Street Improvements | \$35.78 M | \$47.81 M | \$33.29 M | \$2.50 M | \$2.50 M | \$121.88 M |
| Major Catalytic Projects | \$16.86 M | \$4.62 M | \$4.11 M | \$0.12 M | \$0.20 M | \$25.73 M |
| Street Maintenance & Continuous Improvement | \$12.46 M | \$10.21 M | \$10.28 M | \$10.36 M | \$10.21 M | \$53.52 M |
| Neighborhood Connections & Enhancements | \$3.48 M | \$3.38 M | \$3.28 M | \$0.50 M | \$0.85 M | \$11.48 M |
| Public-Private Partnerships & Cost Sharing | \$1.00 M | \$1.00 M | \$- | \$- | \$- | \$2.00 M |
| Studies & Planning Projects | \$0.38 M | \$0.28 M | \$0.33 M | \$0.33 M | \$0.33 M | \$1.61 M |
| Parking Enterprise Capital Investments | \$2.36 M | \$2.74 M | \$2.95 M | \$2.55 M | \$1.93 M | \$12.52 M |

The City of Raleigh's fiscal year is from July 1 to June 30; FY2020 corresponds to the year beginning July 1, 2019.

SOURCE: CITY OF RALEIGH DEPARTMENT OF TRANSPORTATION

Federal Funding

In addition to municipal bonds and the General Fund, federal grants are a significant source of funding for transportation improvements. These grants come from a variety of sources and serve distinct goals. City officials choose to accept federal grants based on their alignment with existing transportation policies and initiatives. Figure 6.2 shows the amounts and uses of grants awarded for the period between 2016 and 2020.

The **CIP Project Map** tracks transportation projects.

FIGURE 6.2

FEDERAL GRANT ALLOCATIONS FOR TRANSPORTATION PROJECTS, 2016-2020

| Project Description | Source | Funding | Mode |
|---|--------|-------------|----------|
| Capital Blvd/Peace St. Interchange Enhancements | STP-DA | \$5,000,000 | Roadway |
| New Bern Ave Pedestrian Improvements | CMAQ | \$1,754,071 | Bike/Ped |
| Trailwood Sidewalk | STP-DA | \$592,200 | Bike/Ped |
| Leesville Safe Routes to School | STP-DA | \$446,480 | Bike/Ped |
| Raleigh BikeShare Implementation | CMAQ | \$1,548,800 | Transit |
| Wake Forest/Blount/Person Rd. Complete Streets | STP-DA | \$1,274,400 | Roadway |
| Walnut Creek Greenway- Trailwood Segment | CMAQ | \$683,400 | Bike/Ped |
| Crabtree Creek West Greenway | CMAQ | \$1,547,000 | Bike/Ped |
| Computer Aided Dispatch and Bus Tracking | | repurposed | Transit |
| Gorman Street Connector | CMAQ | \$260,000 | Bike/Ped |
| Transit Signal Priority Project | CMAQ | \$1,000,000 | Transit |

SOURCE: CITY OF RALEIGH OPEN DATA

FIGURE 6.2, continued**FEDERAL GRANT ALLOCATIONS FOR TRANSPORTATION PROJECTS, 2016-2020**

| Project Description | Source | Funding | Mode |
|---|---------------------|----------------|-------------|
| Compressed Natural Gas Fueling Station | STP-DA | \$2,024,947 | Transit |
| Rock Quarry Road- Part A | STP-DA | \$9,928,100 | Roadway |
| New Bern Ave. Bottleneck Elimination | STP-DA | \$409,600 | Roadway |
| Blue Ridge Road Pedestrian Improvements | CMAQ | \$3,595,800 | Bike/Ped |
| FY2019 Bus Stop Improvements | STP-DA | \$876,000 | Transit |
| Navaho Drive Sidewalk | TAP | \$352,600 | Transit |
| GoRaleigh Bus Stop Sites | STP-DA | \$2,000,000 | Transit |
| Old Wake Forest - North | STP-DA | \$11,158,400 | Roadway |
| Enhanced Transfer Points | STP-DA | \$787,737 | Transit |
| Total Allocations | \$45,239,535 | | |
| Total Bike/Ped Allocations | \$8,878,951 | | |
| Total Roadway Allocations | \$27,770,500 | | |
| Total Transit Allocations | \$8,590,084 | | |

STP-DA: Surface Transportation Program – Direct Allocation; CMAQ: EPA Congestion Mitigation and Air Quality Improvement Program; BUILD: USDOT Better Utilizing Investments to Leverage Development; TAP: Transportation Alternatives Program

SOURCE: CAPITAL AREA METROPOLITAN PLANNING ORGANIZATION

Cycling in Raleigh

In 2009, Raleigh adopted the Bicycle Transportation Plan, a framework that helped Raleigh earn a bronze-level Bicycle Friendly Community status. In 2016, BikeRaleigh was adopted as an update to this plan, and evaluates progress on the 2009 plan goals and adding new research, peer city examples, and best practices. BikeRaleigh is centered around the vision of Raleigh as “a place where people of all ages and abilities bicycle comfortably and safely for transportation, fitness, and enjoyment.” The plan identifies long-term route plans, which can be seen online [here](#).

Implementation of BikeRaleigh has continued at a steady pace, with 10.12 miles of on-street bicycle infrastructure added in 2020 (Figure 6.3) for a total of 105 miles of bicycle lanes, neighborhood bikeways, and separated bikeways around the city.

Transit

Raleigh is served by local GoRaleigh routes, regional GoTriangle routes, and Wolfline routes serving the NC State University campus and surrounding neighborhoods. GoRaleigh's ridership has stayed relatively stable in recent years at around 5 million trips per year, but with a significant increase in 2019 (Figure 6.4).

| | |
|------|-----------|
| 2016 | 5,179,023 |
| 2017 | 4,837,344 |
| 2018 | 5,183,676 |
| 2019 | 5,556,430 |

FIGURE 6.4
ANNUAL RIDERSHIP FOR
GORALEIGH ROUTES

SOURCE: GORALEIGH

The majority of riders pay by fare, just over 15 percent of ridership in 2019 held a Go Pass, available by some employers which allows employees to ride for free or a discounted rate. The area's colleges and universities, including NC State University, make up the largest section of Go Pass holders, with local and state government employees making up a smaller but consistent portion of Go Pass ridership. Go Pass ridership increased noticeably in 2019, likely due to the implementation of the Youth Go Pass, which includes unlimited fare-free rides on GoRaleigh, GoTriangle, GoCary, and GoDurham routes for riders between ages 13 and 18 in the Triangle region (see figure 6.5).

FIGURE 6.3
TOTAL MILES OF CYCLING
INFRASTRUCTURE AND MILES
ADDED PER YEAR

| Year | Miles added | Total miles |
|------|-------------|-------------|
| 2014 | 2.7 | 24.7 |
| 2015 | 39.3 | 64 |
| 2016 | 4.6 | 68.6 |
| 2017 | 4.9 | 73.6 |
| 2018 | 8.5 | 82 |
| 2019 | 1.3 | 83.3 |
| 2020 | 10.12 | 105 |

SOURCE: CITY OF RALEIGH DEPARTMENT OF TRANSPORTATION

FIGURE 6.5**GO PASS RIDERSHIP, 2018 and 2019**

| | Local and State Government | | Colleges and Universities | | Other | | Youth Go Pass | | Total | |
|--------------|----------------------------|-------|---------------------------|--------|--------|--------|---------------|--------|----------------|----------------|
| | 2018 | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 | 2019 | 2018 | 2019 |
| January | 5,321 | 4,998 | 28,099 | 28,099 | 2,767 | 22,171 | 0 | 19,725 | 36,187 | 76,344 |
| February | 6,617 | 6,563 | 29,497 | 29,497 | 3,015 | 18,351 | 0 | 16,205 | 39,129 | 69,103 |
| March | 6,825 | 6,456 | 30,969 | 30,969 | 3,295 | 18,689 | 0 | 16,349 | 41,089 | 71,923 |
| April | 6,615 | 6,785 | 29,662 | 29,662 | 2,963 | 20,189 | 0 | 17,528 | 39,240 | 74,171 |
| May | 7,140 | 7,183 | 26,467 | 26,467 | 4,909 | 21,228 | 0 | 18,846 | 38,516 | 75,915 |
| June | 6,995 | 6,573 | 21,639 | 21,639 | 3,441 | 16,531 | 0 | 14,667 | 32,075 | 59,502 |
| July | 5,987 | 6,621 | 19,518 | 19,518 | 3,441 | 39,477 | 0 | 14,048 | 28,946 | 76,353 |
| August | 7,472 | 7,274 | 28,044 | 28,044 | 11,038 | 20,572 | 9,347 | 17,563 | 55,901 | 68,353 |
| September | 5,695 | 7,011 | 28,591 | 28,591 | 14,980 | 22,830 | 13,212 | 19,814 | 62,478 | 78,177 |
| October | 7,471 | 5,667 | 31,257 | 31,257 | 20,230 | 23,134 | 17,720 | 20,033 | 76,678 | 77,429 |
| November | 5,746 | 5,296 | 25,610 | 25,610 | 14,376 | 24,350 | 12,352 | 21,596 | 58,084 | 76,877 |
| December | 6,173 | 5,127 | 19,490 | 19,505 | 14,927 | 20,588 | 13,253 | 18,054 | 53,843 | 65,324 |
| Total | | | | | | | | | 562,166 | 869,471 |

SOURCE: GORALEIGH

FIGURE 6.6**ZERO CAR HOUSEHOLDS**

| Census Tract | No Vehicles Available (%) |
|--------------------|---------------------------|
| 507 | 21.0% |
| 508 | 27.1% |
| 509 | 23.4% |
| 524.09 | 22.3% |
| R/ECAPS Avg | 23.5% |
| Citywide | 5.3% |

SOURCE: U.S. CENSUS BUREAU, AMERICAN COMMUNITY SURVEY 2020 5-YEAR ESTIMATES, TABLE DP04

Transportation Access

According to the the most recent ACS 5-year estimates, RECAPS census tracts have much lower rates of households vehicle acces than the city-wide average. Households residing within the RECAPS census tracts are almost four times more likely to lack access to a vehicle. It should be noted that Census Tracts 507 and 508 are located adjacent to the City of Raleigh's Central Business District and within a mile of Capitol Square in Downtown Raleigh. Census Tract 524.09 is located over 2 miles from Capitol Square.

In addition, households within the RECAPS census tracts who do not have a vehicle available rely more heavily on public transportation compared to households without vehicles citywide. While other modes of transportation are utilized more evenly by zero vehicle households across the City of Raleigh, almost half of the zero vehicle households within RECAPS census tracts use public transportation as a means of transportation to work.

FIGURE 6.7

MEANS OF TRANSPORTATION TO WORK BY ZERO CAR HOUSEHOLDS

| Census Tract | Means of Transportation to Work by No Vehicles Available (%) | | | | | |
|-----------------|--|---------------------------------|---|-------------|--|-----------------|
| | Car, truck, or van - drove alone: | Car, truck, or van - carpooled: | Public transportation (excluding taxicab services): | Walked: | Taxicab services, motorcycle, bicycle, or other means: | Worked at home: |
| 507 | 1.2% | 0.6% | 0.8% | 0.7% | 2.8% | 1.0% |
| 508 | 5.5% | 4.1% | 3.1% | 0.6% | 1.4% | 2.6% |
| 509 | 6.3% | 2.9% | 4.5% | 2.7% | 0.0% | 0.0% |
| 524.09 | 0.0% | 0.0% | 10.5% | 0.0% | 1.2% | 2.0% |
| R/ECAPS | 3.2% | 1.9% | 4.7% | 1.0% | 1.4% | 1.4% |
| Citywide | 0.9% | 0.2% | 0.7% | 0.3% | 0.2% | 0.2% |

SOURCE: U.S. CENSUS BUREAU, AMERICAN COMMUNITY SURVEY 2020 5-YEAR ESTIMATES, TABLE B08141

Public Utilities

In 2001, the City of Raleigh Public Utilities Department (CoRPUD) merged with other municipal utilities in eastern Wake County including Garner, Rolesville, Wake Forest, Knightdale, Wendell, and Zebulon. The Towns of Fuquay-Varina and Holly Springs also periodically rely on the City for potable water supplies. Planning the infrastructure of the entire water system is therefore a regional effort.

