City of Raleigh

Data Book 2019

PLANNING AND DEVELOPMENT DEPARTMENT
MARCH 2021

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INTRODUCTION

The Raleigh Data Book is an annual publication of updated community information collected by The City of Raleigh Department of Planning and Development's 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 on-line: http://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 and in conjunction with population estimates conducted by city staff, that occurs in January each year. 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 represent data for areas that are within the City of Raleigh corporate limits unless otherwise specified.

ADDITIONAL FOCUS ON EQUITY

After the horrific deaths of several Black Americans including George Floyd and Breonna Taylor, long overdue recognition of systematic racism and racial and economic inequality has come to the forefront of local governance. Since these terrible events, the City of Raleigh has adopted an equity statement and is actively looking for better methods of incorporating racial equity into its procedures and processes. As the largest source of data for the City, the data book has previously included data that hinted at some of these systematic inequalities, but a renewed focus on systemic issues requires renewed information. None of the information included in the data book are necessarily new or groundbreaking. However, they are a starting point for recognizing the kind of inequities that marginalized communities experience as well as identifying the steps the City must take to address these inequities. Moving forward, this information and more will be integrated throughout the full content of the data book.

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.

Racially/Ethnically Concentrated Areas of Poverty (R/ECAPS) are used throughout the Data Book as a comparison to the City-wide statistics. The United States Department of Housing and Urban Development (HUD) defines a racially/ethnically concentrated area of poverty as 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. This specific measure was chosen because they represent areas where racial and economic inequities intersect and where the effects of these issues are likely to have the largest impact.

DEMOGRAPHICS & HOUSEHOLD TRENDS

With a steady population increase of 17.4% from 2010 to 2019, Raleigh is one of the fastest-growing cities in the country. 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 a variety of sources. The decennial census count numbers provide the baseline for 2010 household and population estimates released in the intervening years. The American Community Survey (ACS) of the U.S. Census Bureau provides detailed demographics, summarized over time from sample data. The U.S. Census Bureau's Population Estimates Program provides population estimates between the census years.

ACS data is best used for obtaining population characteristic distributions (percentages, means, medians, and rates) while the decennial census and the Population Estimates Program is best for population totals and basic characteristics (sex, race, age, Hispanic origin, and homeowner status). ACS data should only be compared with basic characteristics from the 2010 census since more detailed information was not asked. In addition to census data, building permit data is also used to give an overview of recent trends in housing construction.

CITY POPULATION & HOUSEHOLD TRENDS

The most recent Census 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 1.01% increase from the previous year (see Figure 2.2). The number of housing units has also grown, with an estimate of 209,792 units in 2018 representing an increase of 2.9% from 2017 (see Figure 2.5). The density of population and housing units have also increased, slightly continuing the upward trend seen over the last few years (see Figures 2.4 & 2.5).

FIGURE 2.1 CENSUS POPULATION COUNT

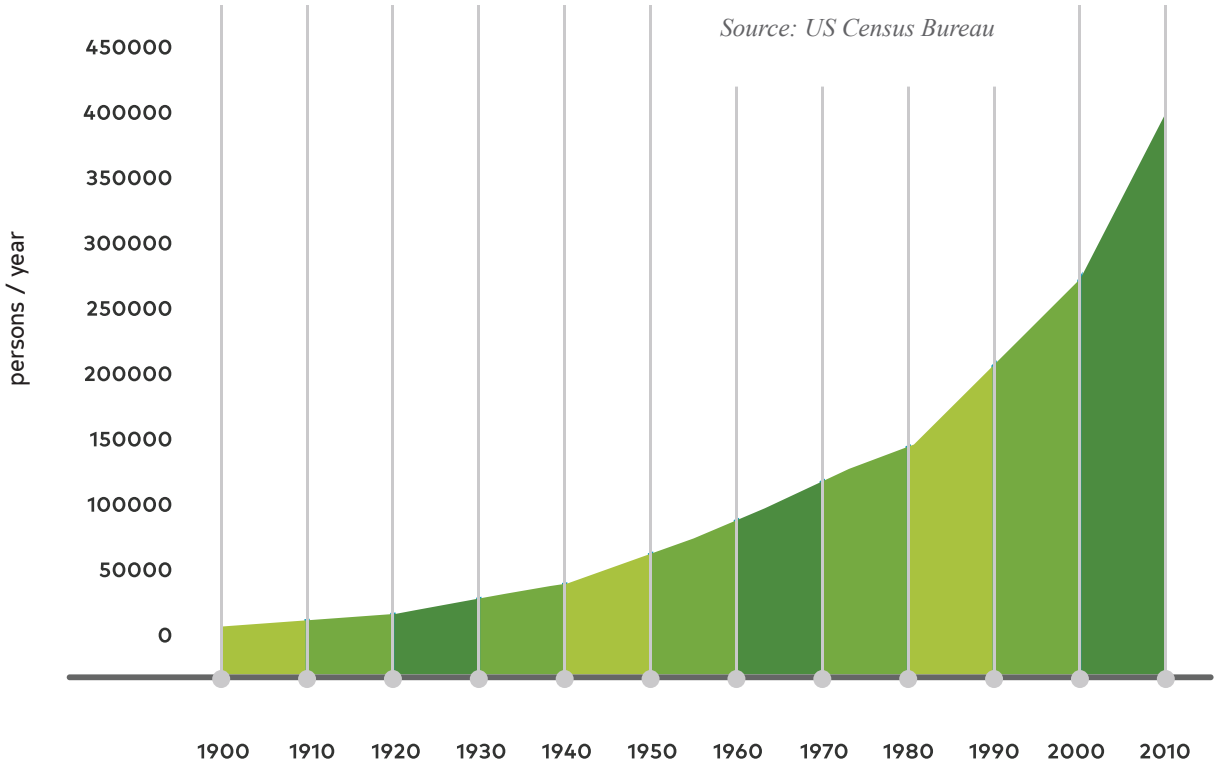
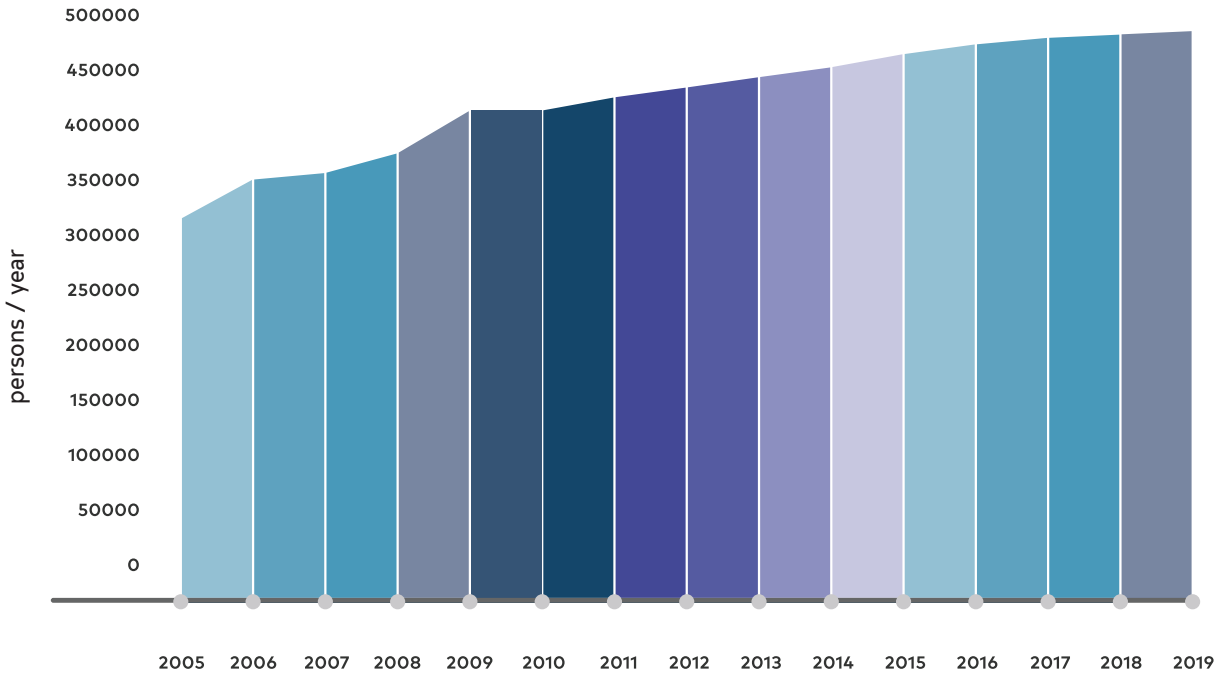


FIGURE 2.2 CENSUS POPULATION COUNT AND ESTIMATES



Source: U.S. Census Bureau, Population Estimates Program

FIGURE 2.3 POPULATION DENSITY

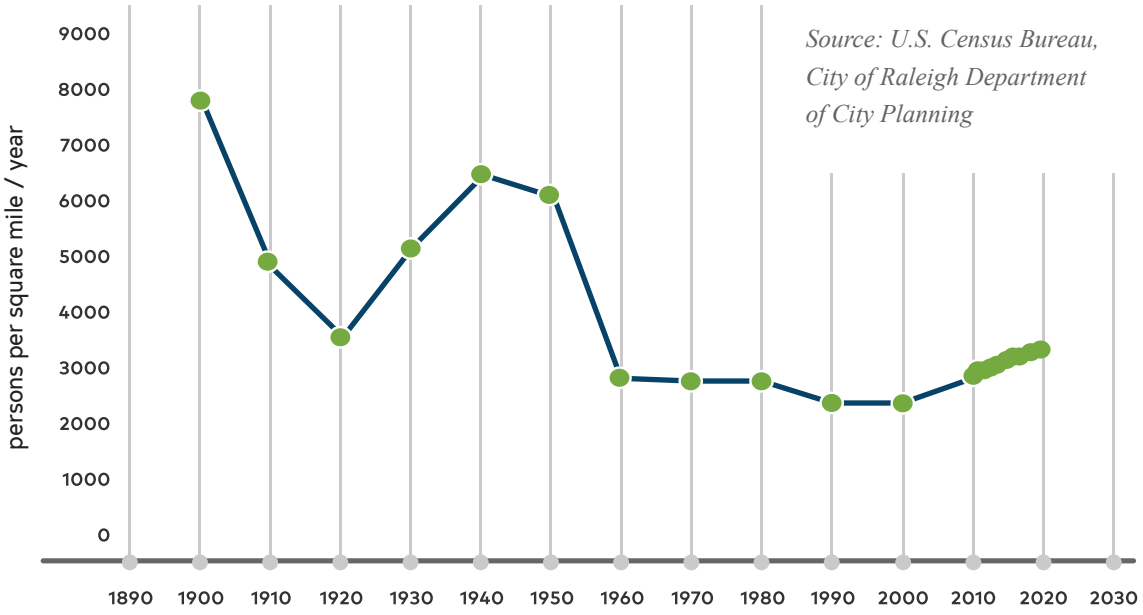


FIGURE 2.4 POPULATION, GROWTH RATE, AND DENSITY

Year	Population	Annual Percent Growth Rate	Land Area	Population Density (people per square mile)
1900	13,643	0.0%	1.757	7,765
1910	19,218	3.5%	4.026	4,773
1920	24,418	2.4%	6.961	3,508
1930	37,379	4.3%	7.254	5,153
1940	46,879	2.3%	7.254	6,463
1950	65,679	3.4%	10.883	6,035
1960	93,931	3.6%	33.669	2,790
1970	122,830	2.7%	44.929	2,734
1980	150,255	2.0%	55.165	2,724
1990	212,092	3.5%	91.395	2,321
2000	276,093	2.7%	118.707	2,326
2010	403,892	3.9%	143.845	2,808
2011	416,468	3.1%	144.303	2,886
2012	423,179	1.6%	144.45	2,930
2013	431,746	2.0%	144.86	2,980
2014	439,896	1.9%	145.17	3,030
2015	451,006	2.5%	145.76	3,094
2016	458,880	1.7%	145.98	3,143
2017	464,785	1.3%	147.01	3,162
2018	469,298	1.0%	147.41	3,184
2019	474,069	1.0%	148.00	3,203

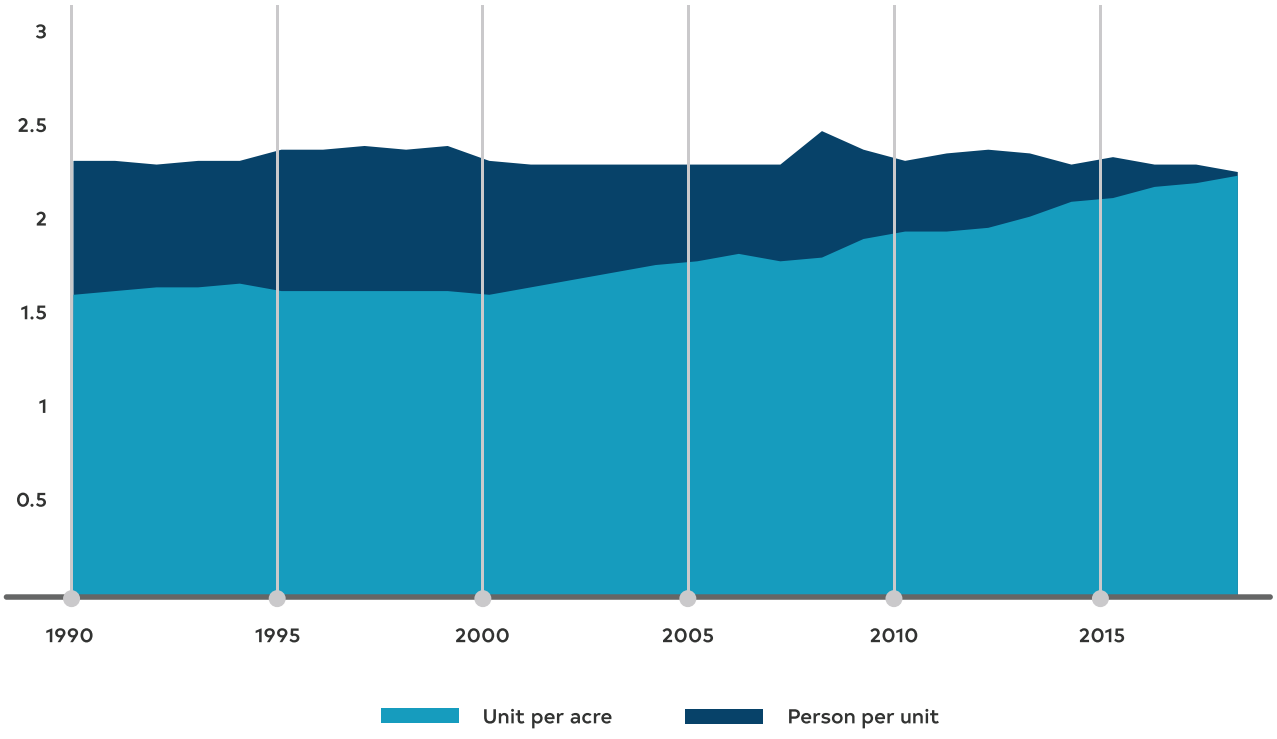
Source: U.S. Census Bureau, City of Raleigh Department of Planning and Development

FIGURE 2.5 HOUSING

Year	Housing Units	Annual Percent Growth Rate	Land Area in Acres	Housing Density (people per square mile)
1970	38,464	-	28,755	1.34
1980	57,866	5.0%	35,305	1.64
1990	92,643	6.0%	58,493	1.58
2000	120,699	3.0%	75,972	1.59
2010	176,124	4.6%	92,435	1.91
2011	178,203	1.2%	92,710	1.92
2012	180,196	1.1%	92,838	1.94
2013	184,844	2.6%	93,047	1.99
2014	192,504	4.1%	93,306	2.06
2015	195,293	1.4%	93,652	2.09
2016	201,158	3.0%	93,775	2.15
2017	203,936	1.4%	94,088	2.17
2018	209,792	2.9%	94,291	2.22

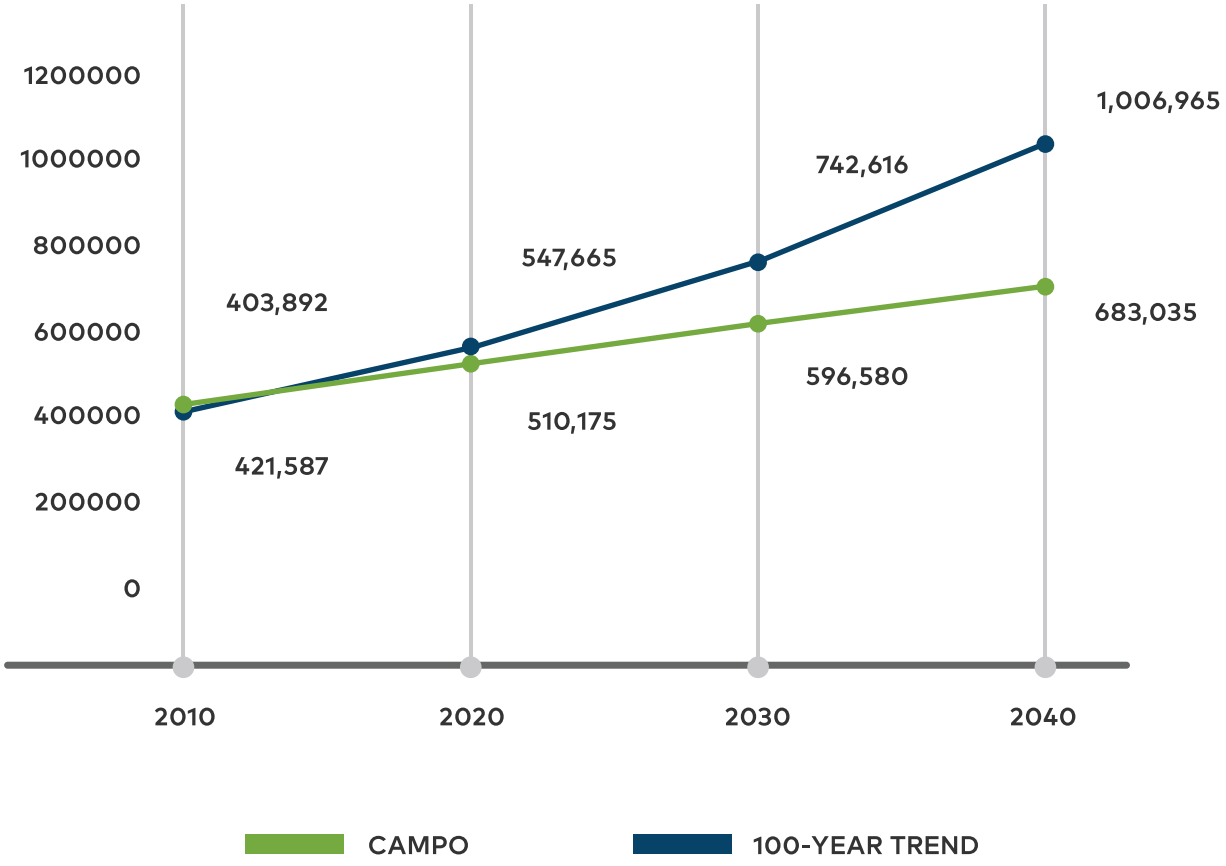
Source: U.S. Census Bureau, 2017 American Community Survey 1-year Estimates, City of Raleigh Department of Planning and Development

FIGURE 2.6 DWELLING UNIT DENSITIES, 1990 – 2017



Source: US Census Bureau, City of Raleigh Department of Planning and Developmentg

FIGURE 2.7 RALEIGH POPULATION PROJECTIONS



Source: U.S. Census Bureau, City of Raleigh Department of Planning and Development

RESIDENTIAL DEVELOPMENT

Single family detached dwelling units comprise 46.0% of housing in Raleigh based on 2018 American Community Survey data (see figures 2.8 & 2.9). Multi-family apartments come in second at 37.0%, followed by townhouses (13.7%), duplexes (1.7%), and mobile homes (1.5%) (see Figure 2.9). From 2010 to 2019, apartments made up 61% of all issued residential building permits. In 2019, apartment development comprised the largest share – 69% - of residential building permits issued in Raleigh (see Figures 2.14 and 2.15). Single family development came in second at 21%.

