



# Orange County Fact Book

February 22, 2024

# About the Fact Book



# About this Fact Book

- This Fact Book provides data on existing conditions and projected future trends to provide a common understanding of Orange County at the start of this Land Use Plan 2050 process.
- The Fact Book will also serve as a resource as the plan is being developed. New data continually becomes available, such as new Census data and updated development features maintained by the County's GIS staff. This Fact Book freezes the data at a moment in time and is a useful snapshot of County conditions today to help inform development of the plan.
- It should be noted that the college student population (primarily residing in the municipalities) impacts the data presented, such as households without a car, income, etc.
- This Fact Book is not intended to be an encyclopedia of every data point about Orange County.
- All maps have been prepared by Orange County Planning and Inspections GIS staff unless otherwise noted.

# Fact Book Contents



[About the Land Use Plan 2050](#)



[Our Diverse People and Communities](#)



[Our Built Environment](#)



[Our Transportation Systems](#)



[Our Public Facilities and Services](#)



[Our Natural Assets and Working Lands](#)

# About the Land Use Plan 2050



# Project Process

**1**

**Phase 1:**  
Launch Project

Summer  
**2023**

- Meetings:
- Staff Meeting
  - Staff Working Group Meeting #1, in-person
  - Reconnaissance Tour
  - Stakeholder Interviews

- Major Deliverables:
- Project Management Plan
  - Context Mapping
  - Project Branding
  - Summary of Stakeholder Interviews
  - Project Website

**2**

**Phase 2:**  
Identify New Issues and Opportunities

Fall **2023**  
to Winter  
**2024**

- Meetings:
- Staff Working Group Meetings #2-#5
  - Community Engagement Window #1

- Major Deliverables:
- Current Policy Profile
  - Community Engagement Window #1 presentation and materials
  - Summary of Engagement Window #1 Results
  - Summary of New Issues and Opportunities

**3**

**Phase 3:**  
Evaluate Planning Influences

Fall **2023**  
to Winter  
**2024**

- Meetings:
- Staff Working Group Meeting #6
- Major Deliverables:
- Fact Book

**4**

**Phase 4:**  
Develop the Plan

**2024**

- Meetings:
- Staff Working Group Meetings #7-15
  - Community Engagement Windows #2-#3

- Major Deliverables:
- Staff, Staff Working Group, and Public Review Drafts of Comprehensive Plan
  - Public engagement materials for Community Engagement Windows #2-#3
  - Summary of Phase 4 Public Input Results

**5**

**Phase 5:**  
Adopt the Plan

**2025**

- Meetings:
- Staff Working Group Meeting #16
  - Public Adoption Hearings (2)

- Major Deliverables:
- Public Hearing Draft of Plan
  - Final Adopted Comprehensive Land Use Plan and Transmittal of Final Source Files

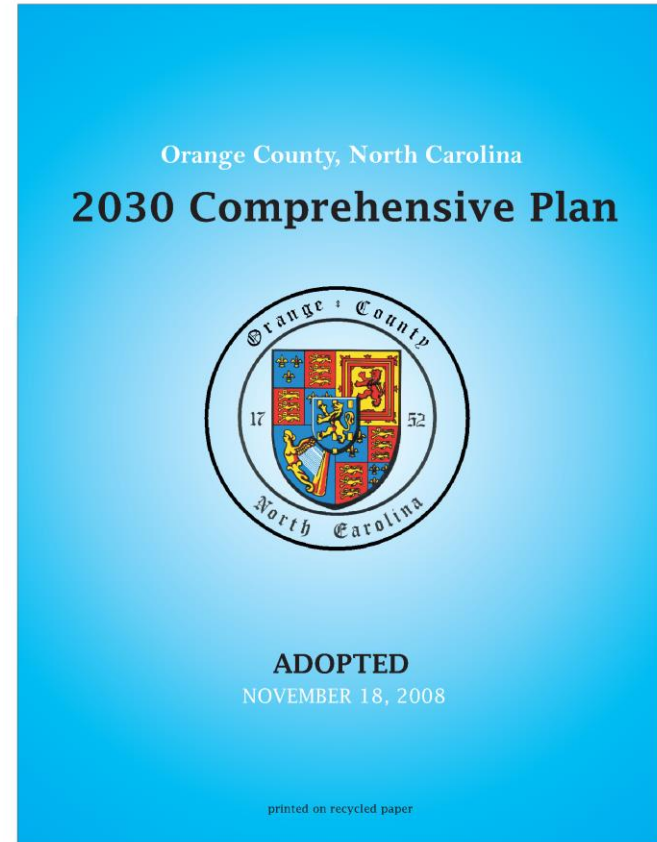
# What is a Comprehensive Land Use Plan?

- 20-year **vision** for Orange County's future
- Built from inclusive **public engagement**
- Addresses community needs/wants
- Guides **growth** and coordinates **investment**
- Connects the County's **operations** and investments through physical planning



# What is a Comprehensive Land Use Plan?

- Expresses a 20-year land use vision through goals, policies, and actions
- A tool that can be implemented through Unified Development Ordinance (UDO)
- Required by law to administer **County Zoning**
- Municipalities in Orange County have their **own** jurisdictions and supporting plans
- Currently adopted plan: 2030 Comprehensive Plan (adopted 2008)





# Future Land Use

The currently adopted Future Land Use Map shows **land use classifications** within Orange County:

- Activity Nodes
- Agricultural-Residential Uses
- Economic Development Districts
- The Rural Buffer
- Transition Areas

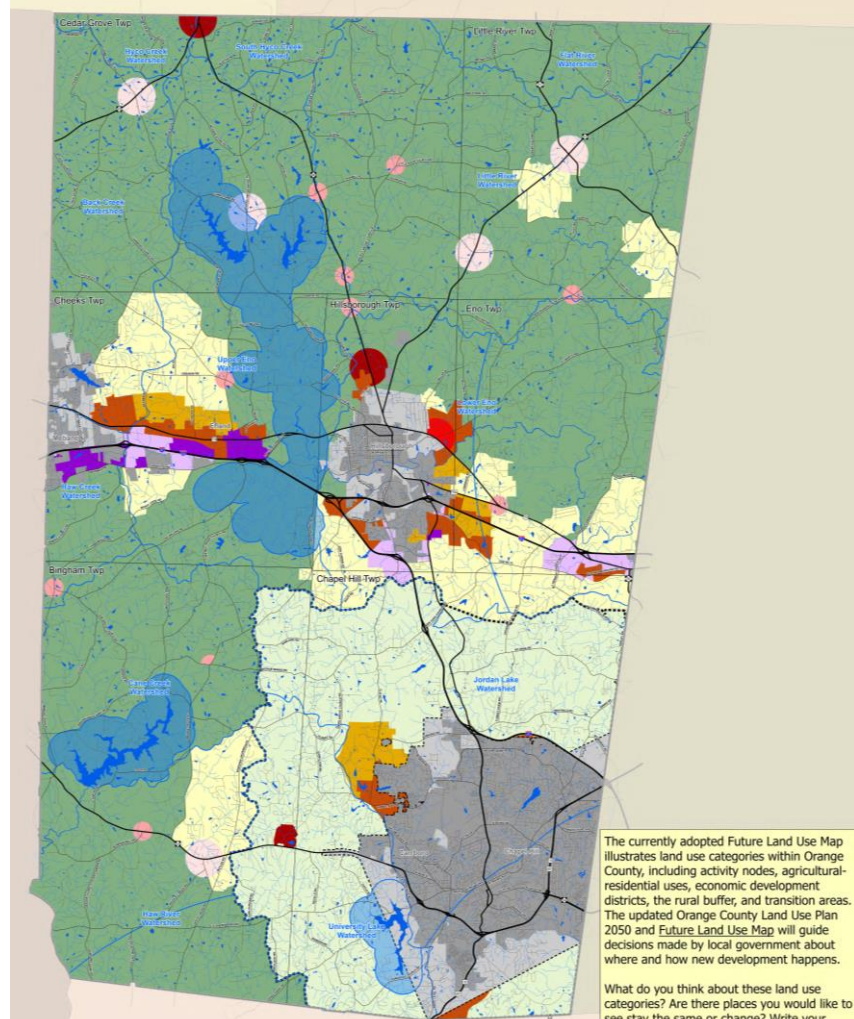
The updated Orange County Land Use Plan 2050 and Future Land Use Map will **guide decisions made by the County about where and how new development happens.**

## Legend

- County Boundary
- Streams
- Water Bodies
- Water Supply Watersheds
- Watershed Critical Areas
- Township Boundary
- OC/CH/CA Joint Planning Area

- ### Future Land Use
- 10 Year Transition
  - 20 Year Transition
  - Rural Residential
  - Rural Buffer
  - Agricultural Residential
  - City Limits
  - ETJ

- ### Activity Nodes
- Rural Neighborhood
  - Commercial Transition
  - Commercial-Industrial Transition
  - Economic Development Transition
  - Rural Community
  - Rural Industrial

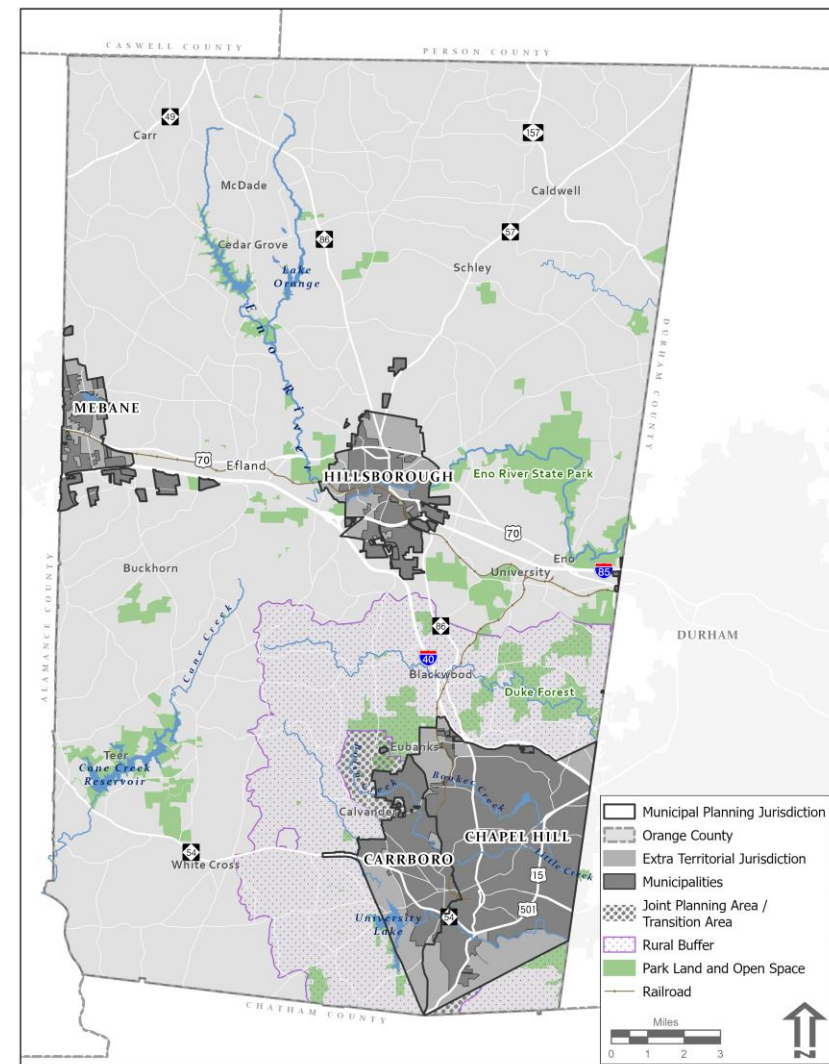


The currently adopted Future Land Use Map illustrates land use categories within Orange County, including activity nodes, agricultural-residential uses, economic development districts, the rural buffer, and transition areas. The updated Orange County Land Use Plan 2050 and Future Land Use Map will guide decisions made by local government about where and how new development happens.

What do you think about these land use categories? Are there places you would like to see stay the same or change? Write your thoughts on a post-it note and place on the map.

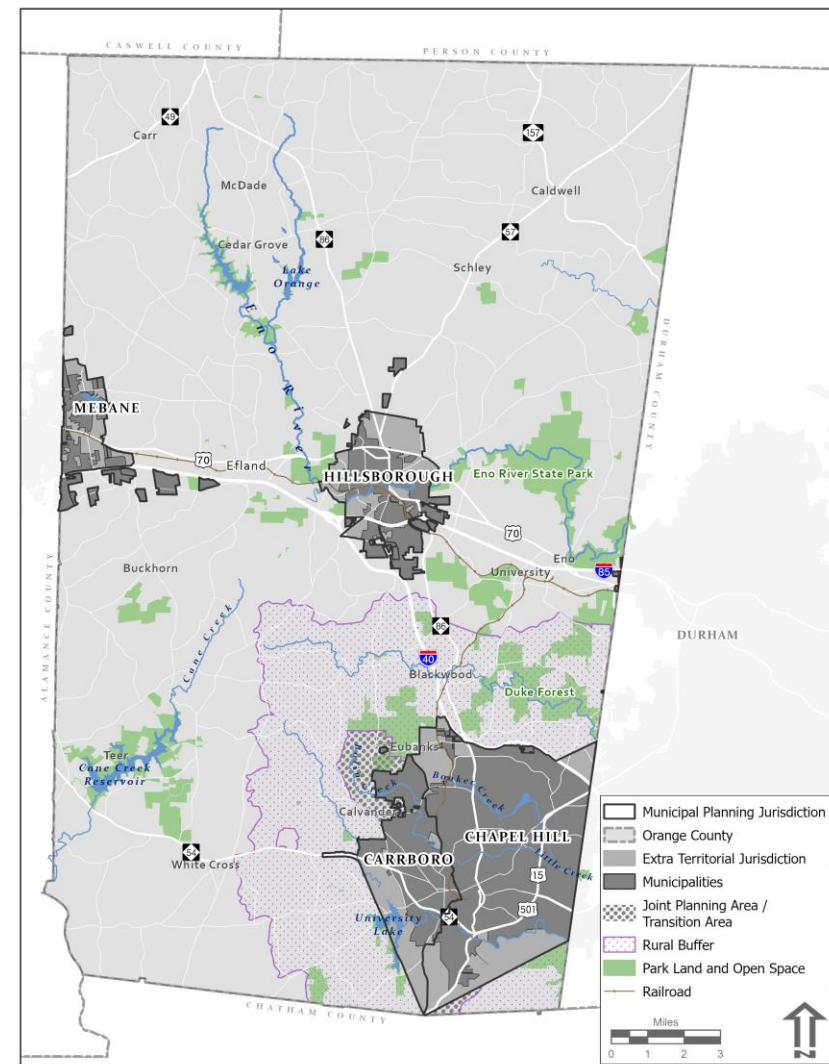
# Planning Area

- **County Planning & Zoning Jurisdiction**
  - Focus of the Land Use Plan 2050: The unincorporated areas outside of the Municipal Planning & Zoning Jurisdictions
- **Extraterritorial Jurisdiction (ETJ)**
  - Areas where a municipality has applied its zoning ordinance outside of the city limits
  - Medium grey on the map
- **Municipal Planning & Zoning Jurisdictions (Town + ETJ)**
  - Municipalities are darker grey on the map
  - Planning & Zoning Jurisdictions are coordinated through municipality specific comprehensive plans and zoning



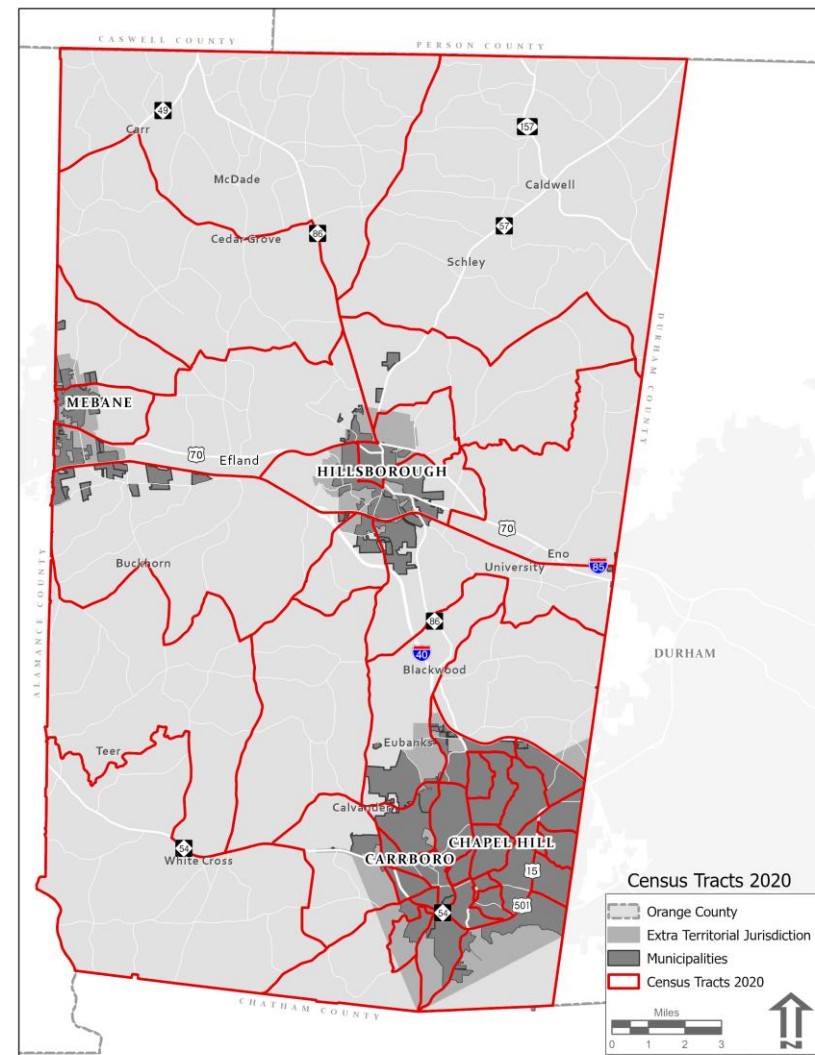
# Planning Area, continued

- **Joint Planning Area / Transition Area**
  - Created by the Orange County - Chapel Hill - Carrboro Joint Planning Land Use Plan and Agreement
  - The Joint Planning Land Use Plan and Agreement established procedures for land development projects in designated Transition Areas and the Rural Buffer, land uses and densities within the planning area, and annexation rules in the area.
- **Rural Buffer**
  - Also designated through the Joint Planning Agreement and Joint Planning Land Use Plan
  - Purple shading on the map



# Census Tracts

- Census tracts are small subdivisions of a county used by the U.S. Census and other data sources.
- Some of the maps in the Fact Book use census tracts to show information by geography in Orange County.
- Several census tracts, as shown on the map outlined in red, span across unincorporated, Extra Territorial Jurisdictions (ETJs), and/or municipal area boundaries. This is important to keep in mind when viewing maps that show information around the fringes of municipalities.
- The term “unincorporated” does not include the municipalities in Orange County (Mebane, Hillsborough, Chapel Hill, and Carrboro).



# Our Diverse People and Communities

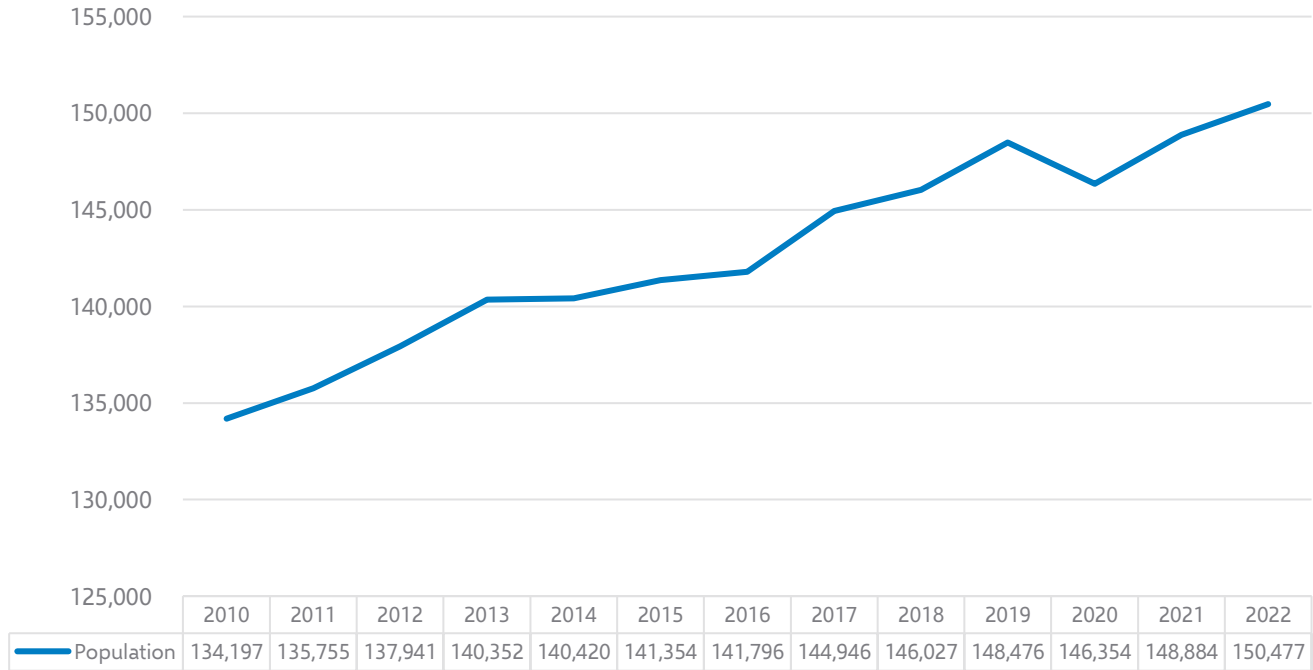
Sociodemographic Trends



# Overall Population

Orange County's population has increased by about 12% from 2010 to 2022.

Population Change, 2010 - 2022



Data Source: American Community Survey Estimates, 2010-2022

# Overall Population by Race

Race	Population Count	Percentage of Total Orange County Population
White	105,171	72.1%
Black or African American	15,949	10.9%
American Indian and Alaska Native	1,074	0.7%
Asian	11,383	7.8%
Native Hawaiian and Other Pacific Islander	34	0.02%
Some Other Race	4,084	2.8%
Two or More Races	8,224	5.6%
<b>Total Population</b>	<b>145,919</b>	

\*Note: Based on the U.S. Census, Hispanic or Latino is considered an ethnicity and not race, and thus is not included here.

Data Source: American Community Survey 2022, 5-Year Estimates

# Hispanic/Latino

Almost 9% of Orange County's population is Hispanic/Latino, lower than surrounding counties and North Carolina overall.

	Total Population	Percentage of Total Population
Durham County	44,807	13.80%
Alamance County	23,200	13.50%
Chatham County	9,332	12.20%
Wake County	117,995	10.40%
Orange County	12,740	8.70%
North Carolina	1,051,008	10.00%



# Language Other than English Spoken at Home

Compared to North Carolina overall, Orange County has a greater percentage of residents that speak a language other than English at home.

## Language Other than English Spoken at Home (Percent of persons age 5 years+, 2018-2022)

North Carolina	12.3%
Alamance County	14.0%
Chatham County	14.2%
<b>Orange County</b>	<b>16.1%</b>
Wake County	17.9%
Durham County	18.7%

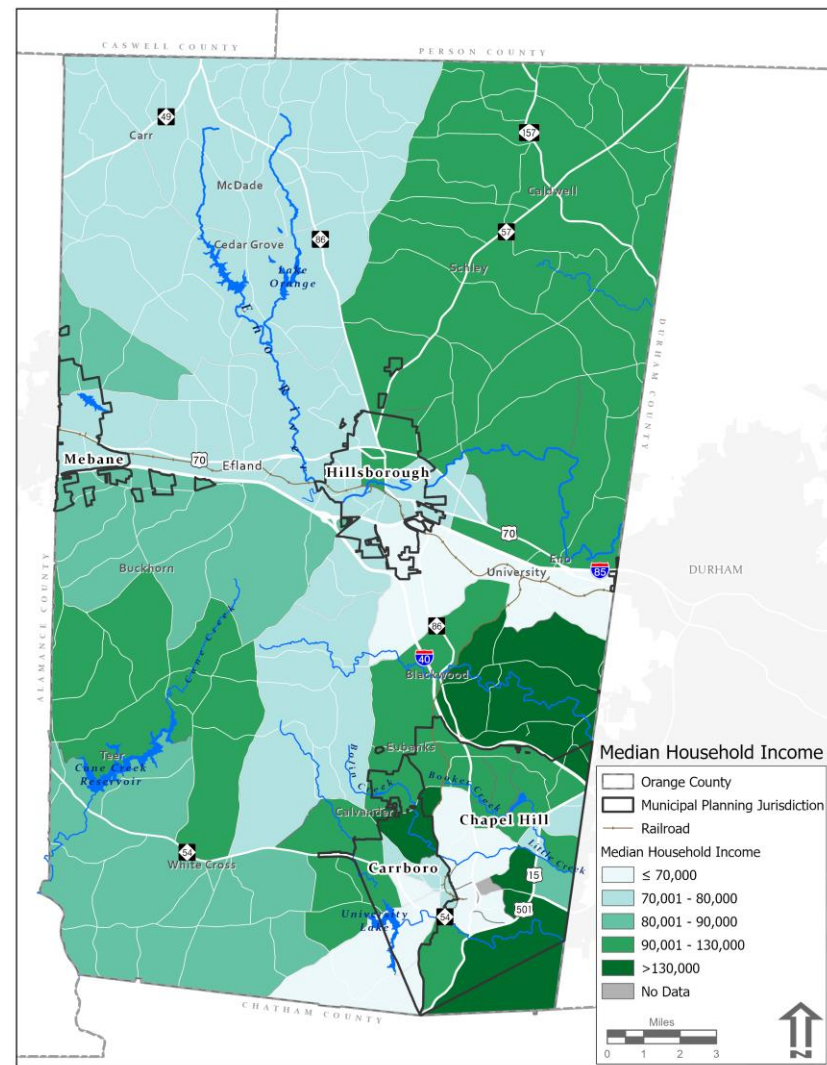
# Household Income

Compared to nearby counties and North Carolina overall, Orange County has a high median household income.