Water Supply

The majority of Raleigh's water supply comes from Falls Lake in the northernmost part of Wake County. Lake Benson, which is just south of Garner, provides a secondary source of raw water for the Public Utilities Department. These two reservoirs combined can support up to 99.4 million gallons per day (MGD) of withdrawals. The available raw water supply from each of these sources is shown in Figure 7.1.

In 2020, the City used just over 50 MGD to serve its regional customer base. The City of Raleigh and Wake County have considered options to expand the supply of raw water to meet an increase in projected demand. Proposed improvements, creating an estimated

27.7 MGD of new supply, will enable the City to meet estimated demand for the next 30 years into the future to nearly the year 2060 (see figure 7.2). Treatment capacity is not expected to be a limiting factor as the E. M. Johnson treatment plant is currently permitted to treat up to 86 MGD. Plans to expand the facility will increase capacity to 120 MGD by 2025..

Total water demand is growing in Wake County, but this increase is the result of population growth rather than an increase in per capita demand. Daily water demand per capita in Raleigh has actually trended down for over 15 years (Figure 7.3). That trend continued true in 2020 with demand slightly decreasing from 87 gallons per capita per day (GPCD) to 86.

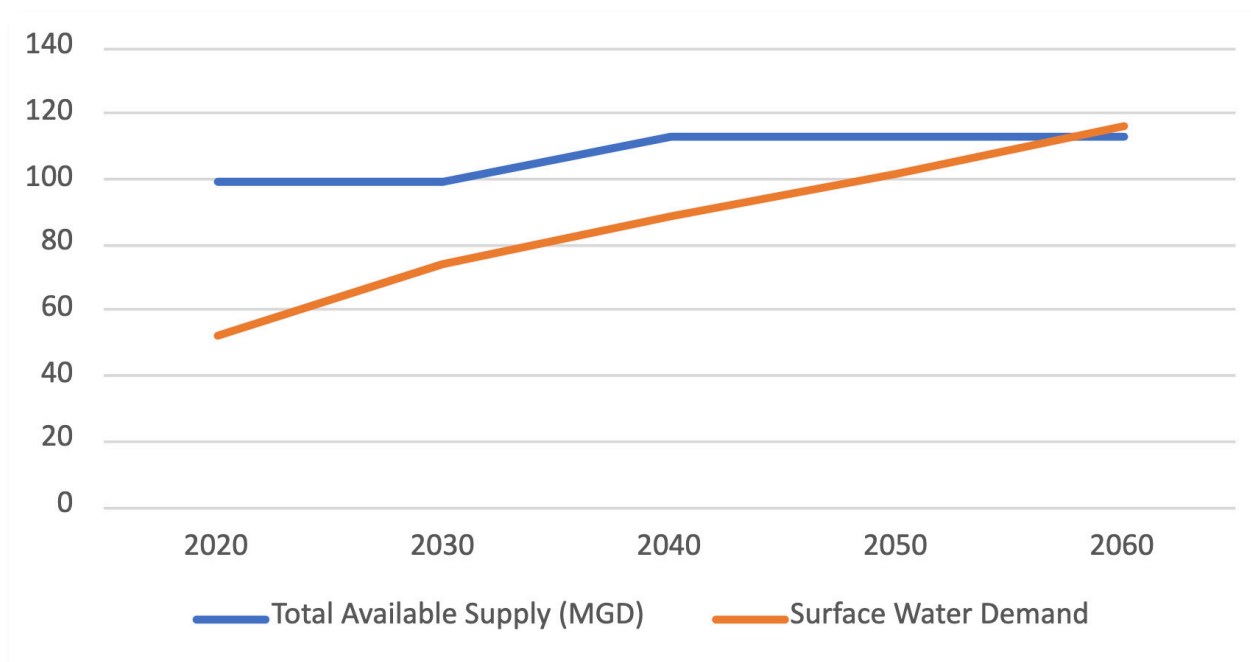
FIGURE 7.1
RAW WATER SUPPLY AND DEMAND FOR 2020

| Reservoir | Average Daily Withdrawal (MGD) | Maximum Daily Withdrawal (MGD) | Available Raw Water Supply (MGD) |
|-------------|--------------------------------|--------------------------------|----------------------------------|
| Falls Lake | 41.0 | 0 | 88.2 |
| Lake Benson | 11.0 | 0 | 11.2 |

SOURCE: NC DIVISION OF WATER RESOURCES

FIGURE 7.2

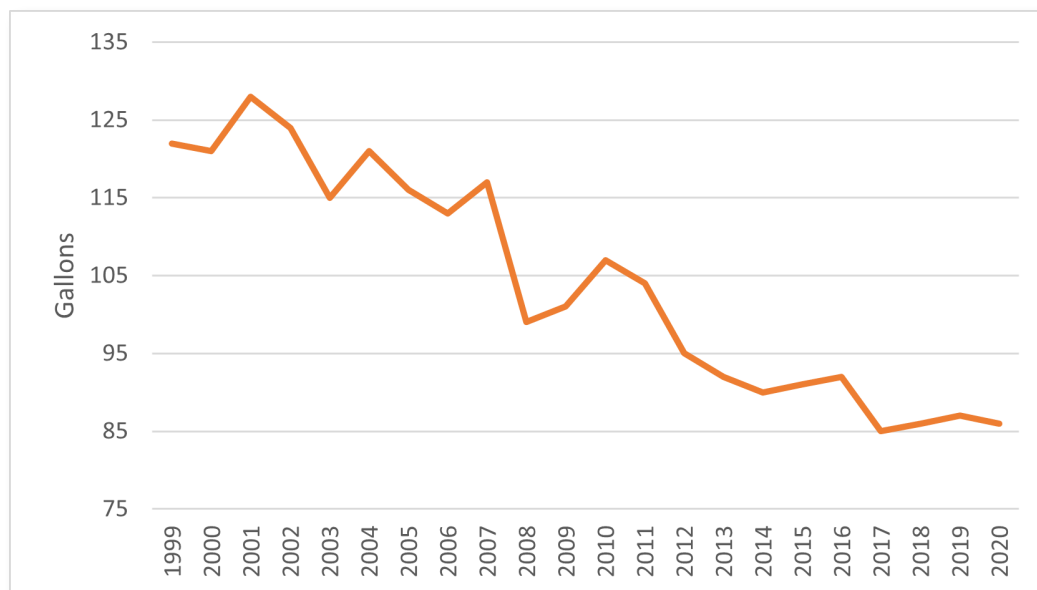
WATER SUPPLY AND DEMAND PROJECTIONS



SOURCE: NC DIVISION OF WATER RESOURCES

FIGURE 7.3

DAILY TREATED WATER DEMAND PER CAPITA



SOURCE: NC DIVISION OF WATER RESOURCES

Wastewater Treatment

The City of Raleigh operates three wastewater treatment plants (WWTPs) as well as a residuals management facility at Wrenn Road. Figure 7.4 shows the treatment capacities for the three WWTPs. Treatment capacity at the Neuse River facility was expanded to 75 MGD in 2018.

The Neuse River Resource Recovery Facility is the largest WWTP serving Wake County. As its name suggests, the operations of the plant have

expanded beyond the treatment of wastewater to include the treatment of biosolids for land application and the production of biofuel. In conjunction with these efforts, the City of Raleigh has created a Mobile Biofuel Processor that can produce biofuel from feedstock on-site at any location.

FIGURE 7.4
WASTEWATER TREATMENT CAPACITY

| Treatment Plant | Maximum Capacity |
|-------------------|------------------|
| Neuse River RRF | 75.00 MGD |
| Little Creek WWTP | 1.85 MGD |
| Smith Creek WWTP | 3.00 MGD |

SOURCE: NC DIVISION OF WATER RESOURCES

The City of Raleigh Public Utilities served 190,145 sewer connections with 2,570 miles of wastewater pipeline and 115 public pumping stations in 2020. Figure 7.5 shows the amount of wastewater being treated at the City's three WWTPs. Throughput in 2020 was about 60% of the total capacity, and this figure has been stable or declining for over ten years.

The City was awarded a permit to expand the capacity at the Neuse River Resource Recovery Facility by 15 MGD to 75 MGD, a project that was completed in 2018. These additional upgrades will enable the plant to produce methane for electricity generation, reducing its operating costs and environmental impact.

FIGURE 7.5

WWTP AVERAGE DAILY THROUGHPUT BY YEAR

| Year | Neuse River RRF (MGD) | Little Creek WWTP (MGD) | Smith Creek WWTP (MGD) |
|------|-----------------------|-------------------------|------------------------|
| 2000 | 36.16 | 0.85 | 1.33 |
| 2001 | 35.61 | 0.76 | 1.33 |
| 2002 | 37.39 | 0.82 | 1.40 |
| 2003 | 44.30 | 0.93 | 0.44 |
| 2004 | 45.50 | 0.72 | 0.69 |
| 2005 | 46.20 | 0.58 | 0.71 |
| 2006 | 44.80 | 0.59 | 1.03 |
| 2007 | 42.01 | 0.55 | 1.04 |
| 2008 | 40.87 | 0.59 | 1.11 |
| 2009 | 42.46 | 0.66 | 1.21 |
| 2010 | 43.84 | 0.69 | 1.23 |
| 2011 | 41.59 | 0.62 | 1.29 |
| 2012 | 41.91 | 0.63 | 1.33 |
| 2013 | 43.96 | 0.74 | 1.48 |
| 2014 | 45.04 | 0.80 | 1.69 |
| 2015 | 46.41 | 0.85 | 1.81 |
| 2016 | 47.17 | 0.81 | 1.86 |
| 2017 | 47.00 | 0.75 | 1.97 |
| 2018 | 47.71 | 0.84 | 1.52 |
| 2019 | 47.02 | 0.84 | 2.08 |
| 2020 | 47.49 | 0.98 | 2.20 |


In addition to treating our water supply and wastewater, CoRPUD also maintains hundreds of miles of pipes to transport each of these types of water. When wastewater pipes are used beyond their designed capacity or if they have a structural failure, a sanitary sewer overflow (SSO) can occur. SSOs can be dangerous and disruptive to human activities and environmental quality. If SSOs release a

large enough volume of wastewater, the local utility may be fined by the state. For these reasons, CoRPUD carefully tracks SSOs and tries to minimize their frequency and magnitude. Figure 7.6 shows the annual number of SSOs for CoRPUD and the rate of SSOs per 100 miles of pipe. The overall number of SSOs has declined by about 65% over ten years, from a rate of 3.6 in 2009 to 1.3 in 2020.

FIGURE 7.6
SANITARY SEWER OVERFLOW COUNT

| Year | Yearly Total SSOs | SSOs per 100 miles of pipe |
|------|-------------------|----------------------------|
| 2006 | 88 | 2.1 |
| 2007 | 69 | 3.0 |
| 2008 | 68 | 3.0 |
| 2009 | 55 | 4.1 |
| 2010 | 63 | 3.6 |
| 2011 | 36 | 6.9 |
| 2012 | 31 | 8.1 |
| 2013 | 57 | 4.0 |
| 2014 | 56 | 4.1 |
| 2015 | 33 | 1.3 |
| 2016 | 61 | 4.0 |
| 2017 | 56 | 4.4 |
| 2018 | 29 | 1.1 |
| 2019 | 35 | 1.3 |
| 2020 | 33 | 1.3 |

SOURCE: CITY OF RALEIGH DEPARTMENT OF PUBLIC UTILITIES



The City has funded several capital projects to ensure that utility infrastructure continues to produce a high level of service as additional ratepayers are added to the system. The following is a selection of the utility projects funded in the 2020-2024 Capital Improvement Program:

» **Crabtree Valley Sewer Replacement**

- Repair and Replace 15,000 feet of sanitary sewer main from Glenwood Ave to the Oak Park neighborhood along Crabtree Creek.