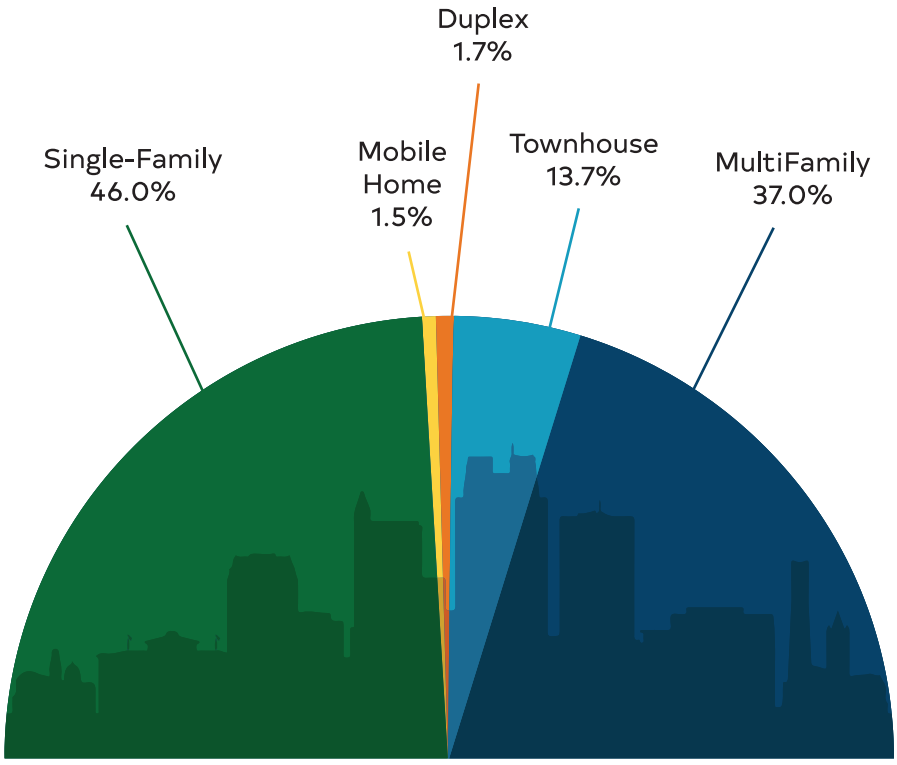
Raleigh's housing stock is relatively young, with approximately 71.9% of its housing units built in the last 48 years (see Figure 2.10). The overall household vacancy rate (homeowners and renters) is 9.9%, which is down from a high of 11.3% in 2010 but the same at the 9.9% vacancy rate in 2017. The homeownership rate stands at 50.9%, which is down from the rate of 53.5% in 2010 (see Figures 2.12 and 2.13). The average homeownership rates within the 4 R/ECAP tracts are significantly lower at 19.9%.

FIGURE 2.8 TOTAL HOUSING UNITS BY NUMBER IN STRUCTURE, 2018

Units in Structure	Number	Percent
1 Unit Detached	96,504	46.0%
1 Unit Attached	28,742	13.7%
2 Units	3,566	1.7%
3-4 Units	6,504	3.1%
5-9 units	15,525	7.4%
10-19 units	24,965	11.9%
20 or more units	30,630	14.6%
Mobile homes	3,147	1.5%
Total units	209,792	100.0%

Source:US Census Bureau, 2018 American Community Survey 1-year Estimates

FIGURE 2.9 HOUSING SHARE BY BUILDING TYPE, 2018



Source: U.S. Census Bureau, 2017 American Community Survey 1-year Estimates

FIGURE 2.10 HOUSING UNITS BY YEAR BUILT

Year	Number	Percent
Built 1939 or earlier	5,455	2.6%
Built 1940 to 1949	5,245	2.5%
Built 1950 to 1959	9,650	4.6%
Built 1960 to 1969	16,783	8.0%
Built 1970 to 1979	21,399	10.2%
Built 1980 to 1989	35,665	17.0%
Built 1990 to 1999	40,280	19.2%
Built 2000 to 2009	49,091	23.4%
Built 2010 or later	25,804	12.3%
Total	20,9792	100.0%

Source: U.S. Census Bureau, 2018 American Community Survey 1-year Estimates

FIGURE 2.11 OCCUPANCY BY TENURE, 2017

Total Housing Units	209,792
Occupied Housing Units	198,941
Vacant Housing Units	20,851
Overall Vacancy Rate	9.9%
Homeowner Vacancy Rate	1.4%
Rental Vacancy Rate	6.9%

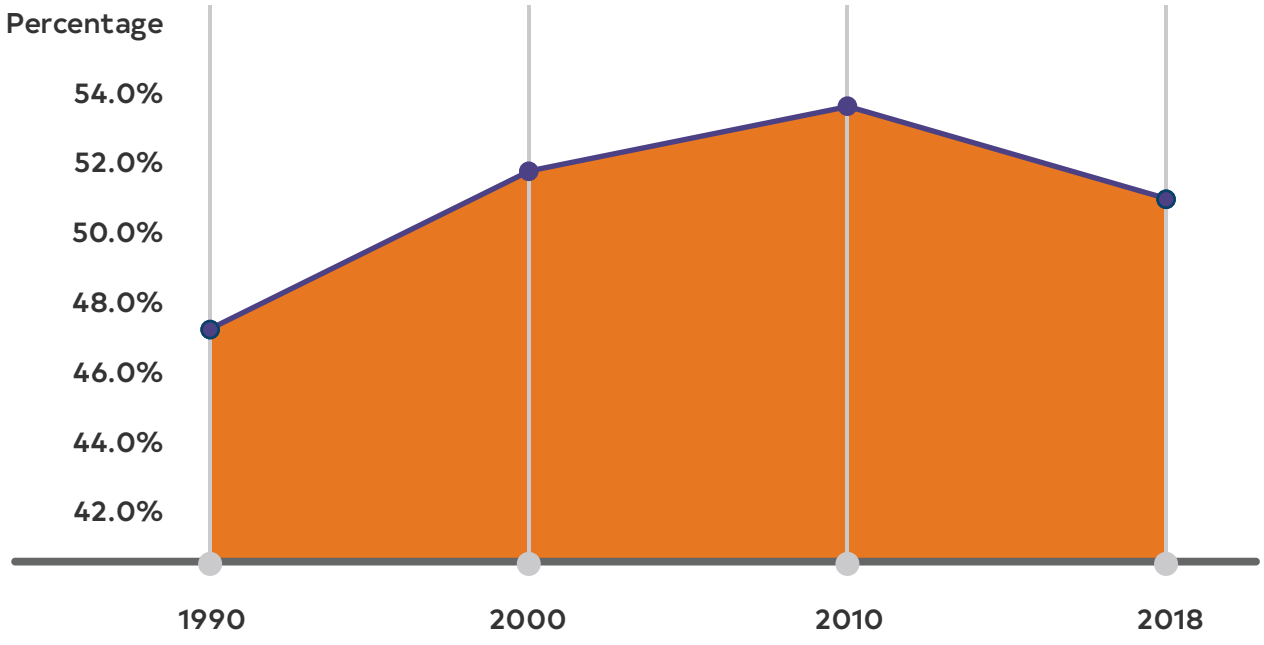
Source: .U.S Census Bureau, 2018 American Community Survey 1-year Estimates

FIGURE 2.12 HOUSING TENURE FOR OCCUPIED UNITS

	2000		2010		2018	
	Number	Percent	Number	Percent	Number	Percent
Owner Occupied	58,079	51.6%	87,284	53.5%	96,171	50.9%
Renter Occupied	54,529	48.4%	75,715	46.5%	92,770	49.1%
Total Occupied Units	112,608	100.0%	162,573	100.0%	188,941	100.0%

Source: .U.S Census Bureau, 2018 American Community Survey 1-year Estimates

FIGURE 2.13 HOMEOWNERSHIP RATE



Source: U.S. Census Bureau, 2018 American Community Survey 1-year Estimates

FIGURE 2.14 RESIDENTIAL UNITS PERMITTED

Source: Raleigh Department of Planning and Development

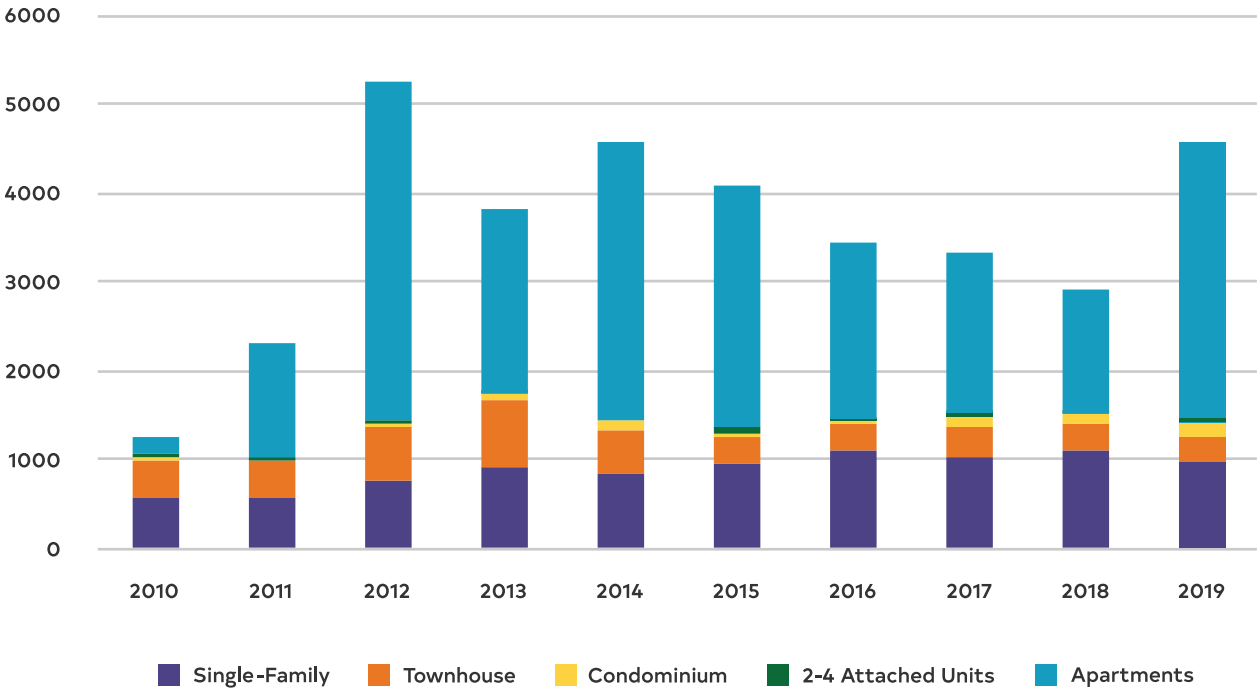


FIGURE 2.15 RESIDENTIAL UNITS PERMITTED

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	5,273
2013	909	750	80	8	2,096	3,843
2014	829	491	125	0	3,140	4,585
2015	965	308	42	49	2,723	4,087
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
10-year total	8,860	4,249	738	183	21,586	35,626
Percent of Total	25%	12%	2%	1%	61%	100%
10-year average	886	425	74	18	2,159	3,563

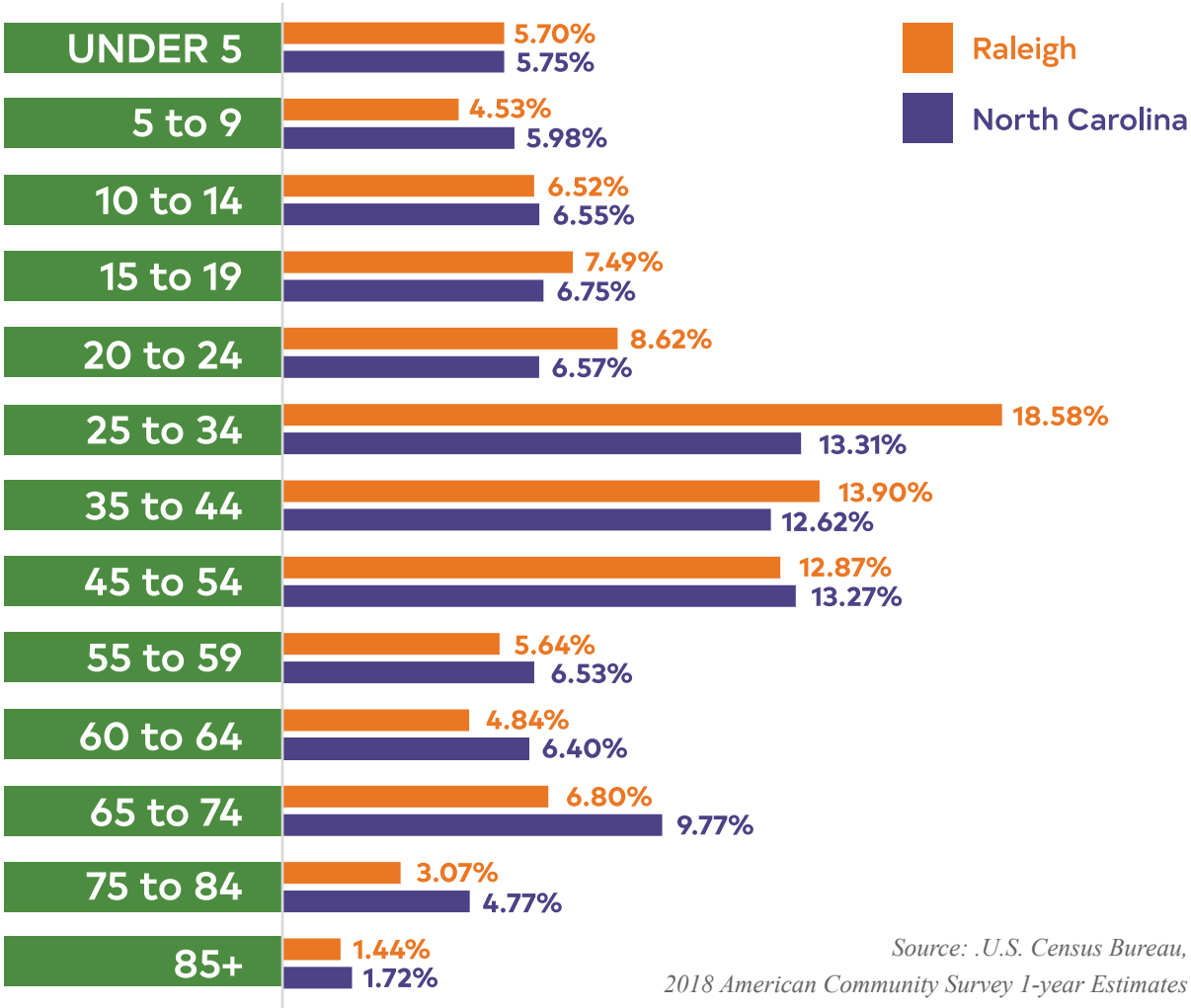
Source: City of Raleigh Department of Planning and Development

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 2.16). Raleigh's age distribution has changed somewhat from 2000 to 2018 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 2.17).

In terms of population by Census designated racial categories, the share of white population in Raleigh has decreased between 2000 and 2018 from 63.3% to 57.6% (see Figure 2.18). During the same period, the African American population grew from 27.8% to 28.1%, and the Asian population grew from 3.4% to 4.9%. The Hispanic/Latino population, defined by the US Census Bureau as an ethnic group and not a racial group, grew in total numbers by 9.6% from 2000 to 2018, but slightly decreased its share of the total population from 11.9% to 10.7% (see Figure 2.19).

FIGURE 2.16 **POPULATION DISTRIBUTION BY AGE GROUP**



Source: .U.S. Census Bureau, 2018 American Community Survey 1-year Estimates

In terms of educational attainment, Raleigh has a higher percentage of residents with a high school diploma or higher (92.3%) and residents with a bachelor's degree or higher (53.3%) than the State of North Carolina and the Nation (see Figure 2.21). Approximately 1 in 6 people in Raleigh (18.8%) holds a graduate or professional degree, which is 65% higher than the statewide average. Educational attainment in the 4 R/ECAP tracts is lower than the city-wide rates in all three categories, but higher than the state's percentage of residents with a bachelor's degree (34%) and percentage of residents with a graduate or professional degree (11.9%).

After peaking in 2010, the percentage of people and families living below the poverty level city-wide has dropped significantly (see Figure 2.22). In 2010, the percentage of people in poverty peaked at an estimated 18.4% before falling to 12.3% in 2018.

For families, the percentage decreased from 13.9% in poverty in 2010 to 7.4% in 2018. The R/ECAP average percentage of people and families living below the poverty level has also dropped significantly since 2012. In 2012, the percentage of people in poverty was 54.7% which fell to 37.5% in 2018. For families the percentage decreased from 49.6% to 30.3%. While trending downwards, the percentage of people and families in poverty in the R/ECAP tracts remain much higher than the city-wide percentages.

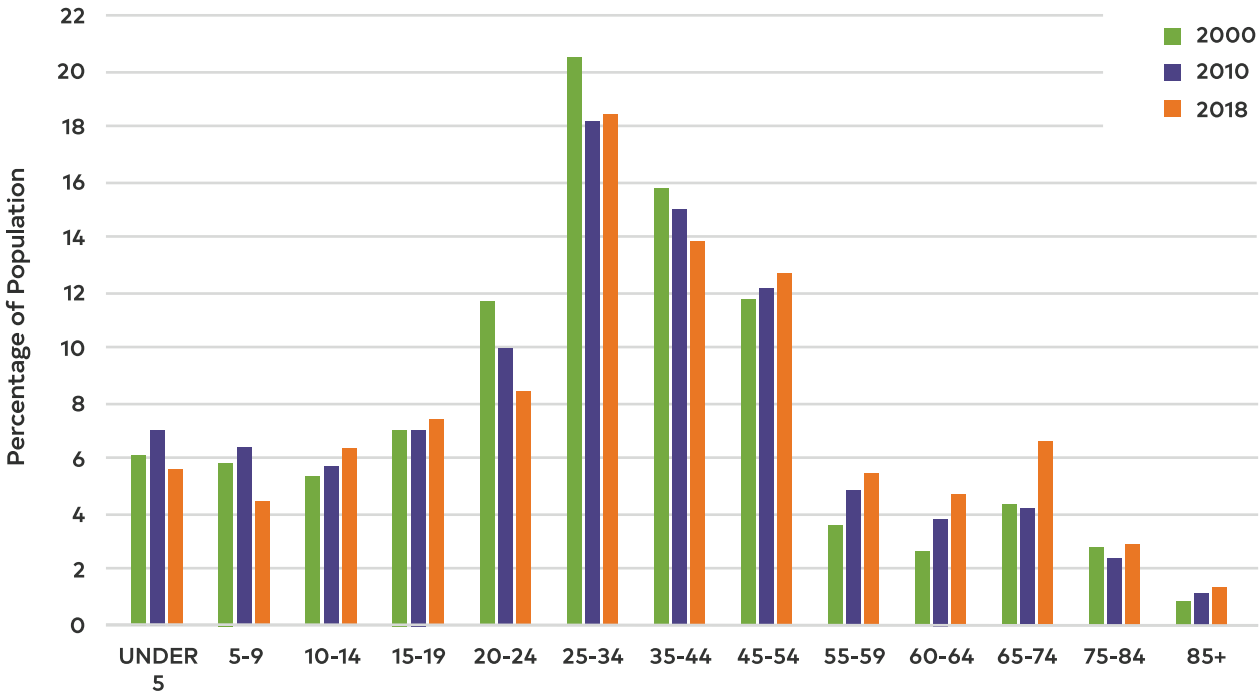
City-wide, median household incomes and per capita incomes have experienced converse trends during the last two decades. After peaking at $67,720 in 2000, median household incomes declined to $65,695 in 2018 (see Figure 2.22). While per capita incomes also peaked in 2000, and experienced a decline between 2000 and 2010, the most recent Census figures indicate they have increased slightly since then to $38,804 in 2018. The average median household and per capita incomes for R/ECAP tracts have increased from 2012 to 2018 while still being significantly below the city-wide household and per capita incomes.