- This varies by location in the county, where the median household income is lower in the northwestern portion of the county and higher in the southeastern portion.

Data Source: U.S. Census Quick Facts

Median Household Income (In 2022 Dollars, 2018-2022)	
Alamance County	\$60,866
North Carolina	\$66,186
Durham County	\$74,927
Chatham County	\$84,222
<b>Orange County</b>	<b>\$85,785</b>
Wake County	\$96,734



# Age of Orange County's Total Population

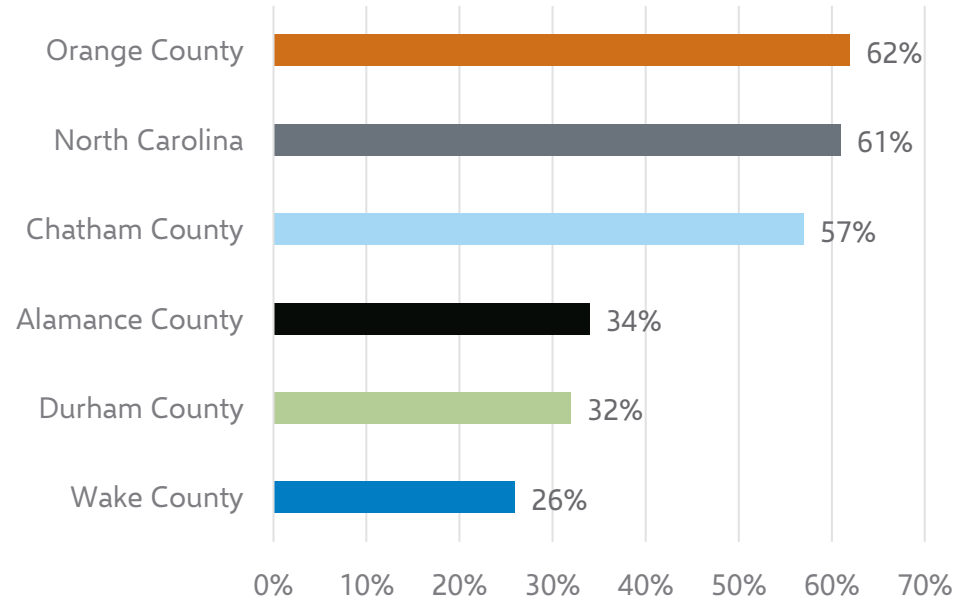
Age	Population Count	Percentage of Total Orange County Population
Under 5 years	6,146	4.2%
5 to 9 years	7,453	5.1%
10 to 14 years	8,862	6.1%
15 to 19 years	14,691	10.1%
20 to 24 years	16,283	11.2%
25 to 34 years	17,507	12.0%
35 to 44 years	16,827	11.5%
45 to 54 years	18,223	12.5%
55 to 59 years	8,805	6.0%
60 to 64 years	8,673	5.9%
65 to 74 years	13,901	9.5%
75 to 84 years	6,387	4.4%
85 years and over	2,161	1.5%
<b>Total Population</b>	<b>145,919</b>	

Data Source: American Community Survey 2022, 5-Year Estimates

# Growing Aging Population

- North Carolina ranks **8th nationally** in the portion of the population aged 65+.
- From 2010-2018, Orange County's **65+ age group grew by 7,575 residents** (primarily from aging as well as some in-migration).
- This means **61.5% of Orange County's population growth was from the population 65 years and older**, which is higher than surrounding counties.

Share of 2010-2020 Population Growth due to  
Ages 65 and Older Growth



# Orange County's Population Distribution

- This table shows Orange County's population by jurisdiction and the percentage of Orange County's total population.
- **About 40% of Orange County's population lives in Chapel Hill, followed by approximately 37% who live in unincorporated Orange County.**

	Population (2022)	Percentage of Total Orange County Population
Chapel Hill**	59,270	39.9%
<b>Unincorporated County*</b>	<b>54,579</b>	<b>36.7%</b>
Carrboro	21,136	14.2%
Hillsborough	9,902	6.7%
Mebane**	3,675	2.5%
Durham**	145	0.1%
Total	148,707	100.0%

\*Unincorporated Orange County means the areas in Orange County but outside of municipalities, including Carrboro, Chapel Hill, Durham, Hillsborough, and Mebane. This includes the extraterritorial jurisdictions (ETJ) of the towns.

\*\*Portion within Orange County geographic limits

# Growth of Municipalities

- The greatest **increase in population** numbers occurred in unincorporated Orange County.
- Mebane experienced the greatest **percent change** in population growth from 2010 to 2020 compared to the other municipalities.

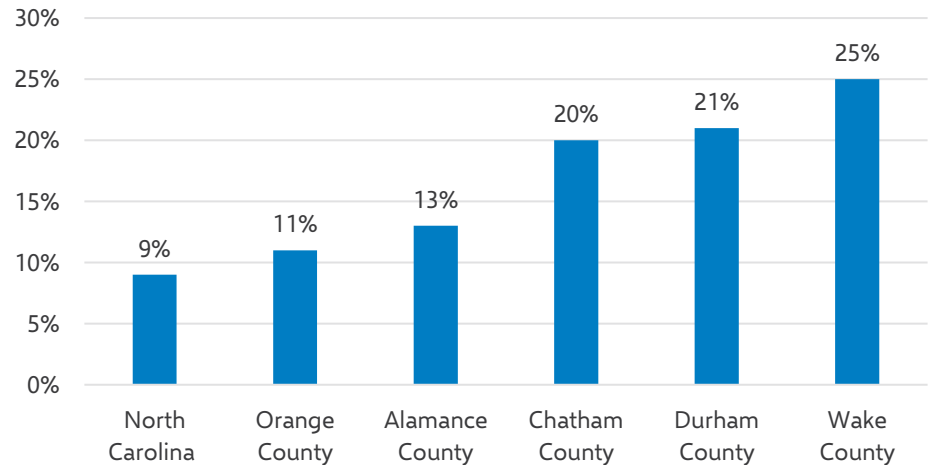
	Total Population (2010)	Total Population (2020)	Percent Growth 2010 to 2020
Orange County (Total)	133,801	148,696	11%
Hillsborough	6,087	9,660	59%
Carrboro	19,582	21,295	9%
Chapel Hill	57,233	61,960	8%
Mebane (Orange County part)	1,793	3,171	77%
Unincorporated Orange County	50,899	55,781	10%

Data Source: U.S. Census Bureau Decennial Survey

# Growth Rate Over the Last Decade

While Orange County's growth from 2010 to 2020 is greater than the North Carolina average, it's lower than surrounding counties.

Growth Rate, 2010-2020

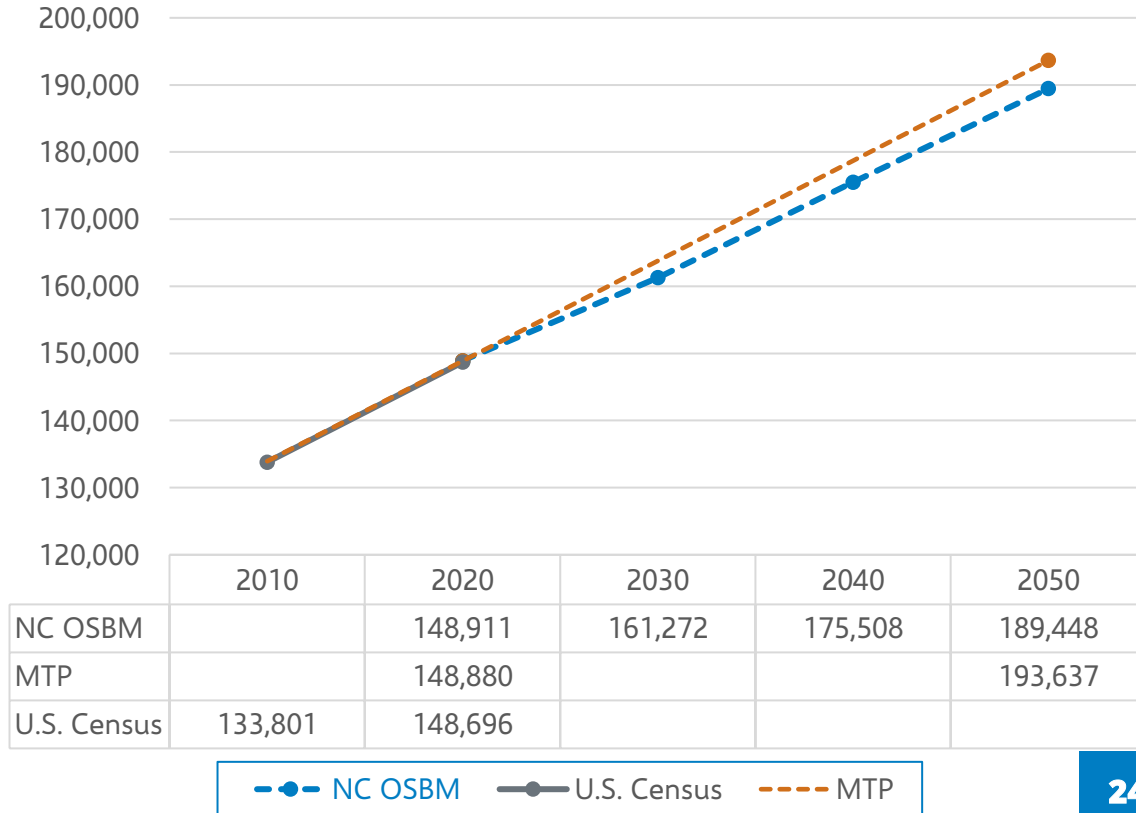


Source: Orange County 16th Annual State of the Community Report, September 2023

# Population Projections

- The graph on the right shows the population projections for Orange County through 2050, as prepared by the **North Carolina Office of State Budget and Management** and **the Connect 2050 Metropolitan Transportation Plan (MTP)**.
- OSBM estimates that Orange County will see an **increase in population of approximately 40,500 people between 2020 and 2050**.
- The MTP estimates that Orange County will see an **increase in population of approximately 44,700 people from 2020 – 2050**.

Population Projections



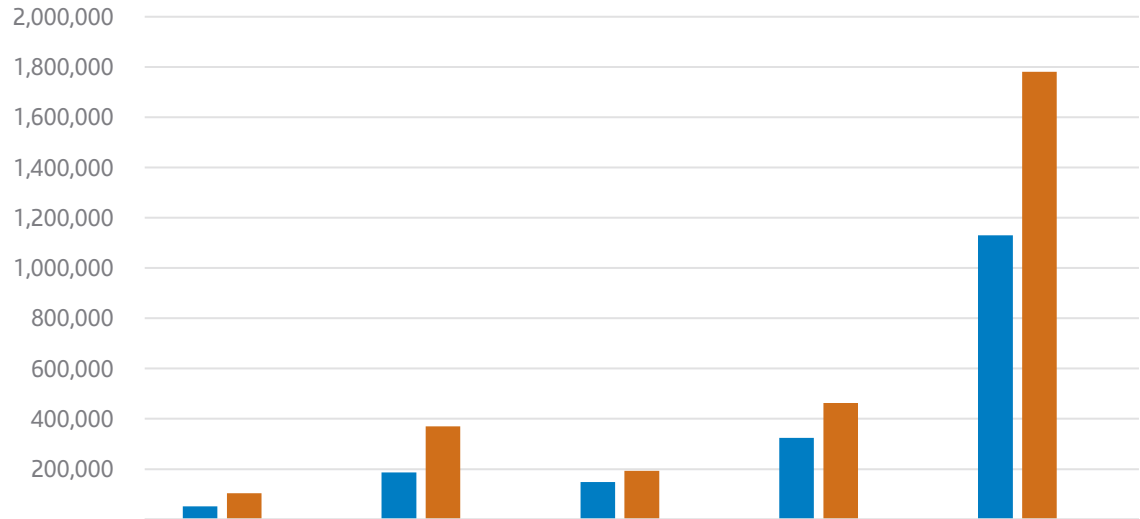
Data Sources: North Carolina Office of State Budget and Management, County/State Population Projections, December 2023; Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC-MPO), Connect 2050 Metropolitan Transportation Plan (MTP)



# County Comparisons of Population Projections

- The chart on the right shows the population projections for Orange County and nearby counties, as published by **the Connect 2050 Metropolitan Transportation Plan (MTP)**.
- In comparison to other counties, **Orange County is projected for a much smaller population increase (about 30%)** compared to other counties.
  - Chatham and Johnston County's populations are expected to **double**
  - Durham County's population is expected to increase by **40%**
  - Wake County's population is expected to increase by almost **60%**

Population Projections (2020 versus 2050) by County



	Chatham County	Johnston County	Orange County	Durham County	Wake County
■ 2020 Population	52,213	186,096	148,880	324,784	1,129,865
■ 2050 Population	104,395	370,215	193,637	463,414	1,780,155
■ Percentage Change	99.9%	98.9%	30.1%	42.7%	57.6%

■ 2020 Population ■ 2050 Population

# Population Projections by County

Connect 2050 MTP (Adopted 2021) Population Projections	2020			2050		
	<i>Population</i>	<i>Households</i>	<i>Jobs</i>	<i>Population</i>	<i>Households</i>	<i>Jobs</i>
Granville County	37,543	12,981	13,203	67,241	24,455	22,301
Harnett County	40,146	14,823	9,832	65,893	23,925	17,847
Chatham County	52,213	21,995	12,272	104,395	43,568	24,454
Franklin County	60,260	22,797	15,082	94,853	36,294	21,927
<b>Orange County</b>	<b>148,880</b>	<b>57,150</b>	<b>74,721</b>	<b>193,637</b>	<b>75,602</b>	<b>116,341</b>
Johnston County	186,096	67,509	54,923	370,215	132,824	90,725
Durham County	324,784	134,634	235,002	463,414	193,987	401,926
Wake County	1,129,865	437,240	614,734	1,780,155	690,009	1,176,311

Data Source: Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC-MPO), Connect 2050 Metropolitan Transportation Plan (MTP)

# Our Diverse People and Communities

Equity Opportunity Areas



# Social Vulnerability

**Social vulnerability** refers to a community's capacity to prepare for and to respond to the stress of hazardous events, ranging from natural disasters (such as hurricanes) to human-caused threats (such as toxic chemical spills).

# Centers for Disease Control and Prevention (CDC) Social Vulnerability Index

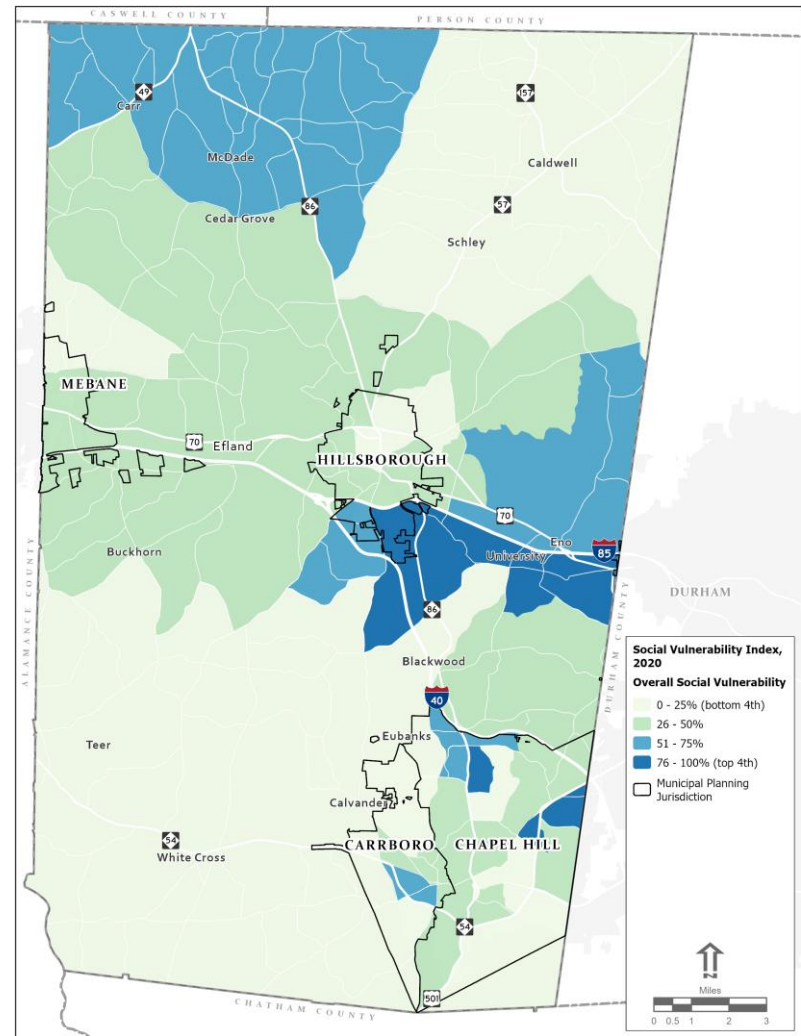
The **CDC Social Vulnerability Index (CDC SVI)** can be used to examine the social vulnerability of Orange County using 16 factors from 4 key themes.

Census tracts are ranked by percentile social vulnerability, with 0% being the least vulnerable and 100% being the most vulnerable.

Socioeconomic Status	Racial and Ethnic Minority Status
Below 150% Poverty	Hispanic or Latino (of any race)
Housing Cost Burden	Black or African American*
No High School Diploma	Asian*
No Health Insurance	Native Hawaiian or Pacific Islander*
Unemployed	Two or more Races*
	Other Races*
	<i>*Not Hispanic or Latino</i>
Housing Type and Transportation	Household Characteristics
Multi-Unit Structures	Aged 65 & Older
Mobile Homes	Aged 17 & Younger
Crowding (more people than rooms in a home)	Single-Parent Households
No Vehicle	English Language Proficiency
Group Quarters (e.g., college dormitories, nursing homes, correctional institutions)	

# CDC SVI: Overall

- Across all factors, census tracts in the northwest portion of the County and along I-85 are ranked with the highest vulnerability.
- Other areas include outside Carrboro and south of I-40.



Data Source: Centers for Disease Control and Prevention  
Social Vulnerability Index

# CDC SVI: Socioeconomic Status

- Census tracts that show higher vulnerability based on socioeconomic status are highlighted in dark green on the right.
- Being cost-burdened means spending **more than 30% of household income on housing costs.**

## Socioeconomic Status Factors

Below 150% Poverty

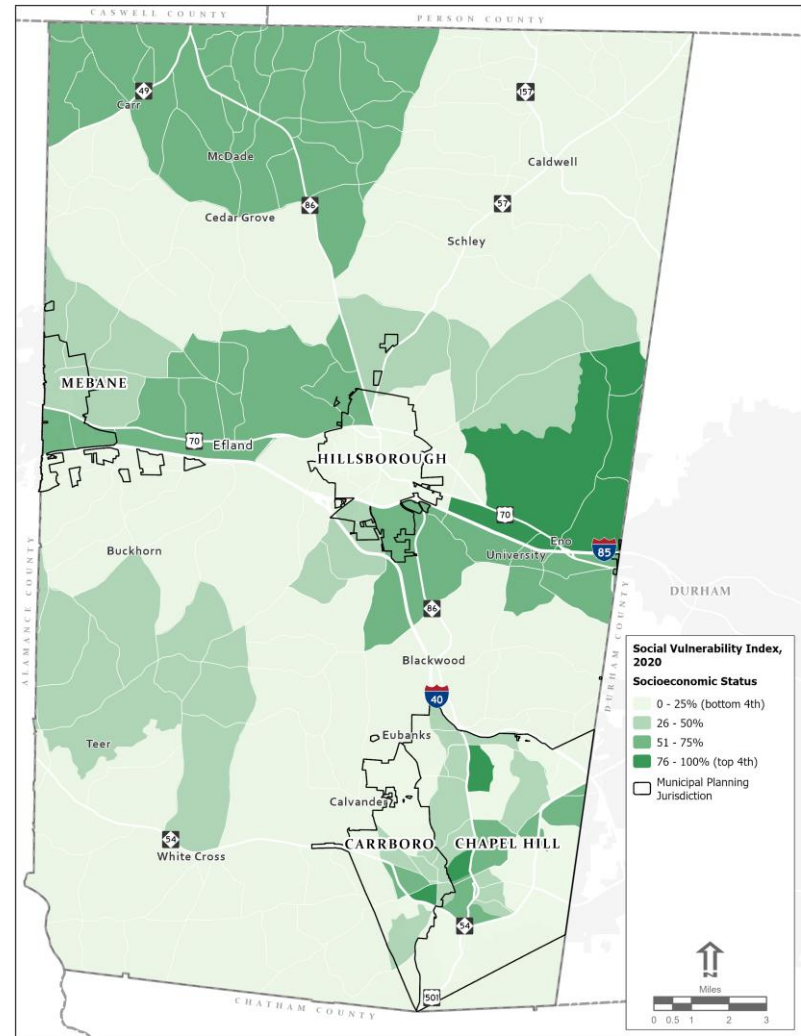
Housing Cost Burden

No High School Diploma

No Health Insurance

Unemployed

Data Source: Centers for Disease Control and Prevention  
Social Vulnerability Index



# CDC SVI: Household Characteristics

- Some demographic factors are important to consider when understanding community and individual vulnerability. Census tracts with higher vulnerability are shown in dark orange.

## Household Characteristics

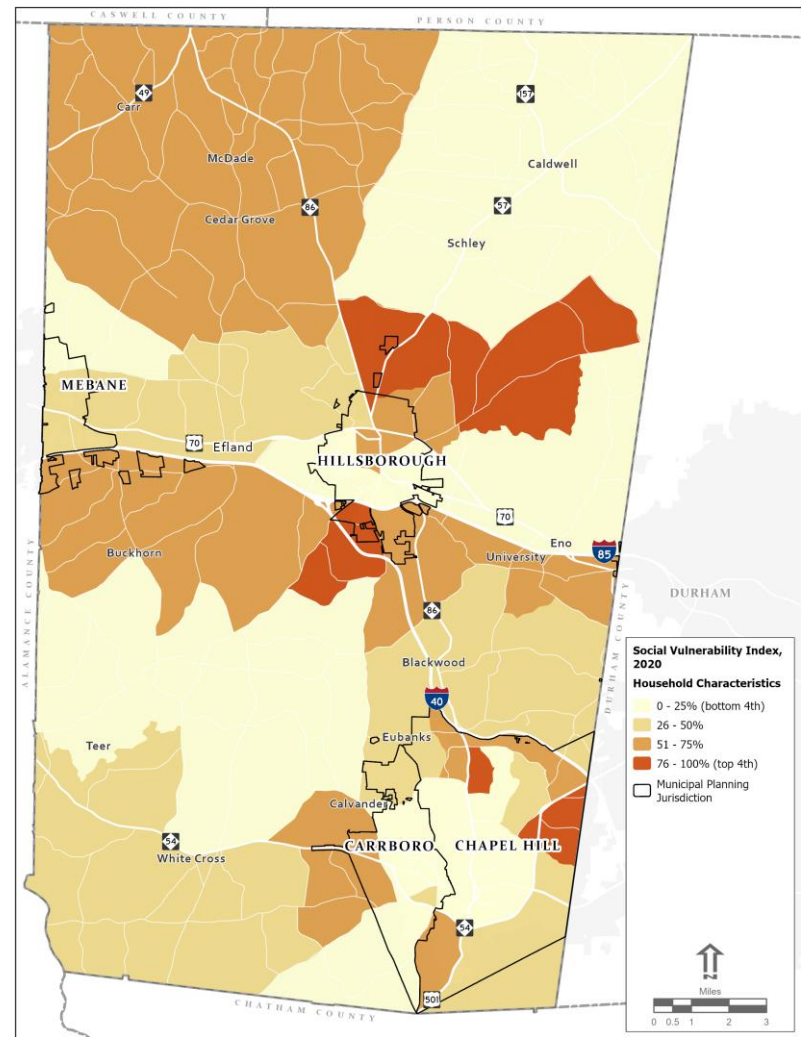
Aged 65 & Older

Aged 17 & Younger

Single-Parent Households

English Language Proficiency

Data Source: Centers for Disease Control and Prevention  
Social Vulnerability Index



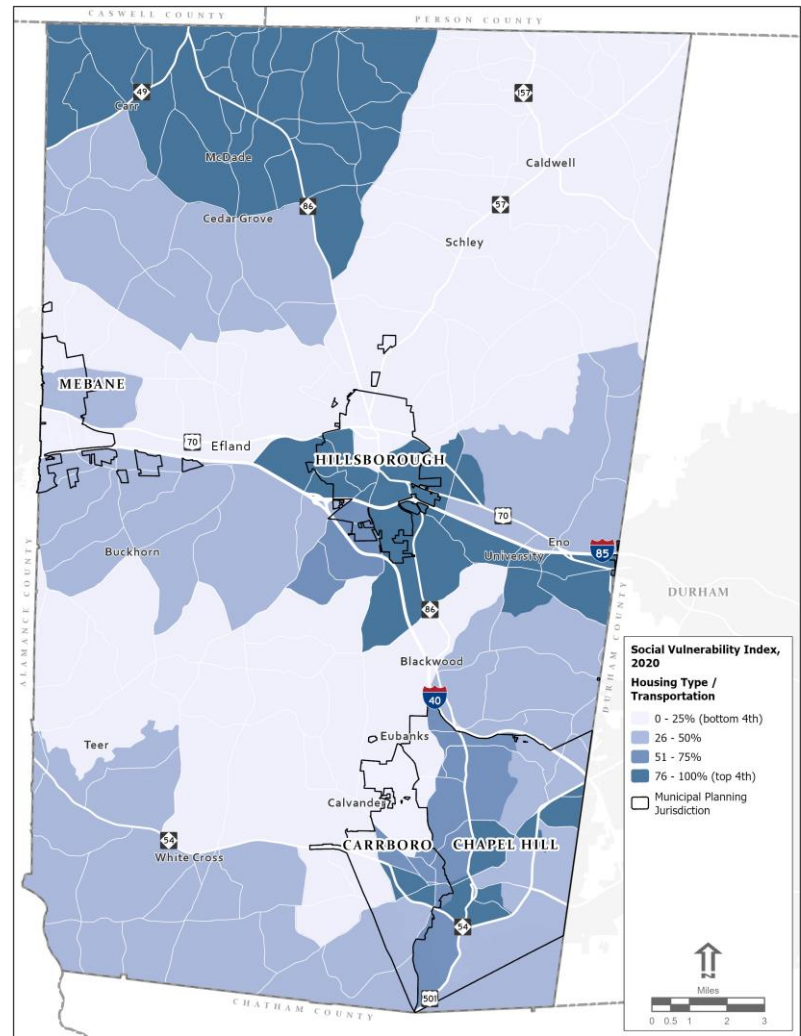


# CDC SVI: Household and Transportation

- Characteristics about housing type and transportation access can contribute to vulnerability. Census tracts in dark blue indicate higher vulnerability.