» **72-inch Interceptor Rehabilitation**

- Replacement or rehabilitation improvements, such as cast-in-place pipe lining or cement lining, to areas of poor condition in the critical twin 72-inch sanitary sewer interceptors from the Walnut Creek Lift Station leading to the Neuse River Resource Recovery Facility.

» **Big Branch Interceptor Parallel**

- Install 16,000 feet of sewer main along Big Branch Creek from Millbrook Road to the Crabtree Interceptor to eliminate observed surcharging and overflows.

» **Mine Creek Outfall East**

- Approximately 5,200 feet of gravity sewer will replace the existing eastern branch of

the Mine Creek Outfall. The sewer will follow the alignment of the existing sewer along the eastern bank of Mince Creek upstream of Lynn Road.

- The addition of nearly \$200M in water and wastewater asset management related projects. Projects include the assessment and rehabilitation/replacement of our water and sanitary sewer pipelines.

» **Force Main Replacement/Rehab**

- Programmatic rehabilitation and replacement of wastewater force mains to maintain the integrity and reliability of the system. These rehabilitation projects may include proactive and/or emergency force main replacements, as well as rehabilitation needs identified by the Force Main Condition Assessment project.

» **Expansion of EM Johnson Water Treatment Plant**

» **Expansion of Neuse River Wastewater Treatment Plant**

Environmental Resources

This chapter addresses Raleigh's natural and environmental resources and the challenges that need to be addressed to protect them. It begins with a look at watershed conditions and then provides a snapshot of air quality, water consumption and conservation, as well as greenhouse gas emissions.

Existing Watershed Conditions

Figure 8.1 provides 2005, 2010, 2016, and 2021 (where available) water quality information for streams within Wake County. The NC Division of Water Quality assessed these sites based on the health of their fish populations. The Neuse River is the most significant water system among the city's watersheds which include: Buffalo Creek, Crabtree Creek, Little River,

Marks Creek, Middle Creek, Moccasin Creek, Swift Creek, and Walnut Creek.

The quality has varied across survey years and monitoring locations, with recent improvements for Richland Creek, Smith Creek, Terrible Creek and Upper Barton Creek. The highest performing streams tend to be in less urbanized areas on the periphery of the city.

FIGURE 8.1

WATER QUALITY MONITORING FOR RIVERS AND STREAMS IN WAKE COUNTY PORTION OF NEUSE RIVER SUB-BASIN

| Water Body | Monitoring Location | 2005 | 2010 | 2015 | 2020 |
|--------------------|---------------------|-------------|-----------|-----------|-------------|
| Crabtree Creek | Umstead Park | Fair | Good-Fair | No Data | Good-Fair |
| Little River | SR 2224 | Good | Good | Good-Fair | Not Sampled |
| Middle Creek | SR 1375 | Good-Fair | Good-Fair | Good-Fair | No Data |
| New Light Creek | SR 1911 | Good | Good | Good-Fair | Not Sampled |
| Richland Creek | US 1 | Excellent | Good-Fair | Good-Fair | Good |
| Smith Creek | SR 2045 | Fair | Good | Fair | Good |
| Swift Creek | SR 1152 | Not Sampled | Good-Fair | Fair | Not Sampled |
| Terrible Creek | SR 2751 | Good | Good | Fair | Excellent |
| Upper Barton Creek | NC 50 | Good | Good-Fair | Fair | Good-Fair |
| Walnut Creek | South State | Not Sampled | Fair | Poor | Not Sampled |
| Walnut Creek | SR 2544 | Good-Fair | Good-Fair | Fair | Not Sampled |

SOURCE: NC DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES, DIVISION OF WATER QUALITY

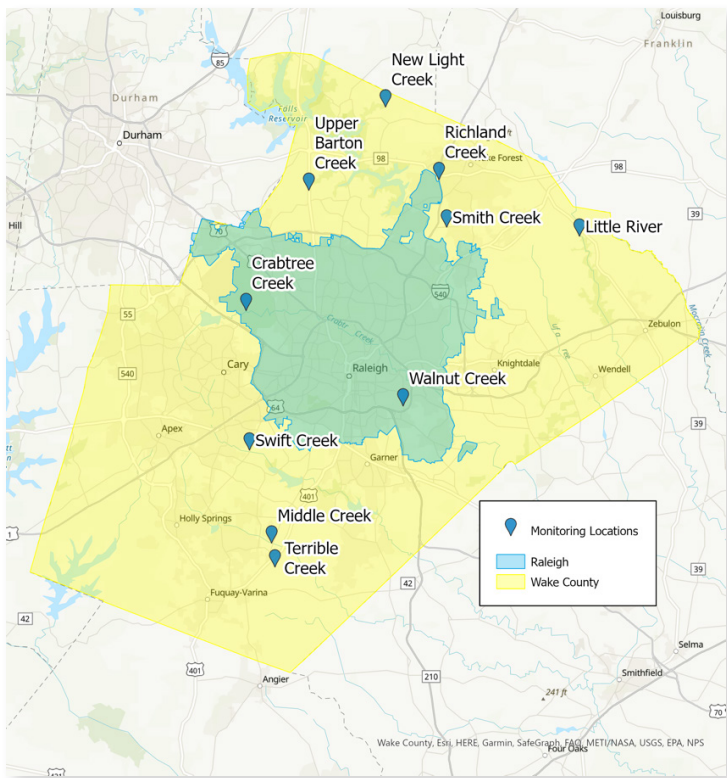


FIGURE 8.2

MAP OF MONITORING LOCATIONS IN WAKE COUNTY

Fish populations are not the only measure of stream quality. The EPA requires states to monitor the concentrations of various pollutants in water bodies under federal jurisdiction. The most common pollutants in Raleigh's streams are nutrients like nitrogen and phosphorous. Polychlorinated biphenyl (PCB) is a carcinogenic industrial chemical that is also found in streams in Raleigh. PCB concentrations in local waters tend to be very low. Danger may arise from consuming fish that has accumulated PCBs during its lifetime in contaminated waters.

A water body that has pollutant concentrations exceeding the statutory limit is placed on the 303(d) list, named after a section of the Clean Water Act. A consistently and acutely impaired stream can be assigned a total maximum daily load (TMDL) of pollutants which the local government is charged with enforcing. The map below shows the streams in Raleigh that have been placed on the 303(d) list as well as those with TMDLs.

FIGURE 8.3

MAP OF IMPAIRED STREAMS IN THE CITY OF RALEIGH

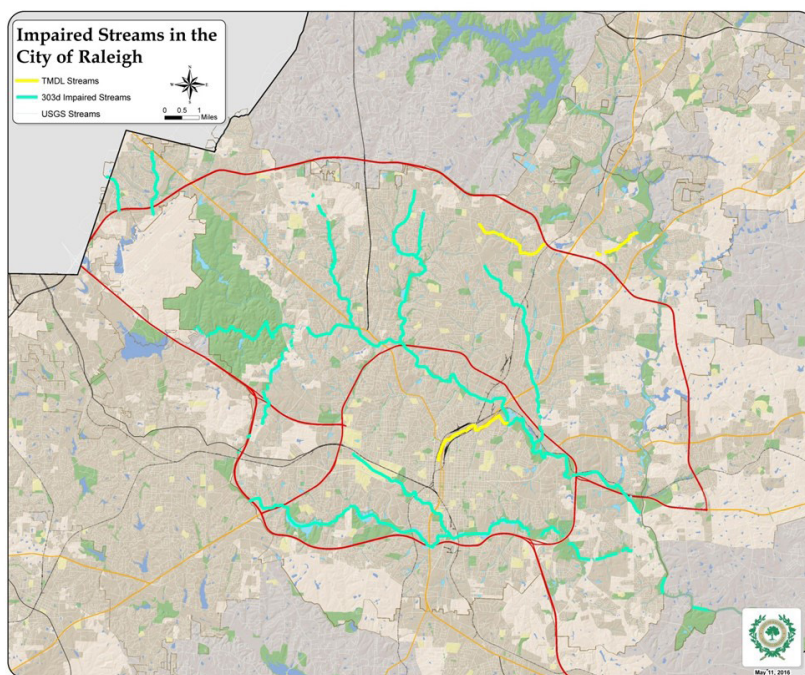
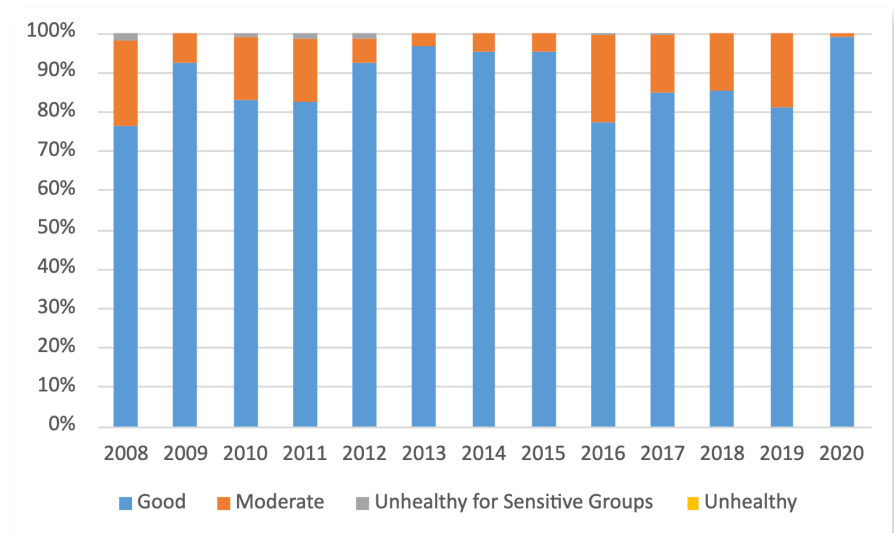


FIGURE 8.4**PERCENTAGE OF DAYS BY OZONE RATING**

SOURCE: NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY

Air Quality

Two significant air quality problems in North Carolina are ground-level ozone (the primary ingredient in “smog”) and particulate matter. Both pollutants are emitted from vehicles and from the fossil fuel burning power plants that supply most of our electricity. Air quality improved steadily from 2008 to 2015 only to return to 2008 levels in 2016 (see Figures 8.4 and 8.5). Air quality improved in 2017 and 2018, with no recorded day categorized as “unhealthy for Sensitive Groups” in 2018. 2020 included the highest number of recorded “good” air quality days. This is likely a result of lower emissions during COVID-19 restrictions that significantly reduced travel. These readings are from the Millbrook Monitor, the only reporting station within the City of Raleigh.