Raleigh has a higher life expectancy than both North Carolina and the United States at 80.25 years. This is in contrast with the average life expectancy of the R/ECAP tracts, which is just over 7 years shorter than Raleigh's overall life expectancy, and about 5 years shorter than the state and national life expectancy (see figure 2.23).

The share of different types of households has also changed slightly during the last two decades (see Figure 2.24 & 2.25). Single parent households have declined and with other family households are up approximately 4.1 percentage points. Married couple households with children have decreased slightly (approximately 1.7 percentage points). Persons per household – as measured by the population in households divided by the total number of households – has trended upward from 2000 to 2018 (see Figure 2.24).

Commuting modes in Raleigh have remained steady over the past five years with a large majority of people driving to work alone in a personal vehicle (77.6% in 2018) and approximately 8.7% of people carpooling to work (See Figure 2.25). The rest either take public transit (2.2%), walk (1.5%), use other means (1.2%), or forego a commute and work at home (8.6%). Raleigh's rate of driving remains somewhat higher than other comparable U.S. cities (see Figure 2.26).

FIGURE 2.17 AGE DISTRIBUTION



Source: U.S. Census Bureau, 2018 American Community Survey 1-year Estimates

FIGURE 2.18 POPULATION BY RACE

Race	2000		2010		2017	
	Number	Percent	Number	Percent	Number	Percent
White	174,786	63.3%	225,705	58.9%	271,068	57.6%
Black or African American	76,756	27.8%	112,948	29.5%	132,356	28.1%
American Indian and Alaska Native	981	0.4%	1,114	0.3%	888	0.2%
Asian or Pacific Islander	9,445	3.4%	16,935	4.4%	22,926	4.9%
Some other race	14,125	5.1%	20,371	5.3%	22,702	4.8%
Two or More Races	n/a	n/a	5,656	1.4%	20,569	4.4%
Total population	276,093		382,729		470,509	

Source: U.S. Census Bureau, 2018 American Community Survey 1-year Estimates

FIGURE 2.19 HISPANIC POPULATION

	Number	Percent of Total Population
2000	45,868	11.9%
2018	50,274	10.7%
Percent Increase	**9.6%**	**-1.2%**

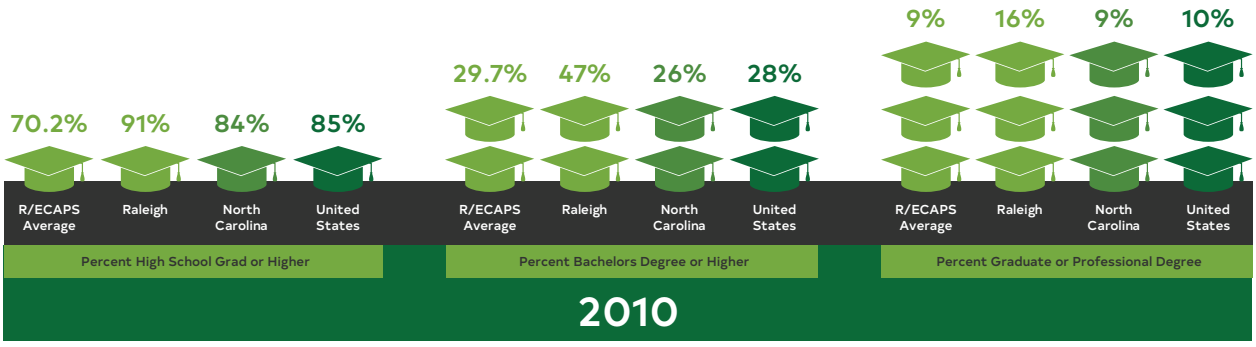
Source: U.S. Census Bureau, 2018 American Community Survey 1-year Estimates

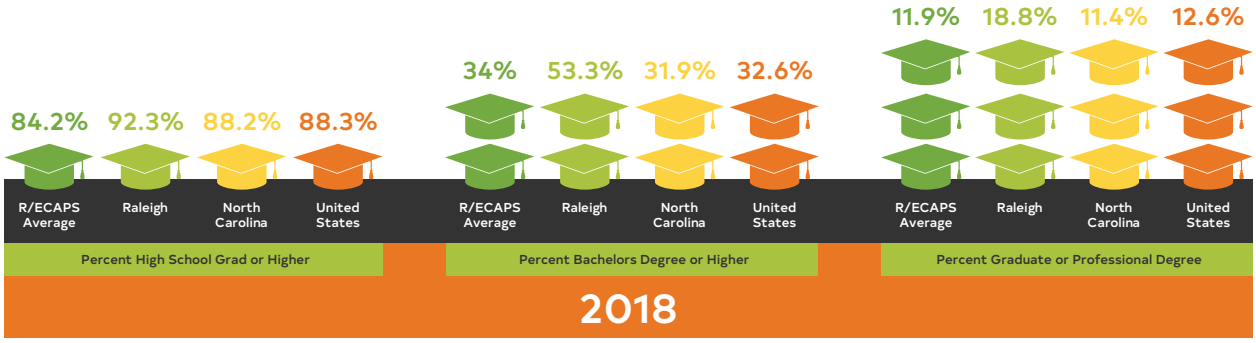
FIGURE 2.20 COMPONENTS OF HISPANIC POPULATION

Ethnicity	Number	Percent of Total Population	Percent of Hispanic Population
Mexican	26,066	5.5%	51.8%
Puerto Rican	7,076	1.5%	14.1%
Cuban	3,005	0.6%	6.0%
Dominican	1,968	0.4%	3.9%
Central American	5,144	1.1%	10.2%
South American	3,480	0.7%	6.9%
Other	3535	0.8%	7.0%

Source: U.S. Census Bureau, 2018 American Community Survey 1-year Estimates

FIGURE 2.21 EDUCATIONAL ATTAINMENT AGE 25 AND OLDER





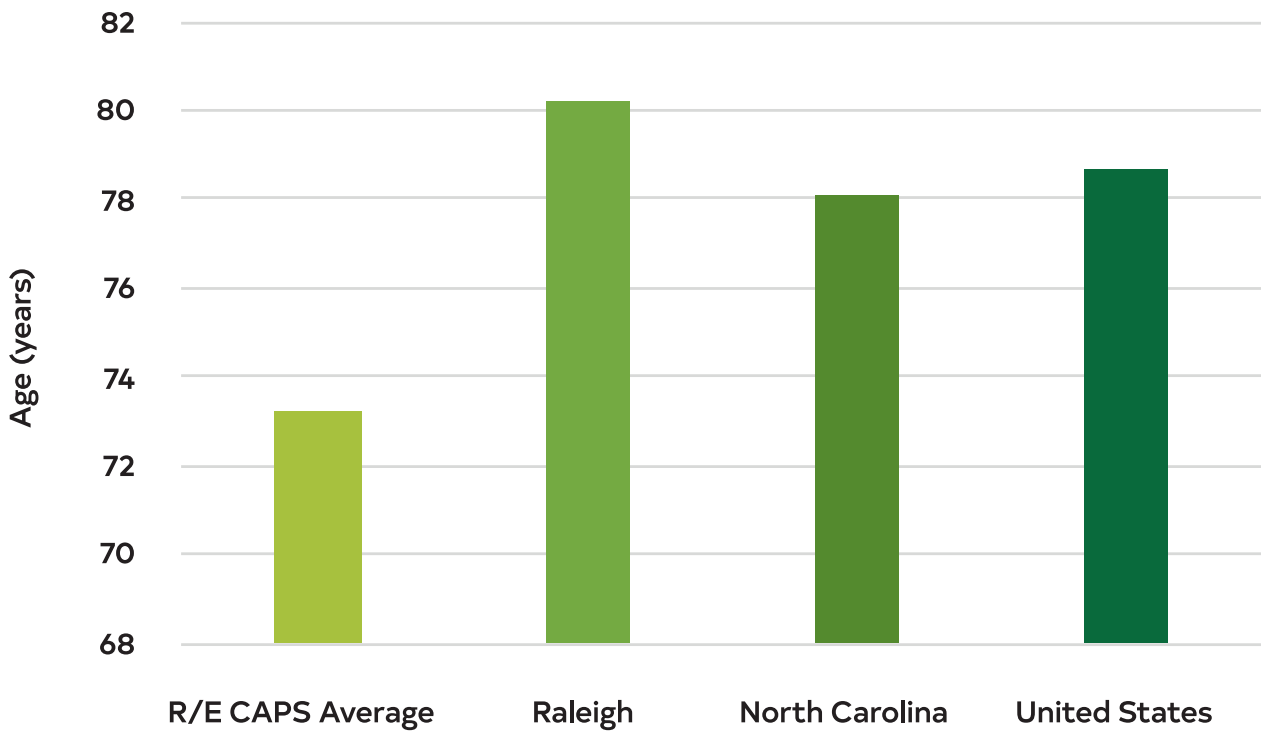
Source: U.S. Census Bureau, 2017 American Community Survey 1-year Estimates

FIGURE 2.22 POVERTY, INCOME, AND EMPLOYMENT INDICATORS

	1990	2000	2010	2018	2012 R/ ECAP Average	2018 R/ ECAP Average
Percent of persons below poverty	11.8%	11.5%	18.4%	12.3%	54.65%	37.5%
Percent of families below poverty	9.0%	7.1%	13.9%	7.4%	49.60%	30.3%
Median Household Income (2018 dollars)	$61,192	$67,720	$55,362	$65,695	$19,521	$29,147
Per Capita Income (2018 dollars)	$32,984	$36,491	$31,104	$38,804	$ 9,486	$14,710
Unemployment Rate	4.0%	3.8%	7.5%	3.3%	18.70%	11.3%
Labor Force Participation Rate	66.4%	72.7%	69.9%	70.1%	46.0%	52.2%

Source: U.S. Census Bureau, 2018 American Community Survey 1-year Estimates

FIGURE 2.23 LIFE EXPECTANCY



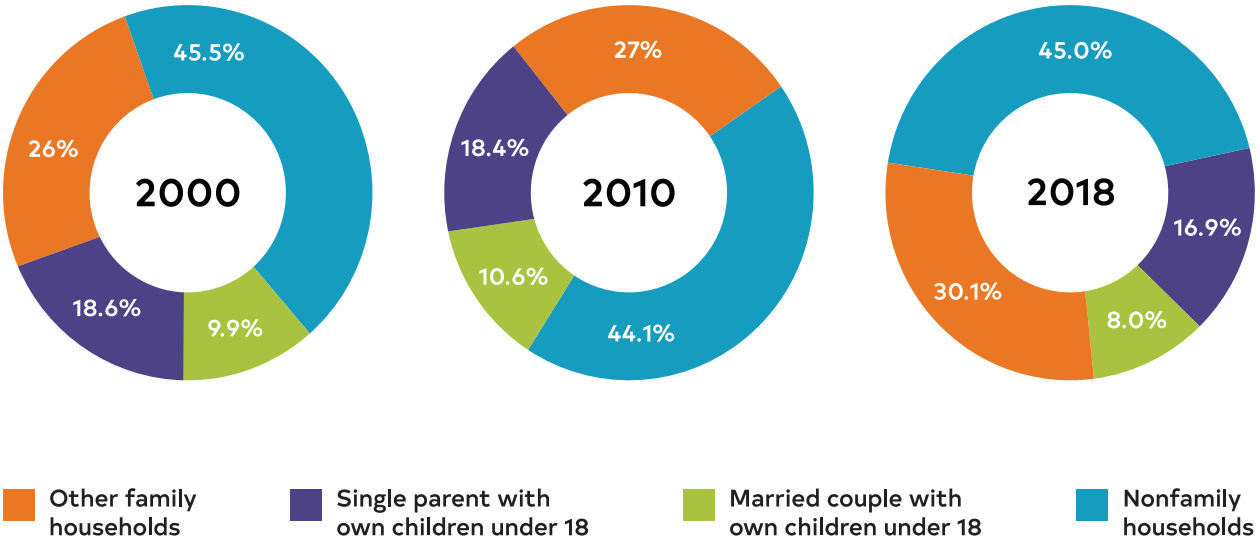
Source: Center for Disease Control, National Center for Health Statistics, 2020 Life Expectancy Estimates by U.S. Census Tract, 2010-2015.

FIGURE 2.24 HOUSEHOLD TRENDS

	Number			Percent		
	2000	2010	2018	2000	2010	2018
Family Households	61,327	91,186	103,905	54.5%	55.9%	55.0%
Married couple with own children under 18 years old	20,914	29,973	31,891	18.6%	18.4%	16.9%
Single parent with own children under 18 years old	11,122	17,245	15,056	9.9%	10.6%	8.0%
Other family Households	29,291	43,968	56,958	26.0%	27.0%	30.1%
Nonfamily Households	51,281	71,813	85,036	45.5%	44.1%	45.0%
Total Households	112,608	162,999	188,941	100.0%	100.0%	100
Persons per household	2.3	2.36	2.39	-	-	-

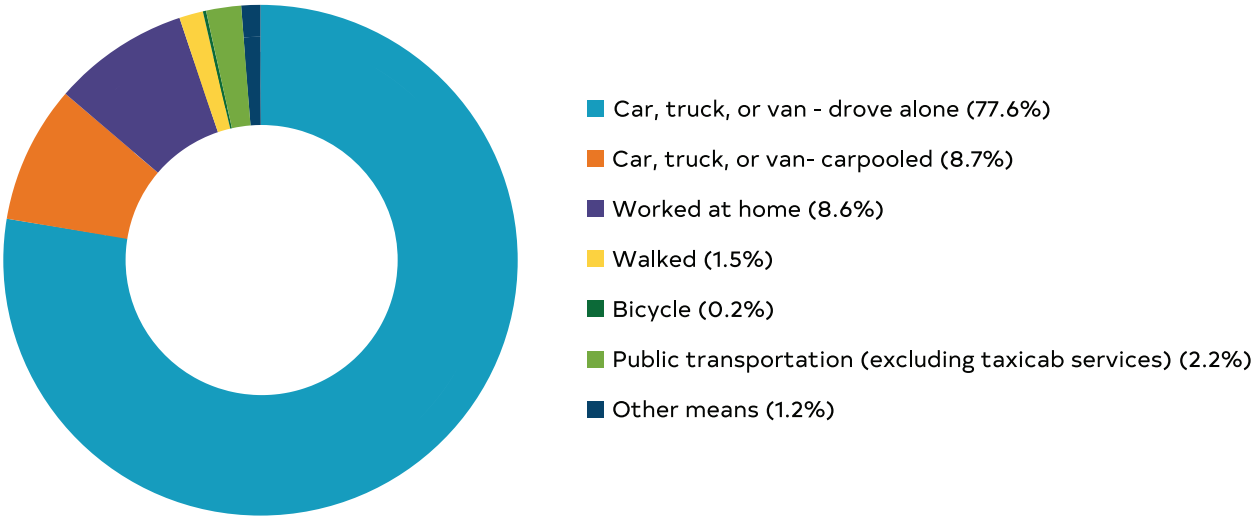
Source: U.S. Census Bureau, 2018 American Community Survey 1-year Estimates

FIGURE 2.25 HOUSEHOLD SHARE BY TYPE



Source: U.S. Census Bureau, 2018 American Community Survey 1-year Estimates

FIGURE 2.26 JOURNEY TO WORK



Source: U.S. Census Bureau, 2017 American Community Survey 1-year Estimates

FIGURE 2.27 JOURNEY TO WORK - COMPARISON WITH SIMILAR CITIES 2017

	Atlanta, GA	Charlotte, NC	Raleigh, NC	Austin, TX
	Percent	Percent	Percent	Percent
Car, truck, or van - drove alone	65.6%	75.2%	77.6%	75.4%
Car, truck, or van - carpooled	5.4%	9.5%	8.7%	8.0%
Worked at home	9.6%	8.4%	8.6%	8.4%
Walked	5.3%	2.2%	1.5%	2.6%
Bicycle	1.0%	0.1%	0.2%	1.4%
Public transportation (excluding taxicab)	10.0%	3.2%	2.2%	3.2%
Other means	3.1%	1.4%	1.2%	0.9%

Source: U.S. Census Bureau, 2018 American Community Survey 1-year Estimates

LAND USE & ZONING

Land use is fundamental to the physical form and function of the city. The Comprehensive Plan is the primary policy guide that municipalities use to guide land use and the physical development and growth of the city. 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 not only the prescribed use of property, but also 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. The majority 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 Extra-Territorial 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 for the orderly development of areas that are eligible for future voluntary annexation in the short term. This chapter primarily addresses the land area within the ETJ boundary (i.e. incorporated limits plus ETJ), 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

Zones that primarily accommodate residential uses make up approximately 64% of the total land area in Raleigh's planning jurisdiction and those that primarily accommodate commercial uses – the mixed-use zones - make up about 25% of total land area (see Figure 3.1 and 3.2). Breaking those shares down further, mixed-use zones that primarily accommodate retail (NX-, CX-, and DX-) comprise 6.3% of total land area, those that are considered industrial are 8.5% (IX-), and those that primarily accommodate office uses (OX- and OP-) make up 7.4%. 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 just under 11% of Raleigh's total land area (see Figure 3.3). Overlay zoning districts (historic overlay districts, special highway overlay districts, etc.) cover 30.0% 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	4,851	4.2%
R-2 : Residential-2	2,044	1.8%
R-4 : Residential-4	38,898	33.8%
R-6 : Residential-6	17,331	15.0%
R-10 : Residential-10	10,126	8.8%
Total Residential	73,250	63.6%

Source: City of Raleigh Department of Planning and Development, 2019

FIGURE 3.2 MIXED-USE ZONING ALLOCATION

Zoning District	Acres	Percent of Total Land Area
RX- : Residential Mixed Use	3,931	3.4%
OP- : Office Park	508	0.4%
OX- : Office Mixed Use	8,014	7.0%
NX- : Neighborhood Mixed Use	785	0.7%
CX- : Commercial Mixed Use	5,869	5.1%
DX- : Downtown Mixed Use	582	0.5%
IX- : Industrial Mixed Use	9,768	8.5%
Total Mixed-Use	29,457	25.6%

Source: City of Raleigh Department of Planning and Development, 2019

FIGURE 3.3 SPECIAL DISTRICTS ZONING ALLOCATION

Zoning District	Acres	Percent of Total Land Area
CM : Conservation Management	2,040	1.8%
AP : Agricultural Productive	1,957	1.7%
IH : Heavy Industrial	3,278	2.8%
MH : Manufactured Housing	820	0.7%
CMP: Campus	-	0.0%
PD : Planned Development	4,375	3.8%
Total Special Districts	12,469	10.8%

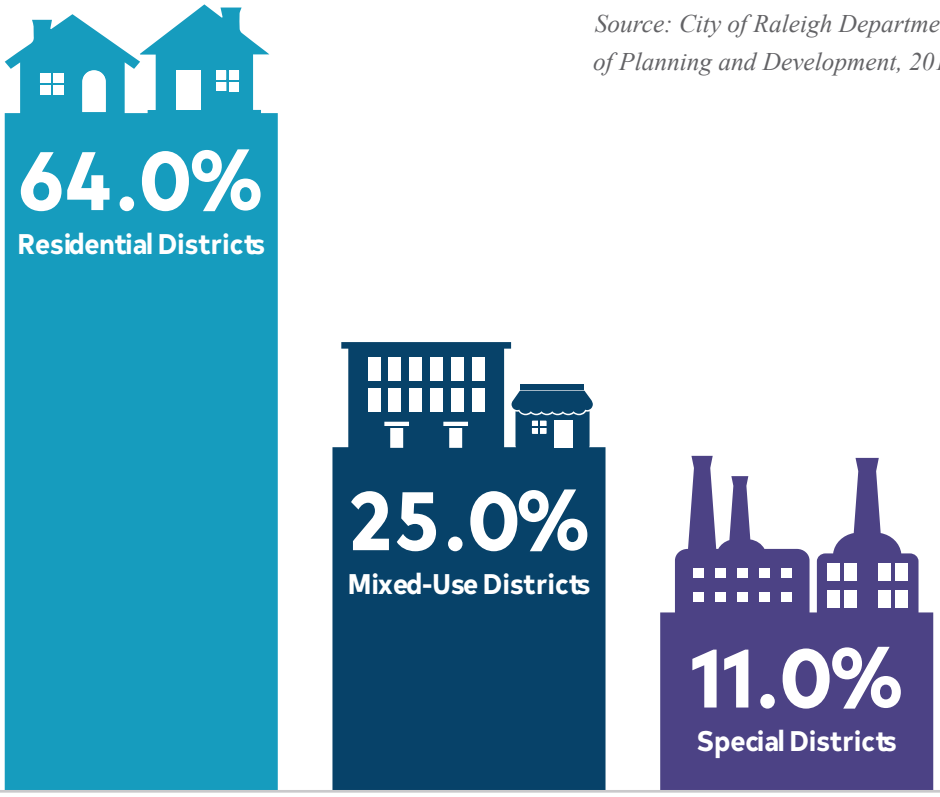
Source: City of Raleigh Department of Planning and Development, 2019