Housing Type and Transportation
Multi-Unit Structures
Mobile Homes
Crowding (More People than Rooms in a Home)
No Vehicle
Group Quarters

Data Source: Centers for Disease Control and Prevention Social Vulnerability Index

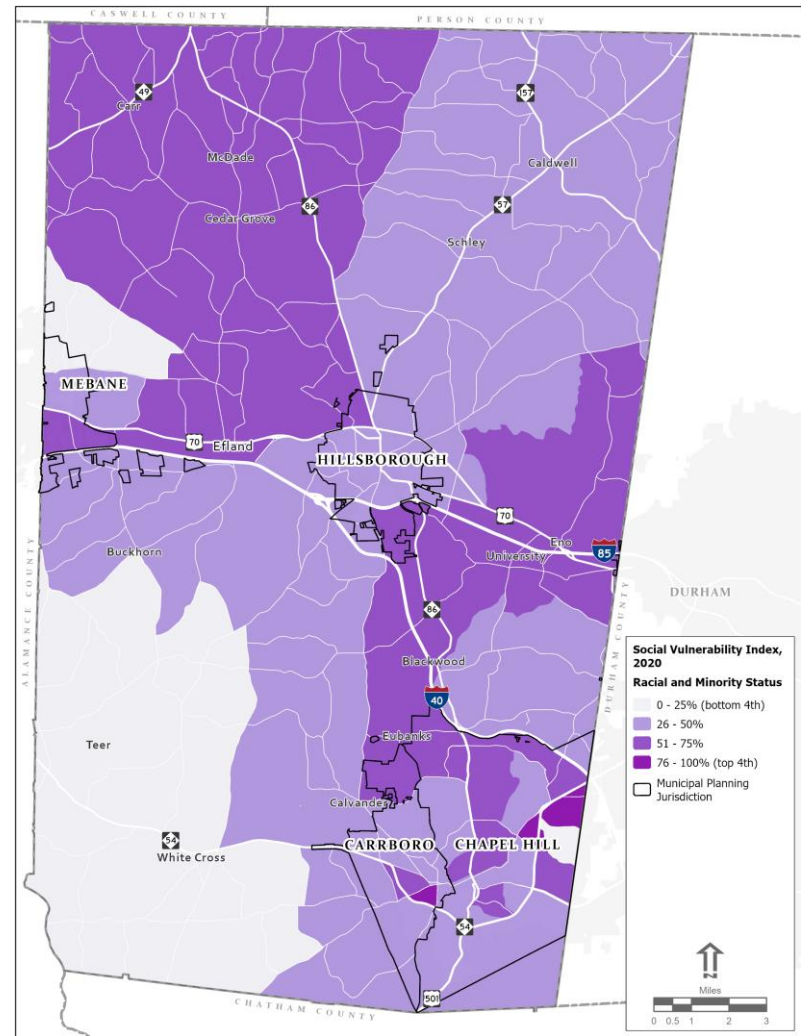


# CDC SVI: Racial and Ethnic Minority Status

- Understanding community resilience and vulnerability also requires an understanding of where historically oppressed or marginalized groups may live, show on this map by census tract.

Racial and Ethnic Minority Status
Hispanic or Latino (of any race)
Black or African American*
Asian
Native Hawaiian or Pacific Islander*
Two or more Races*
Other Races*
<i>*Not Hispanic or Latino</i>

Data Source: Centers for Disease Control and Prevention Social Vulnerability Index



# Poverty

Approximately 13% of Orange County's population lives in poverty.

- Orange County's poverty rate is higher than surrounding counties, which may be due in some part to the number of college students living in the county.

## Percent of the Population Living in Poverty

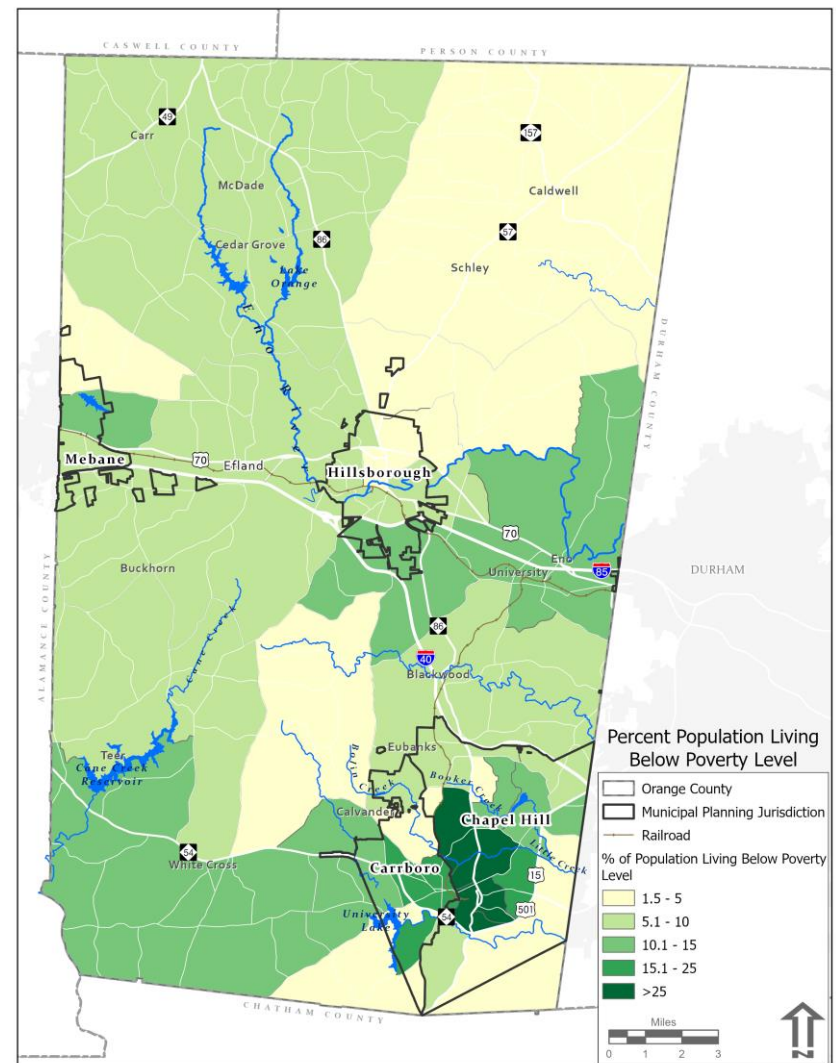
**Orange County** 13.3%

**Alamance County** 12.7%

**Durham County** 11.1%

**Chatham County** 8.9%

**Wake County** 7.5%



# Our Built Environment

Land Use and Development



# Land Area

- Unincorporated Orange County makes up the majority of land overall in the County.

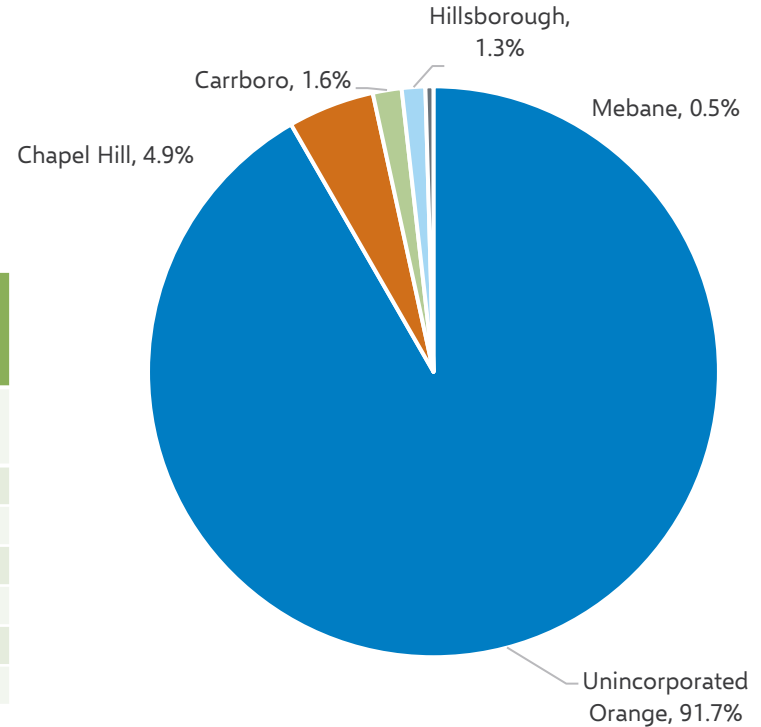
	Land Area (square miles)
<b>Unincorporated Orange County**</b>	<b>365</b>
Chapel Hill*	19.5
Carrboro	6.5
Hillsborough	5.3
Mebane*	1.8
Durham*	--
<b>Total</b>	<b>398.1</b>

\*Portion of municipality in Orange County.

\*\*Includes approximately 13 square miles in the municipal ETJs.

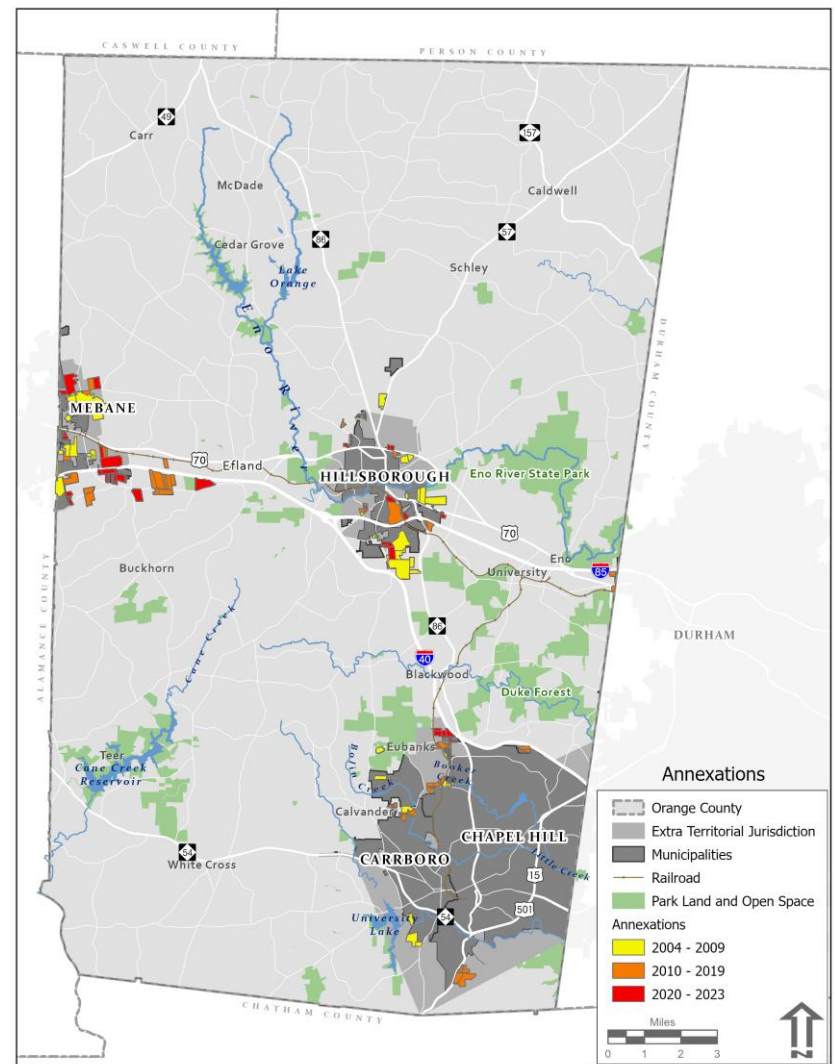
Data Source (Land): Orange County 16th Annual State of the Community Report, September 2023

Orange County Land Area by Jurisdiction



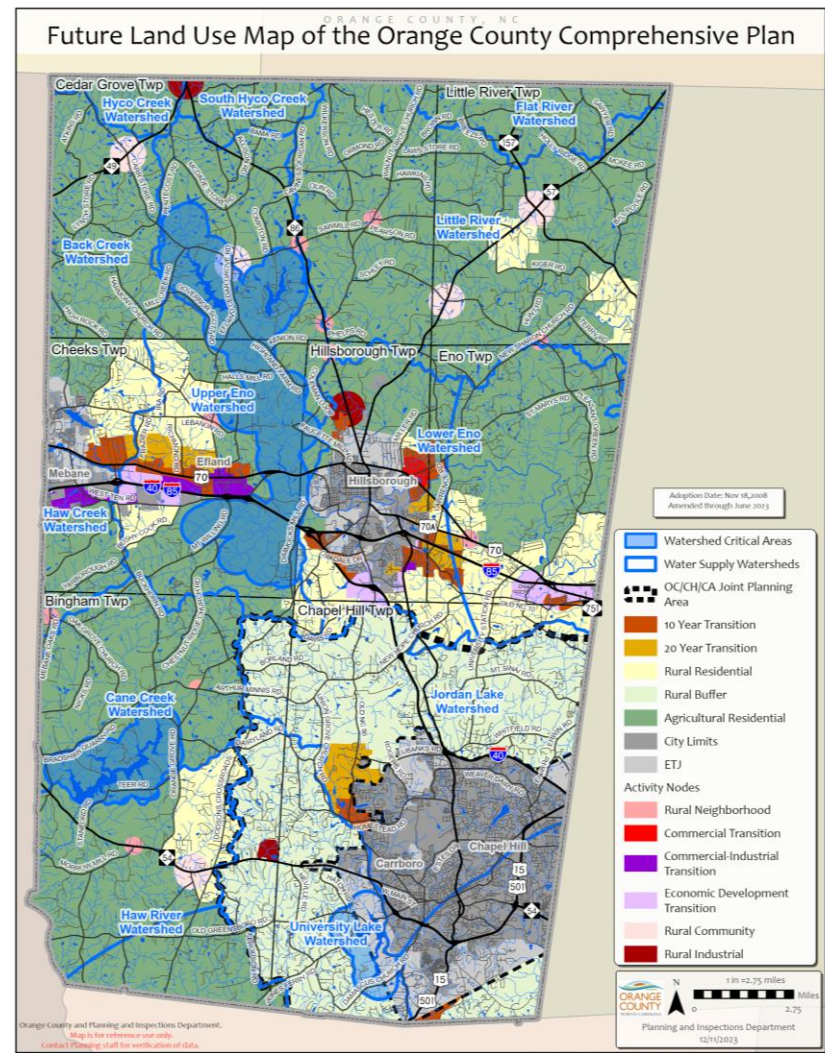
# Annexations

- **3,071 acres have been annexed since 2004.**
  - **421** acres have been annexed by Chapel Hill.
  - **209** acres have been annexed by Carrboro.
  - **927** acres have been annexed by Hillsborough.
  - **1,490** acres have been annexed by Mebane.
  - **24** acres have been annexed by Durham.



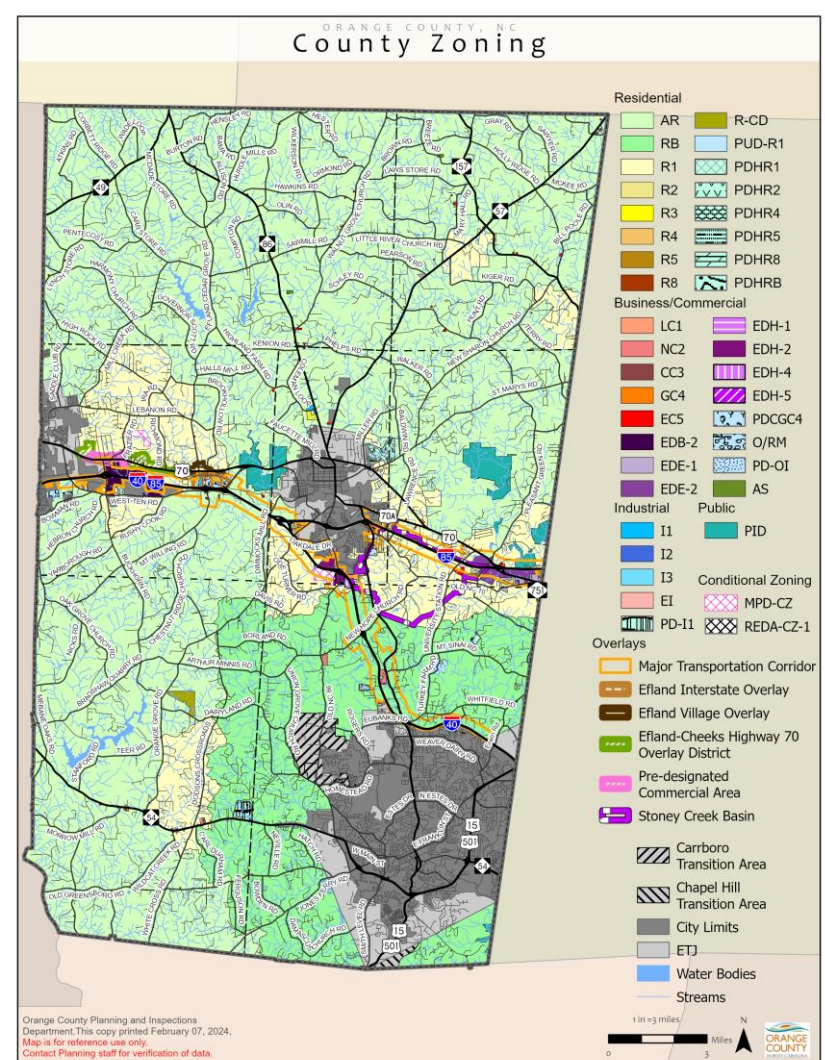
# Future Land Use

- Chapter 160D of the North Carolina General Statutes authorizes counties and municipalities to adopt and enforce local development regulations. In order to enforce development regulations, a county or municipality must also have an adopted land use plan.
- A land use plan uses text and maps to designate the future use or reuse of land.
- Orange County's **Future Land Use Map (FLUM)** is a map showing the character for different parts of the county that is envisioned in the future. The Future Land Use classifications are not binding.
- You can view the currently adopted FLUM [online at this link](#).



# Zoning

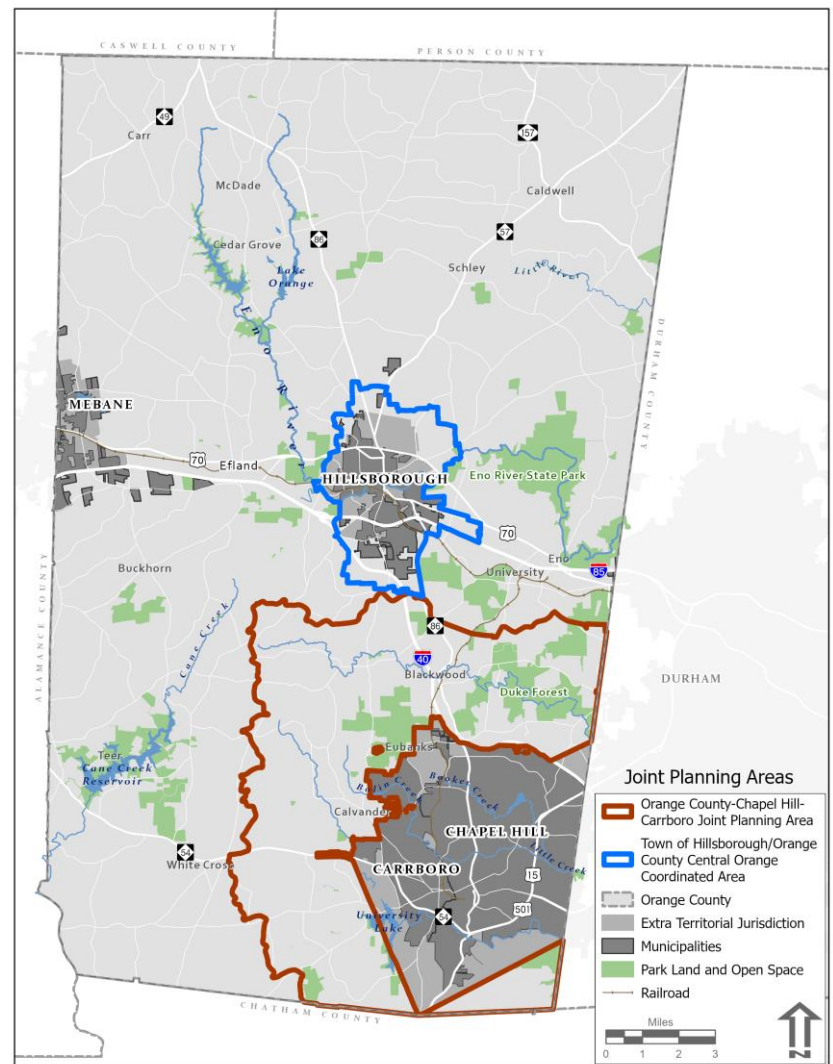
- The **zoning map** shows where different regulations that govern development of land apply.
- **Rezoning**s change the binding zoning map and are intended to bring proposed development in line with the vision shown in the Future Land Use Map.





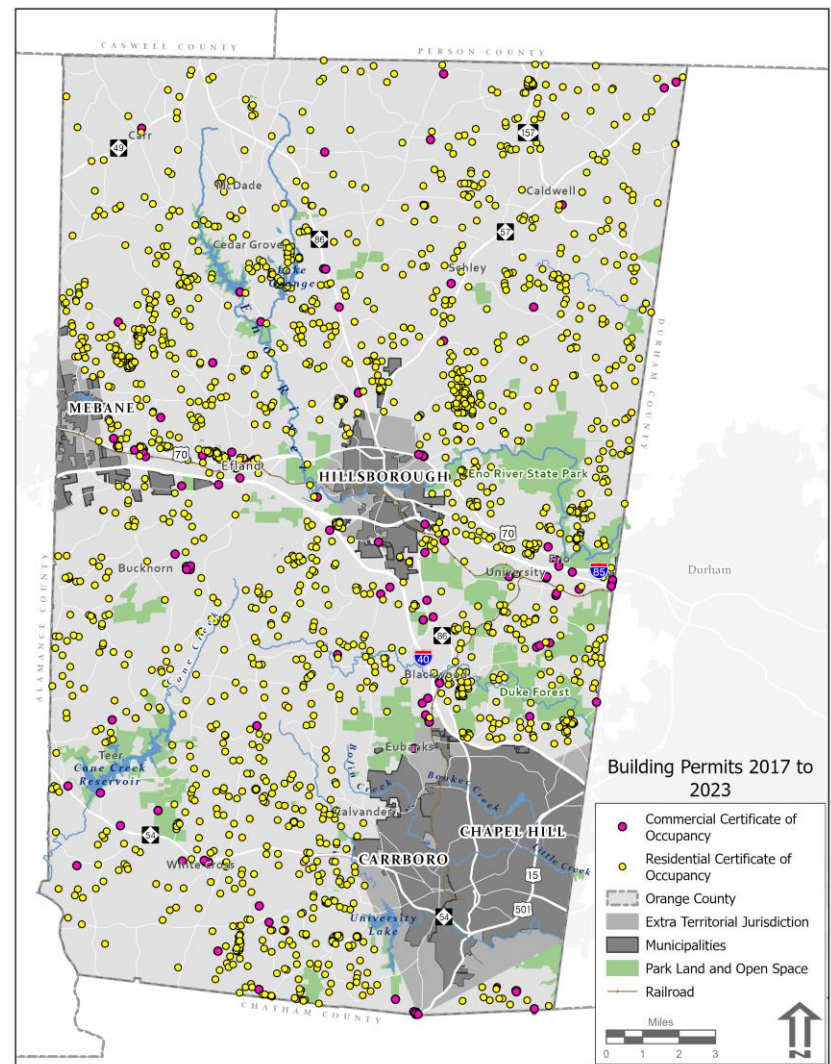
# Joint Planning Area

- Carrboro, Chapel Hill, and Orange County signed a Joint Planning Agreement in 1987 to manage development by designating growth areas and areas of restricted development.
  - Red outline on the map
- This created the **Rural Buffer**, within which development is restricted to one dwelling per two or five acres, depending on the watershed.
- The Town of Hillsborough and Orange County Central Orange Coordinated Area (COCA) is used to determine the consistency of any proposed rezoning request within the Town and County future land use visions.
  - Blue outline on the map