FIGURE 8.5**NUMBER OF DAYS BY OZONE RATING, MILLBROOK MONITOR**

| | Good | Moderate | Unhealthy for Sensitive Groups | Unhealthy |
|------|------|----------|--------------------------------|-----------|
| 2008 | 163 | 47 | 4 | 0 |
| 2009 | 198 | 16 | 0 | 0 |
| 2010 | 177 | 35 | 2 | 0 |
| 2011 | 176 | 35 | 3 | 0 |
| 2012 | 191 | 13 | 3 | 0 |
| 2013 | 207 | 7 | 0 | 0 |
| 2014 | 204 | 10 | 0 | 0 |
| 2015 | 203 | 10 | 0 | 0 |
| 2016 | 156 | 45 | 1 | 0 |
| 2017 | 203 | 35 | 1 | 0 |
| 2018 | 205 | 35 | 0 | 0 |
| 2019 | 197 | 47 | 0 | 0 |
| 2020 | 241 | 3 | 0 | 0 |

SOURCE: NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY

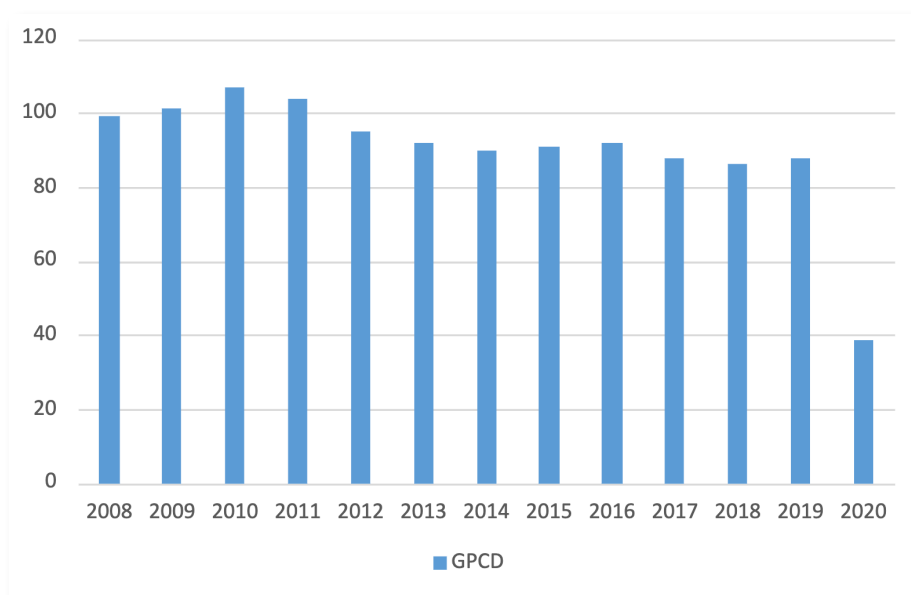
Water Consumption and Conservation

The City of Raleigh has initiated several programs to help educate customers about using water efficiently and to understand the City's mandatory conservation measures. These programs include water efficiency tips, a WaterSense toilet rebate program, showerhead swap-out program, water conservation kit, and educational presentations, including

the Sustainable Home Raleigh program. In addition to the environmental benefits of water conservation, efficiency provides economic benefits by reducing energy costs associated with the treatment and distribution of water. Water consumption as measured in daily gallons per capita (GPCD) reached a stable annual average around 90, before dropping substantially to 38.4 in 2020 (see Figure 8.6).

FIGURE 8.6

DAILY WATER CONSUMPTION AGGREGATED BY CITY POPULATION



SOURCE: CITY OF RALEIGH PUBLIC UTILITIES DEPARTMENT

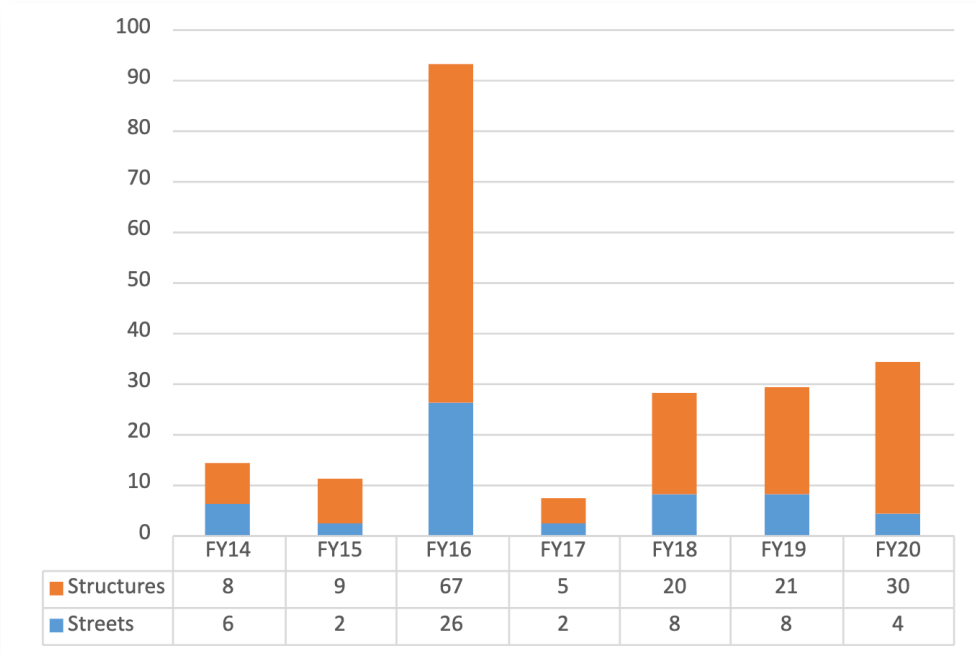
Stormwater Management

Effective Stormwater management addresses the quantity as well as the quality of precipitation runoff, and is typically related to with rainwater falling and moving along impervious surfaces. The Stormwater Management Division delivers stormwater services for the citizens of Raleigh, empowered through the City's Stormwater Utility. Stormwater services include the drainage and water quality assistance programs, capital improvement stormwater projects, watershed and asset management, drainage system maintenance, citizen inquiry response, and the water quality program mandated by the Federal Clean Water Act. Additional services include reviewing and inspecting developments for conformance to stormwater management, erosion and sediment control, and floodplain management requirements.

The Stormwater Division aggressively monitors the results of its program, projects, and operations. While historic data is limited, evidence from recent years shows how investments in stormwater management are protecting life and property, reducing pollution, and restoring local waterways.

New construction on formerly natural areas, increases the amount of runoff entering the drainage and receiving stream system. Prioritized regular improvements ensure that flood hazards continue to be reduced or mitigated and that surface water quality is protected or improved. Potential risks of uncontrolled runoff include continued flooding hazards, surface water pollution, and stream erosion. Stormwater projects completed in Fiscal Year 2020 reduced the risk posed by runoff for 30 structures and 4 streets, (Figure 8.7).

FIGURE 8.7
REDUCTION IN STRUCTURES AND STREETS
AFFECTED BY EXCESS RUNOFF BY FISCAL YEAR



SOURCE: CITY OF RALEIGH STORMWATER DIVISION

Stormwater management cannot mitigate those risks, eliminate the threat of major floods, however. The National Flood Insurance Program (NFIP), run by the Federal Emergency Management Agency (FEMA), provides a way for homeowners in flood hazard areas to be better financially prepared if flood damage occurs. The Stormwater Division assists property owners at the local level by informing homeowners of the risks they face and ways the NFIP can help them.

FEMA evaluates the quality of these educational efforts as well as overall floodplain management and awards points using the voluntary Community Rating System (CRS). Attainment of CRS points is rewarded with lower NFIP premiums for homeowners. Raleigh received a CRS rating of nine out of ten in 2018, with a lower rating preferable. However, the Stormwater Division is actively assisting homeowners in the floodplain to acquire elevation certificates. The Division expects to have recorded the necessary certificates to achieve an improved rating of seven within the next year. In early 2020 there were 1,942 NFIP policyholders in Raleigh insuring just over \$548 million in property. The combined premiums of these policyholders, amount to \$1.87 million per year.

Another goal of the Stormwater Division is to limit the amount of nutrients and other pollutants entering local waterways. The nutrients nitrogen and phosphorous are ingredients in most fertilizers used for lawn maintenance and landscaping. Fertilizer not absorbed by the soil may be washed into storm drains with potential negative impacts on surface waters and stream ecosystems.

Stormwater Control Measures (SCMs) are required for all commercial and multi-family residential developments in Raleigh. SCMs reduce the intensity of runoff leaving a site during a rain event by capturing it for a certain period. They also treat the runoff to remove nutrients. The City is augmenting the use of SCMs in private development with publicly funded control measures. Figure 8.8 shows the benefits in nutrient reduction that are being achieved through stormwater management.

Stormwater management often takes the form of engineered infrastructure projects, but the natural world also gives us valuable resources for preventing floods and protecting our streams and surface waters. Proper conservation of wetlands, streams, and riparian vegetation can generate a significant return on investment in terms of runoff control and water quality. As a bonus, healthy waterways offer recreational, educational, and cultural benefits that can increase property values and make Raleigh a more desirable place to live. The Stormwater Division facilitates several popular volunteer programs for maintaining these valuable natural resources. In 2019, individuals and organization have given over 6,600 hours of volunteer labor to programs such as:

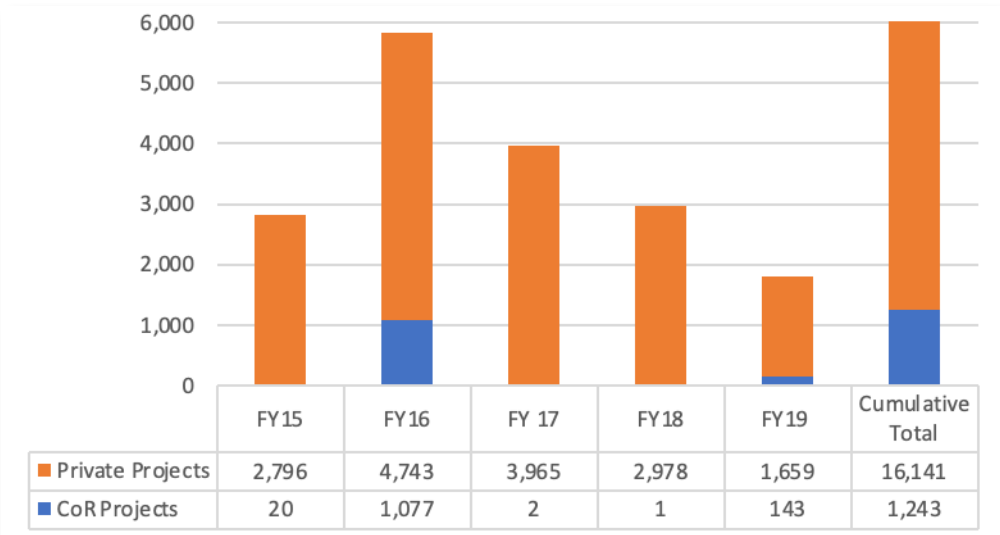
- » **Adopt-A-Stream**
- » **Foster-A-Stream**
- » **Stream Monitoring**
- » **Storm Drain Marketing**

Not only do these efforts put tens of thousands of dollars of labor towards improving our infrastructure and environment, they also help citizens connect with each other and feel invested in their communities.

Even with SCMs and stream maintenance, a growing city requires proactive investment in storm sewers to effectively transport runoff to the stream network. The following lists some of the Stormwater Division's projects funded by the 2020-2024 Capital Improvement Program, with all amounts cumulative over the five-year period:

- » **\$7.37 million** towards lake preservation projects which focus on stormwater management retrofits and improvements to existing pond and lake facilities in strategic locations within local watersheds. These projects are designed to provide significant public stormwater management benefits, including flood control and water quality protection.
- » **\$4.68 million** towards stream restoration projects which are designed to stabilize and restore streams to protect stream corridors and adjacent land from erosion as well as improve surface water quality within priority watersheds.
- » **\$15.55 million** towards general drainage infrastructure which includes stormwater system repairs, drainage assistance projects, flood hazard mitigation, watershed planning, and flood early warning system program implementation.
- » **\$10.9 million** for continued neighborhood drainage system improvement projects which include storm drainage system enhancements to mitigate or reduce flooding of private property and reduce flooding to public roads and buildings, while also protecting water quality. These projects are normally associated with drainage systems serving and affecting City streets within residential neighborhood areas.