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	1.3%
NCOD : Neighborhood Conservation Overlay District	3,204	2.8%
SHOD-1 : Special Highway Overlay District 1	7,901	6.9%
SHOD-2 : Special Highway Overlay District 2	5,066	4.4%
SRPOD : Special Residential Parking Overlay District	8,231	7.1%
TOD : Transit Overlay District	-	0.0%
WPOD : Watershed Protection Area Overlay District	9,554	8.3%
Total Overlay Districts (not accounting for overlap)	37,991	33.0%
Total Overlay Districts (accounting for overlap)	34,551	20.0%

Source: City of Raleigh Department of Planning and Development, 2019

FIGURE 3.5 GENERALIZED ZONING ALLOCATION



Source: City of Raleigh Department of Planning and Development, 2019

A property's zoning district controls for the range of uses that are allowable on the property. The table below shows the actual uses that properties in Raleigh exhibit, based on data collected in 2015. As can be seen in Figure 3.6, parcels that account for 44.3% of total acreage in Raleigh have Residential as their primary use, and 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, PART 1

Land Use Category	Parcels	Acreage	Percentage of Area
Residential	117,517	44,349.90	44.30%
Household Living: Single-unit Living	88,960	34,408.70	34.40%
Household Living: Townhouse Living	24,527	1,488.60	1.50%
Household Living: Two-unit Living	1,922	714.8	0.70%
Household Living: Manufactured	24	429.4	0.40%
Household Living: Multi-unit Living	1,979	6,464.60	6.50%
Group Living	71	213.1	0.20%
Social Service	34	630.7	0.60%
Public and Institutional	3,690	18,238.70	18.20%
Civic	476	5,264.30	5.30%
Parks, Open Space, and Greenways	3,134	12,538.90	12.50%
Utilities	80	435.6	0.40%
Commercial	3,509	10,662.30	10.60%
Day Care	93	157	0.20%
Indoor Recreation	100	441.8	0.40%
Medical	135	365.4	0.40%
Office	1,240	3,779.00	3.80%
Outdoor Recreation	114	2,033.40	2.00%

Source: City of Raleigh Department of Planning and Development, 2019

FIGURE 3.6 LAND USE ALLOCATION, PART 2

Land Use Category	Parcels	Acreage	Percentage of Area
Overnight Lodging	80	210.7	0.20%
Parking	313	343.3	0.30%
Passenger Terminal	10	15.1	0.00%
Personal Service	158	145.1	0.10%
Restaurant/Bar	348	310.1	0.30%
Retail Sales	762	2,371.40	2.40%
Vehicle Sales/Rental	156	489.9	0.50%
Industrial	1,421	5,637.70	5.60%
Heavy Industrial	133	1,800.40	1.80%
Light Industrial	296	690.2	0.70%
Light Manufacturing	68	146.7	0.10%
Research & Development	10	106.5	0.10%
Self-Service Storage	59	265.9	0.30%
Vehicle Service	333	365.8	0.40%
Warehouse & Distribution	294	1,230.20	1.20%
Waste-Related Service	6	424	0.40%
Wholesale Trade	222	607.9	0.60%
Open	18	1,473.90	1.50%
Agriculture	14	1,084.40	1.10%
Resource Extraction	4	389.5	0.40%
Mixed-Use	115	123.6	0.10%
Vacant	8,990	19,655.90	19.60%
Grand Total	135,260	100,142.00	100.00%

Source: City of Raleigh Department of Planning and Development, 2019

ANNEXATION, AND GROWTH POTENTIAL

In 2019, the city added 266 acres through annexation (see Figure 3.7). Changes in state laws restricting city-initiated annexations have resulted in petition-only annexations, usually of smaller parcels by individual owners. The total future annexation potential for Raleigh is 40,196 acres (see Figure 3.8). This includes both ETJ areas and Urban Services Areas (USA). Combined with the city's current acreage of 94,609, the total potential city limits acreage is 134,805 acres.

FIGURE 3.7 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
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

Source: City of Raleigh Department of Planning and Development, 2019

FIGURE 3.8 FUTURE RALEIGH CITY LIMITS GROWTH POTENTIAL

Geography	Acres
Current City Limits	94,609
Potential ETJ Growth Area	21,570
Potential USA Growth Area	18,626
Total Future Annexation Potential	40,196
Total Potential City Limits	134,805

Source: City of Raleigh Department of Planning and Development, 2019

ECONOMIC DEVELOPMENT & EMPLOYMENT TRENDS

As one of the nation's fastest growing regions, the Research Triangle area, is benefiting from its long-time 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 and less reliant on government and manufacturing.

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 7.8% ranking 24th in terms of growth out of the nation's 384 metropolitan statistical areas in 2018 (see Figure 4.1). Most sectors saw increases in real GDP in 2018. Durable goods manufacturing saw the largest increase for Goods Producing industries, while the Other Services except government sector saw the largest increase for Service Providing industries. The only subsector that saw a decline in real GDP growth in 2018 was Natural Resources and Mining (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.

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. Currently, roughly 9-in-10 jobs are service providing versus only 1-in-10 in goods-producing industries. This is similar to the United States as a whole which has a slightly higher proportion of goods producing jobs than Wake County. In the last 7 years, goods-producing jobs – such as those in agriculture, construction, and manufacturing – have grown at a 5.1% annual rate versus 3.6% for service-providing industries (see Figures 4.3 and 4.4). Higher growth in the goods producing sector can be primarily attributed to jobs added in the construction and manufacturing industries.

Despite that growth, the top three industries in terms of jobs in 2018 continue to be in the service- providing industry: Professional and Business Services; Education and Health Services, and; Trade, Transportation, & Utilities. Professional and technical services saw the largest annual percent change in employment (+7.5 %) from 2010-2018. Other industries also saw large gains, including Construction (+5.5%), Accommodation and food services (5.4%) and Professional and Business Services (+5.1%).

Using the latest data from the 2018 American Community Survey (ACS), Raleigh has a higher percentage of jobs in other services; arts, entertainment, recreation, and accommodation services; and public administration than the percentages for Wake County, North Carolina, and the U.S (see Figure 4.5). Raleigh is also ahead of the state and the nation in percentage of professional, scientific, management, and information jobs.

FIGURE 4.1 RALEIGH-CARY MSA REAL GDP GROWTH

	2011	2012	2013	2014	2015	2016	2017	2018
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
Rank GDP in Current Dollars Among Metro Areas	50	49	48	48	47	44	45	44
GDP Percentage Growth	2.0%	5.2%	6.5%	6.6%	8.2%	5.4%	4.4%	7.8%
Rank: GDP Percentage Growth	251	81	51	50	25	43	131	24

Source: Bureau of Economic Analysis: GDP by Metropolitan Area, 2018

FIGURE 4.2 RALEIGH-CARY MSA PERCENTAGE GDP GROWTH BY SECTOR, 2018

Sector	Change in Percentage Points
Goods Producing	.95
Natural resources and mining	-.07
Construction	.25
Durable goods manufacturing	.65
Nondurable goods manufacturing	.12
Service Providing	4.87
Retail Trade	.16
Transportation and warehousing	.07
Information	.64
Finance, insurance, real estate, rental, and leasing	.31
Professional and business services	-*
Educational services, healthcare, and social assistance	0.29
Arts, entertainment, recreation, accommodation, and food services	-*
Other services, except government	4.3
Government	1.1
Total	5.82

** Not shown to avoid disclosure of confidential information.*
Source: Bureau of Economic Analysis: GDP by Metropolitan Area, 2018

FIGURE 4.3 WAKE COUNTY AVERAGE ANNUAL CHANGE IN EMPLOYMENT BY INDUSTRY 2010-2018, PART 1

	2010	Percent of total	2018	Percent of total	Average annual change 2010-2018
Goods Producing	44,227	10.2%	62,099	11.1%	5.1%
Natural Resources	1,032	0.2%	1,200	0.2%	2.0%
Agriculture, forestry, fishing & hunting	770	0.2%	976	0.2%	3.3%
Mining	263	0.1%	224	0.0%	-1.9%
Construction	24,078	5.6%	34,658	6.2%	5.5%
Manufacturing	19,116	4.4%	26,242	4.7%	4.7%
Service providing	387,347	89.8%	498,173	88.9%	3.6%
Trade, transportation and utilities	80,011	18.5%	101,871	18.2%	3.4%
Utilities	1,394	0.3%	*	*	*
Wholesale trade	18,192	4.2%	24,251	4.3%	4.2%
Retail trade	49,775	11.5%	62,634	11.2%	3.2%
Transportation and warehousing	10,652	2.5%	12,555	2.2%	2.2%
Information	16,333	3.8%	21,815	3.9%	4.2%
Financial activities	25,666	5.9%	*	*	*
Finance and insurance	17,971	4.2%	20,941	3.7%	2.1%
Real estate and rental and leasing	7,695	1.8%	9,651	1.7%	3.2%
Professional and business services	81,028	18.8%	114,015	20.3%	5.1%

** Not shown to avoid disclosure of confidential information.*
Source: North Carolina Division of Employment Security

FIGURE 4.3 WAKE COUNTY AVERAGE ANNUAL CHANGE IN EMPLOYMENT BY INDUSTRY 2010-2018, PART 2

	2010	Percent of total	2018	Percent of total	Average annual change 2010-2018
Professional and technical services	37,086	8.6%	59,394	10.6%	7.5%
Management of companies and enterprises	9,613	2.2%	10,145	1.8%	0.7%
Administrative and waste services	34,329	8.0%	44,476	7.9%	3.7%
Education and health services	84,394	19.6%	106,363	19.0%	3.3%
Educational services	38,959	9.0%	45,890	8.2%	2.2%
Health care and social assistance	45,435	10.5%	60,473	10.8%	4.1%
Leisure and hospitality	45,801	10.6%	64,607	11.5%	5.1%
Arts entertainment and recreation	8,831	2.0%	11,554	2.1%	3.9%
Accommodation and food services	36,970	8.6%	53,053	9.5%	5.4%
Public administration	40,553	9.4%	41,776	7.5%	0.4%
Other services excluding public administration	13,293	3.1%	17,136	3.1%	3.6%
Unclassified	269	0.1%	*	*	*
Total	431,571	100.0%	560272	100.0%	3.7%

** Not shown to avoid disclosure of confidential information.*
Source: North Carolina Division of Employment Security

FIGURE 4.4 WAKE COUNTY ANNUAL CHANGE IN EMPLOYMENT BY INDUSTRY 2011-2018, PART 1

	2011	2012	2013	2014	2015	2016	2017	2018
Goods Producing	44,837	44,795	49,916	49,414	50,919	56,565	59,180	62,099
Natural Resources	1,007	1,028	1,126	1,089	1,084	1,074	1,138	1,200
Agriculture, forestry, fishing & hunting	749	788	881	858	868	844	938	976
Mining	*	*	*	*	*	*	200	224
Construction	24,507	25,204	25,763	27,223	28,717	30,377	32,526	34,658
Manufacturing	19,324	18,563	22,525	22,607	24,992	25,113	25,517	26,242
Service providing	397,023	411,019	424,551	439,542	456,750	473,587	484,276	498,173
Trade, transportation and utilities	82,110	84,709	84,631	89,440	94,150	97,720	100,402	101,871
Utilities	*	*	876	2,327	2,400	*	2,397	2,431
Wholesale trade	19,152	20,990	20,540	21,009	22,189	23,317	24,176	24,251
Retail trade	51,037	52,040	53,622	56,105	59,105	61,153	62,184	62,634
Transportation and warehousing	10,524	10,468	9,594	9,999	10,456	10,861	11,645	12,555
Information	16,963	17,446	17,664	18,433	*	*	21,521	21,815
Financial activities	*	*	*	*	*	*	29,437	*
Finance and insurance	17,464	17,300	17,009	17,373	18,751	19,419	19,927	20,941
Real estate and rental and leasing	7,679	7,732	7,942	8,140	8,833	9,489	9,510	9,651

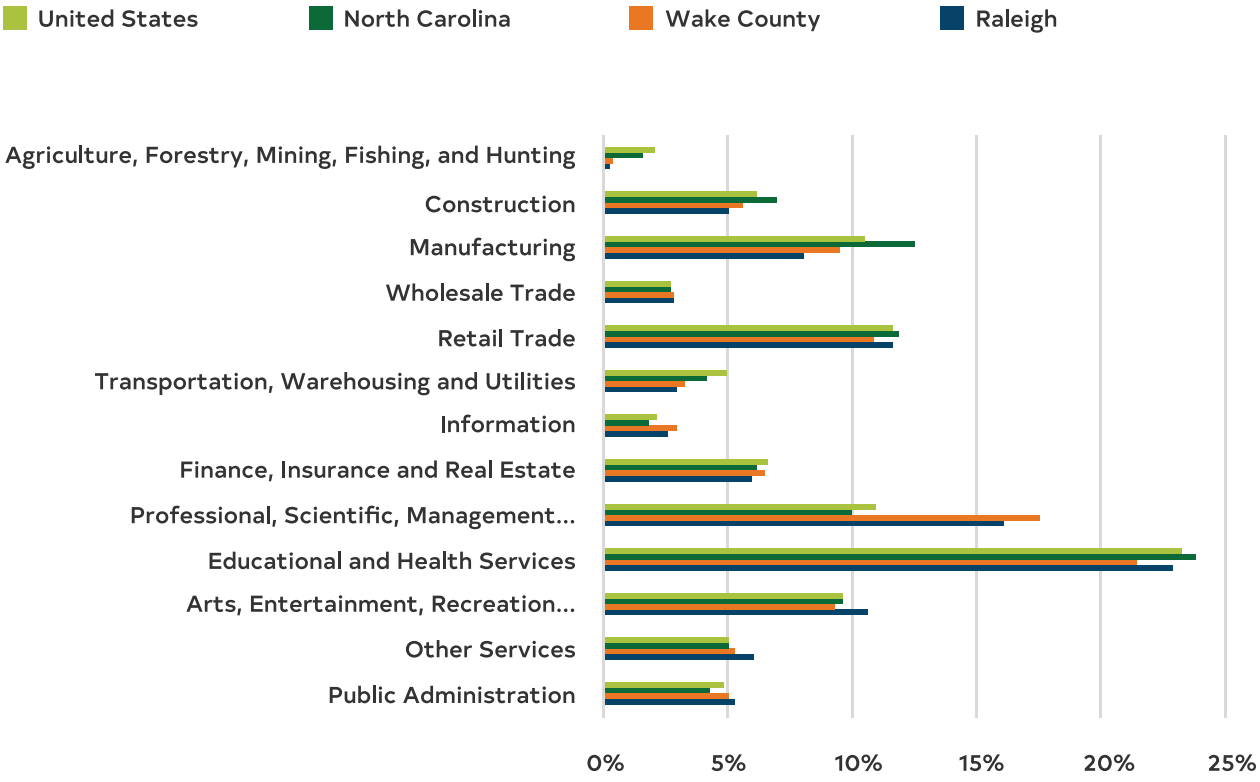
**Not shown to avoid disclosure of confidential information.*
Source: North Carolina Division of Employment Security

FIGURE 4.4 WAKE COUNTY ANNUAL CHANGE IN EMPLOYMENT BY INDUSTRY 2011-2018, PART 2

	2011	2012	2013	2014	2015	2016	2017	2018
Professional and business services	85,987	91,441	99,456	102,826	104,473	107,082	108,515	114,015
Professional and technical services	39,564	42,177	45,297	47,185	48,673	50,315	53,773	59,394
Management of companies and enterprises	10,232	*	*	*	*	*	*	10,145
Administrative and waste services	36,192	39,121	43,499	45,364	45,202	46,372	44,777	44,476
Education and health services	85,780	88,177	90,082	92,438	96,201	100,173	103,147	106,363
Educational services	39,388	40,419	40,716	42,063	42,841	43,883	44,864	45,890
Health care and social assistance	46,392	47,757	49,366	50,375	53,360	56,290	58,283	60,473
Leisure and hospitality	47,918	50,765	53,180	55,501	58,754	61,557	63,602	64,607
Arts entertainment and recreation	*	9,292	*	9,973	10,822	11,088	11,363	11,554
Accommodation and food services	38,813	41,473	43,288	45,528	47,933	50,469	52,240	53,053
Public administration	39,491	38,790	39,767	40,138	40,622	40,630	41,129	41,776
Other services excluding public administration	13,634	14,659	14,820	15,256	15,457	16,622	16,522	17,136
Unclassified	*	5	*	*	*	*	*	*
Total	441,860	455,814	474,467	488,956	507,669	530,152	543,456	560,272

**Not shown to avoid disclosure of confidential information.*
Source: North Carolina Division of Employment Security

FIGURE 4.5 JOBS BY INDUSTRY COMPARISON, 2018



Source: Census Bureau, 2018 American Community Survey 1-year Estimates

UNEMPLOYMENT RATES AND EMPLOYMENT PROJECTIONS

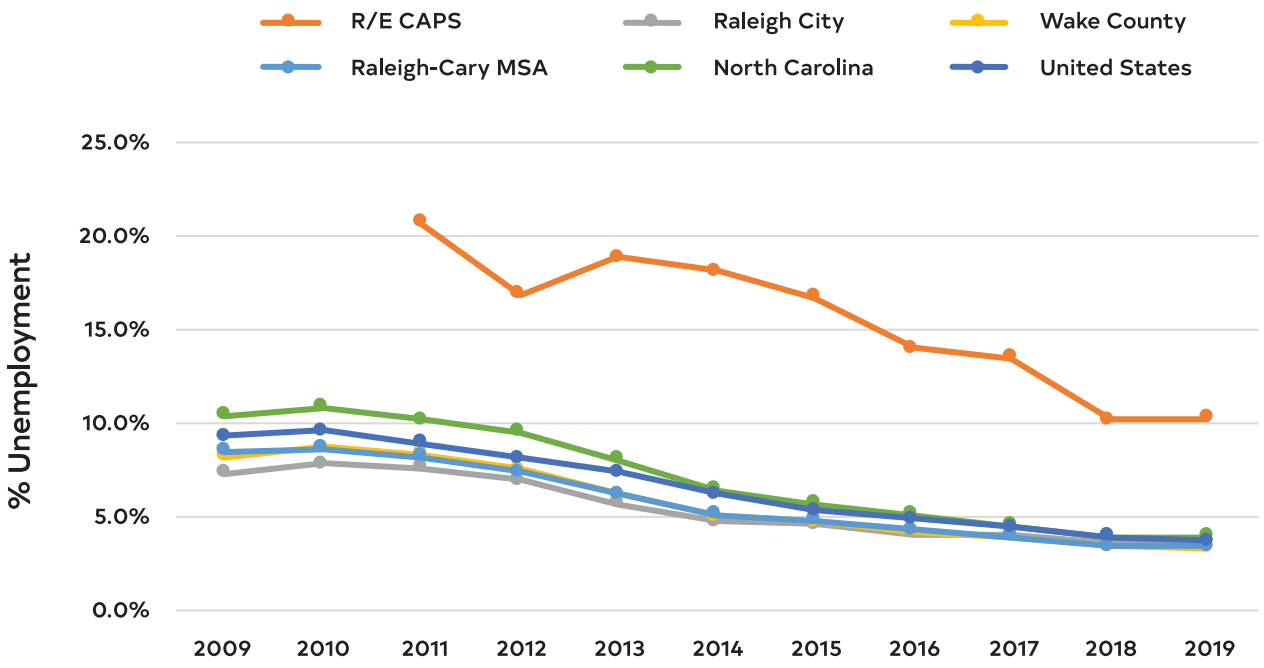
Within the last decade, Raleigh's unemployment rate peaked in 2010 at 7.8%. Since then, unemployment rates have steadily declined through the economic recovery after the Great Recession and continues to the present day. The current unemployment rate in Raleigh is 3.6%. Between 2008 and 2016, Raleigh's unemployment rate remained lower than Wake County, the Raleigh-Cary MSA, North Carolina, and the U.S. Over the past three years (2017-2019) the unemployment rate in Wake county and the Raleigh-Cary MSA has remained lower than Raleigh, though over that time period unemployment numbers within Raleigh, Wake County and the MSA differed by only a few tenths of a percentage point, indicating a healthy job market for the entire region for the time period(see Figure 4.6).