# Building Permits

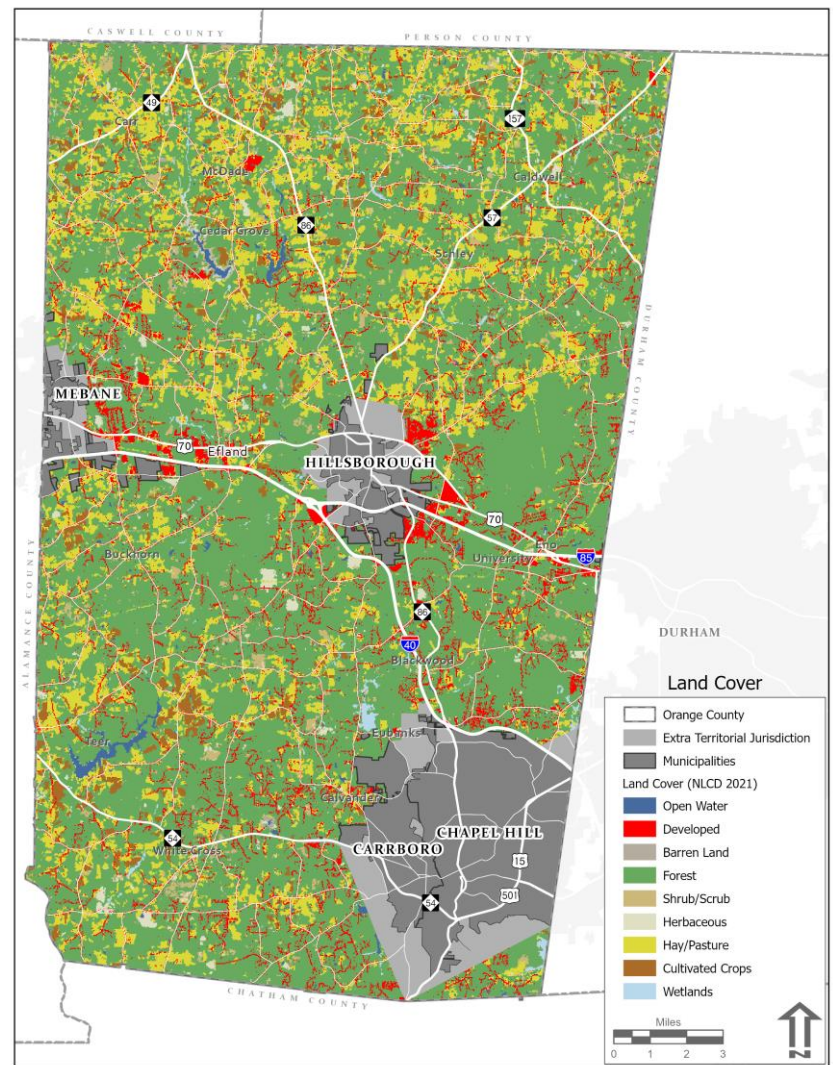
- **2,072 certificates of occupancy** have been issued by Orange County since 2017.
  - **1,896** for residential properties (yellow dots on the map)
  - **176** for commercial properties (red dots on the map)



# Developed Lands

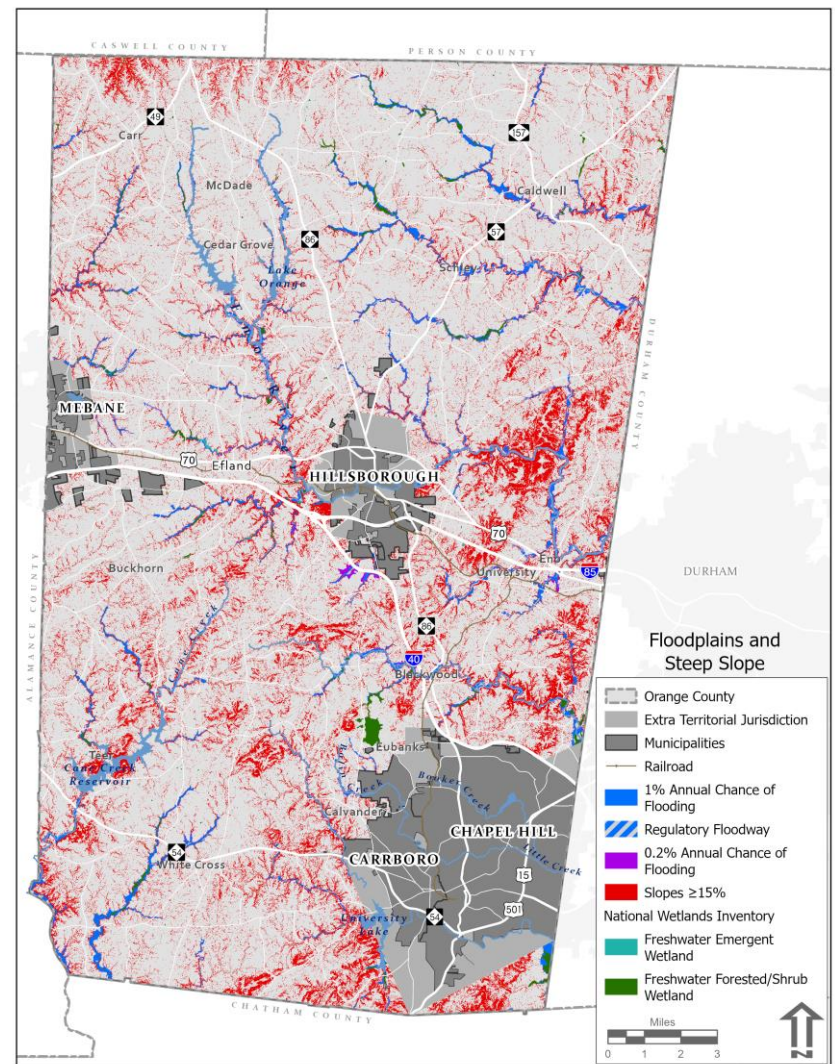
- The map on the right identifies developed lands in shades of red.
- Residential and commercial development exists primarily along the I-85 corridor near Mebane, Hillsborough, and Durham.

Data Source: National Land Cover Database (NLCD) 2021 Land Cover Conterminous United States



# Development Suitability

- **Steep Slopes** (>15%) are prone to erosion and not ideal for development.
- **Floodways** are also unsuitable for development, because of flooding and runoff from development that can contaminate waterways.
- Orange County does not allow development in the 100-year floodplain.

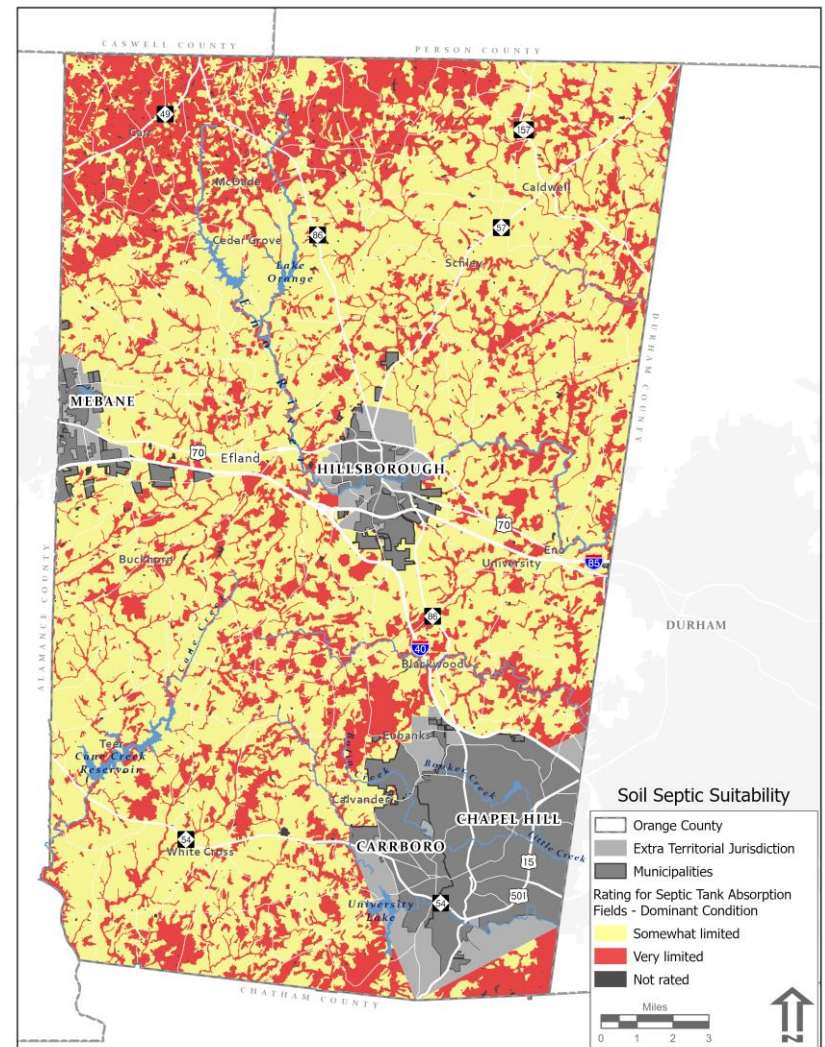


# Soil Septic Suitability

- Residences require either access to a public sewer system or a septic tank treatment system to treat and dispose of sewage.
- If a septic system is needed, the soil must be deemed suitable. Unsuitable soils usually malfunction by leaking raw, untreated sewage or contaminating groundwater.
- The map on the right shows the dominant condition for the soil rating for septic tank absorption fields in Orange County.

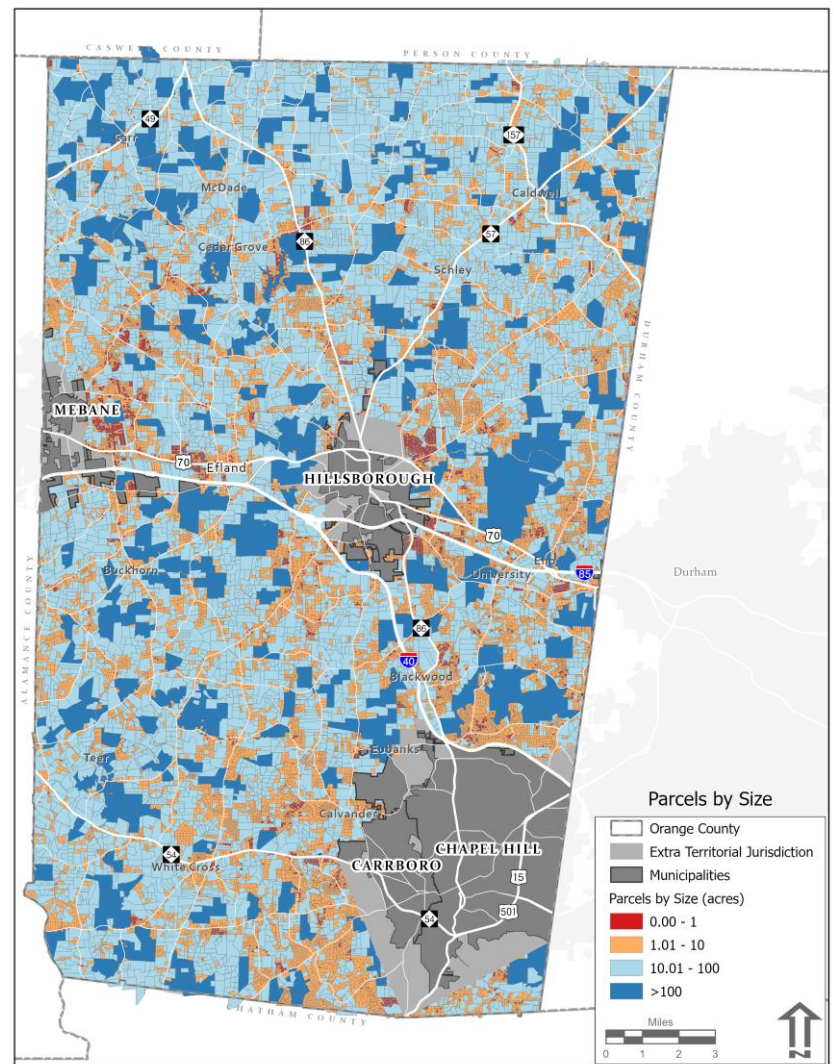
For further reading about septic systems, see [the NC State Extension resources online.](#)

Data Source: USDA Natural Resources Conservation Service Soil Survey



# Current Development Pattern

- Orange County's current land pattern by parcel size is shown in the map on the right.
- Dark blue areas are larger parcels (100 or more acres).



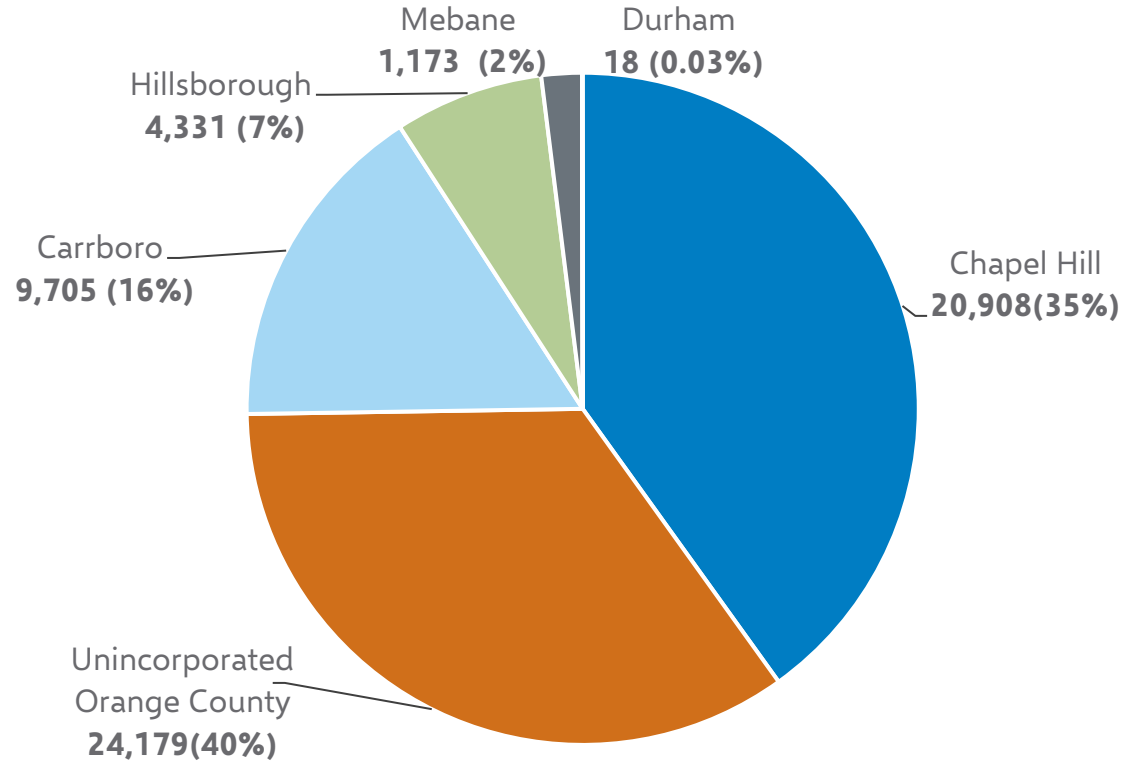
# Our Built Environment

Housing



# Housing Units

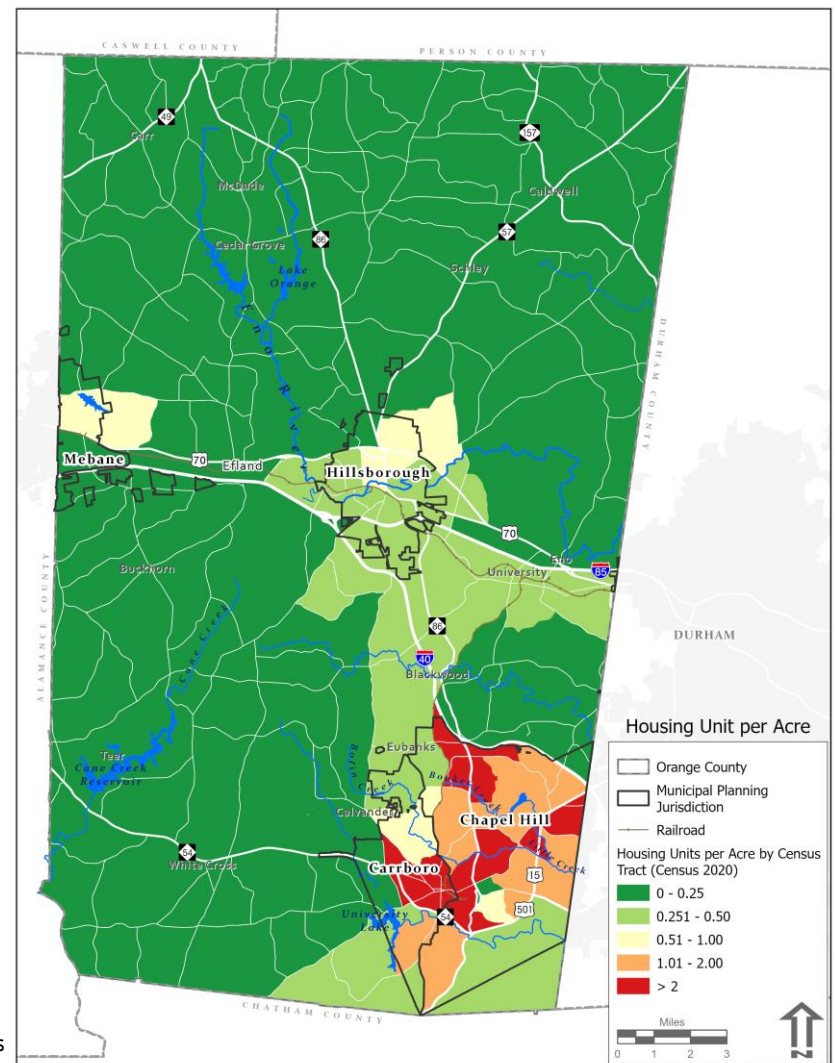
- There are a total of **60,314 housing units** in Orange County.
- The greatest number of housing units are located in unincorporated Orange County, followed by Chapel Hill.





# Low-Density Housing

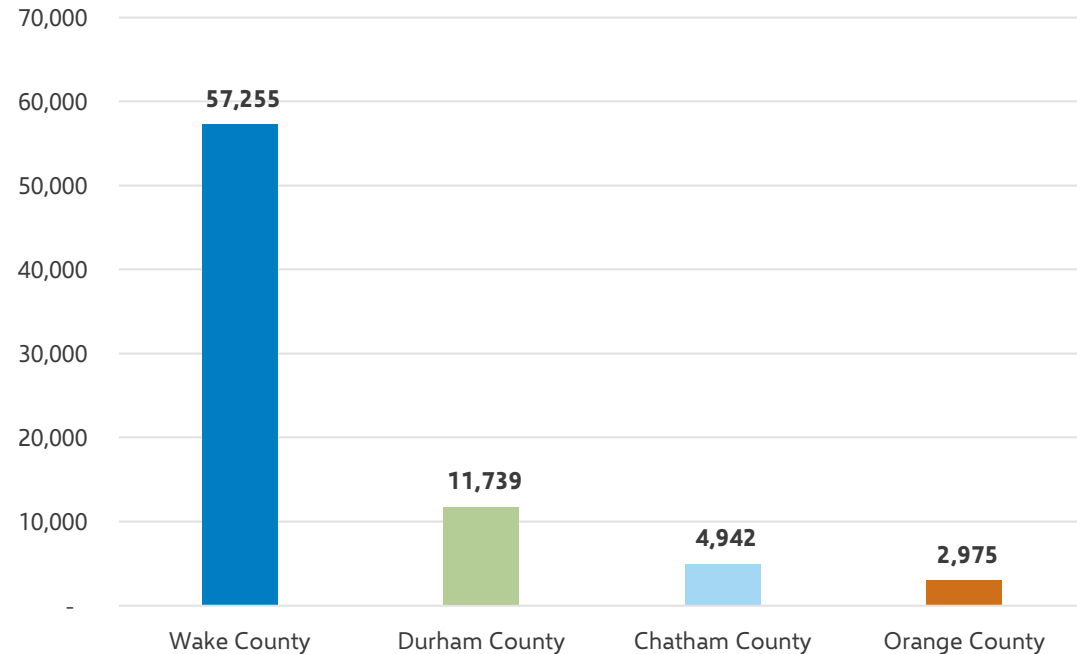
- Unincorporated Orange County has only two census tracts where the density of development is greater than one unit per acre.
- (For comparison, a football field is about 1.32 acres).



# New Housing Development

- Fewer for-sale housing units have been built in Orange County in comparison to nearby counties.
- Housing supply is a key factor in housing affordability.

Number of New for Sale Housing Units Built Between January 2010 and June 2023

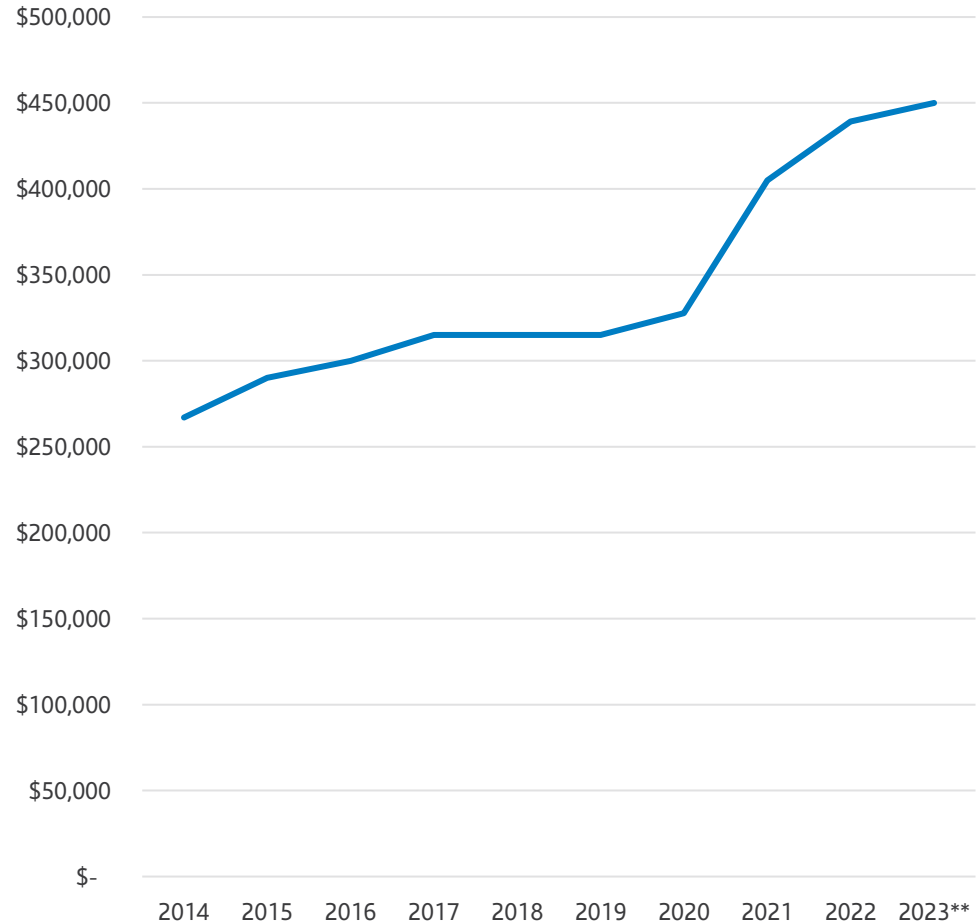


# Housing Value

- Between 2014 and 2023, the median housing price in Orange County increased by **80%**.
- The steepest increase in value was from 2020 to 2021, during the initial onset of the **COVID-19 Pandemic**.

Data Source: American Community Survey 2021, 5-Year Estimates

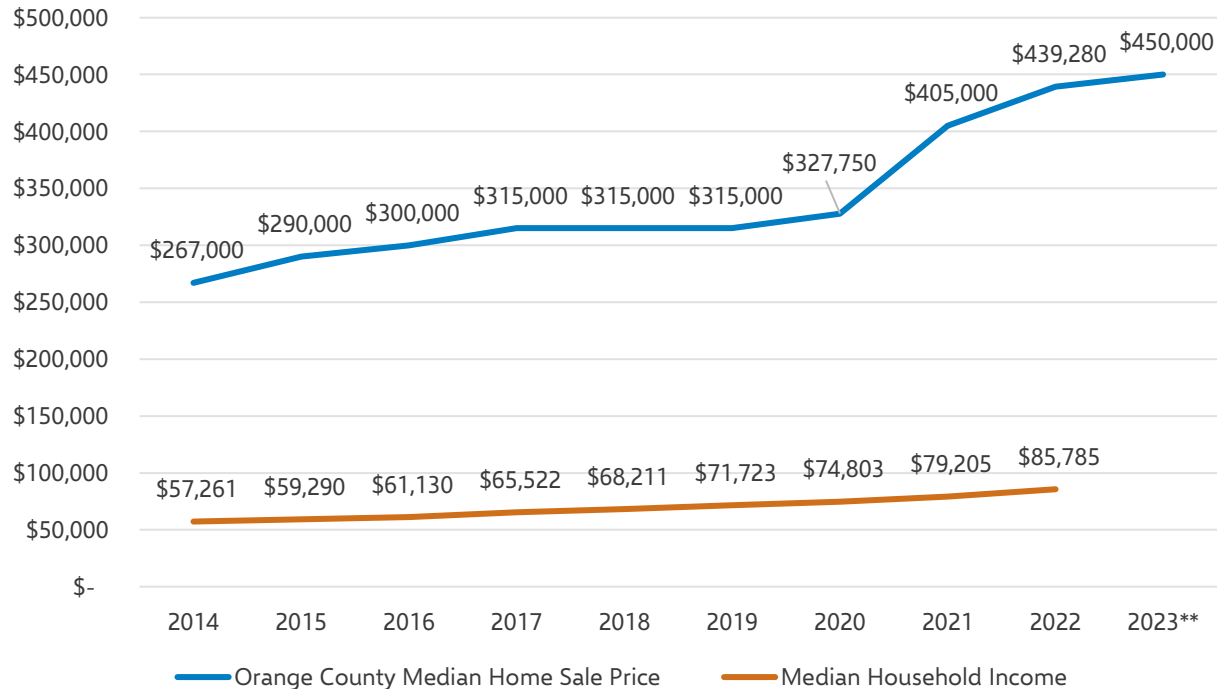
Orange County Median Home Sale Price



# Housing Price and Income

- The median homes sales price in Orange County **continues to increase**, while median household income has not proportionately increased.