FIGURE 8.8
REDUCTION IN TOTAL NITROGEN LOAD BY FISCAL YEAR (LBS/YR)



SOURCE: CITY OF RALEIGH STORMWATER DIVISION

Greenhouse Gas Emissions

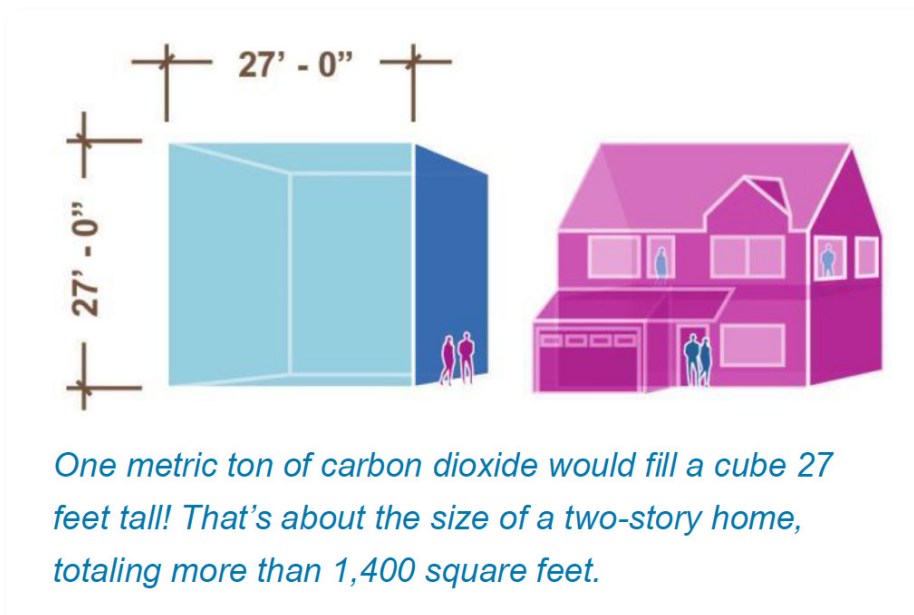
The City of Raleigh's Office of Sustainability tracks greenhouse gas emissions (GHG) from City of Raleigh's Local Government Operations (LGO) as well as Community-wide emissions. A greenhouse gas emissions inventory is an estimate of GHGs emitted to, or removed from, the atmosphere over a specific period (usually one year). Greenhouse gas emissions are measured in metric tons of carbon dioxide equivalents (MTCO₂e). One metric ton of carbon dioxide would fill a cube 27 feet tall. That's about the size of a two-story home, totaling more than 1,400 square feet (See Figure 8.9) Maintaining an emissions inventory provides the City with an understanding of where Raleigh's GHG emissions are coming from

and serves as a starting point for developing strategies that can effectively reduce GHG emissions.

The City has developed GHG emissions inventories using fiscal years 2007 and 2014 as baselines. The trend from 2007 to 2014 is that community emissions have gone up by 2% and City of Raleigh's local government operations emissions or LGO have gone down by 19%. Raleigh's community-wide emissions account for most of the emissions in the Raleigh area, while emissions from City of Raleigh's LGO account for only 2% of the total community-wide emissions (see Figure 8.10). Stationary Energy is energy (electricity and fossil fuel) consumed in residential, industrial and commercial buildings.

Figure 8.9

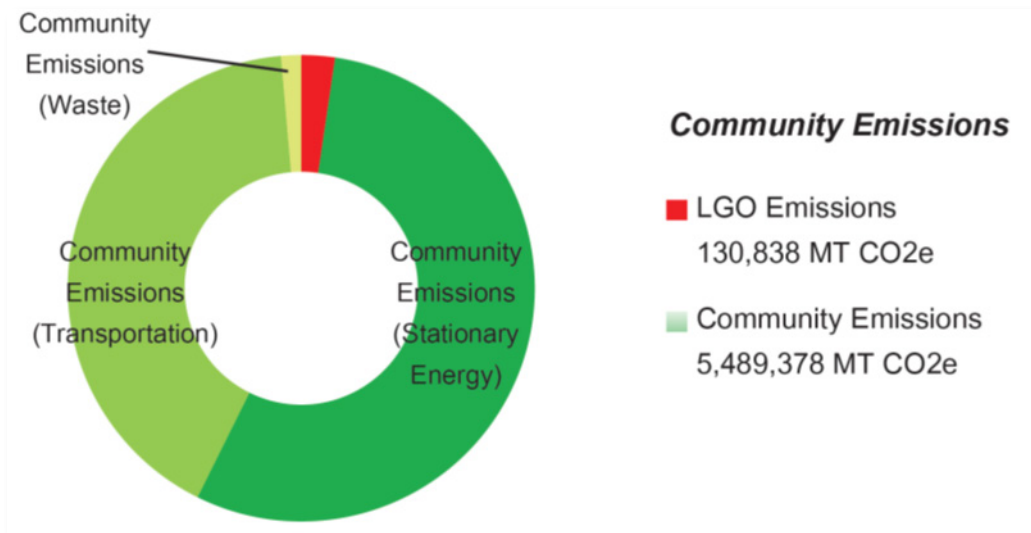
ONE METRIC TON OF CARBON DIOXIDE NEXT TO A TWO-STORY HOME.



SOURCE: [FIGURE 2 CITY OF RALEIGH GREENHOUSE GAS INVENTORY REPORT, COMPLETED DECEMBER 2016](#)

Figure 8.10

RALEIGH'S 2014 COMMUNITY-WIDE GHG EMISSIONS



SOURCE: [CITY OF RALEIGH GREENHOUSE GAS INVENTORY REPORT, COMPLETED DECEMBER 2016](#)

Community-wide GHG emissions

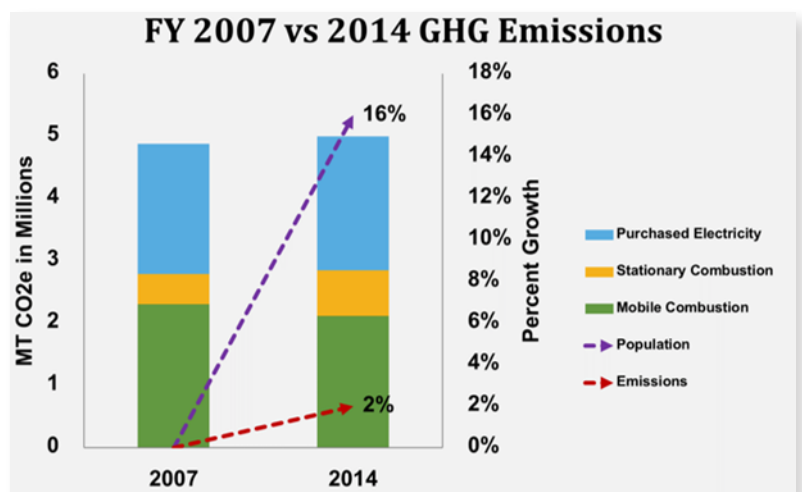
From 2007 to 2014 community-wide emissions in Raleigh increased 2%. This was despite an approximate 16% increase in population and a steady increase in the number of jobs and rate of development in the city over the same period (see Figure 8.11). This indicates that per capita, our emissions are decreasing and that is each person in Raleigh is generating fewer emissions, due to measures like the construction of more energy efficient buildings, higher fuel efficiency

standards for vehicles, and changes in the behavior of individuals.

The 2007 community-wide emissions were estimated at 4,877,000 MTCO₂e and the 2014 comparable emissions were estimated at 4,998,000 MT CO₂e, representing the 2% increase from the 2007 baseline (approximately 120,000 MTCO₂e). Please see the GHG inventory documents for details on data updates made in the 2014 inventory.

Figure 8.11

Comparison of Raleigh Community-wide GHG emissions from 2007 to 2014



SOURCE: [CITY OF RALEIGH GREENHOUSE GAS INVENTORY REPORT, COMPLETED DECEMBER 2016](#)

Local Government Operations GHG emissions

The emissions from the City of Raleigh's municipal operations (Local Government Operations- LGO) represent only 2% of the total community-wide GHG emissions. From 2007 to 2014, there was a 19% decrease in LGO emissions (see Figure 8.12). This is mainly due to a substantial decrease in methane emissions from the closed Wilders Grove Landfill. As the waste in landfills breaks down it produces methane (a greenhouse gas), and methane

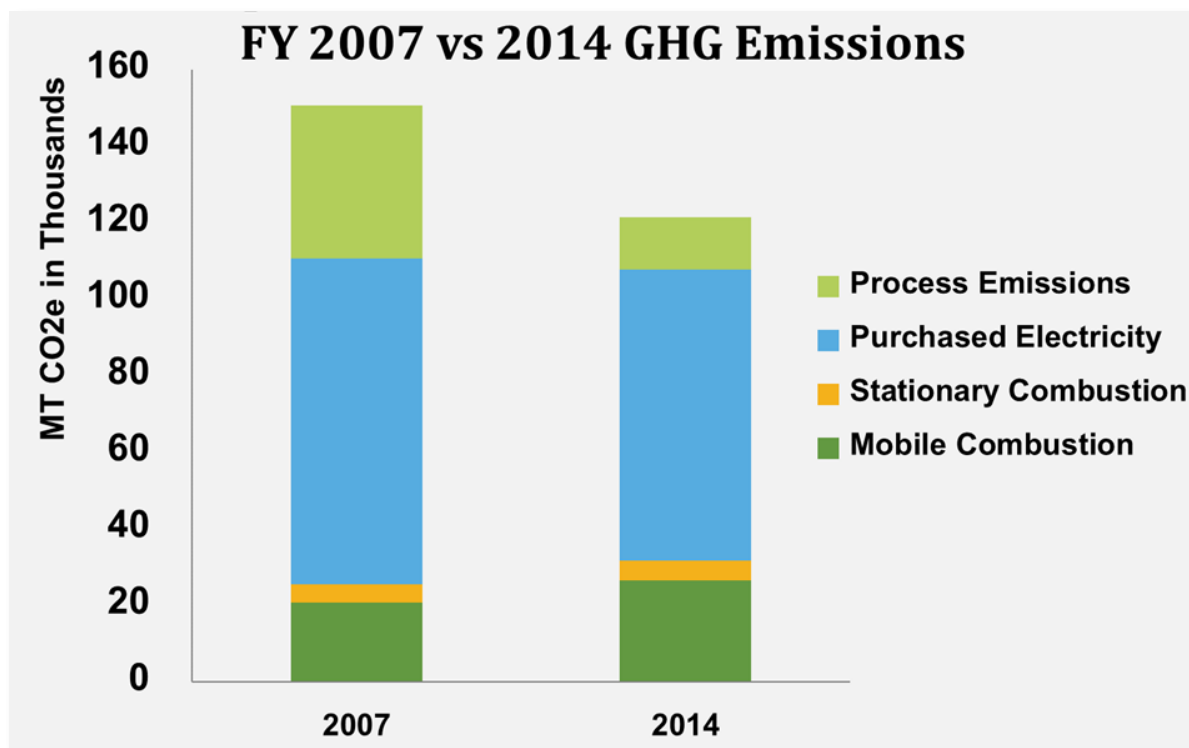
emissions decrease over time the longer a landfill has been closed. The methane from the closed Wilders Grove landfill was captured for energy recovery between 1989 and 2013.

The 2007 LGO emissions were estimated at 151,500 MTCO₂e, and the 2014 comparable emissions were estimated at 121,576 MT CO₂e; representing a 19% emissions reduction from the 2007 baseline (approximately 29, 274 MTCO₂e).

Please see the inventory documents for details on data updates made in the 2014 GHG inventory.

Figure 8.12

Comparison of City of Raleigh Local Government Operations (LGO) GHG Emissions from 2007 to 2014



Process Emissions = emissions from the City's closed landfill and wastewater treatment

Stationary Combustion = natural gas sources

Mobile Combustion = on-road sources from vehicles

SOURCE: [CITY OF RALEIGH GREENHOUSE GAS INVENTORY REPORT, COMPLETED DECEMBER 2016](#)

Moving from the Climate Energy Action Plan to the Community-wide Climate Action Plan

The City prepared a Climate Energy Action Plan in 2012 that identified actions to reduce greenhouse gas emissions in City municipal operations. The plan evaluated a variety of actions across multiple City departments that have the potential to reduce GHG emissions. We have seen a 19% reduction in municipal emissions. In this same period, GHG emissions from our community increased by 2%.

Community-wide, our GHG emissions come from energy use in buildings (including homes and businesses), and transportation (mostly from single-occupancy vehicles). Many other areas such as landfill waste also contribute GHG emissions in our community. The day-to-day decisions that all residents and visitors to Raleigh make are causing these greenhouse gas emissions. The City strives to set a good example by adopting best practices for reducing GHG emissions in city operations,

however city GHG emissions are less than 2% of the overall Community-wide Raleigh emissions. We need everyone in the community to work together to collectively reduce Raleigh's GHG emissions.