It should be noted that while the unemployment rates for the region and R/ECAPS census tracts have declined over time, the average unemployment rate for the R/ECAPS census tracts are persistently higher than that of the region.

During some years, the unemployment rate in R/ECAPS census tracts were more than three times that within the City of Raleigh.

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: www.campo-nc.us/planning-for-the-future.

FIGURE 4.6 AVERAGE ANNUAL UNEMPLOYMENT RATES



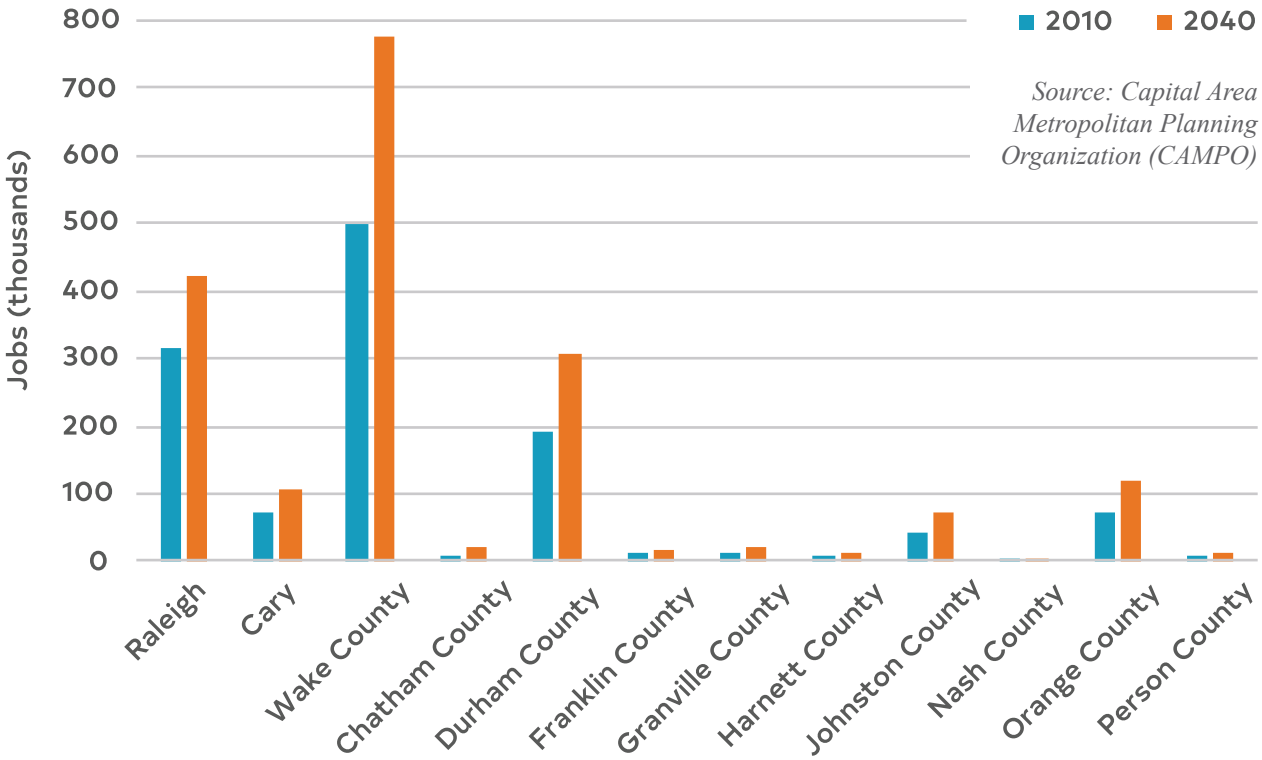
Source: North Carolina Division of Employment Security

FIGURE 4.7 TRIANGLE REGION EMPLOYMENT PROJECTIONS

Place	2013	2025	2035	2045	Average annual projected growth 2010-2045
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%

Source: Capital Area Metropolitan Planning Organization (CAMPO)

FIGURE 4.8 TRIANGLE REGION EMPLOYMENT PROJECTIONS, 2010 & 2040



Source: Capital Area Metropolitan Planning Organization (CAMPO)

FIGURE 4.9 SECTOR SHARE OF PROJECTED NET JOBS 2010 – 2040

	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.

In 2019, 35 major companies announced either new operations or expansions of present operations in Raleigh creating 1,702 new jobs.

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	16,200	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, 2018, PART 1

Name	Industry	New or Expanding	New Jobs
Captive-Aire Systems	Advanced Manufacturing, Other: Sheet Metal Work Manufacturing	Expanding	100
FastMed Urgent Care	Healthcare	New	0
RMF Engineering	Other: Professional Services, Engineering	Expanding	35
Redhill Biopharma Ltd.	Advanced Manufacturing, Biotechnology/Pharmaceuticals, Other: US Headquarters, Life Sciences	Expanding	30
Merz North America	Biotechnology/Pharmaceuticals	Expanding	0
Restoration Systems	Financial Services	Expanding	3
Allbridge	Software/Information Technology	Expanding	20
Insightsoftware	Software/Information Technology, Other: Headquarters	Expanding	150
Trimark Digital	Software/Information Technology	Expanding	8
Audio Advice	Software/Information Technology, Other: Retail	Expanding	6
Hire Strategies	Financial Services, Software/ Information Technology	Expanding	70
Majestic Kitchen & Bath Creations	Other: Construction	Expanding	30
Provantage Corporate Solutions	Other: Retail Service Organization	Expanding	250
ReStorePro Reconstruction	Other: Construction, Disaster Relief	Expanding	25
OnPoint	Other: Recreation, Retail	New	0
Prometheus Group	Software/Information Technology, Other: Global Headquarters	Expanding	50
Allstacks	Software/Information Technology, Other: Start-up	Expanding	13
WalkMe	Software/Information Technology	Expanding	43
National Coatings	Other	Expanding	75
Greene Resources	Other: Professional Services, Employment Agency	Expanding	5

Source: Wake County Economic Development

FIGURE 4.11 NEW & EXPANDING COMPANIES RALEIGH, 2018, PART 2

Name	Industry	New or Expanding	New Jobs
FM:Systems	Software/Information Technology	Expanding	40
Consolidated Asset Recovery Systems	Software/Information Technology	Expanding	15
Jim Allen Group Coldwell Banker HPW	Other: Professional Services, Real Estate	Expanding	10
Stars and Strikes	Other: Entertainment, Retail	New	100
Merritt Companies	Other: Real Estate Development	New	6
Draganfly	Advanced Manufacturing, Software/Information Technology, Other: Start-up, Drone Tech	New	0
First Watch	Other; Retail, Restaurant	New	0
Hylaine	Software/Information Technology, Other: Tech Consulting	New	20
Trelora	Other: Residential Real Estate	New	0
Insightsoftware	Software/Information Technology, Other: Headquarters	Expanding	220
WithersRavenel	Other: Engineering	Expanding	38
Synchrogistics	Other: Logistics	Expanding	20
Mako Medical Laboratories	Biotechnology/Pharmaceuticals	Expanding	100
Ramey Kemp & Associates	Other: Transportation Consulting, Engineering	Expanding	20
Vontier	Smart Grid, Software/ Information Technology, Other: Headquarters, Fleet Management, Transportation, Logistics	New	100
Captrust	Financial Services	Expanding	100

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 in 2019. Permits issued are down from the previous year at 99, and the amount of overall square footage decreased by about 66% from the previous year to 1,467,108 square feet. The value of total construction was significantly less as well from the previous year at over 332 million dollars. Raleigh saw a slight decrease in the amount of commercial building activity over the previous year, while office building activity increased slightly.

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
Total	228	4,849,246	$641,588,240

Source: City of Raleigh Department of Planning and Development

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
Total	183	8,474,865	$1,136,143,051

Source: City of Raleigh Department of Planning and Development

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
Total	121	3,051,335	$164,193,775

Source: City of Raleigh Department of Planning and Development

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
Total	148	3,949,142	$771,956,175

Source: City of Raleigh Department of Planning and Development

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
Total	1217	9,704,060	$623,485,248

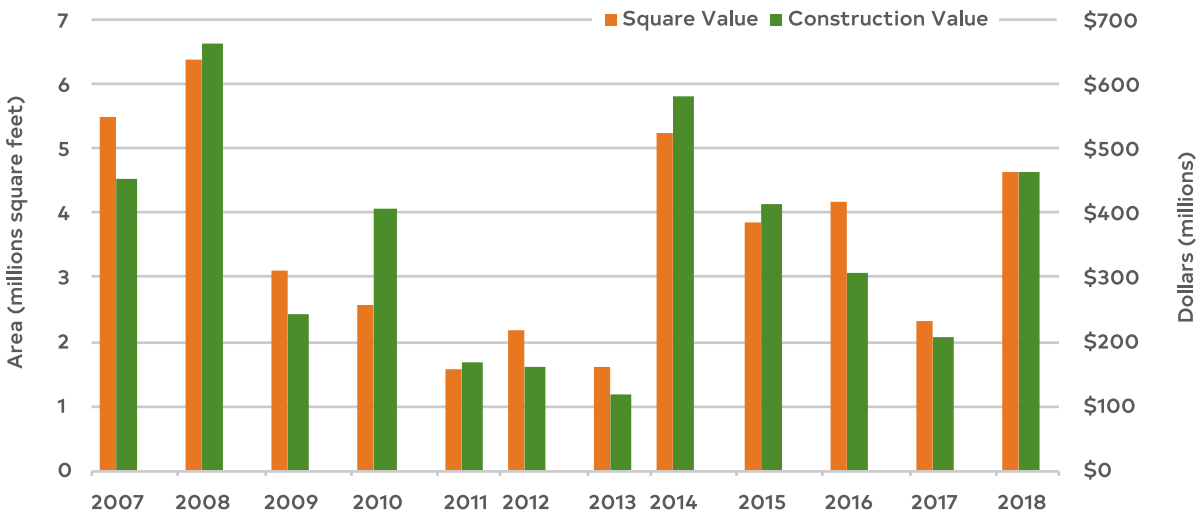
Source: City of Raleigh Department of Planning and Development

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
Total	1798	28,351,279	$3,011,141,829

Source: City of Raleigh Department of Planning and Development

FIGURE 4.18 RALEIGH TOTAL BUILDING ACTIVITY



Source: City of Raleigh Department of Planning and Development

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 2019 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). Significantly, 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

	100% composite index	Grocery	Housing	Utilities	Transportation	Health	Misc services
Raleigh, NC	95.1	92.5	88	98.3	90.7	103.7	100.8
Atlanta, GA	102.4	103.1	102.4	85.2	103.4	107	105.9
Austin, TX	99.3	91	104.3	95.3	90.5	105.7	101.3
Charlotte, NC	97.9	101.4	87.8	95.7	90.5	105	105.9
Nashville-Murfreesboro, TN	98.5	99.3	97.4	97.1	97.7	92.3	100.3
Orlando, FL	91.8	100.4	94.2	97.3	89.1	88.2	94
Charleston, SC	96.9	99.4	92.1	120.5	86.5	97.4	95.8

Source: C2er Cost of Living Index , Annual Average 2019
The average for all participating places equals 100, and each place's index is read as a percentage of the average for all places.

JOBS PROXIMITY INDEX

The Jobs Proximity Index is a national dataset produced by the U.S. Department of Housing and Urban Development which evaluates the job accessibility of residential areas at the census block group level. The index considers the distance to all job locations, the size of employment at that location, and the competition for work at that location.

The Jobs Proximity Index for the R/ECAPS census tracts are highlighted in Figure 4.20. The greater the value, the better the job accessibility in that area. It should be noted that the Jobs Proximity Index values for the R/ECAPS census tracts are higher than that of Raleigh. However, when the unemployment rate for these tracts are considered alongside the jobs proximity indices, it cannot be assumed that proximity equates to access.

FIGURE 4.20 JOBS PROXIMITY INDEX

Census Tracts	Jobs Proximity Index
507	91.3
508	85.7
509	95.5
524.09	79
R/ECAPS Avg	87.875
Citywide	66

Source: https://hudgis-hud.opendata.arcgis.com/datasets/jobs-proximity-index
Index values range from 0 to 100. The higher the index value, the better the access to employment opportunities for residents in a neighborhood.

HOUSING & NEIGHBORHOODS

The City of Raleigh carries out several programs to increase the supply of affordable housing as well as stabilize and improve older neighborhoods that need additional resources. Many of these programs have been successful due to the City's partnership with governmental entities, for-profit and nonprofit organizations, and participation from and partnership with local 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.

FIGURE 5.1 (A) RALEIGH HOUSEHOLDS BELOW $50,000 ANNUAL INCOME WITH 30%+ COST BURDEN, 2018

Renters Annual Income Category	Total Renter Households	Number of Burdened Households	Percent of Burdened Households
Less than $10,000	6,513	3,950	60.6%
$10,000 to $19,999	9,849	8,432	85.6%
$20,000 to $34,999	17,719	15,174	85.6%
$35,000 to $49,999	16,511	9,556	57.9%
All Households < $50,000	50,592	37,112	73.4%
$50,000 or more	42,175	4,064	9.6%
All Households	92,767	41,176	44.4%
Owners Annual Income Category	**Total Owner Households**	**Number of Burdened Households**	**Percent of Burdened Households**
Less than $20,000	4,291	3,904	91.0%
$20,000 to $34,999	6,758	4,491	66.5%
$35,000 to $49,999	8,535	3,482	40.8%
All Households < $50,000	21,794	11,381	52.2%
$50,000 or more	76,137	4,797	6.3%
All Households	95,721	16,674	17.4%

Source: U.S. Census Bureau, 2018 American Community Survey 1-year Estimate

FIGURE 5.1 (B) R/ECAP HOUSEHOLDS BELOW $50,000 ANNUAL INCOME WITH 30%+ COST BURDEN, 2018

Renters Annual Income Category	Total Renter Households	Number of Burdened Households	Percent of Burdened Households
Less than $10,000	543	407	75.0%
$10,000 to $19,999	812	659	81.2%
$20,000 to $34,999	971	710	73.1%
$35,000 to $49,999	464	177	38.1%
All Households < $50,000	2,790	1,953	70.0%
$50,000 or more	641	41	6.4%
All Households	3,483	1,994	57.2%
Owners Annual Income Category	**Total Owner Households**	**Number of Burdened Households**	**Percent of Burdened Households**
Less than $20,000	161	116	72.0%
$20,000 to $34,999	175	50	28.6%
$35,000 to $49,999	99	40	40.4%
All Households < $50,000	435	206	47.4%
$50,000 or more	622	18	2.9%
All Households	1,057	224	21.2%

Source: US Census Bureau, 2018 American Community Survey 5-year Estimate

FIGURE 5.2 NUMBER OF ASSISTED AFFORDABLE HOUSING UNITS

City of Raleigh Affordable Rental Units	195
Raleigh Housing Authority Units	1444
Rental Units with Funding Directly from HUD	531
Low-Income Housing Tax Credit (LIHTC) Units (no City funds)	1870
Rental Units with Funding from City of Raleigh (Joint Venture)	3056
Homeownership Units with Funding from City of Raleigh	551
Second Mortgages Provided by City of Raleigh	1402
Raleigh Housing Authority Housing Choice Vouchers (Section 8)	3921
Total	12970

Source: City of Raleigh Housing and Neighborhood Department, 2019

HOUSING AFFORDABILITY

Based on the 2018 American Community Survey 1-Year Estimates, 44.4% 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(A)). Households with annual income of less than $50,000 – both renter and owner – are particularly burdened by housing costs. Looking at the same data for R/ECAP tracts shows an even larger share of households burdened by housing costs. 57.2% of renter households and 21.2% of owner households pay more than 30% of their income in housing costs (see Figure 5.1(B)). 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 significant affordability gap (see Figure 5.2).

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	6,513	$250	$949	$(643)
$10,000 to $19,999	9,849	$375	$949	$(518)
$20,000 to $34,999	17,719	$687	$949	$(206)
All Households < $35,000	34,081			

Source: US Census Bureau, 2018 American Community Survey 1-year Estimates, US HUD Fair market Rent Documentation System (2018)

HOME SALES, AVERAGE RENT, RESIDENTIAL BUILDING ACTIVITY

In constant dollars, the median sales price for single-family detached units and townhouses has increased from 2010 to 2018 with fluctuations in the intervening years (see Figure 5.4). The median sales price for condominiums in 2018 broke a trend of decreasing sales prices since 2010, although there were yearly fluctuations. Condominiums and townhouses both saw significant increases in median sales price from 2017 to 2018, with Condominiums increasing by 14% between 2017 and 2018 (see Figure 5.5).

Looking at residential sales by price range, the highest number of single-family homes sold during 2018 had a price tag of over $400,000, although sales of homes between $200,001 to $250,000 were not far behind (see Figure 5.6). For both townhouses and condominiums, the price range with the highest number of sales was $100,001 to $150,000. For all residential units combined, the largest number of sales were in the $150,001 to $200,000 category.

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 5.7). In 2018, median gross rent in the city was estimated to be $1082.

Looking at residential permit activity for 2019, apartments represented the largest category in terms of permit numbers (1,266 units permitted, or about 58% of all residential building permits issued), square footage (1,507,541 square feet or about 47% of total residential square footage), and constructions value ($210,057,305 or about 44% of total residential construction value). (see Figure 5.8).