Orange County Median Home Sales Price Compared to Household Income (2014-2023)

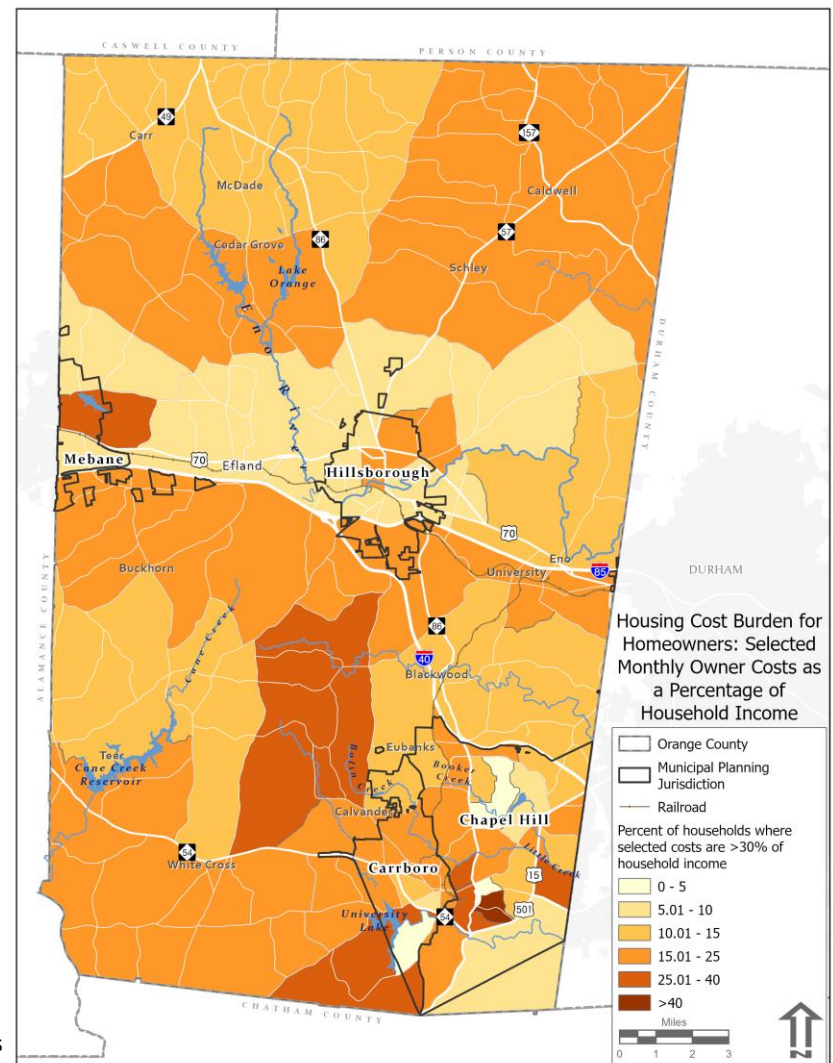


\*\*Data available January – June 2023 for median home sales price.

Data Source (Home Prices): Orange County 16th Annual State of the Community Report, September 2023  
Data Source (Household Income): American Community Survey 5-Year Estimates, 2014-2022

# Housing Cost Burden for Homeowners

- Based on Census data, this map shows monthly owner costs as a percentage of household income.
- Housing cost burden is defined as spending more than 30% of income on housing costs.



# Affordability for Renters

- Approximately **36% of Orange County residents are renters.**
- The percentage of renters who are cost-burdened (spend more than 30% of income on housing) has declined across our region, **except for in Orange County.**

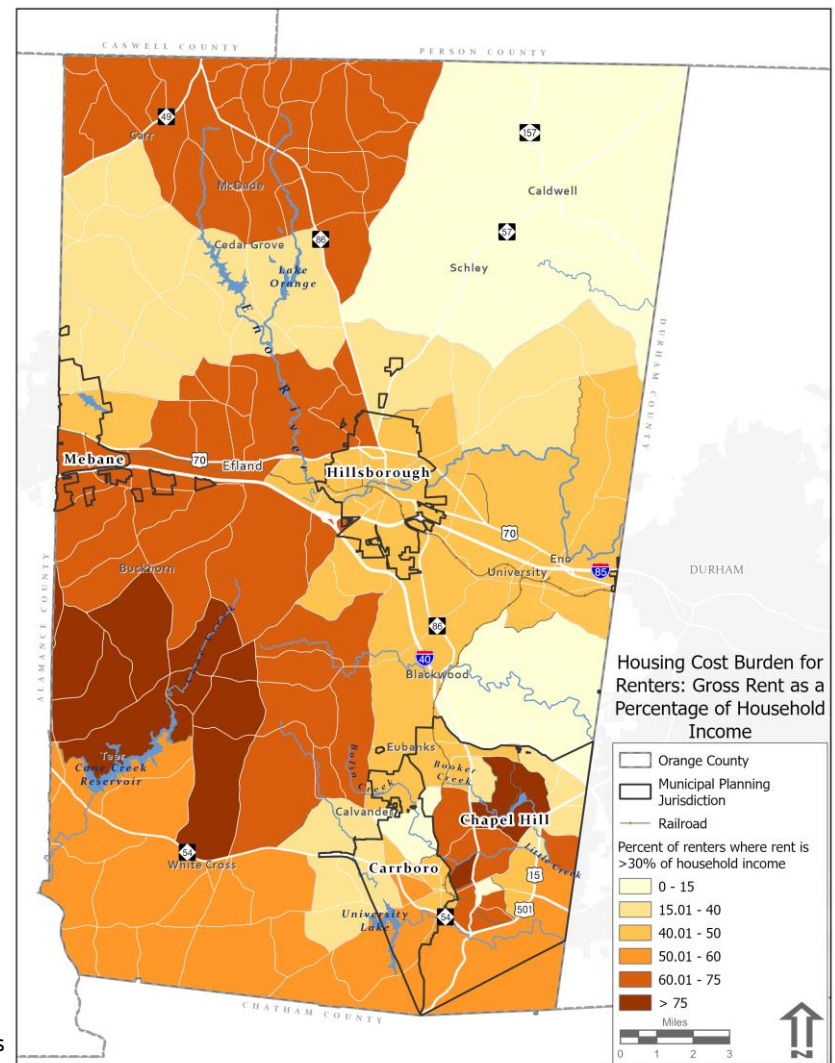
Chapel Hill and Carrboro Income and Rent Statistics		
2023 (Q2)	Average 1 Bedroom	Average 2 Bedroom
Average Rent	\$1,385	\$1,563
Hourly income needed to afford monthly rent	\$26.64/hour	\$30.06/hour
Annualized income needed to afford monthly rent	\$55,404	\$62,520
Number of hours at minimum wage to afford monthly rate	147 hours a week	166 hours a week

Data Sources (Left): Orange County 16th Annual State of the Community Report, September 2023; American Community Survey 2021, 5-Year Estimates

Data Sources (Right): Eller Capital; Chamber for a Greater Chapel Hill-Carrboro

# Housing Cost Burden for Renters

- Based on Census data, this map shows gross rent as a percentage of household income.
- The darker orange areas identify census tracts where more renters may be cost burdened.



# Our Transportation Systems

Roadways, Transit, and  
Infrastructure Investments





# Transportation and Land Use Planning

- Land use planning for the Orange County Land Use Plan 2050 requires coordination with other processes, like **transportation planning**.
- Linking transportation and land use guides community growth and development to coordinate systems that support:
  - **Multimodal** systems and **safety** for all users, including **pedestrians** and **bicycles**
  - **Mobility** and **connectivity**
  - **Public transportation** services
  - **Road network** connectivity

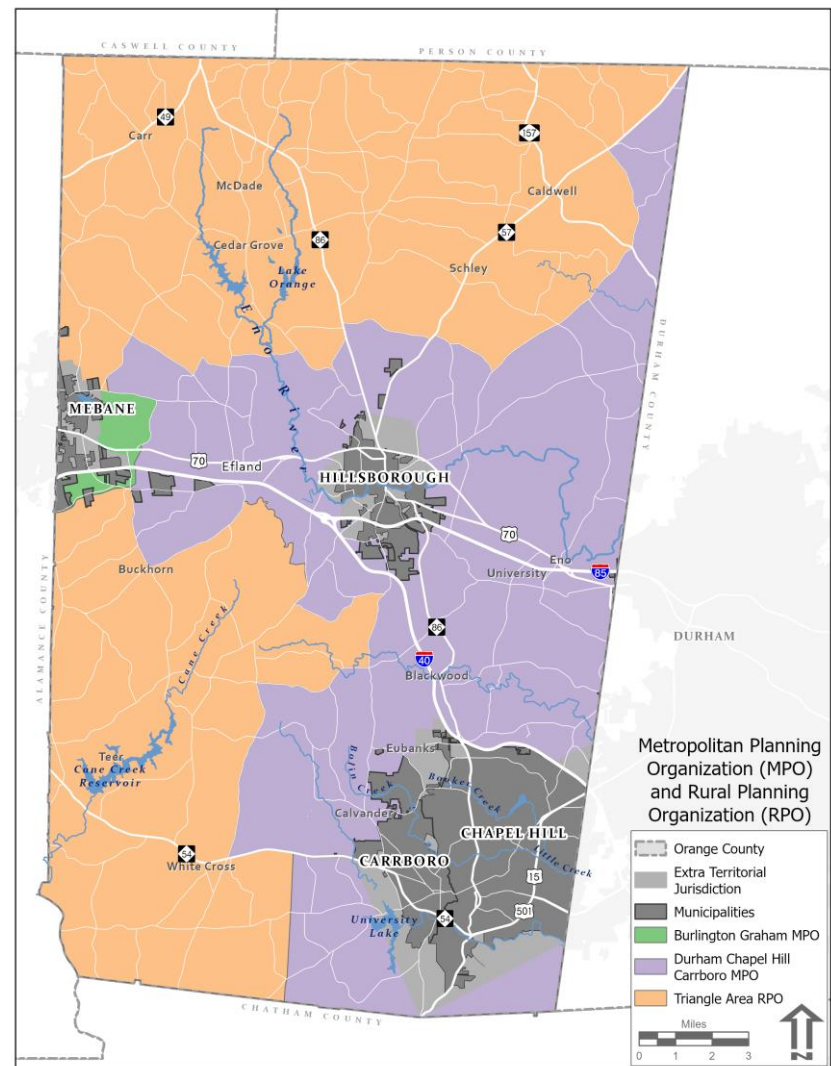
# Transportation and Land Use Planning

- Transportation will be a priority in Land Use Plan 2050, with a separate chapter dedicated to multi-mobility (bicycle and pedestrian, freight, rail, and vehicular transportation).
- The County is currently undertaking the development of a **Transportation Multimodal Plan** and a **Countywide Bicycle and Pedestrian Plan**.
  - This will be a joint effort between Orange County, Burlington-Graham Metropolitan Planning Organization, Durham-Chapel Hill-Carrboro Metropolitan Planning Organization, Central Pines Rural Planning Organization, and North Carolina Department of Transportation Integrated Mobility Division.
- Comprehensive transportation plans (CTPs) for the parts of Orange County within TARPO, BG-MPO, and DCHC's jurisdictions.

# Metropolitan and Rural Planning Organizations

- A Metropolitan Planning Organization (MPO) is the policy board of an organization that carries out metropolitan transportation planning. MPOs are required for all urbanized areas with populations over 50,000.
- A Rural Planning Organization (RPO) coordinates transportation planning for rural areas that are not within an MPO.
- Orange County is covered by:
  - the Burlington Graham MPO
  - Durham Chapel Hill Carrboro MPO
  - Triangle Area RPO

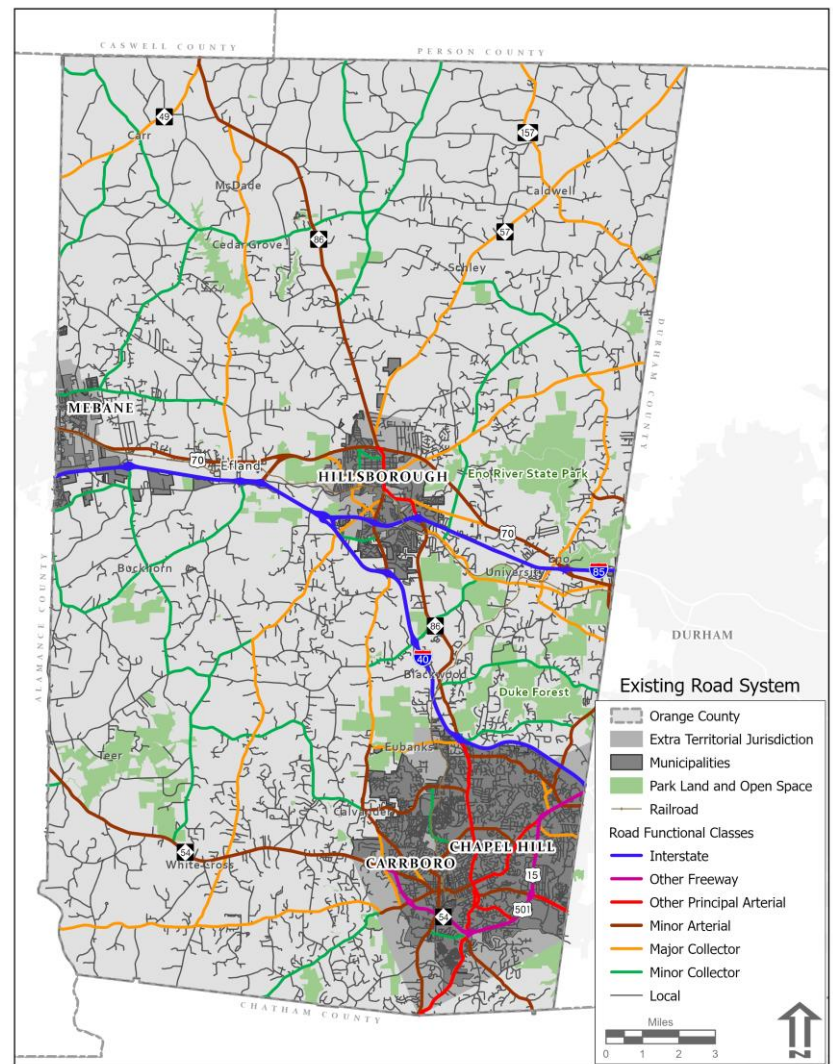
Source: North Carolina Department of Transportation



# Existing Road System: Functional Roadway Classifications

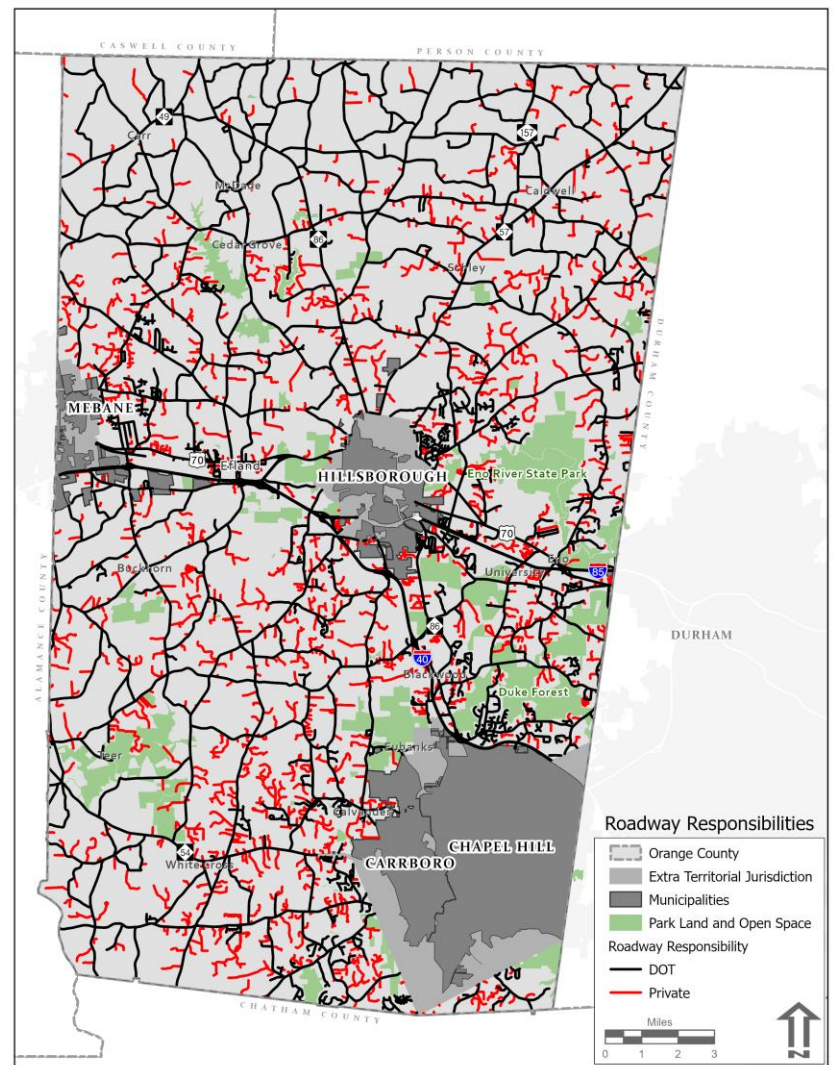
- Over 3,000 centerline miles of roads in Orange County are divided into several classifications.
  - Most roads in the county are:
    - **Minor Arterials** (more significant highways)
    - **Major and Minor Collectors** (includes lesser highways)
    - **Local** (all private roads; more rural local roads)
  - **Principal Arterials** are located within some municipalities and include roads like NC 86 in Chapel Hill.

Source: North Carolina Department of Transportation



# Roadway Responsibilities

- Almost all roads in the county are controlled by the state, so partnering with NCDOT for any desired improvements is critical.
- Town-County partnerships are also important to meet transportation goals.
- Strong representation on Metropolitan and Rural Planning Organizations is securing transportation investment in the County.
- Privately controlled roads are short in length and provide access to individual properties and small subdivisions.

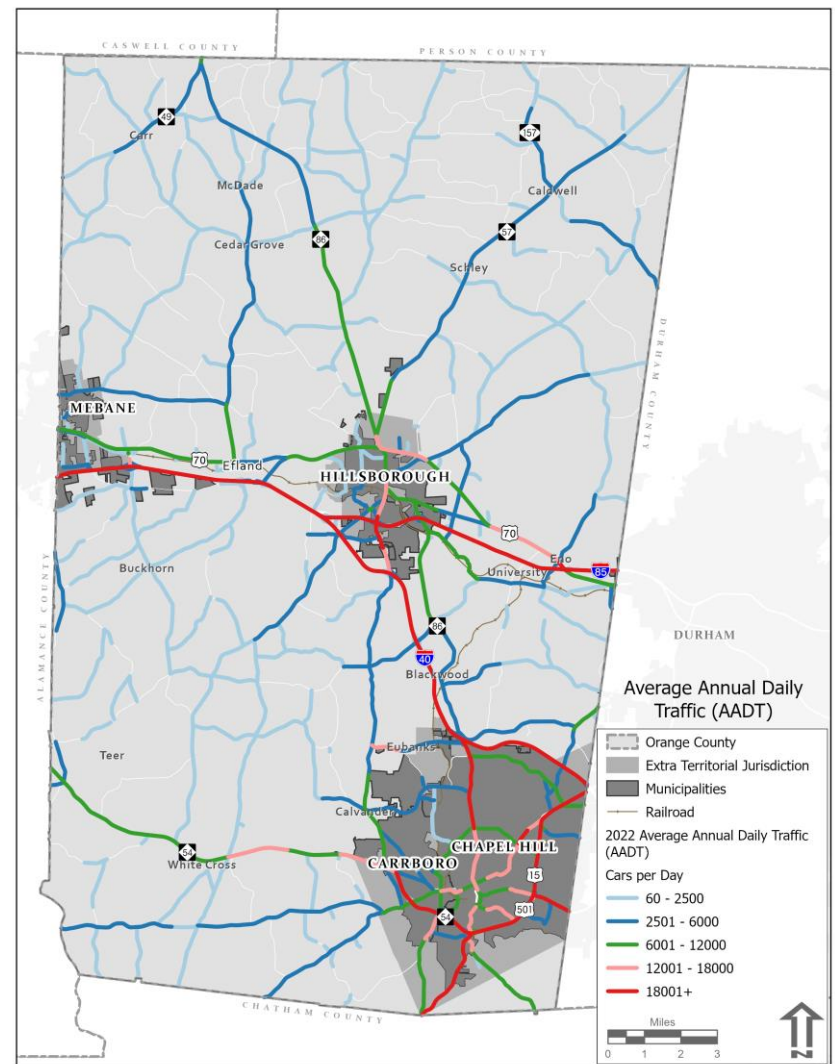


# Average Annual Daily Traffic (AADT)

**AADT = The number of vehicles traveling daily on select road segments, averaged over a year.**

- As of 2022, most roads in the county carried less than 6,000 vehicles/day, and many in the most rural areas were used by 2,500 or fewer.
- The most-traveled non-Interstate road segments in 2022 included parts of highways 54, 86, and 70, among others.
- AADT is one of the primary variables used in determining Transportation Planning and Funding, Level of Service, Congestion, and key in Traffic Impact Analysis for local development review.

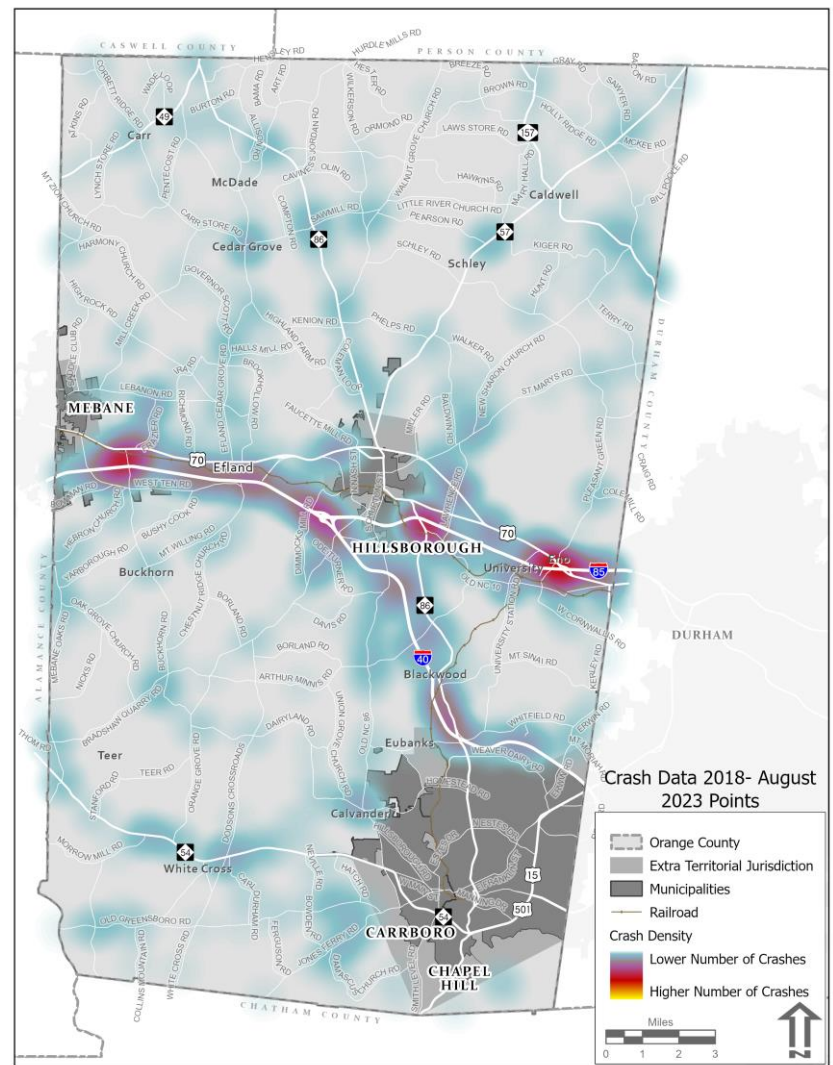
Data Source: North Carolina Department of Transportation



# Crash Hotspots

The brighter-colored areas show where a higher number of crashes occurred between 2018 and 2023.

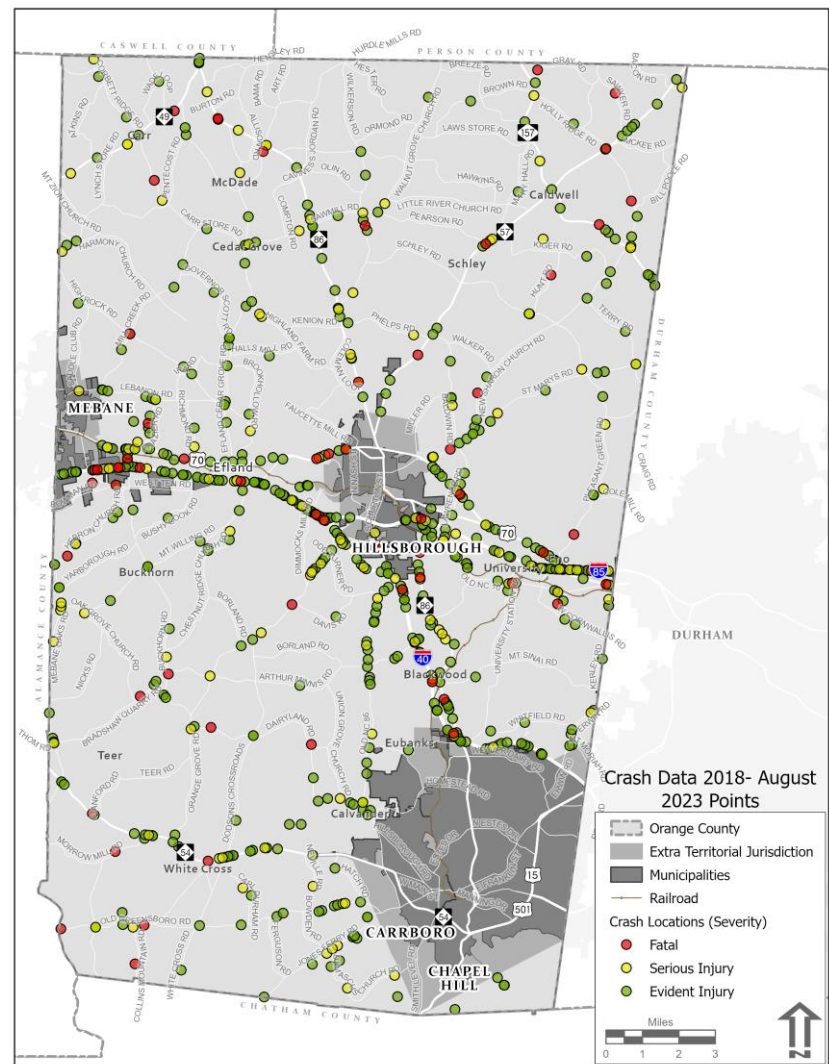
- Most crashes occur within municipalities, but hotspots are visible along the interstates and heavily travelled highways.
- While fewer, some crash hotspots are scattered in the rural parts of the county, such as in White Cross.
- Rural hot spots are increasing in number and severity (fatalities and serious injuries) based on recent analysis in the County's Transportation Multimodal Plan.