The City of Raleigh is currently working with the community to develop a Community-wide Climate Action Plan (CCAP), which will evaluate actions and strategies for reducing community-wide greenhouse gas emissions. The Community-wide Climate Action Plan will include practical strategies and actions to reduce emissions across the community, as well as meet other shared community values. The work in CCAP to reduce GHG emissions is not only about protecting our environment for future generations. CCAP development is also an opportunity to align and support the many community values of Raleigh's residents which include equity, culture, health, development and growth, transportation options, green and natural spaces, resiliency, affordability, economic development, and more.



Source: A Roadmap to Raleigh's Energy Future: A Climate Energy Action Plan, dated November 2012

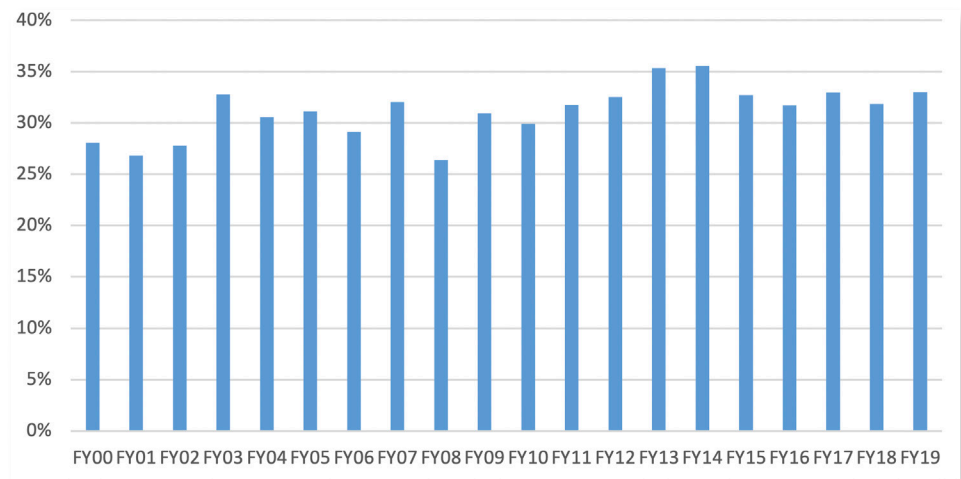
Solid Waste

The City of Raleigh provides curbside pickup services to residential customers for garbage, recycling, and yard waste through the Solid Waste Services division. The recycling program began in 1989, and the yard waste program started three years later in 1992. Collected yard waste is converted into wood chips, mulch, and compost for sale to the public. Solid Waste Services has also been offering curbside pickup for recycling to downtown commercial customers since 2006. There are now more than 130 businesses participating in this program.

Recycling and yard waste have become a regular and significant part of the city's solid waste stream. City residents, with the help of Solid Waste Services, have maintained a diversion rate of between 30 and 35 percent over the last ten years (Figure 8.13). Diverting solid waste to the recycling and yard waste programs keeps that waste out of landfills. This in turn saves money for Wake County by delaying expenditures on decommissioning a full landfill and establishing a new one. Those savings can be passed on to customers through reduced tipping fees. Tipping fees are fees paid by anyone who disposes of waste in a landfill. Recycling consumer products and re-purposing yard waste also reduces our impact on the environment.

FIGURE 8.13

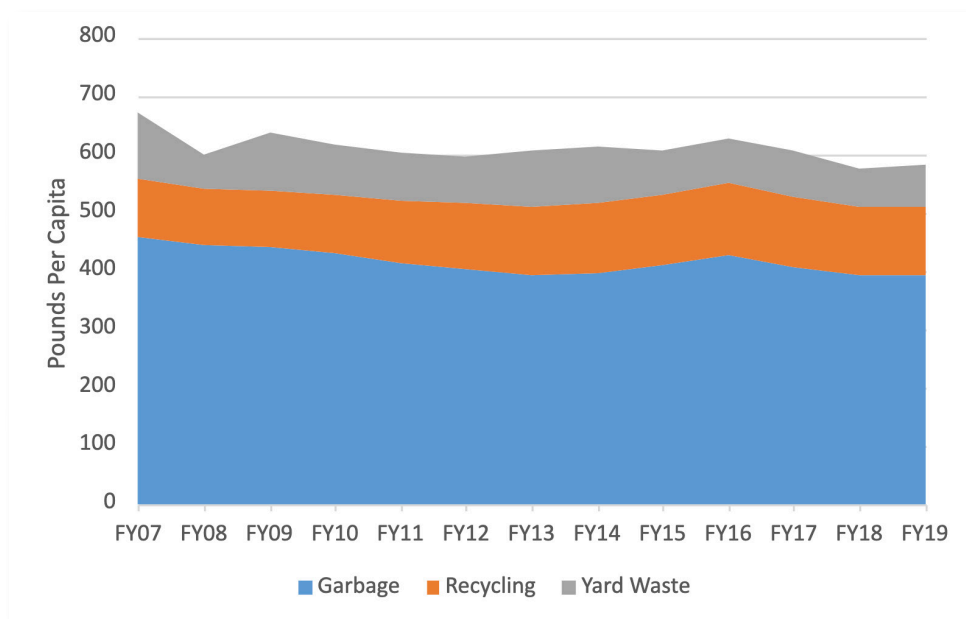
SOLID WASTE DIVERSION RATE



SOURCE: CITY OF RALEIGH SOLID WASTE SERVICES DEPARTMENT

In addition to diverting more waste, Raleigh citizens are also producing less waste per person (Figure 8.14). Waste collection per resident continues to decline, with 390 lbs. of garbage collected per capita in FY 2019, 118 lbs. of recycling collected, and 75 lbs. of yard waste. Increased recycling accounts for almost half of this change, but the majority comes from residents simply throwing away less garbage.

FIGURE 8.14 SOLID WASTE COLLECTION PER CAPITA



SOURCE: CITY OF RALEIGH SOLID WASTE SERVICES DEPARTMENT

Parks, Recreation, & Cultural Resources

Existing PRCR System and Planning Framework

The City's parks, greenways and cultural resources are invaluable assets for recreation, physical activity, and natural conservation.

The Raleigh Parks, Recreation and Cultural Resources system has 6,057 acres of park land and 3,867 acres of greenway property. These acres provide, recreational and cultural experiences at 193 park properties, and along 117 miles of greenway trail.

The Parks, Recreation and Cultural Resources Department (PRCR) offers programming and publishes the "Leisure Ledger" on a regular basis to provide a listing of the park, recreation and cultural resources program offerings and facilities available to the general public.

To ensure the public has a voice in the planning of new facilities and experiences, the City Council adopted the Department's Public Participation Policy for Park Planning in 2012.

This policy provides direction to ensure an effective and efficient process is used to fairly and equitably maximize citizen input and support for the planning and development of the park system.

The Parks, Recreation and Cultural Resources System Plan was adopted by City Council on May 6, 2014. The System Plan provides guidance on the design, development and delivery of facilities and services over the next 20 years. The System Plan supplements the City of Raleigh 2030 Comprehensive Plan.

More information about park and greenway planning and development projects is available [here](#).



Parks and Recreation Facilities

Raleigh has one of the most well-developed park systems in the Southeastern United States. As part of their System Plan, the Raleigh Parks Department has recently developed a classification system based on park experience types, to capture the wide array of experiences possible in City parks.

During the System Plan process the public identified core neighborhood-based experiences desired within a walkable distance from their home. The activities in the core neighborhood-based experiences or all "at-will" activities include:

- » **Sitting outside, reading, contemplating, meeting friends (socializing);**
- » **Going to a playground;**
- » **Open play**
- » **Walking or riding a bike in a park or on a greenway trail.**



Community members also identified regional experiences during the System Plan process. These experiences are typically found at a larger park facility or are resource based. These experiences may require planning to attend or register for a program, as well as, traveling out of your neighborhood to the experience. The activities included in these regional experiences include:

- » **Playing on an athletic field or court;**
- » **Enjoying the outdoors or nature;**
- » **Aquatic recreation;**
- » **River or lake-related activities;**
- » **Fitness;**
- » **Enjoying cultural opportunities**

In 2015 the City of Raleigh acquired Dortehea Dix Park from the State of North Carolina. At 307.9 acres it is the largest park in the city. The park can be divided into 2 sections; 143 acres that are to the west of the railroad and 164 acres to the east. The historic character of the eastern parcel, which includes the Dix Hill National Register Historic District, makes it very distinct from the park-like setting of the western parcel. There are 85 structures on the campus totaling 1.2 million square feet of building space, for nearly 2,000 Department of Health Employees.

In 2017 a master planning process began to turn Dix into a destination park for the city, and in 2019, after extensive public input, the City Council approved the Dix Park Master Plan.

Additionally, parks and recreation needs are met on a regional basis by Wake County, with several county parks located within Raleigh: Historic Oak View Park, Historic Yates Mill Park, and North Wake Landfill District Park.





Greenways

The Capital Area Greenway Corridor System is a designated land use within the City's Comprehensive Plan. It is generally based on the drainage systems of the Neuse River and of the following creek systems: Crabtree, Walnut, Richland, and Harris. The City of Raleigh currently provides approximately 3,867 acres of greenway land through its community wide, Capital Area Greenway System. In addition to the 117 miles of existing trail, an additional 120 miles are proposed.

In 2015, City Council adopted a new Capital Area Greenway Planning and Design Guide. This guide incorporates existing city procedures with the standards and best practices of public agencies and municipalities nationwide. The document supplements the System Plan. It is designed to ensure that the Capital Area Greenway

System continues to be a safe and accessible multi-use trail system providing recreation and transportation opportunities, while preserving thousands of acres of natural areas. More information is available [here](#).

Although not part of the City's parks system, the 5,577-acre William B. Umstead State Park is a local and regional park resource that is managed by the North Carolina Division of Parks & Recreation. Residents from Triangle communities use the park for hiking, viewing wildlife, off-road biking, and other recreational pursuits. This park includes a 500-acre lake and 215 upland acres with an extensive trail system. Greenway trail access from Raleigh to Umstead Park also connects with the Town of Cary's greenway system and Lake Crabtree County Park.

Future Park and Open Space Needs

Historically, the City of Raleigh has acquired and planned, parks and recreation facilities according to the National Recreation and Parks Association's (NRPA) Level of Service (LOS) Standard, which include:

- » Acres per Population,
- » Facilities per Population,
- » Quality of the Facilities, and
- » Availability of Programs.

These metrics do not fully capture equitable access to inherent experiences.

To address this gap, the Parks, Recreation and Cultural Resources Department developed a new model for evaluating access to experiences provided by parks and open space. The Experience-Based System model uses distance, based on the street network and demographics in the community to evaluate access to the closest park experience.

Incorporating a fifth measurement technique—Access Distance or Travel Time—can help progress the simple idea that every citizen should be able to access an inherent park, recreation or cultural experience within similar walking, bicycling, and/or driving distance. The creation of an experience-based model helps to better evaluate how parks, recreation, and cultural resource experiences offered by the City of Raleigh function as a dynamic system.

The specific metrics used for the Experience-Based System evaluation include distance to closest park, accessible parks per person, and accessible acres per person. The evaluation also calls for the use of census block centroids, park access points, and the Wake County road network. This model first identifies all parks offering core experiences, which include opportunities for socializing, going to a playground, informal open play, and walking or riding a bike in a park or on a greenway trail.



The Experienced-Based System Model then uses the following measures to evaluate accessibility to the parks providing a core experience:

- » The distance to the closest park measures the distance from each census block centroid to the closest park access point. This distance is calculated using the Wake County road network and does not consider sidewalks, trails, walking paths, greenways, or any other connection type. Using this methodology, core experiences are accessible to a census block when the distance is less than or equal to 1.29 miles.
- » The number of accessible parks per person is calculated by dividing each park by the total population of all surrounding census blocks within 1.29-miles to determine parks/person. Each census block receives the sum of the calculated number of parks/person for all parks within the 1.29-miles.
- » The number of accessible park acres per person is calculated by dividing the park's acreage by the total population of all census blocks within 1.29-miles to determine acres/ person. Each census block gets the sum of the acres/ person values of all parks within a 1.29-miles.
- » Once these three metrics are calculated, they are combined for each census block. The census block values are then aggregated up to census block groups and those values are weighted by population.