FIGURE 5.4 MEDIAN SALES PRICE BY UNIT TYPE (2019 DOLLARS)

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Single-Family Detached	238,024	251,125	250,850	247,520	262,051	265,582	281,600	292,500	298,000
Townhouse	164,869	171,421	175,162	172,787	180,260	182,980	189,952	205,000	220,000
Condominium	146,853	147,400	128,394	133,566	131,290	142,201	140,288	160,000	170,000

Source: Wake County Revenue Department

FIGURE 5.5 PERCENT CHANGE IN MEDIAN SALES PRICE BY UNIT TYPE (2019 DOLLARS)

	2010 to 2011	2011 to 2012	2012 to 2013	2013 to 2014	2014 to 2015	2015 to 2016	2016 to 2017	2017 to 2018	2018 to 2019
Single-Family Detached	-7.20%	5.50%	-0.10%	-1.30%	5.90%	1.30%	6.03%	3.87%	1.88%
Townhouse	-11.50%	4.00%	2.20%	-1.40%	4.30%	1.50%	3.81%	7.92%	7.32%
Condominium	-4.70%	0.40%	-11.10%	1.90%	-1.70%	8.30%	-1.35%	14.05%	6.25%

Source: Wake County Revenue Department

FIGURE 5.6 NUMBERS OF RESIDENTIAL SALES BY PRICE RANGE AND TYPE OF UNIT, 2019

Price Range of Sales	Single-Family	Townhouse	Condo	All Units
$25,000 - $100,000	26	25	108	159
$100,001 - $150,000	149	225	222	596
$150,001 - $200,000	681	648	279	1,608
$200,001 - $250,000	1,055	763	86	1,904
$250,001 - $300,000	913	413	84	1,410
$300,001 - $350,000	623	146	44	813
$350,001 - $400,000	519	52	36	607
over $400,000	1,517	112	124	1,753
Total	5,483	2,384	983	8,850

Source: Wake County Revenue Department

FIGURE 5.7 RALEIGH ANNUAL MEDIAN GROSS APARTMENT RENT

Year	Gross Rent	R/ECAPS Average
2010	844	611
2011	837	643
2012	881	645
2013	899	665
2014	937	700
2015	970	729
2016	1027	745
2017	1082	774
2018	1,131	819

Source: American Community Survey 1-year Estimates

FIGURE 5.8 RALEIGH RESIDENTIAL BUILDING ACTIVITY, 2019

Residential Type	No. of Units Permitted	Square Feet	Construction Value
Single Family	598	1,245,225	$197,289,107.51
Townhouse	213	342,661	$46,371,023.05
2-4 Attached units	22	4,945	$4,545,178.20
Condominium	74	132,226	$21,288,221.00
Apartment	1,266	1,507,541	$210,057,305.00
TOTAL	2,173	3,232,598	$479,559,834.76

Source: City of Raleigh Department of Planning and Development

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 performance of the transportation system is a major factor for a community's economic prosperity and quality of life. The 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 the level of economic activity. The 2030 Comprehensive Plan, as well as adopted specialized transportation plans and studies, helps Raleigh guide for the future development of its streets and highways, public transportation systems, bicycle and greenway trail networks, and pedestrian networks. Together, all these modes of transportation provide accessibility and mobility in support of desired land use patterns, community 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

The following is excerpted from the City of Raleigh Capital Improvement Plan (CIP) for fiscal years 2015 through 2019:

"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.

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 2019

Transportation projects can be tracked with the Transportation Project Map.

FIGURE 6.1 TRANSPORTATION CAPITAL IMPROVEMENT PROGRAM

Project Category	FY2015	FY2016	FY2017	FY2018	FY2019	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, 2020.
Source: City of Raleigh Department of Transportation

FIGURE 6.2 FEDERAL GRANT ALLOCATIONS FOR TRANSPORTATION PROJECTS, 2016-2019

Project Description	Funding	Source	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
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		

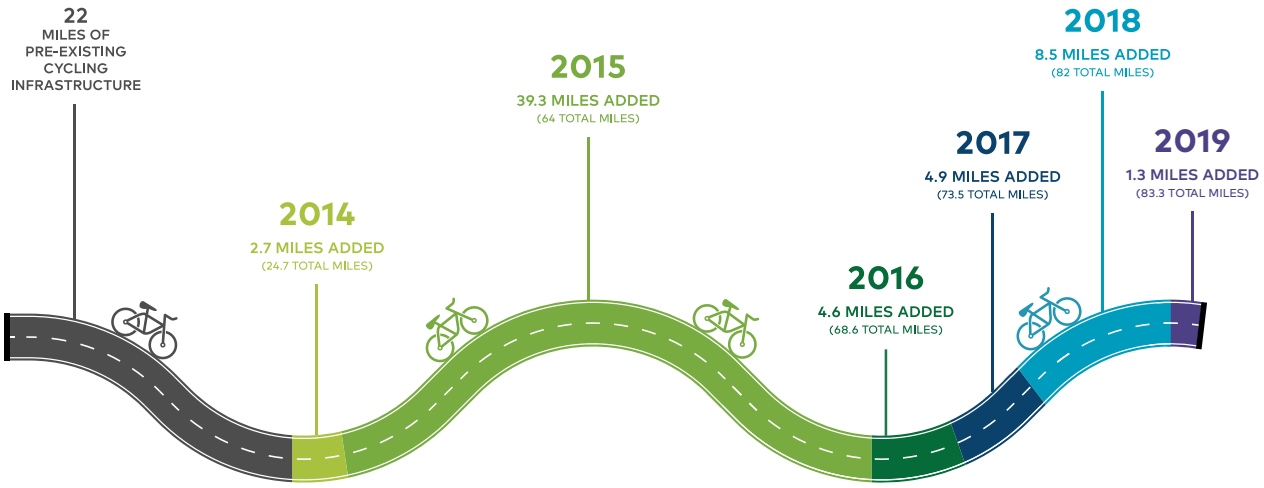
STP-DA: Surface Transportation Program – Direct Allocation
CMAQ: EPA Congestion Mitigation and Air Quality Improvement Program
BUILD: USDOT Better Utilizing Investments to Leverage Development
TAP: Transportation Alternatives Program
Source: Capital Area Metropolitan Planning Organization

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, evaluating 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 8.5 miles of on-street bicycle infrastructure added in 2018 (Figure 6.3) for a total of 82 miles of bicycle lanes, neighborhood bikeways, and separated bikeways around the city.

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



Source: City of Raleigh Department of Transportation

TRANSIT

Raleigh is served by bus service, including local GoRaleigh routes, regional GoTriangle routes, and Wolfline routes serving the NC State University campus and surrounding neighborhoods. Ridership of GoRaleigh routes has stayed relatively stable in recent years at around 5 million trips per year, but with a significant increase in 2019 (Figure 6.4). A majority of riders pay by fare, with just over 15 percent of ridership in 2019 via a Go Pass. The area's colleges and universities, including NC State University, make up the largest section of Go Pass ridership, with local and state government employees making up a smaller but consistent portion of Go Pass ridership. Go Pass ridership increased noticeably in 2018, likely due to the implementation of the Youth Go Pass, which includes unlimited fare-free rides on GoRaleigh, GoTriangle, GoCary, and GoDurham routes for youth in the Triangle region.

FIGURE 6.4 ANNUAL RIDERSHIP FOR GORALEIGH ROUTES

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

Source:GoRaleigh

FIGURE 6.5 GO PASS RIDERSHIPS, 2018 and 2019

	Local and State Government		Colleges and Universities		Youth Go Pass		Other		Total	
	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019
January	5,321	4,998	28,099	28,099	0	19,725	2,767	22,171	36,187	76,344
February	6,617	6,563	29,497	29,497	0	16,205	3,015	18,351	39,129	69,103
March	6,825	6,456	30,969	30,969	0	16,349	3,295	18,689	41,089	71,923
April	6,615	6,785	29,662	29,662	0	17,528	2,963	20,189	39,240	74,171
May	7,140	7,183	26,467	26,467	0	18,846	4,909	21,228	38,516	75,915
June	6,995	6,573	21,639	21,639	0	14,667	3,441	16,531	32,075	59,502
July	5,987	6,621	19,518	19,518	0	14,048	3,441	39,477	28,946	76,353
August	7,472	7,274	28,044	28,044	9,347	17,563	11,038	20,572	55,901	68,353
September	5,695	7,011	28,591	28,591	13,212	19,814	14,980	22,830	62,478	78,177
October	7,471	5,667	31,257	31,257	17,720	20,033	20,230	23,134	76,678	77,429
November	5746	5,296	25,610	25,610	12,352	21,596	14,376	24,350	58,084	76,877
December	6173	5,127	19,490	19,505	13,253	18,054	14,927	20,588	53,843	65,324
						Total				869,471

Source: GoRaleigh

TRANSPORTATION ACCESS

According to the U.S. Census Bureau American Community Survey 2018 5-Year Estimates, the R/ECAPS census tracts have much higher rates of households without vehicles available than the City of Raleigh at-large. Households residing within the R/ECAPS 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.

FIGURE 6.6 ZERO CAR HOUSEHOLDS

Census Tract	No Vehicles Available (%)
507	21.0%
508	30.0%
509	21.7%
524.09	15.9%
R/ECAPS Avg	22.2%
Citywide	5.7%

Source: U.S. Census Bureau, American Community Survey 2018 5-year Estimates, Table DP04

In addition, U.S. Census Bureau American Community Survey 2018 5-Year Estimates indicate that households within the R/ECAPS 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 R/ECAPS census tracts use public transportation as a means of transportation to work.

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	9.7%	8.4%	22.6%	18.7%	31.6%	9.0%
508	41.9%	29.8%	4.5%	11.1%	4.5%	8.1%
509	0.0%	11.8%	68.2%	20.0%	0.0%	0.0%
524.09	0.0%	0.0%	91.4%	8.6%	0.0%	0.0%
R/ECAPS	13.9%	11.6%	49.0%	12.9%	8.2%	4.3%
Citywide	32.1%	12.4%	27.0%	12.4%	12.3%	3.7%

Source: U.S. Census Bureau, American Community Survey 2018 5-year Estimates, Table B08141

PUBLIC UTILITIES

The City's public utilities are regional in nature. The City of Raleigh Public Utilities Department (CoRPUD) has merged with all the municipal utilities in eastern Wake County including Garner, Rolesville, Wake Forest, Knightdale, Wendell, and Zebulon. Furthermore, the Towns of Fuquay-Varina and Holly Springs periodically rely on the City for potable water supplies. Planning the infrastructure of the entire water system must be with the perspective of the entire region.

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 2019, the City used a little 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. These improvements, creating an estimated 27.7 MGD of new supply, will enable the City to meet estimated demand until approximately 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. A planned expansion, to be completed by 2025, will increase capacity at E. M. Johnson to 120 MGD.

Total water demand is growing in Wake County, but this increase is the result of population growth rather than greater demand per person. Daily water demand per capita in Raleigh has been on a downward trend for over 15 years (Figure 7.3), though a slight increase was observed in 2019.

FIGURE 7.1 RAW WATER SUPPLY AND DEMAND FOR 2019

Reservoir	Average Daily Withdrawal (MGD)	Maximum Daily Withdrawal (MGD)	Available Raw Water Supply (MGD)
Falls Lake	43.12	0	88.2
Lake Benson	10.93	0	11.2

Source: N.C. Division of Water Resources

FIGURE 7.2 WATER SUPPLY AND DEMAND PROJECTIONS

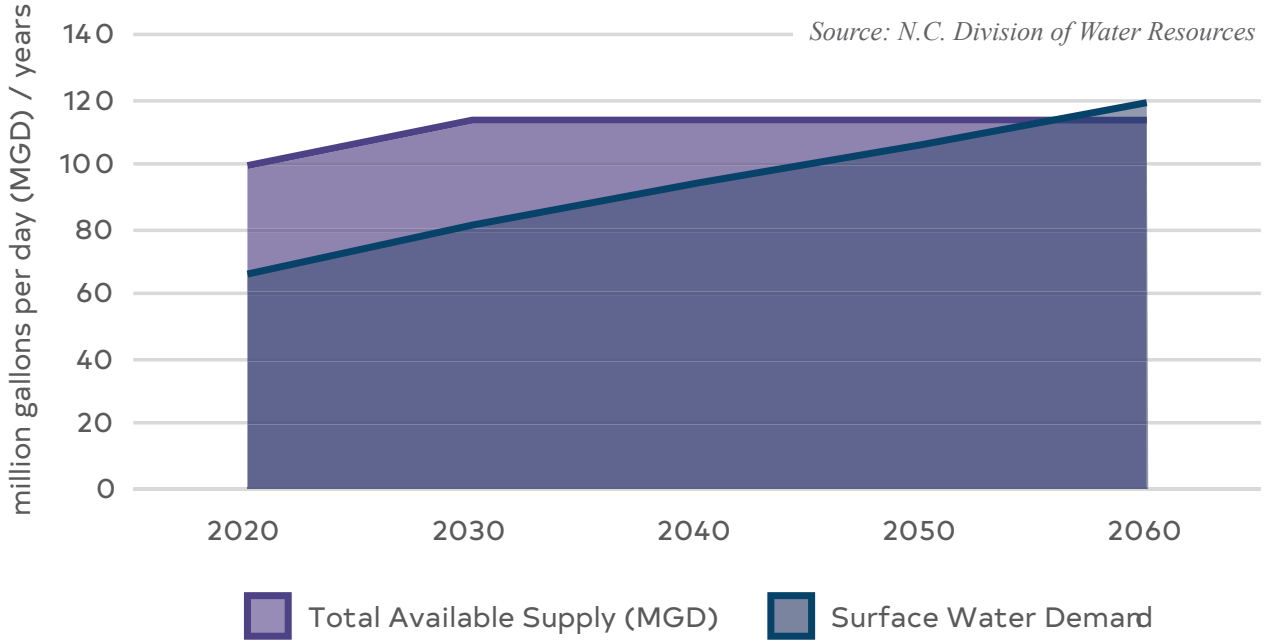
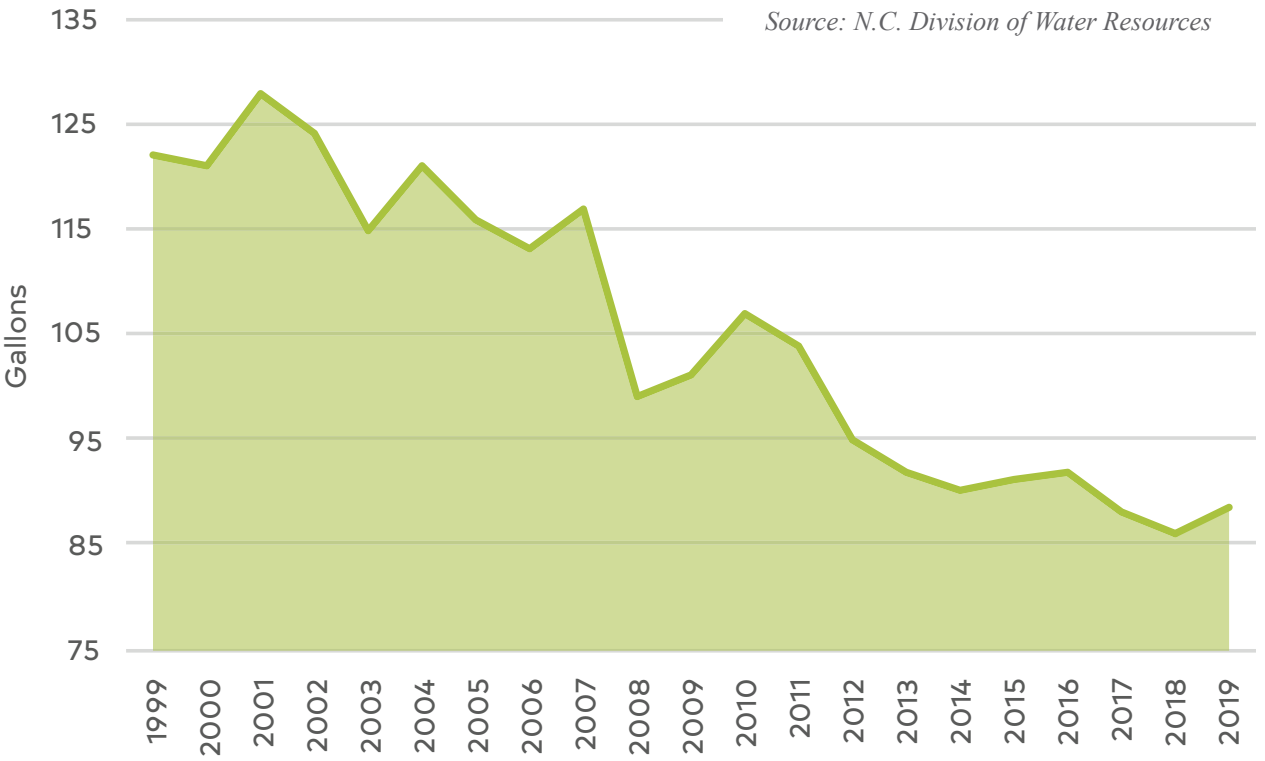


FIGURE 7.3 DAILY TREATED WATER DEMAND PER CAPITA



WASTEWATER TREATMENT

The City of Raleigh operates three wastewater treatment plants (WWTPs) as well as a residuals management facility at Wrenn Road. The treatment capacities for the three WWTPs are shown in Figure 7.4. 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.

The City of Raleigh Public Utilities served 178,375 sewer connections with 2,561 miles of wastewater pipeline and 115 public pumping stations in 2019. Figure 7.5 shows the amount of wastewater being treated at the City's three WWTPs. Throughput in 2019 was about 60% of the total capacity, and this figure has been stable or declining for over ten years. Even so, 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.

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 nearly 50% over ten years, from a rate of 4.3 in 2009 to 1.3 in 2019.

FIGURE 7.4 WASTEWATER TREATMENT CAPACITY

Treatment Plant	Maximum Capacity
Neuse River RRF	75.0 MGD
Little Creek WWTP	2.2 MGD
Smith Creek WWTP	6.0 MGD

Source: N.C. Division of Water Resources

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	0.853	1.33
2001	35.61	0.757	1.331
2002	37.39	0.816	1.399
2003	44.3	0.93	0.442
2004	45.5	0.715	0.691
2005	46.2	0.58	0.713
2006	44.8	0.591	1.026
2007	42.01	0.552	1.04
2008	40.87	0.592	1.105
2009	42.46	0.664	1.206
2010	43.84	0.692	1.233
2011	41.59	0.616	1.293
2012	41.91	0.625	1.326
2013	43.96	0.742	1.479
2014	45.04	0.804	1.685
2015	46.41	0.851	1.809
2016	47.17	0.81	1.86
2017	47	0.75	1.97
2018	47.71	0.84	1.52
2019	47.02	0.84	2.08

Source: N.C. Division of Water Resources

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

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 these resources. It begins with a look at watershed conditions and then provides a snapshot of air quality, water consumption and conservation, and greenhouse gas emissions.

EXISTING WATERSHED CONDITIONS

Figure 8.1 provides 2005, 2010, and 2016 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.

Overall, the bio classification has declined throughout survey years for all streams except Smith Creek. The highest performing streams tend to be in less urbanized areas on the periphery of the city.