# Crash Types

Fatal crashes and crashes causing injury from 2018-2023 are shown in red and green/yellow.

- Fatal and serious injury crashes are occurring at key intersections and along arterial roads, but also are spread throughout the county.
- **Implementing the County's Complete Street and Vision Zero policy** could reduce the number of deadly and injury-causing crashes.

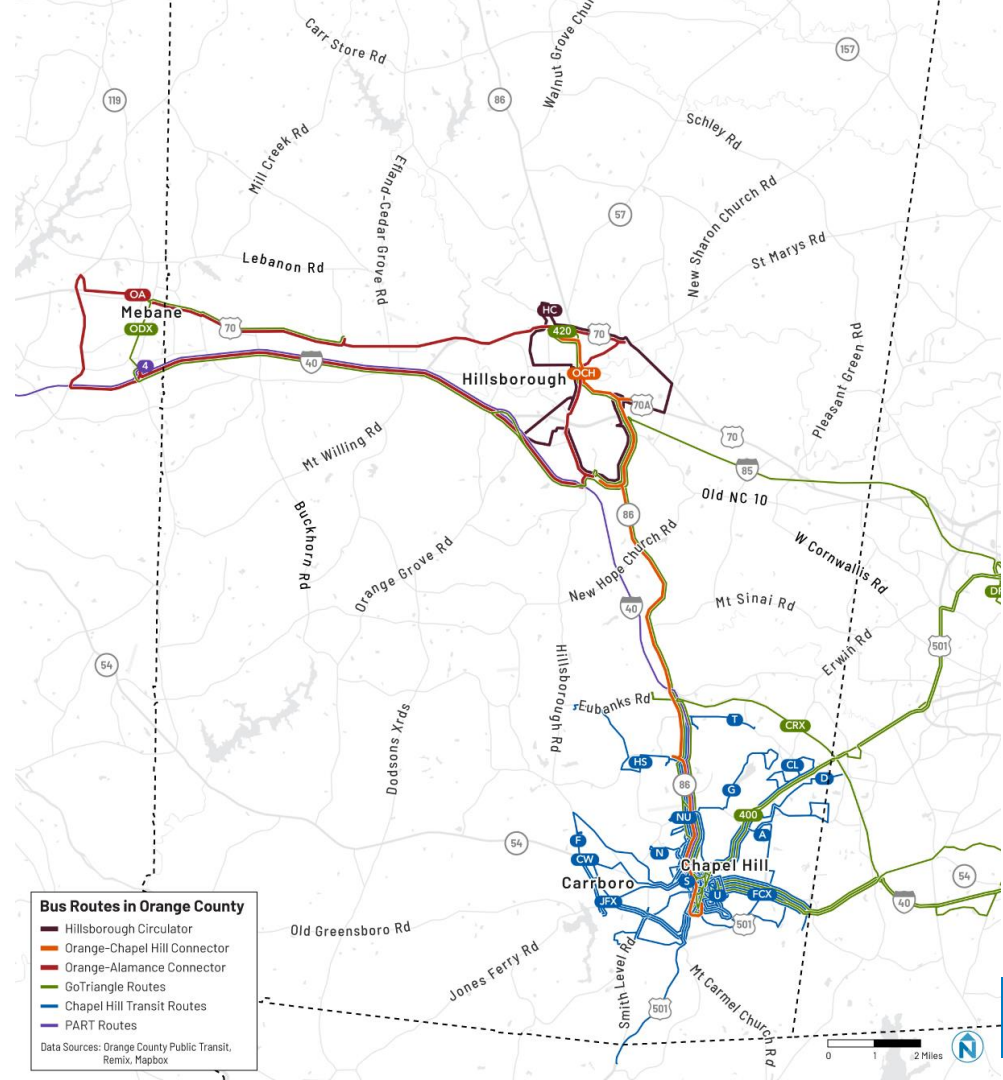




# Existing Transit System: Fixed-Route Buses

Orange County is served by multiple transit providers, including:

- Orange County Public Transportation
- Chapel Hill Transit
- GoTriangle
- PART: Route 4 | Alamance-Burlington Express 4

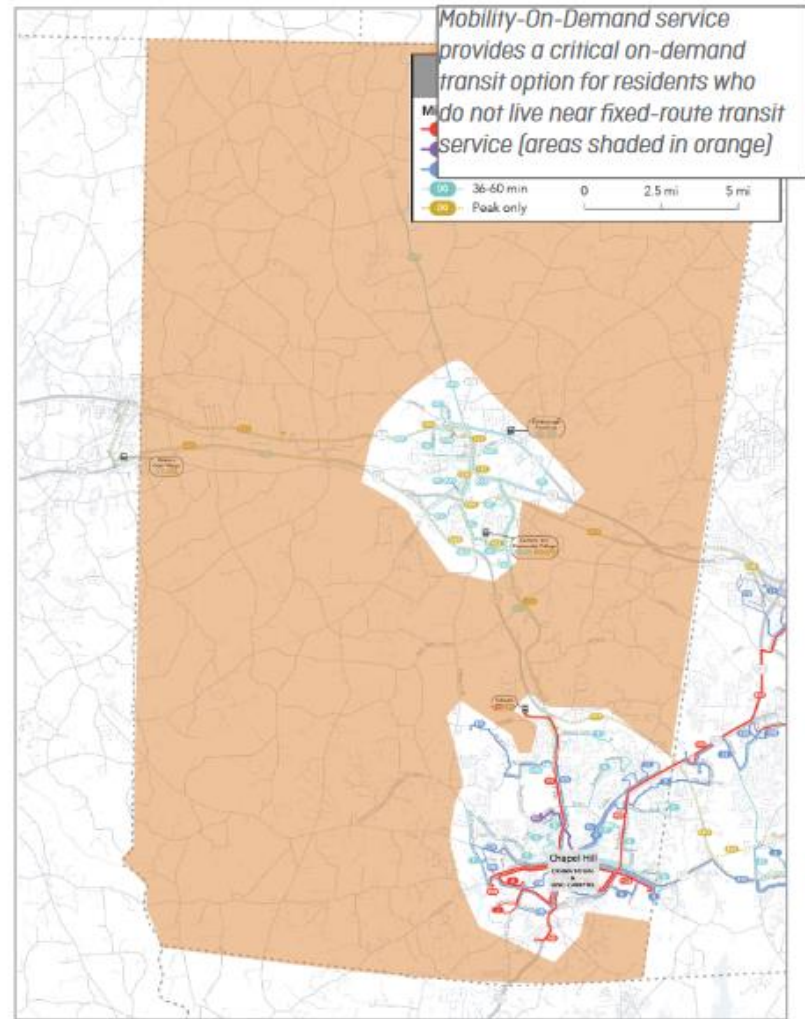


Map Source: Orange County Transportation Services and Nelson Nygaard

# Existing Transit System On-Demand Service

**Orange County's Mobility-On-Demand service (MOD)** provides rides at the request of riders, like Lyft or Uber, and is operated by Orange County Public Transportation.

- MOD covers predominately rural areas not served by fixed-route bus services today.
- This service expanded to six days a week in May 2023.



# Planned Transit System

The Next Generation Transit Vision Map shows currently planned transit projects in the county out to 2050.

- Projects in Orange County include express bus improvements, Bus Rapid Transit (BRT) projects, and more. Many of these projects are not yet funded.
- The in-progress US 70 Multimodal Corridor study could bring more transit to Orange County.

## NEXT GENERATION TRANSIT VISION MAP

### Legend

Commuter Rail Transit (CRT) - - -

North-South Bus Rapid Transit (N-S BRT) ———

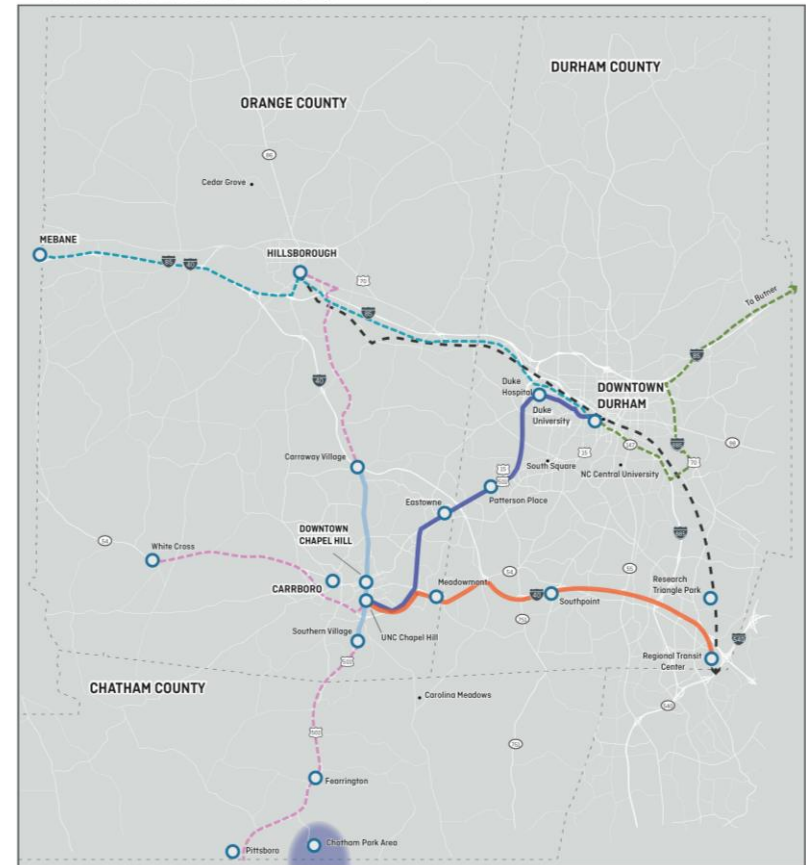
Durham/Chapel Hill Bus Rapid Transit (BRT) ———

Chapel Hill/ RTP Bus Rapid Transit (BRT) ———

Express Bus Corridors (2040) - - -

Express Bus Corridors (2050) - - -

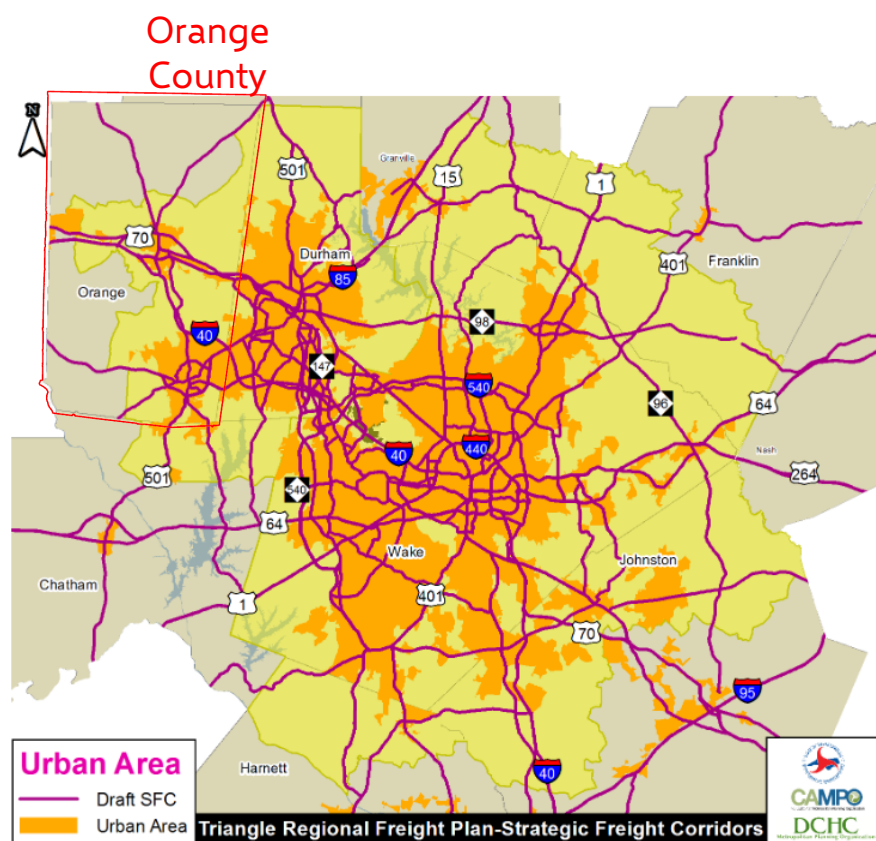
Express Bus to Mebane - - -





# Freight and Freight Corridors

- I-40 and I-85 are the two most important road freight routes in the county, along with 15/501.
- Several **Strategic Freight Corridors** run through the county (NC 86, US 70, NC 54, NC 57, NC 49, and US 15/501).
- Future road investments will improve the freight system.
- The North Carolina Railroad carries freight trains through the county daily.



Note 1: SFC 1.0 Network includes 1,040 miles within the Urban Area and 110 miles within the Rural Area for a total of 1,150 miles within the two MPO boundaries (DCHC MPO and CAMPO). This total mileage includes 155 miles of Interstates.

Note 2: Urban Area is the term for urbanized areas (UAs) and urban clusters (UCs). UAs consist of densely developed areas that contain 50,000 or more people. UCs consist of densely developed areas that have at least 2,500 people but fewer than 50,000 people. The Census Bureau defines urban areas once a decade after the population totals for the decennial census are available, and classifies all territory, population, and housing units located within a UA or UC as urban and all areas outside of a UA or UC as rural.

# Planned Road Investments: STIP

The **State Transportation Improvement Plan, or STIP**, includes transportation projects from around the state selected for funding during a specified time period.

- This data-driven process prioritizes the state's limited funding for multimodal improvements for projects across the state, including transit, bike/ped, rail, aviation, and all other modes.



Images Source: NCDOT, 2024-2033 STIP

## About the 2024-2033 State Transportation Improvement Program

The current State Transportation Improvement Program, which identifies transportation projects that will receive funding between 2024 and 2033, is made up of 2,362 projects, including 609 non-highway projects, in every county across the state.

# Planned Road Investments: STIP

- In April 2023, the Board of County Commissioners endorsed a list of projects to be submitted for consideration during the STIP update process.
- The resolution, which contains the project list, is [available at this link](#).
- This list is updated every two years.

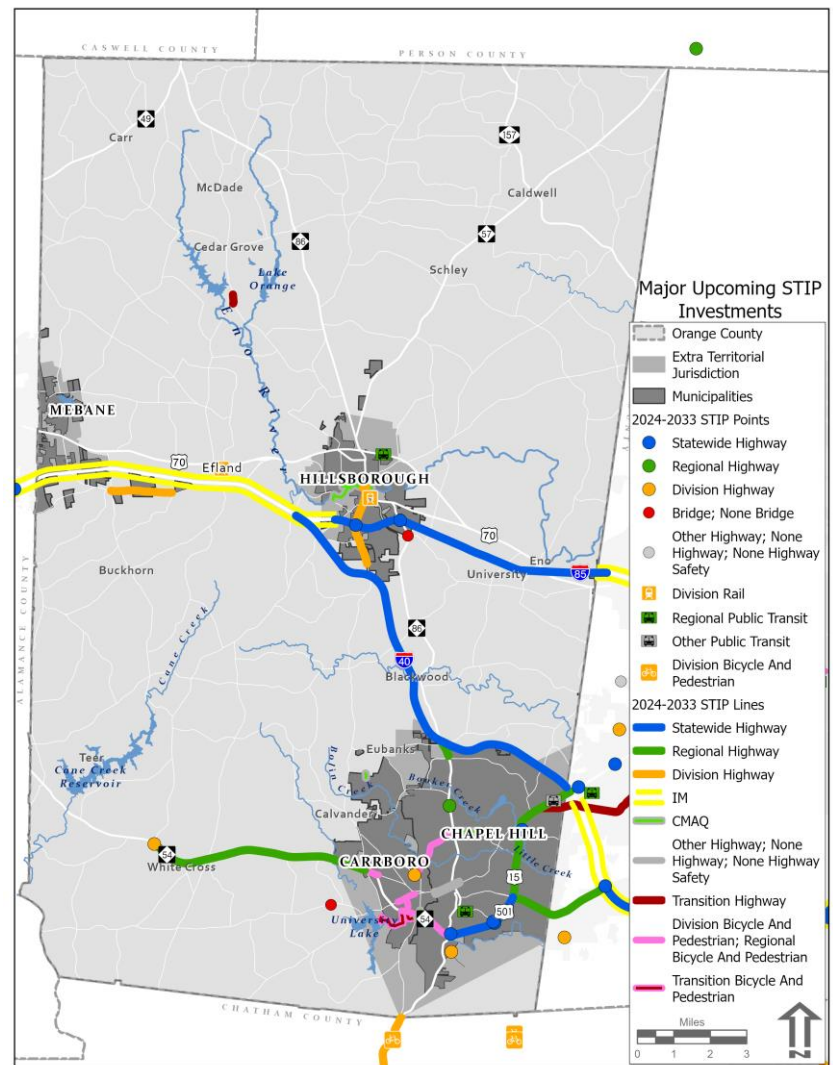


Image Source: NCDOT, 2024-2033 STIP

# Major Upcoming State Transportation Improvement Program (STIP) Investments

- I-85 widening and interchange improvements.
- Upgrading the NC 86/I-40 intersection to a reduced conflict intersection, from Northwood Drive to Ramps C/D at the I-40 interchange
  - A reduced conflict intersection significantly reduces the number of potential locations where drivers and pedestrians can collide
- Upgrade NC 86 interchange in Hillsborough.
- South Churton Street interchange improvements in Hillsborough and widening from I-40 to the Eno River.

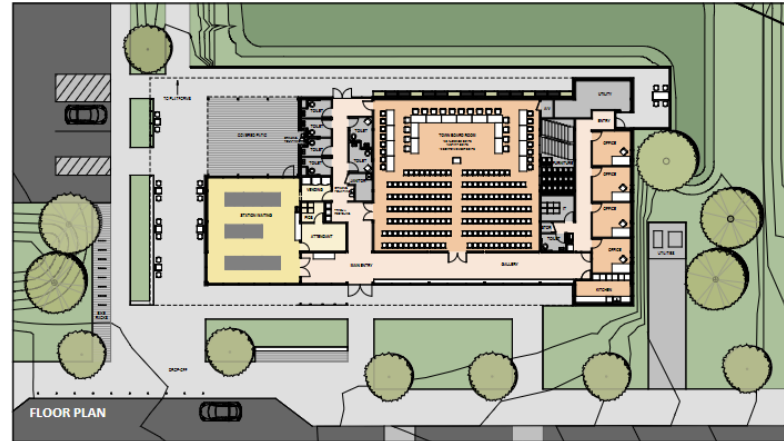
Map Source: NCDOT, 2024-2033 STIP





# Major STIP Investment: New Amtrak Station in Hillsborough

- **Building Hillsborough Amtrak station, utilities, site access, platform, and parking construction; track realignment to serve station.**
- Regional Multimodal Transportation Center Centralized mobility hub connects regional transit, Amtrak, bike/ped facilities, and a Park and Ride lot.



Images Source: Town of Hillsborough: November 28, 2022 Board of County Commissioners Presentation Packet

Map Source: Town of Hillsborough, Future Train Station Site Map

# Our Transportation Systems

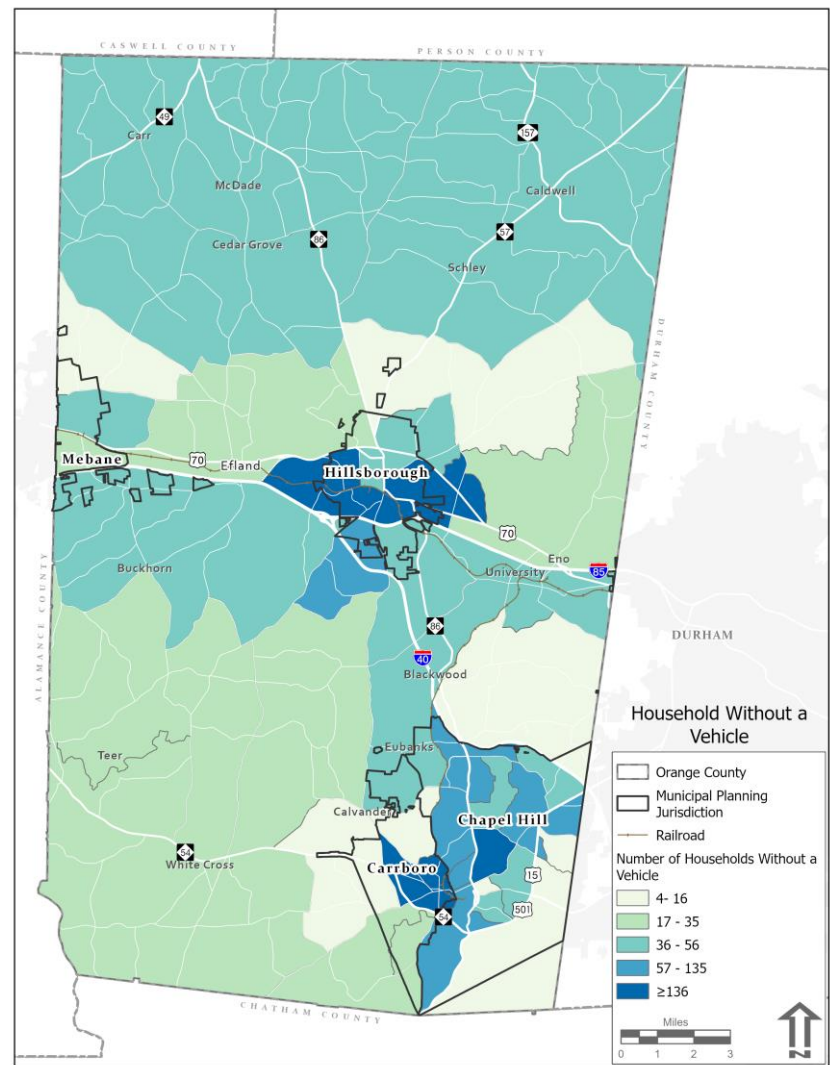
Commuting and Employment



# No Vehicle Households Map

- Several Census tracts near Hillsborough have over 100 households without a vehicle.
- Lacking a vehicle in the county can make it harder to access jobs, medical treatment, and other resources given the limited transit service available.

Data Source: American Community Survey 2022, 5-Year Estimates

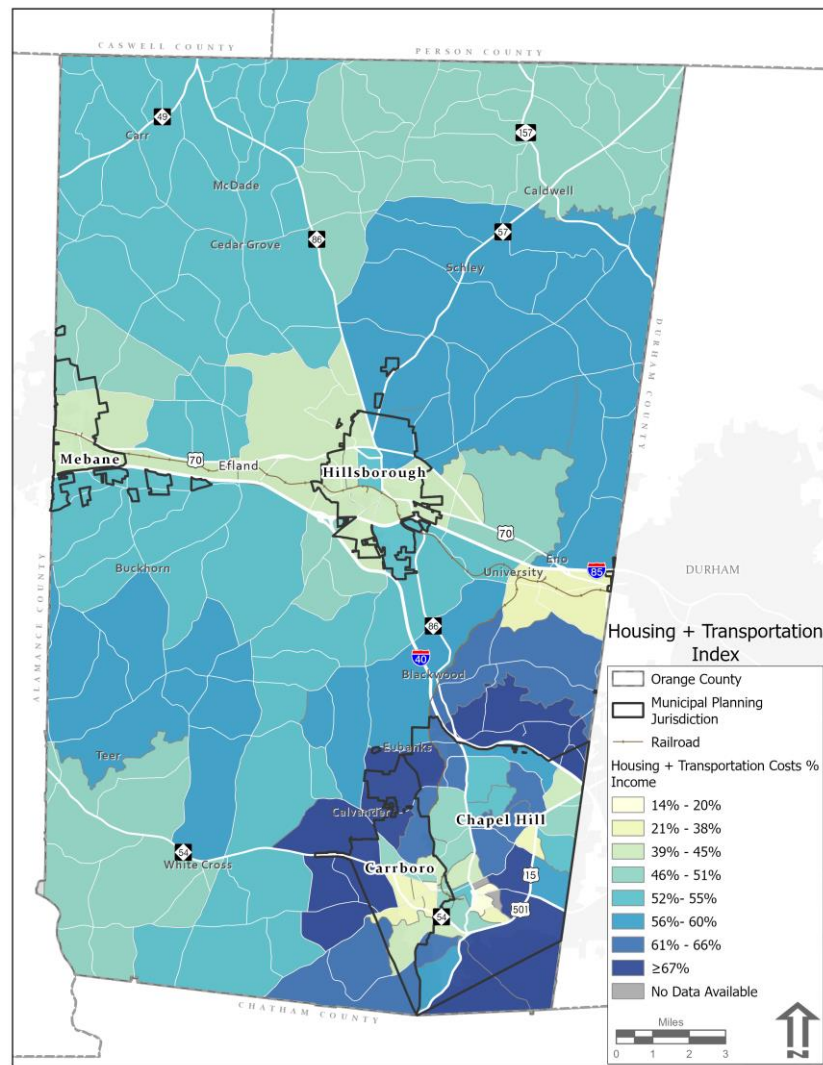


# Transportation Costs

Typically, transportation costs are a household's second-largest spending category, after housing.