The Experience-Based System model is used for targeting connections to existing parks and greenway trails, determining where to add amenities, and identifying areas for land acquisition. As a first step to improving access the Department has developed and implemented a Program and Policy called Neighborhood and Community Connections (N&CC), which identify areas of the city where communities are close to a park but have low access. Using the existing experience-based system model, the N&CC Program compares current service to potential service levels to assess which parks have the greatest need for accessibility improvements.



Community Facilities

A community facility is established primarily for the benefit and service of the population of the community in which it is located. Uses include but are not limited to schools, community centers, libraries, police protection, fire stations, and/or government buildings.

The tables below represent data collected through the efforts of the Planning and Development Department, during the past calendar year.

FIGURE 10.1
RALEIGH POLICE AND FIRE STATIONS

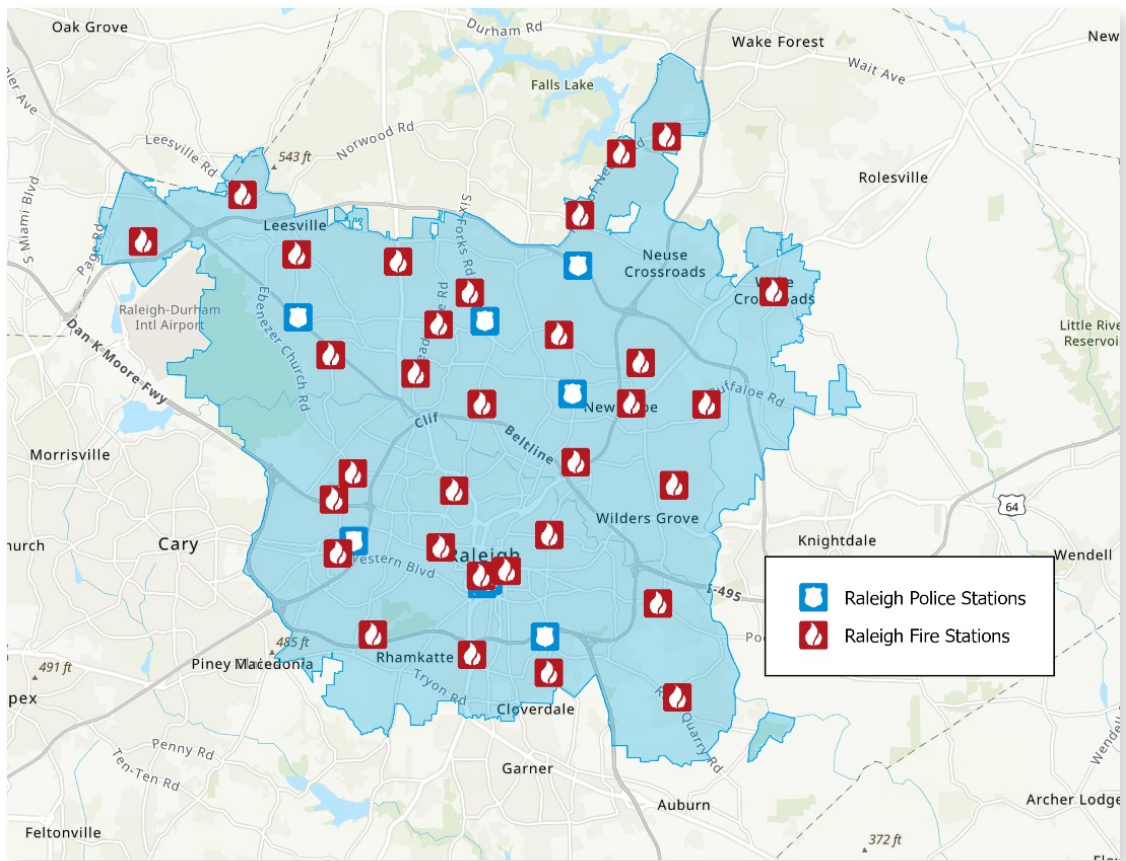


FIGURE 10.2**POLICE FACILITIES**

| Police Facility | Number of Staff | Number of Vehicles | Facility Area (square feet) | Address |
|---|------------------------|---------------------------|------------------------------------|--------------------------------|
| Headquarters and North | 156 | 127 | 45,900 | 6716 Six Forks Road, 27615 |
| Downtown | 83 | 54 | 33,700 | 218 W. Cabarrus Street, 27602 |
| Front Street | 85 | 173 | 48,000 | 1221 Front Street, 27609 |
| Southeast | 91 | 66 | 10,594 | 2800 Rock Quarry Road |
| Southwest | 74 | 50 | 14,400 | 601-104 Hutton Street, 27606 |
| Greens Dairy Detective Division | 154 | 181 | 54,905 | 5240 Greens Dairy Rd, 27616 |
| Northeast | 102 | 46 | 13,851 | 5220 Greens Dairy Road, 27616 |
| Northwest | 58 | 48 | 11,000 | 8016 Glenwood Avenue, 27612 |
| The Academy | 37 | 8 | 12,416 | 4205 Spring Forest Road, 27616 |
| The Range | 11 | 23 | 9,260 | 8401 Battle Bridge Road |
| Corporation Parkway – Evidence Facility | N/A | N/A | 27,600 | 1201 Corporation Parkway |
| Total | 851 | 776 | 281,626 | |

SOURCE: CITY OF RALEIGH POLICE DEPARTMENT

FIGURE 10.3
FIRE FACILITIES

| Fire Facility | Number of Staff* | Fire Apparatus | Facility Area (Heated square feet) | Address |
|------------------------|---------------------------|---|---|--------------------------------|
| Keeter Training Center | 13 | N/A (Training facility) | 9,878 | 105 Keeter Center Drive |
| Dillion Building | 58 | N/A (Office of the Fire Marshall) | 32,459 (shared with other city departments) | 310 W Martin Street, Suite 200 |
| Logistics Warehouse | 10 (in fire part of bldg) | Only apparatus that are being fixed or on reserve | 30,000 (shared with other city departments) | 4120-A New Bern Avenue |
| Fire Station 1 | 45 | 4 | 11,200 | 220 South Dawson Street |
| Fire Station 2 | 12 | 2 | 6,300 | 263 Pecan Road |
| Fire Station 3 | 15 | 1 | 3,564 | 13 South East Street |
| Fire Station 4 | 24 | 2 | 5,298 | 121 Northway Ct |
| Fire Station 5 | 15 | 1 | 4,627 | 300 Oberlin Road |
| Fire Station 6 | 30 | 2 | 14,450 | 2601 Fairview Road |
| Fire Station 7 | 12 | 2 | 4,584 | 2100 Glascock Street |
| Fire Station 8 | 12 | 2 | 7,267 | 5001 Western Boulevard |
| Fire Station 9 | 18 | 2 | 4,500 | 4465 Six Forks Road |
| Fire Station 10 | 15 | 2 | 4,327 | 2711 Sanderford Road |
| Fire Station 11 | 15 | 1 | 5,618 | 2925 Glenridge Road |
| Fire Station 12 | 30 | 4 | 17,616 | 4306 Poole Road |
| Fire Station 14 | 30 | 4 | 17,404 | 3510 Harden Rd |

*WORK HOURS AT EACH FACILITY ARE DIVIDED INTO THREE SHIFTS. THE NUMBER OF STAFF REFLECTS THE COMBINED TOTAL OF ALL POSITIONS ACROSS ALL SHIFTS. SOME POSITIONS ARE CURRENTLY VACANT.

SOURCE: CITY OF RALEIGH FIRE DEPARTMENT

FIGURE 10.3, continued

FIRE FACILITIES

| Fire Facility | Number of Staff* | Fire Apparatus | Facility Area (Heated square feet) | Address |
|-----------------|------------------|----------------|------------------------------------|-------------------------------|
| Fire Station 15 | 27 | 2 | 6,450 | 1815 Spring Forest Road |
| Fire Station 16 | 27 | 2 | 3,984 | 5225 Lead Mine Road |
| Fire Station 17 | 12 | 2 | 4,875 | 4601 Pleasant Valley Road |
| Fire Station 18 | 18 | 2 | 5,185 | 8200 Morgan's Way |
| Fire Station 19 | 15 | 1 | 6,450 | 4209 Spring Forest Rd |
| Fire Station 20 | 25 | 2 | 5,168 | 1721 Trailwood Drive |
| Fire Station 21 | 15 | 2 | 5,225 | 2651 Southall Road |
| Fire Station 22 | 30 | 4 | 16,888 | 10050 Durant Road |
| Fire Station 23 | 25 | 2 | 8,873 | 8312 Pinecrest Road |
| Fire Station 24 | 14 | 1 | 5,710 | 10440 Fossil Creek Court |
| Fire Station 25 | 12 | 2 | 5,640 | 2740 Wakefield Crossing Drive |
| Fire Station 26 | 15 | 1 | 10,808 | 3929 Barwell Road |
| Fire Station 27 | 12 | 2 | 6,873 | 5916 Buffaloe Road |
| Fire Station 28 | 15 | 2 | 9,849 | 3500 Forestville Road |
| Fire Station 29 | 12 | 2 | 11,518 | 12117 Leesville Road |

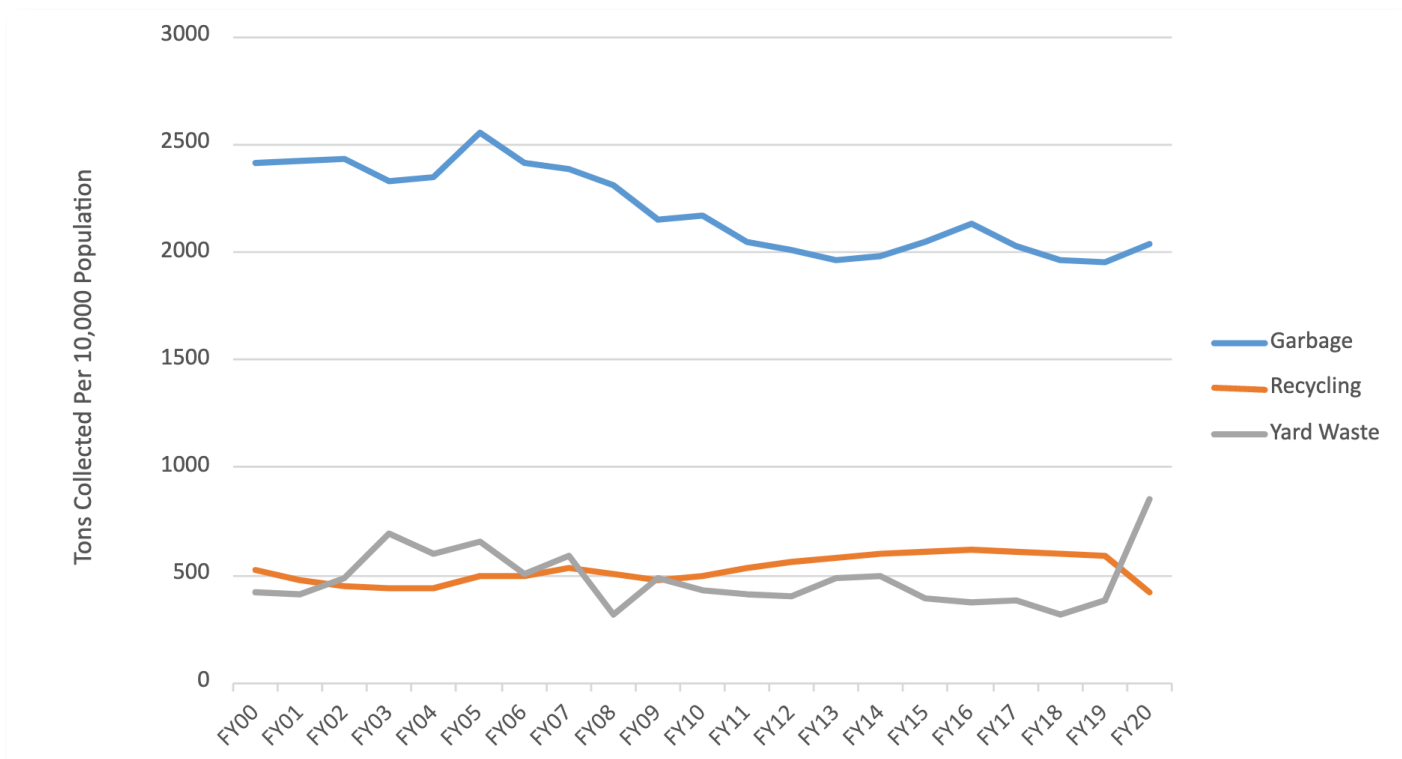
*WORK HOURS AT EACH FACILITY ARE DIVIDED INTO THREE SHIFTS. THE NUMBER OF STAFF REFLECTS THE COMBINED TOTAL OF ALL POSITIONS ACROSS ALL SHIFTS. SOME POSITIONS ARE CURRENTLY VACANT.