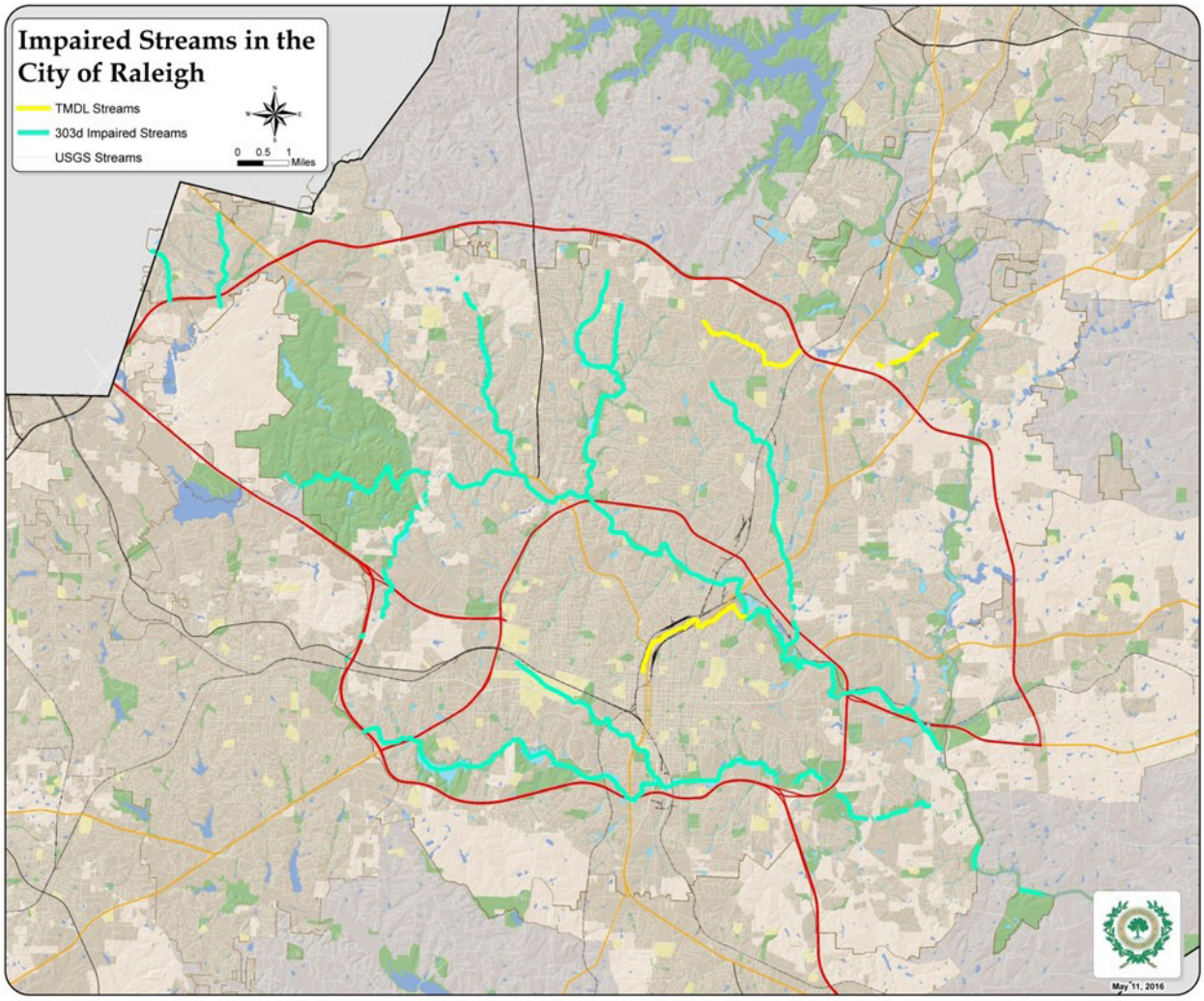
FIGURE 8.1 BIO CLASSIFICATION FOR RIVERS AND STREAMS IN WAKE COUNTY PORTION OF NEUSE RIVER SUBBASIN

Water Body	Monitoring Location	2005	2010	2016
Crabtree Creek	Ebenezer Church Rd.	Excellent	Excellent	Fair
Little River	SR 2224	Good	Good	Good-Fair
Middle Creek	SR 1375	Excellent	Good-Fair	Good-Fair
New Light Creek	SR 1911	Good	Good	Good-Fair
Richland Creek	US 1	Excellent	Good-Fair	Good-Fair
Smith Creek	SR 2045	Fair	Good	Fair
Swift Creek	SR 1152	Not Sampled	Good-Fair	Fair
Terrible Creek	SR 2751	Good	Good	Fair
Upper Barton Creek	NC 50	Good	Good-Fair	Fair
Walnut Creek	South State	Not Sampled	Fair	Poor
Walnut Creek	SR 2544	Good-Fair	Good-Fair	Fair

Source: N.C. Department of Environment and Natural Resources, Division of Water Quality

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.

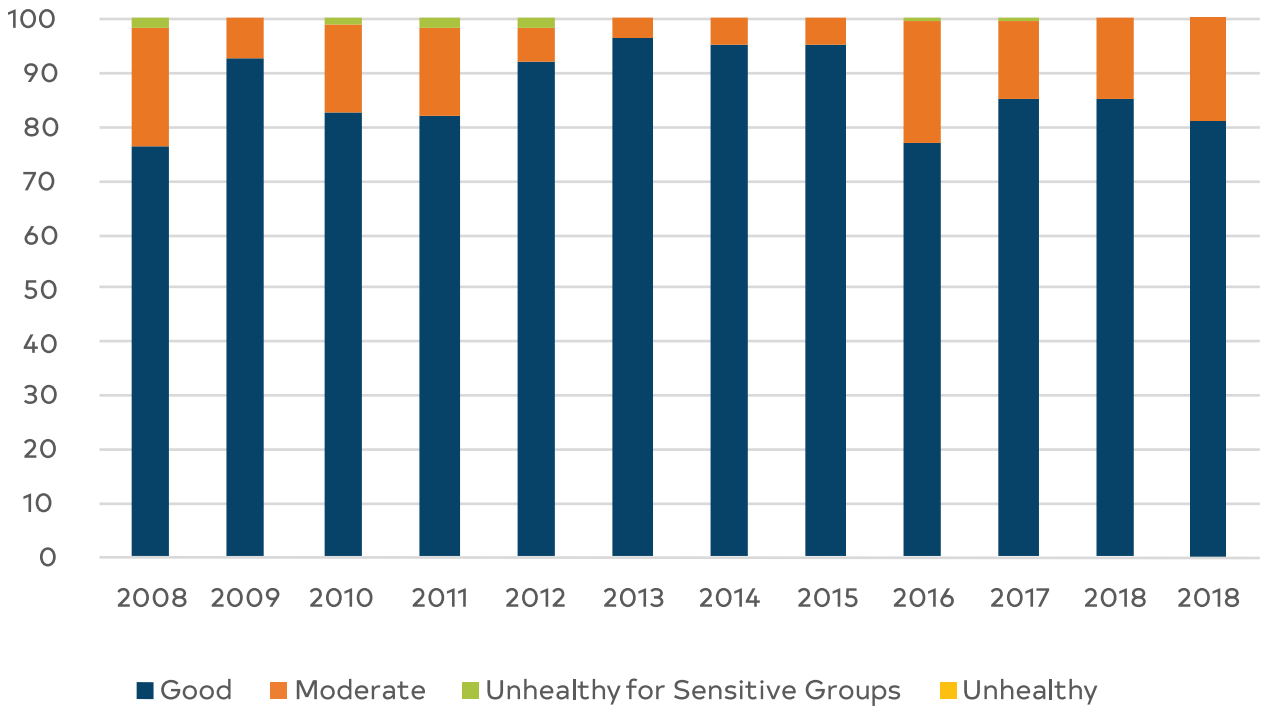
A water body that has pollutant (usually nutrient) concentrations exceeding the statutory limit is placed on the 303(d) list, named after a section of the Clean Water Act. A consistently and acutely impaired stream can be assigned a total maximum daily load (TMDL) of pollutants which the local government 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.



AIR QUALITY

Two large air quality problems in North Carolina are ground-level ozone (the primary ingredient in "smog") and particulate matter. Both pollutants are caused by emissions from cars and trucks 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 8.2 and 8.3). Air quality improved in 2017 and 2018, with no recorded day categorized as "unhealthy for Sensitive Groups" in 2018. 2019 included less "good" and more "moderate" ozone rating days that the previous two years, but still did not include any "unhealthy for sensitive groups" days. These readings are from the Millbrook Monitor, the only reporting station within the City of Raleigh.

FIGURE 8.2 OZONE CATEGORY DAYS



Source: North Carolina Department of Environmental Quality

FIGURE 8.3 NUMBER OF OZONE RATING DAYS, MILLBROOK MONITOR

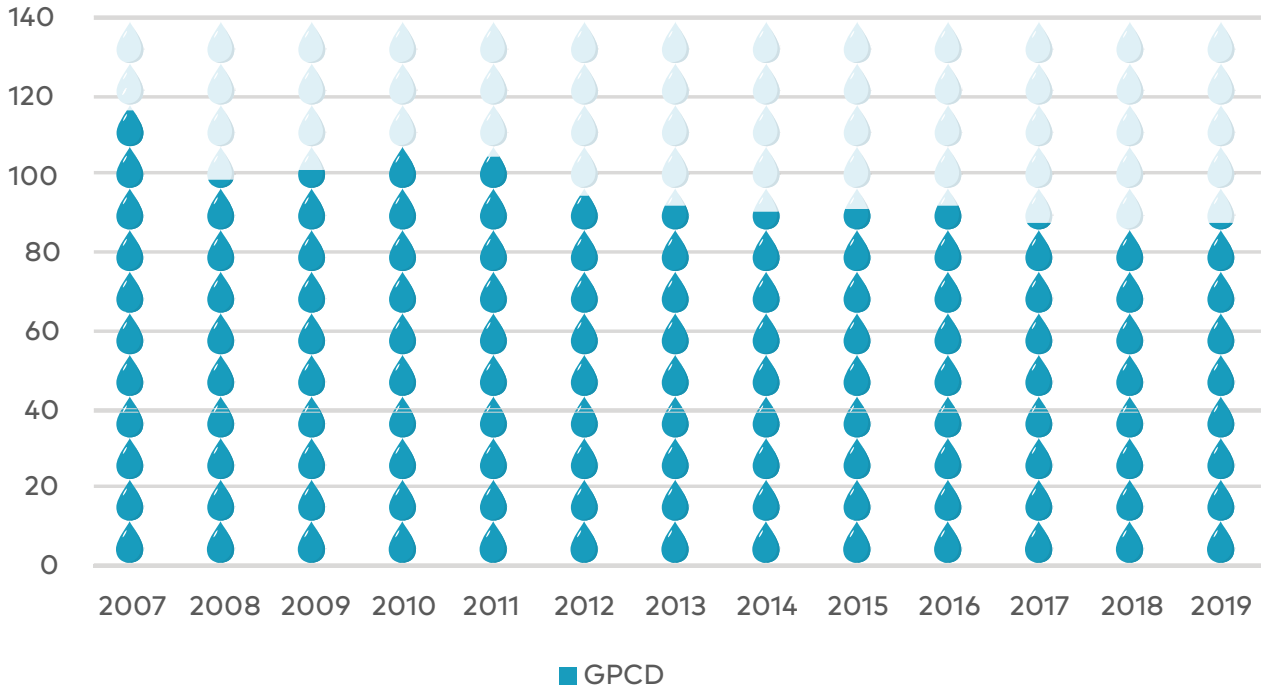
	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy
2008	163	47	4	0
2009	198	16	0	0
2010	177	35	2	0
2011	176	35	3	0
2012	191	13	3	0
2013	207	7	0	0
2014	204	10	0	0
2015	203	10	0	0
2016	156	45	1	0
2017	203	35	1	0
2018	205	35	0	0
2019	197	47	0	0

Source: North Carolina Department of Environmental Quality

WATER CONSUMPTION AND CONSERVATION

The City of Raleigh has initiated several programs to help educate customers about the most water-efficient technologies 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. Efficiently using natural resources makes environmental sense and provides economic benefits by reducing energy costs in the treatment and distribution of water. Water consumption as measured in daily gallons per capita (gpcd) trended downward from 116 gpcd to 92 gpcd between 2007 and 2013 and has stabilized at around 90 gpcd since then (see Figure 8.4).

FIGURE 8.4 **DAILY WATER CONSUMPTION AGGREGATED BY CITY POPULATION**



Source: City of Raleigh Public Utilities Department

STORMWATER MANAGEMENT

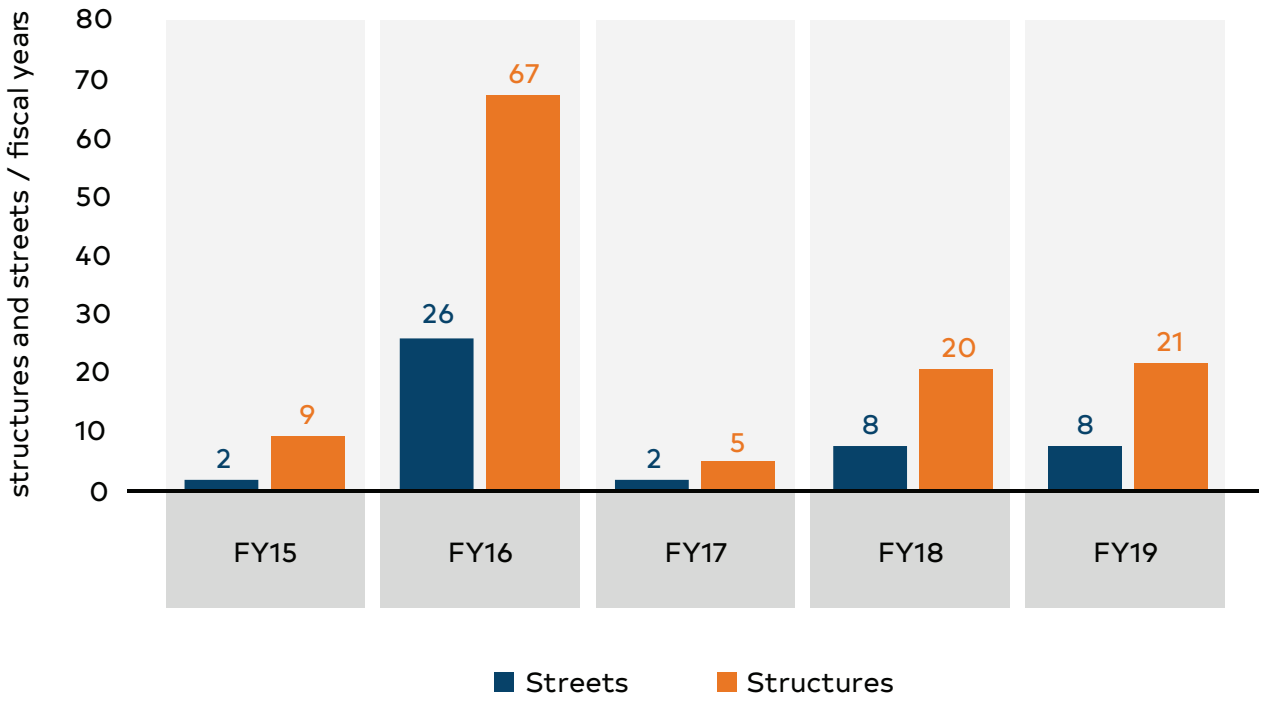
Stormwater management must address the quantity as well as the quality of precipitation runoff, commonly associated with rainwater falling and moving along impervious surfaces. The Stormwater Management Division delivers stormwater services for the citizens of Raleigh, empowered through the City's Stormwater 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. In addition, services include reviewing and inspecting private developments and stormwater control measures 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 2018 reduced the risk posed by runoff for 21 structures and 8 streets, as shown in Figure 8.5.

FIGURE 8.5 REDUCTION IN STRUCTURES AND STREETS AFFECTED BY EXCESS RUNOFF BY FISCAL YEAR



Source: City of Raleigh Stormwater Divisiony

Stormwater management cannot 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 of time. 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 8.6 shows the benefits in nutrient reduction that are being achieved through stormwater management.

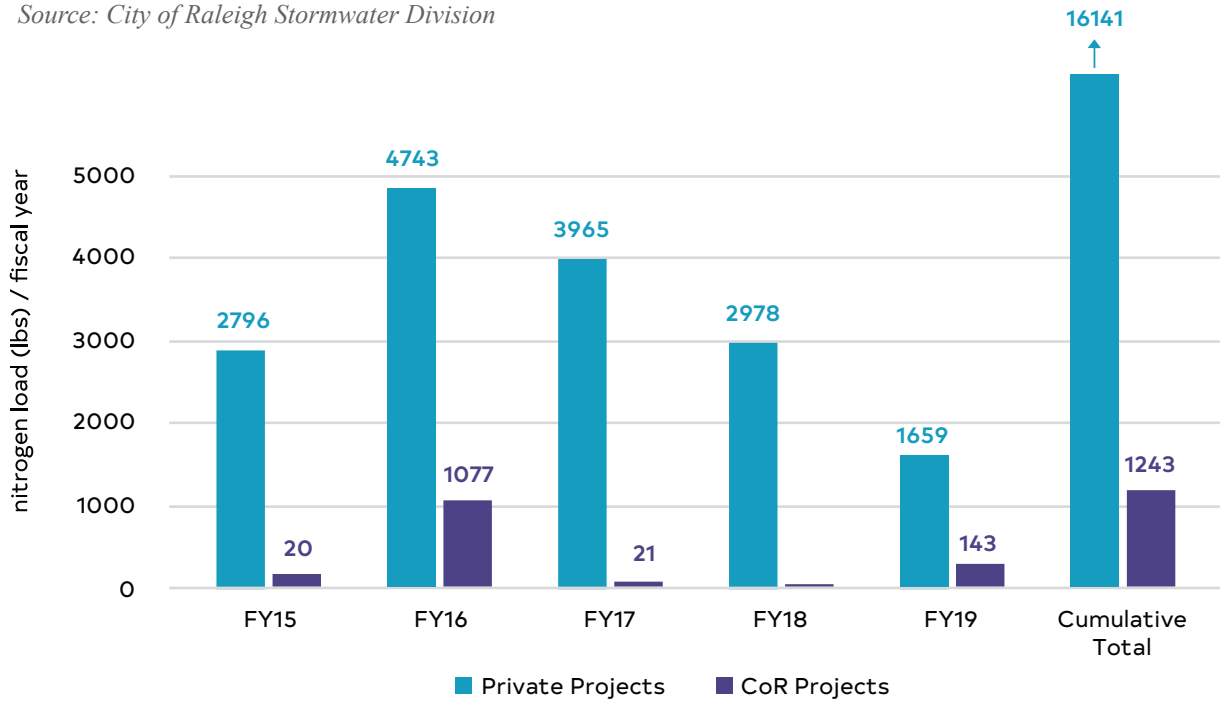
Stormwater management often takes the form of engineered infrastructure projects, but the natural world also gives us valuable resources for preventing floods and protecting our streams and surface waters. Proper conservation of wetlands, streams, and riparian vegetation can generate a significant return 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.

FIGURE 8.6 REDUCTION IN TOTAL NITROGEN LOAD BY FISCAL YEAR (LBS/YR)

Source: City of Raleigh Stormwater Division



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 dollar amounts cumulative over the five-year period:

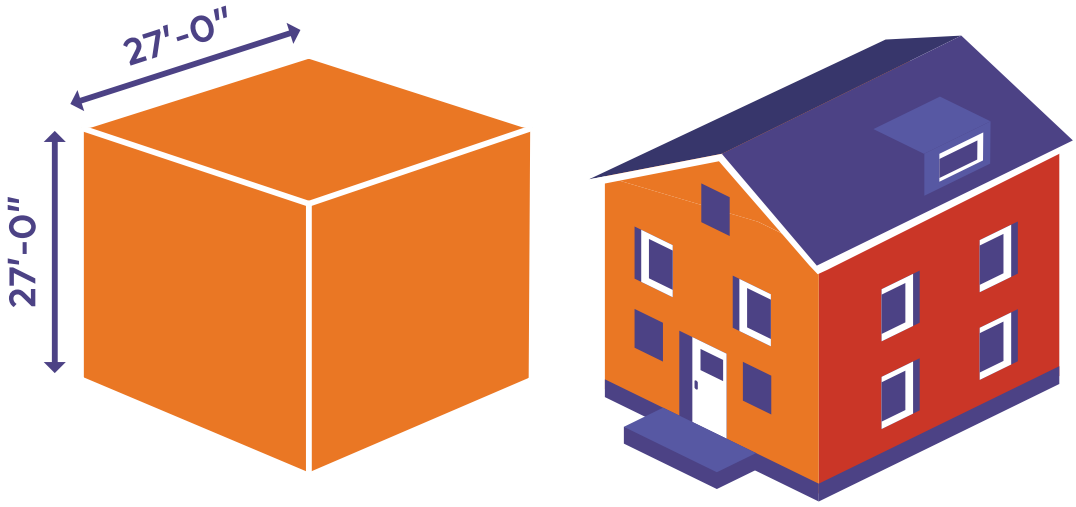
- $7.37 million towards Lake preservation project which focus on stormwater management retrofits and improvements to existing pond and lake facilities in strategic locations within local watersheds. These projects are designed to provide significant public stormwater management benefits, including flood 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 includes storm drainage system enhancements to mitigate or reduce flooding of private property and reduce flooding to public road and buildings, while also protecting water quality. There projects are normally associated with drainage systems serving and affecting City streets within residential neighborhood areas.

GREENHOUSE GAS EMISSIONS

The City of Raleigh's Office of Sustainability tracks greenhouse gas emissions (GHG) for the City of Raleigh's Local Government Operations (LGO) and for 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 a unit called MTCO2e, which is the abbreviation for metric tonnes of carbon dioxide equivalents. One metric tonne 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 8.7) Preparation of 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 developed GHG emissions inventories from the baseline year of fiscal year 2007 and for fiscal year 2014. 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 8.8). Stationary Energy is energy (electricity and fossil fuel) consumed in residential, industrial and commercial buildings.