- When combined with housing costs, the two expenses can consume more than half of a household's income.
- Many households in the county spend more than 60% of their income on transportation + housing, and most pay at or near 50%.
- These expenses can be a burden for many, especially those with lower incomes.

Data Source: H+T Affordability Index, Center for Neighborhood Technology



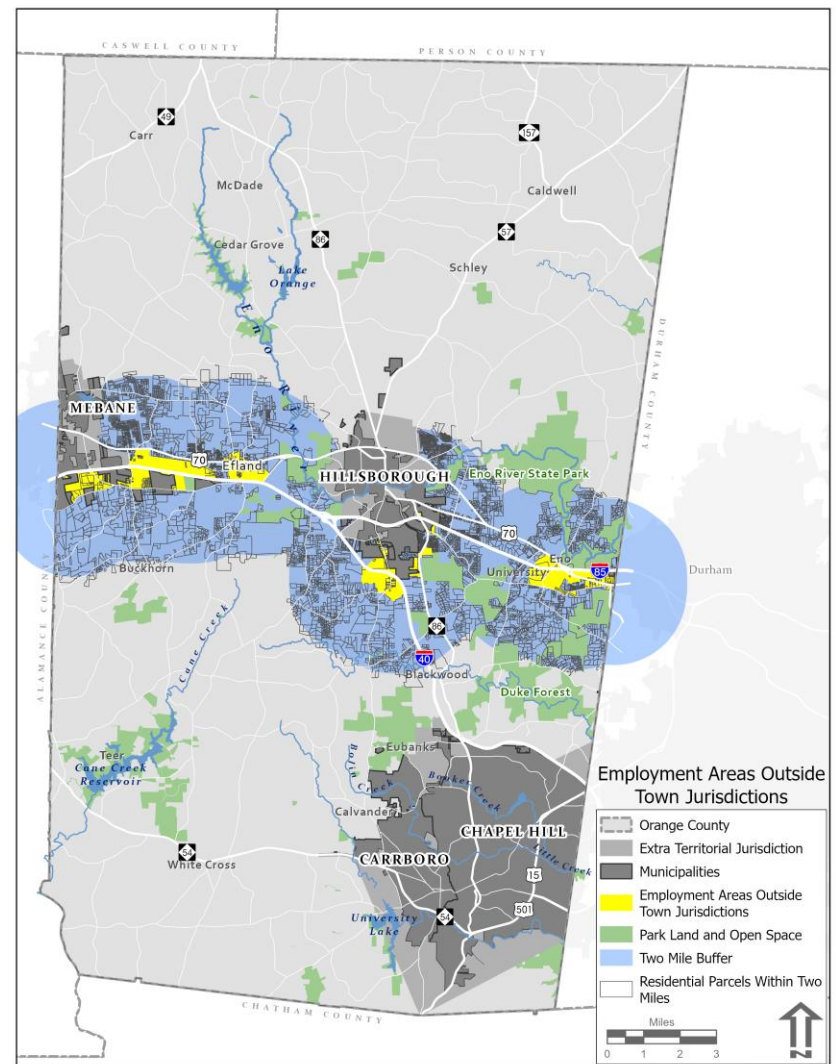
# Top 15 Employers in Orange County

Company Name	Industry	Class	Employment Range
UNC Chapel Hill	Educational Services	Public Sector	1000+
UNC Health Care System	Health Care and Social Assistance	Public Sector	1000+
NC Health	Health Care and Social Assistance	Private Sector	1000+
Chapel Hill-Carrboro City Schools	Educational Services	Public Sector	1000+
Orange County Schools	Educational Services	Public Sector	1000+
Local Government	Public Administration	Public Sector	1000+
Eurosport	Retail Trade	Private Sector	500-999
Town Of Chapel Hill	Public Administration	Public Sector	500-999
Wal-Mart Associates Inc.	Retail Trade	Private Sector	500-999
A K G Of America Inc	Manufacturing	Private Sector	250-499
Harris Teeter	Retail Trade	Private Sector	250-499
Summit Design & Engineering Service	Professional Scientific and Technical Services	Private Sector	250-499
Aramark Food And Support Services G	Accommodation and Food Services	Private Sector	250-499
Wegmans	Retail Trade	Private Sector	250-499
Carol Woods Retirement Community	Health Care and Social Assistance	Private Sector	250-499

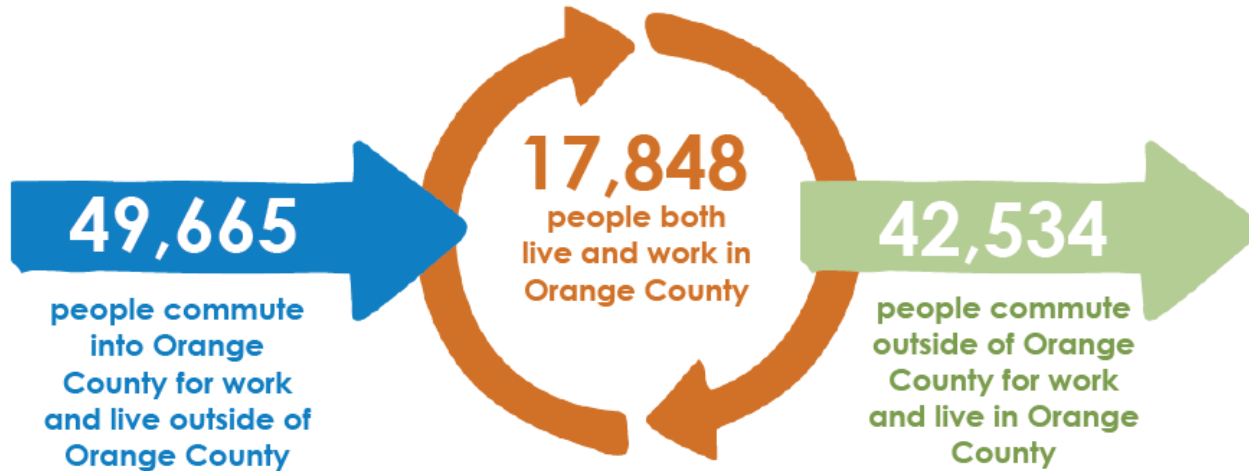
Data Source: NC Commerce 2022 Largest Employers

# Proximity to Employment

- Employment areas (commercial or industrial) in unincorporated Orange County exist near Hillsborough and along I-85 near Mebane and near the Durham County line.
- Significant residential development exists within an easy commute (2 miles) of these districts.



# Commute Patterns – Inflow & Outflow



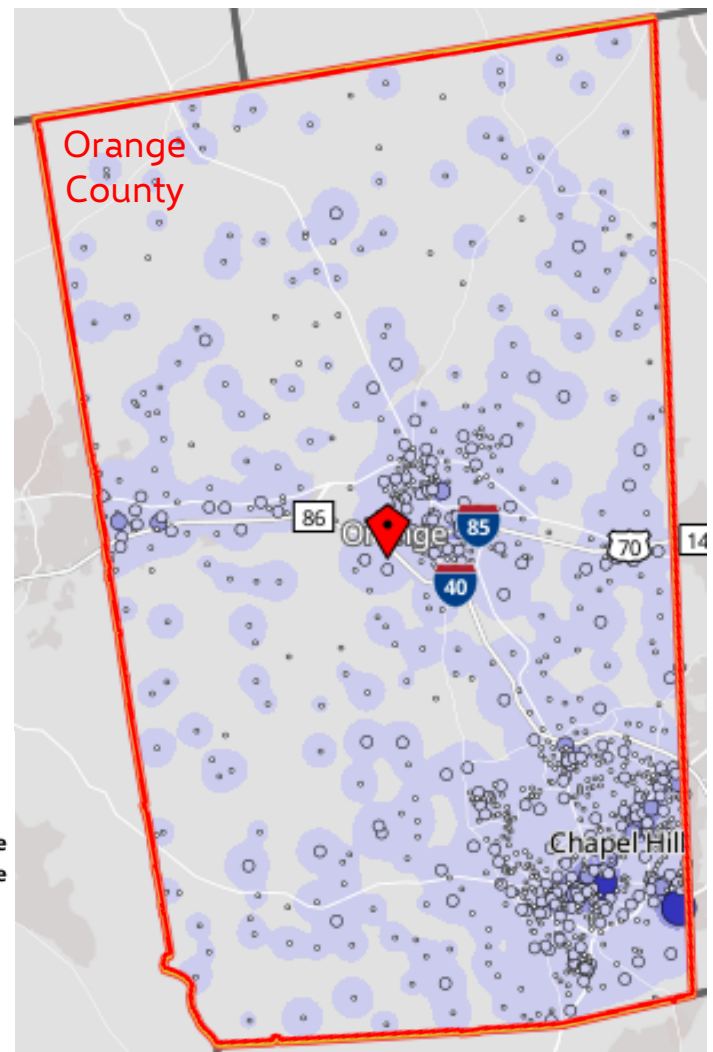
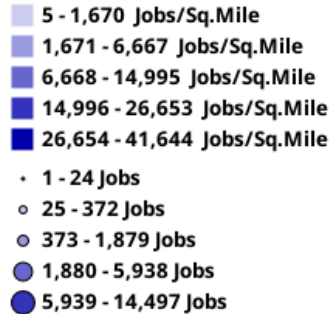
- **The majority of workers in Orange County are driving in from outside the county.**
- A minority of residents both live and work in Orange County, which means a significant number of people are commuting in and out.
- This trend increases travel times, carbon emissions, and vehicle miles traveled in Orange County.
- Orange County connects the Piedmont's regional growth to the Triangle's regional growth. Orange County's Climate Action Plan seeks to reduce Vehicle Miles Traveled while regional growth pressures it to increase.

Graphic Source: Clarion Associates

Data Source: U.S. Census Bureau OnTheMap, 2021 | Note: This includes the working adult population, which the US Census defines as workers ages 15 – 64.

# Job Locations and Density

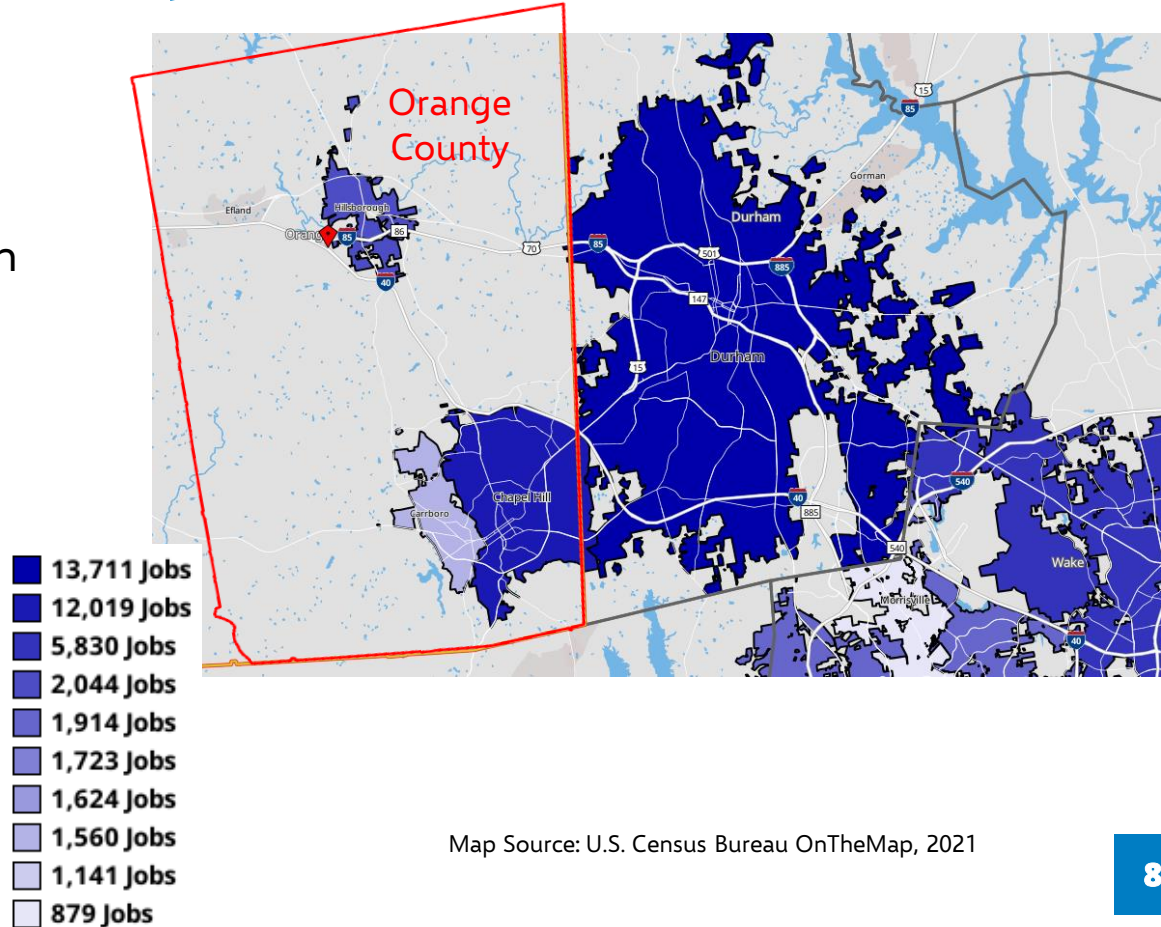
- The county's 67,513 total jobs are **clustered near important transportation corridors**, primarily in Chapel Hill, while also showing a wide distribution across the county.
- **UNC-related employment** stands out clearly in Chapel Hill.





# Where Orange County Residents Work

- The map below shows where **Orange County residents work**.
- Residents' work locations align with high job density areas in the county and across the region.
- OC residents' workplaces are relatively dispersed, though most work in the largest municipalities in the greater Triangle.



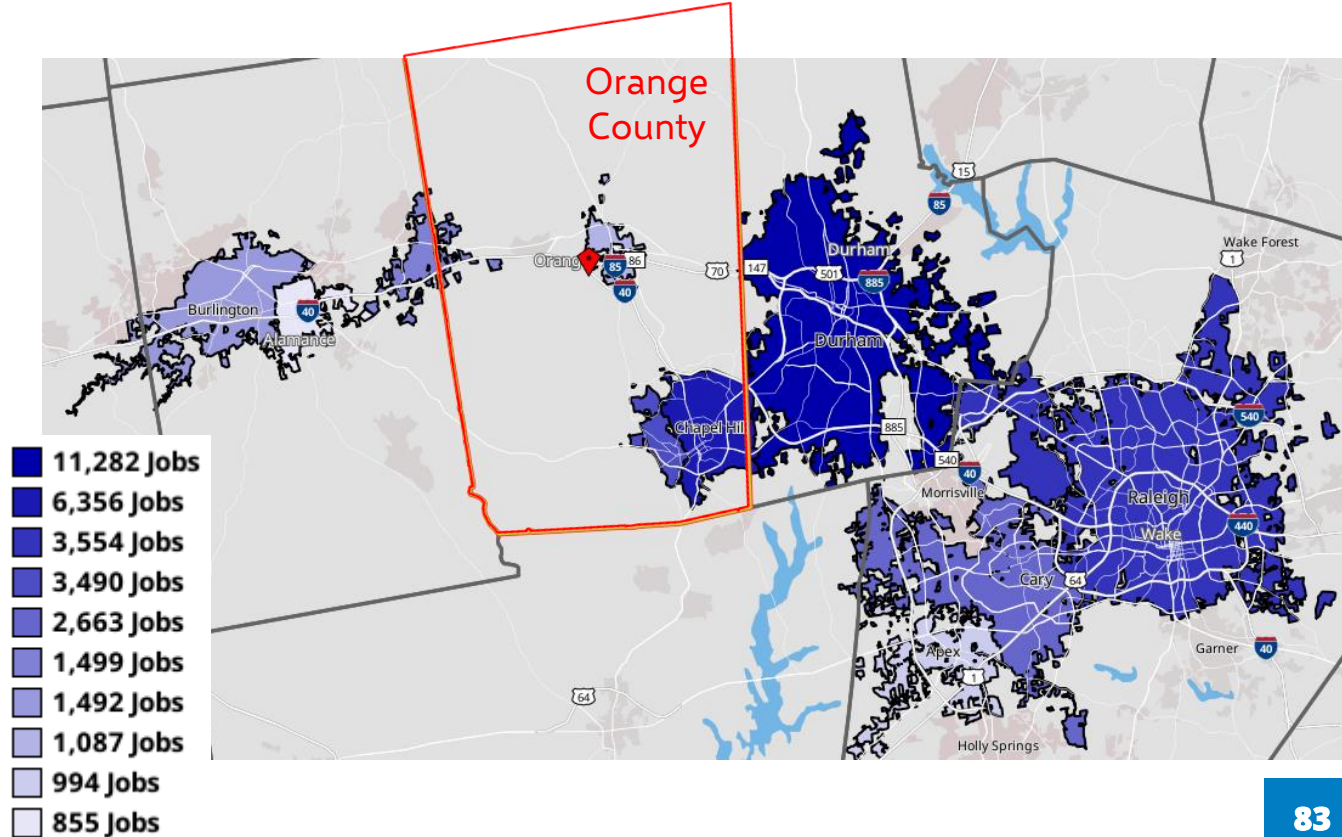
# Where Orange County Residents Work

- The table on the right shows where **Orange County residents work**.
- Many of those who live in Orange County work outside the County in Durham, Raleigh, Cary, and other municipalities, but almost 26% work in Hillsborough, Chapel Hill, or Carrboro.
- “All Other Locations” includes places like Chatham County.

	Job Counts Where Residents Are Employed	Job Counts (Percentage)
City of Durham	60,382	22.7%
Town of Chapel Hill	13,711	19.9%
City of Raleigh	12,019	9.7%
Town of Hillsborough	5,830	3.4%
Town of Cary	2,044	3.2%
Town of Charlotte	1,914	2.9%
City of Greensboro	1,723	2.7%
Town of Carrboro	1,624	2.6%
City of Burlington	1,560	1.9%
Town of Morrisville	1,141	1.5%
All Other Locations	879	29.7%
<b>Total (All Locations)</b>	<b>17,937</b>	

# Where Orange County Workers Live

- Thousands of workers are also commuting from Alamance County towns like Burlington, Graham, and Mebane.
- Note that **not all locations workers commute from** are shown on this map and it excludes telecommuters.



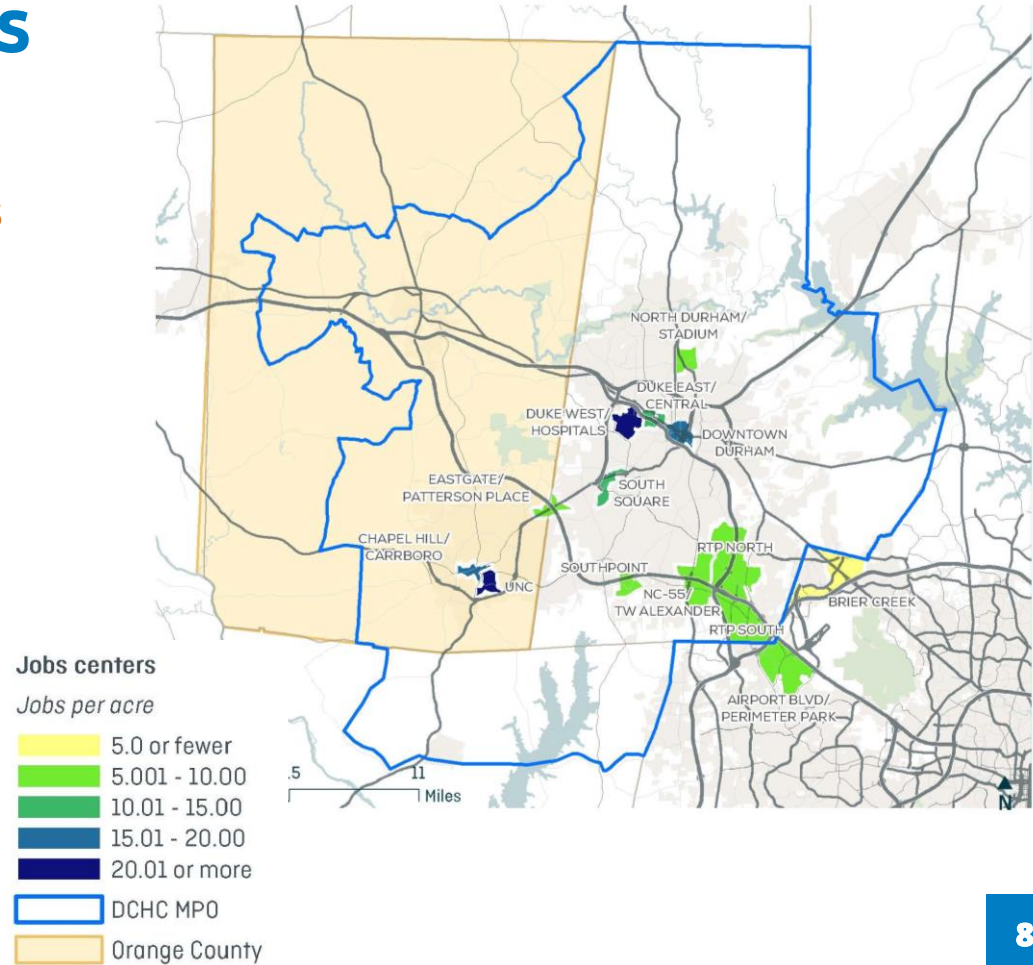
# Where Orange County Workers Live

- The table on the right shows where **Orange County workers live**.
- Many of those who work in Orange County live in Durham, Raleigh, Cary, and other municipalities.
- Over 10% of workers are taking long commutes from Raleigh, Cary, and Apex alone, not including other Wake County towns.
- Per County staff, 25% of UNC faculty commute from Alamance County.

	Job Counts Where Workers Live	Job Counts (Percentage)
City of Durham	11,282	16.7%
Town of Chapel Hill	6,356	9.4%
City of Raleigh	3,554	5.3%
Town of Carrboro	3,490	5.2%
Town of Cary	2,663	3.9%
City of Mebane	1,499	2.2%
City of Burlington	1,492	2.2%
Town of Hillsborough	1,087	1.6%
Town of Apex	994	1.5%
City of Graham	855	1.3%
All Other Locations	34,241	50.7%
<b>Total (All Locations)</b>	<b>67,513</b>	

# Regional Job Centers

- There are three regional job centers in Orange County: **UNC's medical campus, downtown Chapel Hill & Carrboro, and Eastgate/Blue Hill District in Chapel Hill.**
- Two of the county's job centers are more highly concentrated than most other centers.



# Travel Mode and Time to Work, 2021

- The majority (over 60%) of Orange County residents drove to work in 2021.
- Due to the presence of UNC and Chapel Hill Transit's service, more residents use transit than in nearby counties and the metro average.
- Work from home has greatly impacted this statistic: About one-fifth (over 20%) of those employed in Orange County worked from home in 2021.
  - 2021 data was from early in the COVID-19 pandemic, which raised the working from home percentage.
- The average travel time to work (one way) in 2021 was 24.0 minutes, which was lower than the national average of 26.8 minutes and the state average of 25.0 minutes.

Mode of Travel to Work	Estimate	Percent
Car, truck, or van -- drove alone	41,844	60.1%
Worked from home	15,136	21.7%
Car, truck, or van -- carpooled	4,897	7.0%
Public transportation (excluding taxicab)	3,299	4.7%
Walked	2,312	3.3%
Other means	2,191	3.1%
<b>Total (All workers, 16 years and over)</b>	<b>69,679</b>	

# Previously Completed Transportation Plans and Studies

- Elfland-Buckhorn-Mebane Access Management Plan – 2019
- Hillsborough Comprehensive Sustainability Plan- 2022
- Chapel Hill, Carrboro, and Mebane’s transportation-specific plans, including bicycle/pedestrian-specific plans prepared various years
- 2019 US 54 Multimodal Corridor Study, NC 54 East Multimodal Corridor Study, and US 15/501 Study
- Current Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC-MPO), Burlington-Graham Metropolitan Planning Organization (BGMPO), and Central Pines Rural Planning Organization (CPRPO) Comprehensive Transportation Plan and Metropolitan Transportation Plan
- Alamance County Transportation Authority (ACTA) Community Connectivity Plan, Alamance Trails Plan 2014 (both include connections into Orange County)
- Orange County Transportation Multimodal Plan, Short Range Transit Plan, Orange County Bike/Ped Plan, Safe Routes to School Action Plan



# In-Progress Transportation Projects and Studies

- South Churton St. Multimodal Corridor Study
- Burlington-Graham Metropolitan Planning Organization (BGMPO) regional Transit Feasibility Study
- Durham-Chapel Hill-Carrboro Metropolitan Planning Organization (DCHC-MPO) and BGMPO upcoming Comprehensive Transportation Plan and Metropolitan Transportation Plan updates
- US 70 East Multimodal Corridor Study
- Freeway, Arterial, Street and Tactical (FAST) transit study by Regional Transportation Alliance and NCDOT
- Transportation Multimodal Plan and Countywide Bicycle and Pedestrian Plan; joint effort of Orange County, BGMPO, DCHC-MPO, Central Pines Rural Planning Organization, and North Carolina Department of Transportation Integrated Mobility Division

## South Churton Street Multimodal Corridor

The purpose of the South Churton Street Multimodal Corridor Study is to develop design concepts that contribute to the town's character while respecting the goals of a state-funded project to widen the road from Interstate 40 to the Eno River. See the Background section for information about the state's project plans.

### Participate

Stop by the Public Open House from 5:30 to 7 p.m. Dec. 12 in the Town Hall Annex, 105 E. Corbin St. At the open house, participants will be able to see the concept design and provide feedback.