SOURCE: CITY OF RALEIGH FIRE DEPARTMENT

FIGURE 10.4**SOLID WASTE SERVICES EQUIPMENT**

| Number | Type |
|--------|---|
| 106 | Large vehicles |
| 53 | Automated refuse collectors |
| 44 | Rear loader garbage and yard waste collectors |
| 3 | Split body rear loaders (collect garbage and recycling at same time – Central Business District Collection) |
| 2 | Roll-off trucks (for recycling drop off sites) |
| 2 | Knuckle Boom trucks (for bulky item and appliance pickup) |
| 2 | Front load collectors for multi-family communities utilizing recycling dumpsters |

SOURCE: CITY OF RALEIGH SOLID WASTE SERVICES DEPARTMENT

FIGURE 10.5**SOLID WASTE COLLECTION**

SOURCE: CITY OF RALEIGH SOLID WASTE SERVICES DEPARTMENT

Historic Resources

The City of Raleigh has a unique heritage. It was founded in 1792 as the planned site for the capital city of North Carolina. Through more than two centuries of growth, Raleigh's capital city status has shaped its evolution. As a seat of biennial legislative government, growth was slow during the city's first one hundred fifty years. For decades, Raleigh's only business was state government and the services needed to support it. Raleigh came late to industrial development, and then only on a small scale. Having escaped destruction during the closing days of the Civil War, the city still enjoys the visual aspects of its original plan, parks, and built environment.

The City's Historic Preservation Program

The Raleigh City Council has supported historic preservation activities in the city through an appointed citizen committee since 1961—five years before the passage of the National Historic Preservation Act. The Raleigh Historic Development Commission (RHDC) is the successor organization to that committee. The RHDC assists in the planning and implementation of appropriate changes to Raleigh Historic Landmarks and local historic district properties through the Certificates of Appropriateness (COA) process. In 2019, preservation planning staff and the RHDC

processed 170 COAs, a decrease of 34 COAs from the previous year. Staff also initiated a historic context study on Raleigh's LGBTQ community in 2019.

Raleigh currently has a total of 173 Local Historic Landmarks, 28 National Register Historic Districts, 8 Historic Overlay Districts, and 3 National Historic Landmarks. Of these, there are 37 Local Historic Landmarks (including Oak Grove Cemetery designated in 2019), 2 Historic Overlay Districts, and 5 National Register Historic Districts are associated with the City's Black history. RHDC is Raleigh City Council's official historic preservation advisory body, tasked with identifying, preserving, protecting, and promoting Raleigh's historic resources.



Glossary

Demographics:

POPULATION ESTIMATES

The calculated number of people living in an area at a specific time. For example, U.S. Census Bureau population estimates are calculated for July 1st.

HOUSEHOLD

One or more individuals who occupy a housing unit as their usual place of residence.

DEMOGRAPHICS

Information, both direct counts and calculated estimates, relating to the structure of populations. This includes age, sex, gender, and many other topics.

AMERICAN COMMUNITY SURVEY (ACS)

A nationwide survey administered by the U.S. Census Bureau. The ACS produces estimates on demographic, social, housing, and economic topics.

U.S. CENSUS BUREAU

The federal agency that manages and executes the census and related data surveys.

CENSUS BLOCK

A geographic area defined by the U.S. Census Bureau. It is the smallest geographic unit that the Bureau for which the Bureau provides complete data.

POPULATION DENSITY

Number of people per square mile on average within a city.

RACIALLY/ETHNICALLY CONCENTRATED AREAS OF POVERTY (R/ECAPS)

A census tract where the number of families in poverty is equal to or greater than 40 percent of all families, or an overall family poverty rate equal to or greater than three times the metropolitan poverty rate, and a non-white population, measured at greater than 50 percent of the population.

PERCENTAGE

A measure of something expressed as a number per every 100 of that thing.

RATE

A measure of occurrences in a given period of time divided by the possible number of occurrences during that period.

HOUSING UNIT

A place of residence that can include a house, an apartment, a mobile home, or a single or set of rooms. Housing units in the City of Raleigh are required to have cooking and bathing facilities.

HOUSING UNIT DENSITY

Number of housing units per square mile.

LAND AREA

An area measurement of the size of the land referred to, often in square miles.

POPULATION PROJECTIONS

Estimates of the population for future dates.

HOMEOWNER VACANCY RATE

The number of unoccupied units for every 100 owner-occupied housing units.

RENTAL VACANCY RATE

The number of unoccupied rental units for every 100 rental units.

MEDIAN

The middle value in a list of data values ordered from smallest to largest.

MEDIAN AGE

The age that is the midpoint of the population, where half the population is older and half is younger.

MEDIAN INCOME

The annual income that represents the midpoint of the labor force, where half the incomes are below and half are above.

PER CAPITA INCOME

An average created by adding up all income of a population and dividing by the population number.

COMMUTING (JOURNEY TO WORK)

The trip people take from home to their place of work.

Land Use and Zoning:

COMPREHENSIVE PLAN

The planning document that guides city activities across departments, particularly with regards to land use, development, and transportation.

UNIFIED DEVELOPMENT ORDINANCE

The ordinance that regulates development in Raleigh.

MIXED-USE

A term to indicate the presence of multiple land uses, for example mixed-use zoning districts permit a variety of land uses.

EXTRATERRITORIAL JURISDICTION (ETJ)

The area outside city limits where a city or town has authority to administer zoning and other planning activities.

ANNEXATION

The act of officially making a property part of the corporate city limits. Property owners must voluntarily request annexation.

CORPORATE (CITY) LIMITS

The area that is official Raleigh, where residents pay city taxes and receive city services such as water & sewer, trash pick up, and police and fire protection.

URBAN SERVICE AREA

The area that a municipality, such as Raleigh, provides public services to such as water and sewer utility.

ZONING

The local law that regulates development, including types of land uses, building height, and location on property.

OVERLAY ZONING DISTRICT

An additional layer of zoning, usually with a particular aim such as neighborhood conservation or watershed protection.

LAND USE

The type of activity conducted on a piece of property, such as residential, commercial, and industrial.

Employment:

GROSS DOMESTIC PRODUCT

A measure of national production. The total market value of all goods and services produced by labor and property in the United States.

UNEMPLOYMENT RATE

The number of unemployed people in the workforce for every 100 people in the workforce.

Housing:

COST OF LIVING

The amount of money needed to sustain a certain standard of living, including housing, food, healthcare, and other expenses.

AFFORDABLE HOUSING

Housing that costs less than 30 percent of a household's income.

SINGLE-FAMILY DETACHED

A dwelling unit occupied by one household that is standalone and not connected to other units or buildings.

TOWNHOUSE

A dwelling unit, sometimes multi-story, that shares walls with dwelling units to the left and right. Sometimes called a row house.

CONDOMINIUM

A multi-unit housing type where residents own the unit.

APARTMENT

A multi-unit housing type where the resident rents but does not own the unit.

GROSS RENT

The total cost of housing, including an average monthly cost of utilities and fuels.

Transportation:

CAPITAL IMPROVEMENT PROGRAM

A five-year plan for how to pay for high priority projects. The CIP is approved by City Council and covers transportation, parks, housing, stormwater, public utilities, and other needs. Often abbreviated as CIP.

COMPLETE STREETS

A street that is safe and usable for all people regardless of age, ability, or mode.

MUNICIPAL BONDS

Loans investors make to local governments.

GENERAL FUND

The primary fund used by a government. A general fund is used to record revenue and expenses not associated with a program-specific fund.

FEDERAL GRANTS

A financial award issued by the United States government to carry out a public purpose.

BICYCLE FRIENDLY COMMUNITY

A designation program administered by the League of American Bicyclists intended to help cities, states, universities, and businesses improve conditions for bicycling. The program provides ratings from Bronze to Platinum, as well as Honorable Mentions.

Public Utilities:

MGD (MILLION GALLONS PER DAY)

A measure used to describe the volume of water or wastewater that a system treats per day.

WASTEWATER

Water and other material that goes down the drain or is flushed down the toilet.

SANITARY SEWER OVERFLOW

An event where wastewater makes its way outside the system of pipes between homes and wastewater treatment plant.

WATERSHED

An area where water collects and drains into the same river, bay, or other body of water.

POLYCHLORINATED BIPHENYL

A man-made chemical previously used in industrial and commercial products. This chemical is commonly referred to as PCBs. It was found to cause health issues and is no longer legal to use.

CLEAN WATER ACT

The federal law establishing standards for surface waters, making it illegal to dump pollutants into streams, lakes, and other water bodies unless a permit is obtained.

TMDL (TOTAL MAXIMUM DAILY LOAD)

A term used by the U.S. Clean Water Act to describe the maximum amount of a pollutant allowed to enter a waterbody so that the water body will continue to meet water quality standards.

GROUND-LEVEL OZONE

While ozone high in the atmosphere protects us from the sun's harmful ultraviolet rays, ozone on the ground causes health problems in people and the natural environment. Vehicle exhaust and industrial emissions react with sunlight to produce ozone.

GPCD

Gallons per capita per day, a measure of water used in one day averaged over the total population.

STORMWATER

Water from precipitation events like a rain storm.

RUNOFF

Rainwater that is not absorbed into the ground or collected by trees or other vegetation.

COMMUNITY RATING SYSTEM (CRS)

A voluntary incentive program of the NFIP that recognizes and encourages community floodplain management activities that exceed NFIP requirements.

FEMA

The Federal Emergency Management Agency, the agency that oversees disaster preparation and recovery activities and funding at the national level.

NATIONAL FLOOD INSURANCE PROGRAM (NFIP)

A national insurance program for property owners and businesses in flood prone areas aimed at encouraging adoption and enforcement of floodplain management regulations.

STORMWATER CONTROL MEASURES (SCM)

Small structures installed in urban areas that capture, retain, and improve the quality of storm runoff.

GREENHOUSE GAS EMISSIONS

Production of gases that contribute to warming of atmosphere (the 'greenhouse effect'). Greenhouse gases are often measured in metric tons, and most common gases are carbon dioxide, methane, and nitrous oxide.

SOLID WASTE

Types of waste not managed by the sewer system, including trash, recycling, and yard waste.

Parks:

GREENWAY

Linear open space open to the public for walking, hiking, biking, and more.

NATIONAL RECREATION AND PARKS ASSOCIATION (NRPA)

A national organization promoting public parks, recreation and conservation.

LEVEL OF SERVICE

A standard that measures how well people are served by a piece of infrastructure, such as a road or a park. A letter grading system is often used to describe each level.

EXPERIENCE-BASED SYSTEM

The current method that Raleigh Parks uses to measure level of service of its parks. This method considers how many 'experiences' or different types of activities a neighborhood has access to and uses the distance to the nearest park based on the current street pattern rather than 'as the crow flies' distance.



Raleigh

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