FIGURE 8.7 **ONE METRIC TON OF CARBON DIOXIDE NEXT TO A TWO-STORY HOME**



One metric ton of carbon dioxide would fill a cube 27 feet tall!
That's about the size of a two-story home, totally more than 1,400 square feet.

Source: Figure 2 City of Raleigh Greenhouse Gas Inventory Report, Completed December 2016

FIGURE 8.8 RALEIGH'S 2014 COMMUNITY-WIDE GHG EMISSIONS

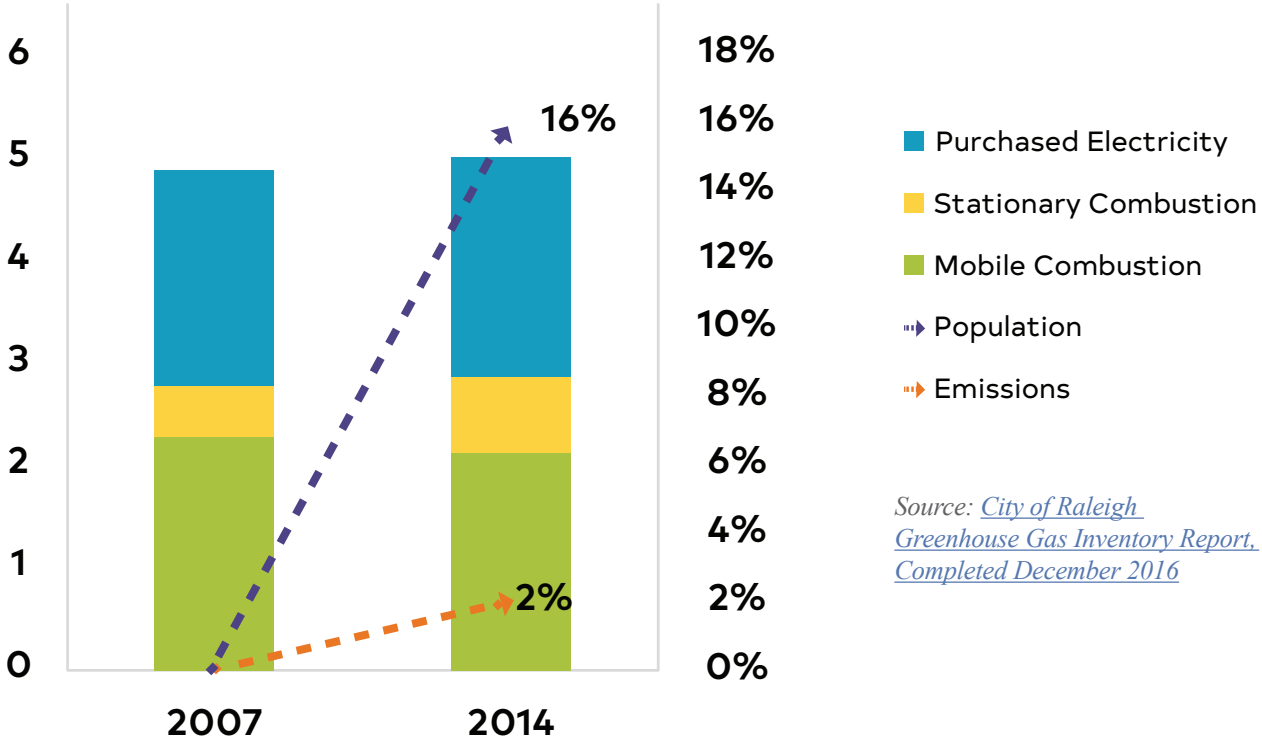
Source: City of Raleigh Greenhouse Gas Inventory Report, Completed December 2016

COMMUNITY-WIDE GHG EMISSIONS

From 2007 to 2014 the Community-wide emissions in Raleigh went up 2%. This was despite an approximate 16% increase in population and a steady increase in the number of jobs and development in the city over the same period (see Figure 8.9). This indicates that per capita, our emissions are decreasing, 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 8.9 **COMPARISON OF RALEIGH COMMUNITY-WIDE GHG EMISSIONS FROM 2007 TO 2014**



Source: City of Raleigh Greenhouse Gas Inventory Report, Completed December 2016

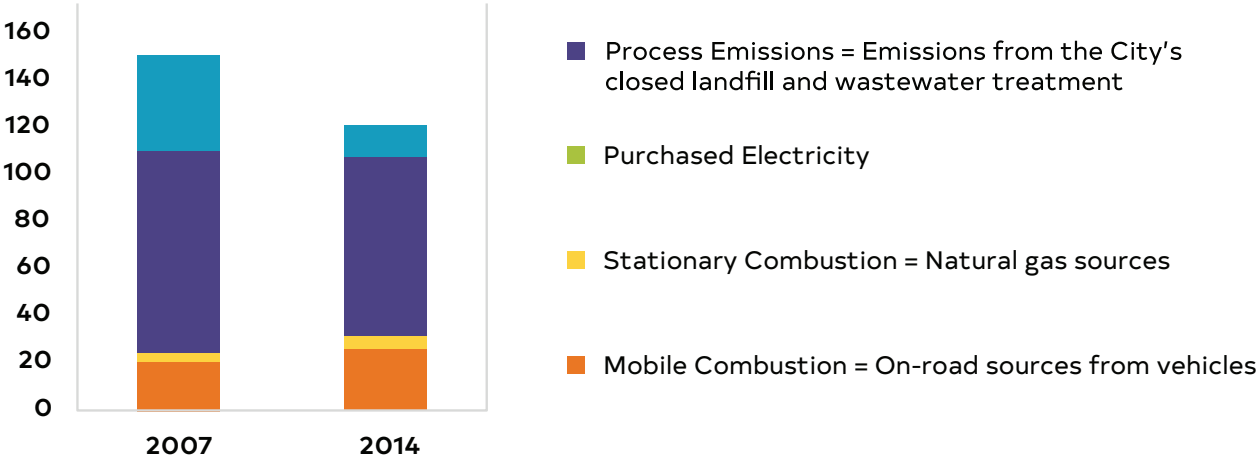
LOCAL GOVERNMENT OPERATIONS GHG EMISSIONS

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 8.10). 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 8.10 COMPARISON OF CITY OF RALEIGH LOCAL GOVERNMENT OPERATIONS (LGO) GHG EMISSIONS FROM 2007 TO 2014



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 time 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 in their lives 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 have a larger collective impact on reducing 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. The 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

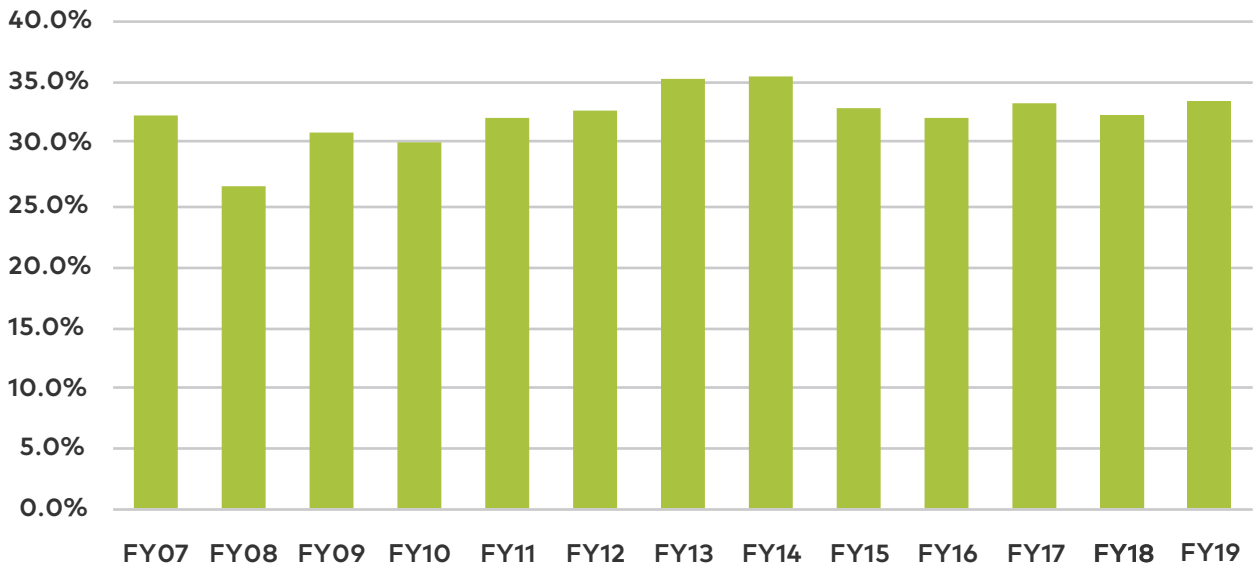
SOLID WASTE

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 8.8). 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.

In addition to diverting more waste, Raleigh citizens are also producing less waste per person (Figure 8.12). Between 2002 and 2015, garbage collection per resident dropped by more than 15%. Increased recycling accounts for almost half of this change, but the majority comes from residents simply throwing away less garbage.

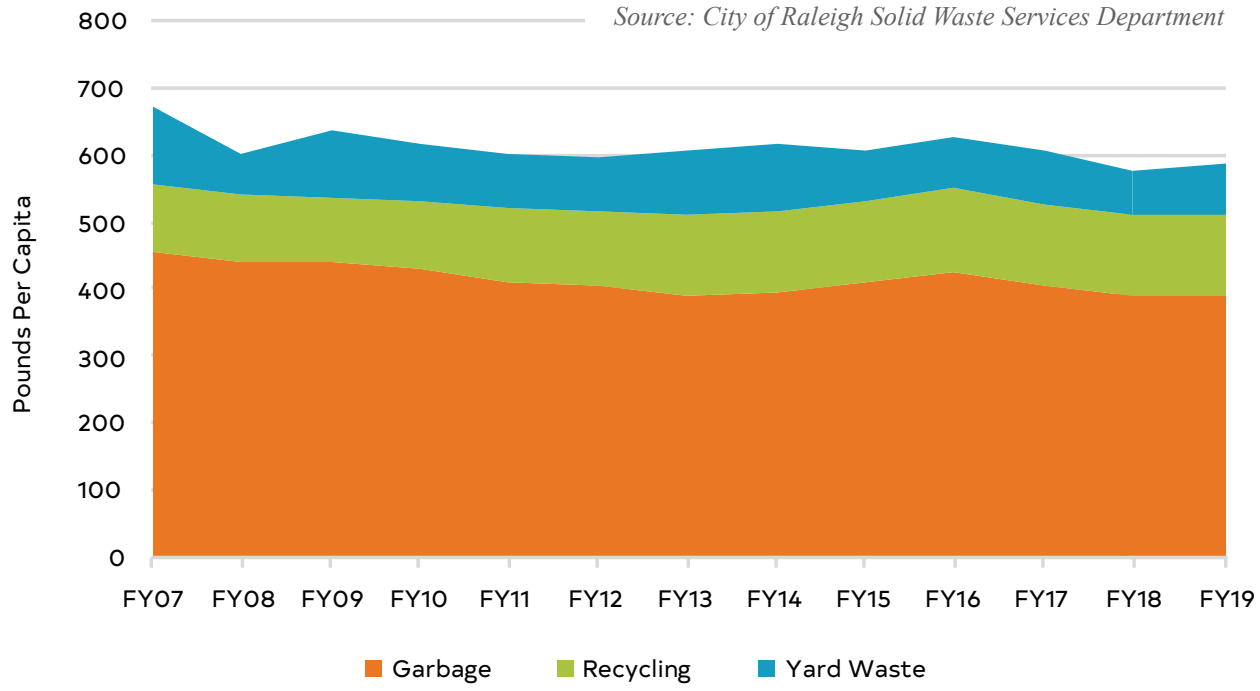
FIGURE 8.11 SOLID WASTE DIVERSION RATE



Source: City of Raleigh Solid Waste Services Department

FIGURE 8.12 SOLID WASTE COLLECTION PER CAPITA

Source: City of Raleigh Solid Waste Services Department



ENVIRONMENTAL JUSTICE

The U.S. Environmental Protection Agency developed a screening and mapping tool known as EJSCREEN. This tool is used as a nationally consistent dataset to identify areas that may be experiencing inequitable environmental impacts based on six demographic indicators and eleven environmental indicators. These indicators serve as direct or proxy data for potential environmental risk, exposure, or pollution levels at the census block group level. The Environmental Justice (EJ) Index for the R/ECAPS census tracts are shown in the table below.

FIGURE 8.10 R/ECAPS PERCENTILE RANKINGS OF SELECTED ENVIRONMENTAL INDICATORS

Census Tract	Diesel Particulate Matter Level in Air		Traffic Proximity and Volume		Wastewater Discharge Indicator		Hazardous Waste Proximity	
	Value (microgram /m3)	State %ile	Value (daily traffic count/ distance to road)	State %ile	Value (toxicity-weighted concentration /m distance)	State %ile	Value (facility count/km distance)	State %ile
507	0.598	89	470	89	0.00062	89	1.3	89
508	0.59	96	180	88	0.0016	93	1	92
509	0.621	94	1200	97	0.00023	87	1.5	92
524.09	0.517	92	340	88	0.000033	82	4.6	98
R/ ECAPS	0.577	93	480	93	0.00065	91	2.2	95
Citywide	0.479	74	550	86	0.0012	84	1.1	81

Source: U.S. Environmental Protection Agency, EJSCREEN, 2019 Version

PARKS, RECREATION, & CULTURAL RESOURCES

EXISTING PRCR SYSTEM AND PLANNING FRAMEWORK

The City's parks, greenways and cultural resources are invaluable assets for cultural pursuits, natural conservation and active and passive lifestyle activities. The Raleigh Parks, Recreation and Cultural Resources system has 6057 acres of park land and 3867 acres of greenway property. These acres contribute to providing the residents of Raleigh, recreational and cultural experiences at 193 park properties, and along 117 miles of greenway trail.

In addition to providing parks and facilities, the public is provided with a variety of programs to meet their household interests. The Parks, Recreation and Cultural Resources Department 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 for 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.

Park and greenway planning and development projects can be tracked on-line through the following webpage: www.raleighnc.gov/home/content/PRecDesignDevelop/Articles/ ParkAndGreenwayPlanningAndDevelopment.html

Parks and Recreation Facilities

Raleigh has one of the most well-developed park systems in the Southeastern United States. The City's developed parks system consists of a variety of experiences. Initiated by public input into the System Plan and as action items for implementation, the department is developing a new classification system based on experiences.

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.

Regional experiences were also identified 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 registering 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 and the State of North Carolina agreed to have the city acquire Dorthea Dix Park. 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 was initiated 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 land use within the 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.

On January 6, 2015, the City Council adopted a new Capital Area Greenway Planning and Design Guide. The new 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 at the following webpage: https://www.raleighnc.gov/parks/content/PRecDesignDevelop/Articles/CapitalAreaGreenwayTrailSystem.html

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.

Equitable access to inherent experiences is not measured with these techniques.

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 includes 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 of the surrounding census blocks within a distance of 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-mile distance.
- 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 a distance of 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-mile distance.
- 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 will be 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 is currently developing a new Neighborhood and Community Connections (N&CC) Program and Policy to 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 will compare 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 captured below represent data collected through comprehensive planning efforts that occurred during the past calendar year.

FIGURE 10.1 POLICE FACILITIES

Police Facility	Number of Staff	Number of Vehicles	Facility Sq. Ft.	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	18,750	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 (Total of all buildings)
The Range			7,000	Range Road (New Building)
The Range			1,280	2 old trailers (Used as office space)
The Range			260	Old cinder block range house
The Range			400	(4) storage sheds on property
The Range			320	Range 2-story garage
Corporation Parkway – Evidence Facility			27,600	1201 Corporation Parkway
Oberlin Rd Location Moved to Greens Dairy				
Total	851	776	302,045	

Source: City of Raleigh Police Department

FIGURE 10.2 FIRE FACILITIES

Performance Measures	Actual FY 2013	Actual FY 2014	Actual FY 2015	Actual FY 2016	Actual FY 2017	Actual FY 2018	Actual FY 2019	Projected 2020
Fire calls answered	1,077	1,133	1,227	1,079	1,188	1,138	930	1,100
Rescue and EMS calls answered	21,951	23,119	22,356	24,047	24,697	24,718	26,082	26,500
Fires investigated	258	265	251	291	270	215	224	245
New construction permits issued	1,272	1,738	1,730	2,961	2,828	2,756	2,733	2,163
Percentage of fire call with first units arrived in 320 seconds or less	69%	65%	70%	70%	73%	73%	73%	75%
Percentage of EMS call with first unit arrived in 300 seconds or less	67%	66%	66%	66%	66%	66%	65%	68%
Percent citizens reached by public fire education	10%	10%	10%	9%	10%	11%	9%	10%

Source: City of Raleigh Fire Department

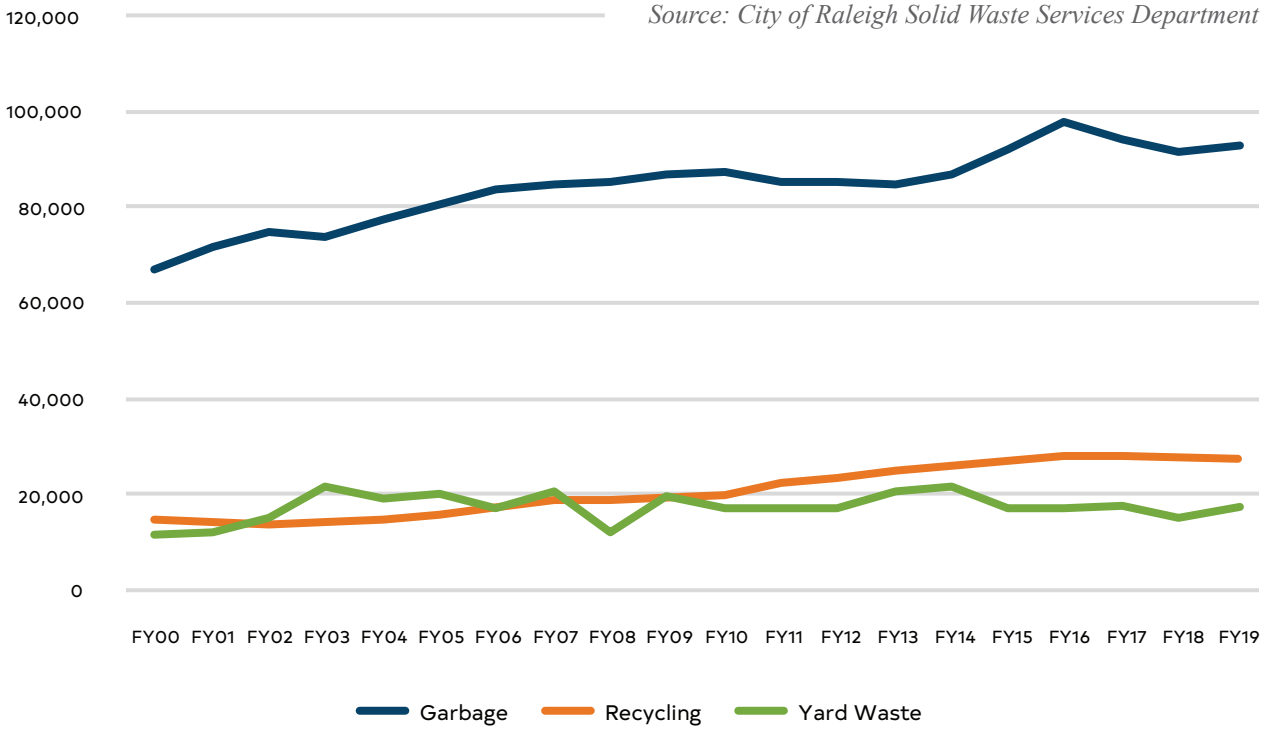
FIGURE 10.3 SOLID WASTE SERVICES EQUIPMENT

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	Rolloff 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 10.4 SOLID WASTE COLLECTION IN TONS

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 provides 100% data for.

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
A 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 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 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
Rain water 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

raleighnc.gov/planning