Community engagement: survey and meetings



## What is a Comprehensive Transportation Plan (CTP)



## Findings from Online Survey & Community Meetings



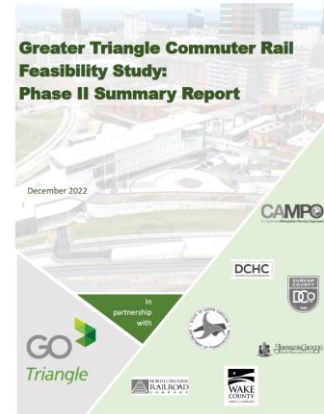
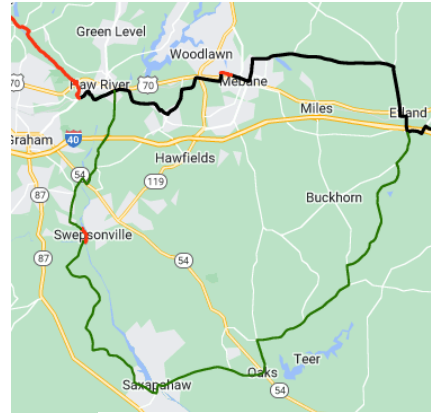
Survey open in late November 17, 2022 to January 6, 2023

396 Survey Responses



# Long-Term Regional Transportation Projects

- Mountains-to-Sea Trail
- Triangle Bikeway – 2022 study completed
- Triangle Commuter Rail
- Various long-term road expansion and maintenance projects via MPOs and the STIP
- North-South Bus Rapid Transit



# Our Public Facilities and Services



# Utilities

## The following utility providers serve Orange County:

- Water and Sewer
  - Town of Hillsborough
  - Orange Water and Sewer Authority – OWASA (Chapel Hill and Carrboro)
  - Orange-Alamance Water System (Efland/western Orange County)
  - Graham-Mebane Water System (Mebane)
  - City of Mebane (Sewer), including former Efland Sewer System
  - Department of Environmental Quality-Public Water Supply community wells
  - Well and Septic permits are issued by Orange County’s Health Department.
  - National Pollutant Discharge Elimination System (NPDES) tracks and controls wastewater discharge into waterways
- Electricity
  - Duke Power
  - Piedmont Electric Membership Corporation
- Natural Gas
  - Public Service Company of North Carolina (primarily only within municipalities)
  - Individual Propane tanks (many households in unincorporated areas)

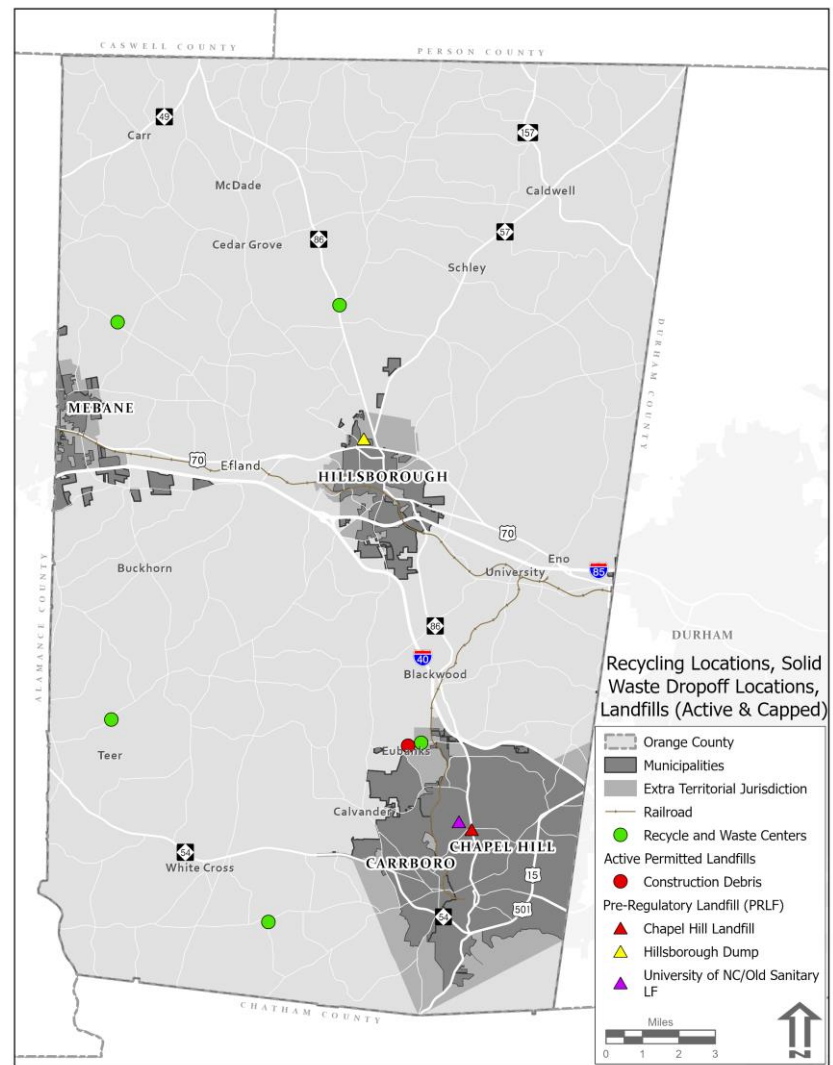
# Water Systems

- Approximately **40%** of properties in unincorporated Orange County use wells.
- According to the Environmental Protection Agency, the average American household uses about 300 gallons of water per day.
- Heavy industry uses significantly larger amounts of water.
  - Orange County's development regulations currently discourage uses that would need to use significant amounts of water, like heavy industry.



# Solid Waste

- Orange County provides drop-off recycling and waste services (convenience centers), as well as mulch collection and compost sale.
- Household trash can be collected by private companies through private contracts.
- Orange County has one active landfill for construction debris.
- The landfill at Eubanks road, closed in 2013, had long-term environmental equity implications.
  - Strides in addressing these environmental equities have been made, including extending public water and sewer systems to the area.

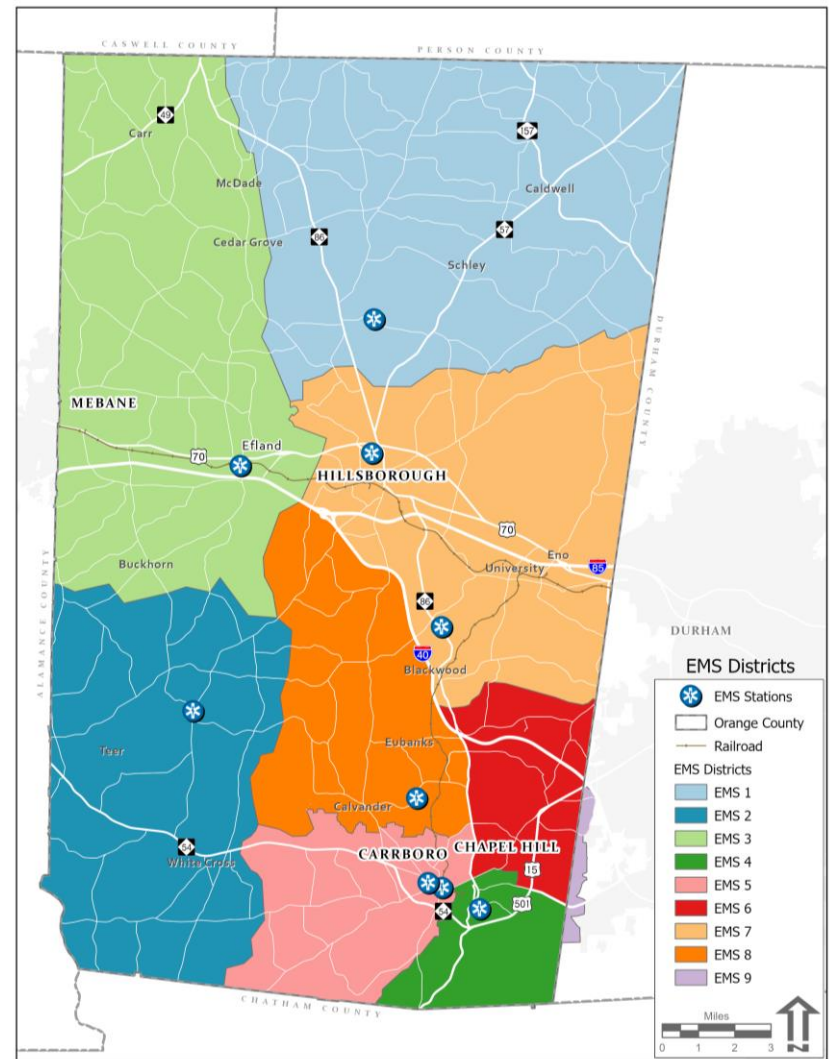


# Wastewater

- The majority of residential properties in unincorporated Orange County use onsite wastewater systems (septic).
- The Water and Sewer Management, Planning and Boundary Agreement (WASMPBA), designates service areas for water and sewer throughout the county.
  - Mebane and Orange-Alamance Water System (OAWS) are not parties (and do not have to follow) the agreement.
  - Parties to WASMPBA are generally prohibited from providing service outside their primary service area, which means that properties within the Rural Buffer are not connected to sewer.
- Hillsborough Sewer is operating near capacity.

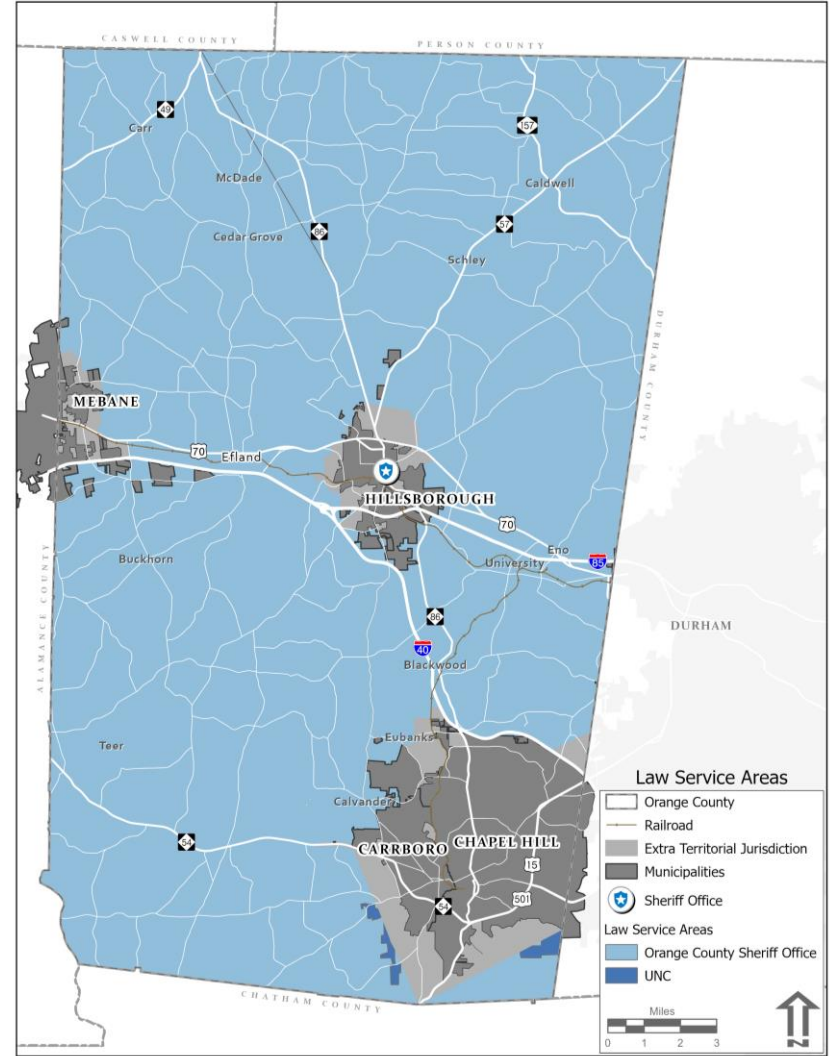
# Emergency Services

- There are 9 EMS districts serving Orange County.



# Public Safety

- Orange County Sheriff's Office, based in Hillsborough, serves unincorporated Orange County.
- The Sheriff's Office provides other public services, including welfare (wellness) checks.





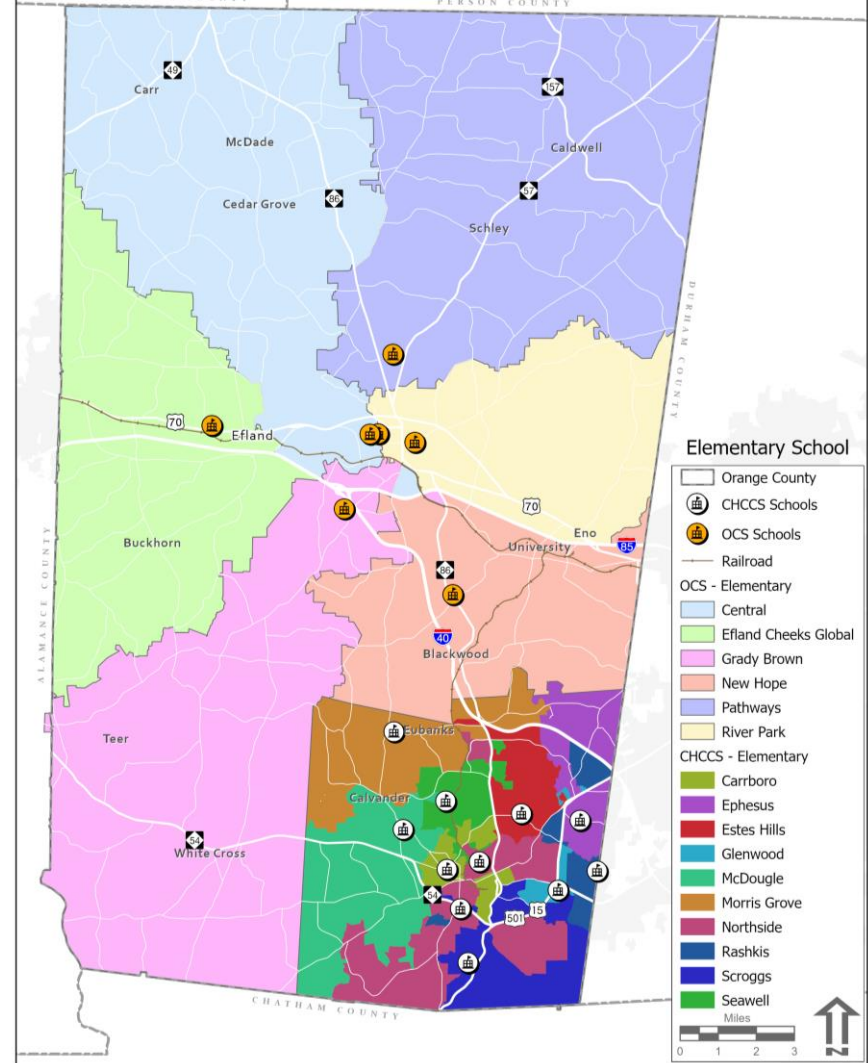
# Broadband

- Federal Communications Commission defines broadband as an internet speed of greater than **25 Mbps download/3Mbps upload**.
- Orange County plans to have broadband service available almost county-wide by the end of 2024.

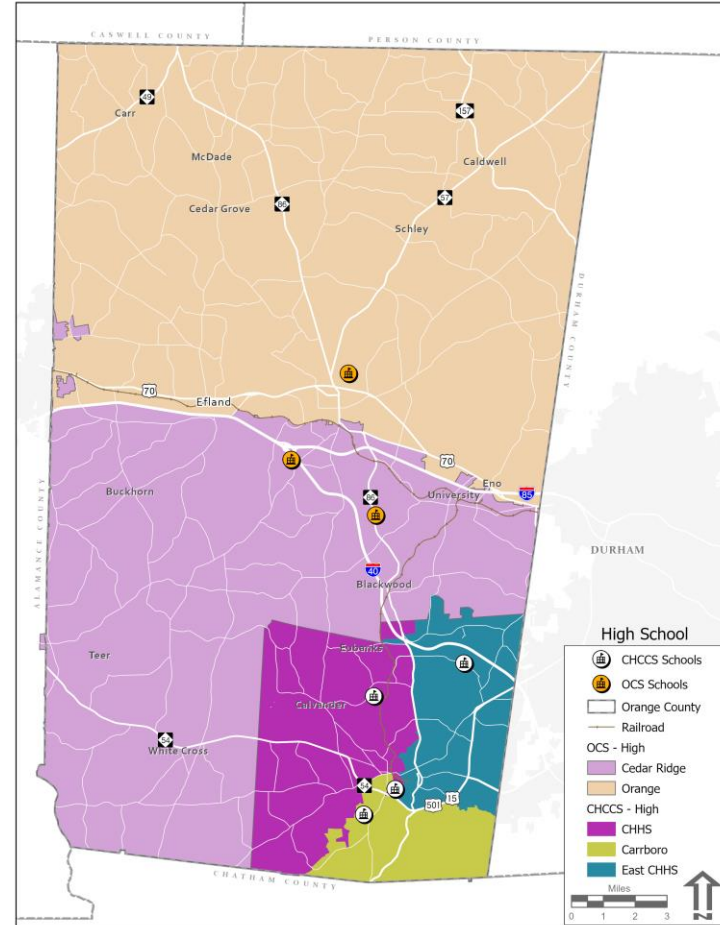
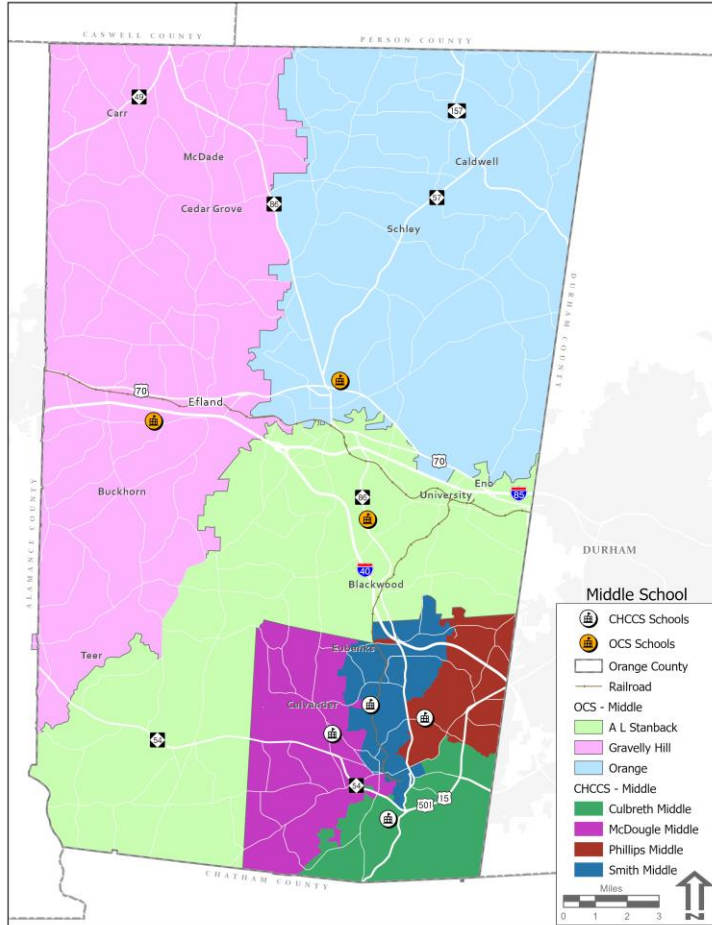


# Education (Elementary)

- Orange County is served by two school districts: the Orange County School District and Chapel Hill Carrboro City Schools.
- School bus route challenges have created occasional hour-plus one-way commutes for some rural youth.



# School Districts (Middle and High Schools)



# Our Natural Assets and Working Lands

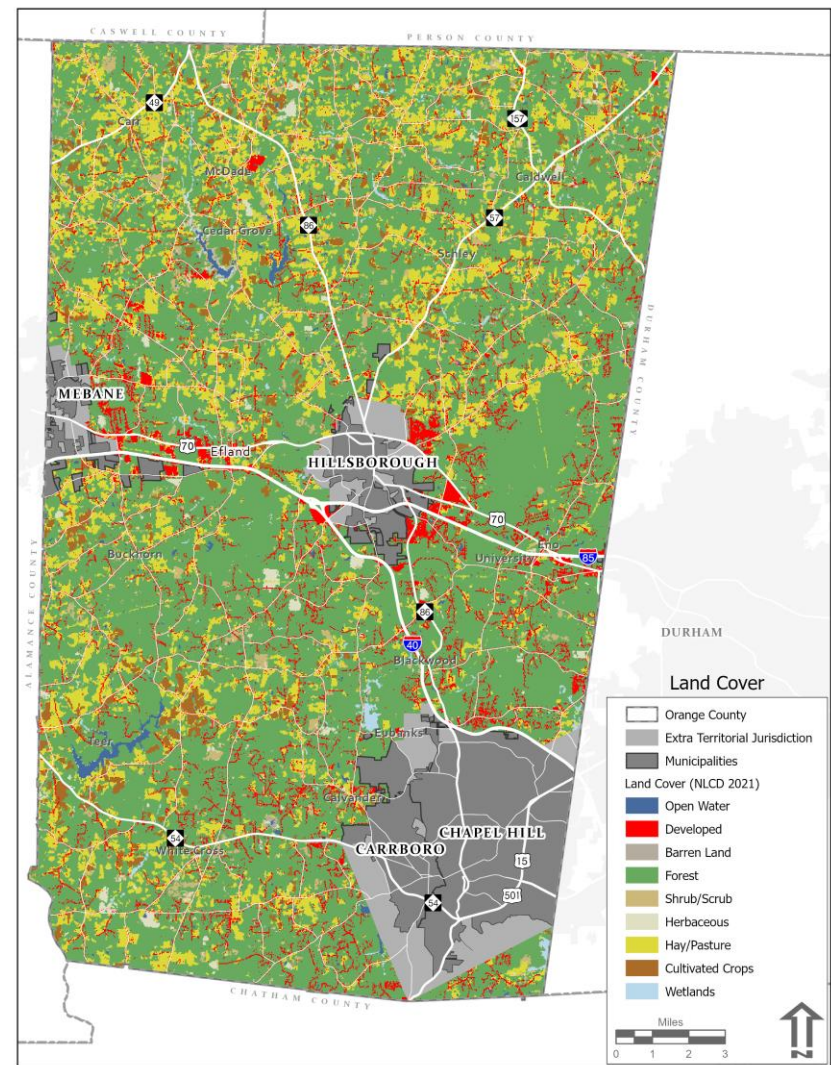


# Land Resources

## Land Cover

- **Deciduous forest and agricultural lands** (pastureland and cropland) define the majority of unincorporated Orange County.
- Most of the county's highly developed land is within and directly adjacent to municipalities and the interstate corridors.
- However, low-density residential uses occur throughout the rural areas, often on land previously in farms.

Data Source: National Land Cover Database (NLCD) 2021 Land Cover Conterminous United States



# Land Resources

## Land Cover

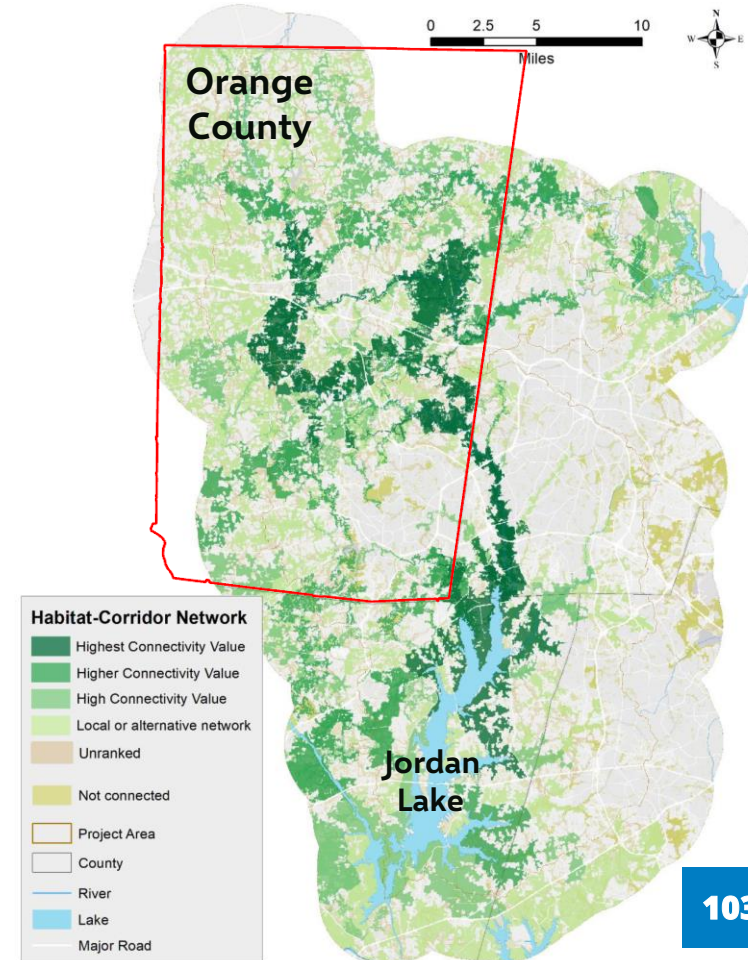
- County **tree cover increased by about 3%** from 2008-2017 in Orange County, with the greatest increase occurring in the Rural Buffer. This statistic does not measure the health or quality of county forests.
- County **agricultural land area decreased by about 4%** from 1997-2017.



# Land Resources

## Wildlife Habitat Connectivity

- Orange County's natural heritage resources create a larger connected network of habitat corridors that preserve biodiversity, as seen on this map from the [Landscape Plan for Wildlife Habitat Connectivity in the Eno River and New Hope Creek Watersheds](#).
- Conservation of the natural and cultural resources within and around the county will require **cooperation and collaboration** with state and local governments and institutions in the county and the greater region.



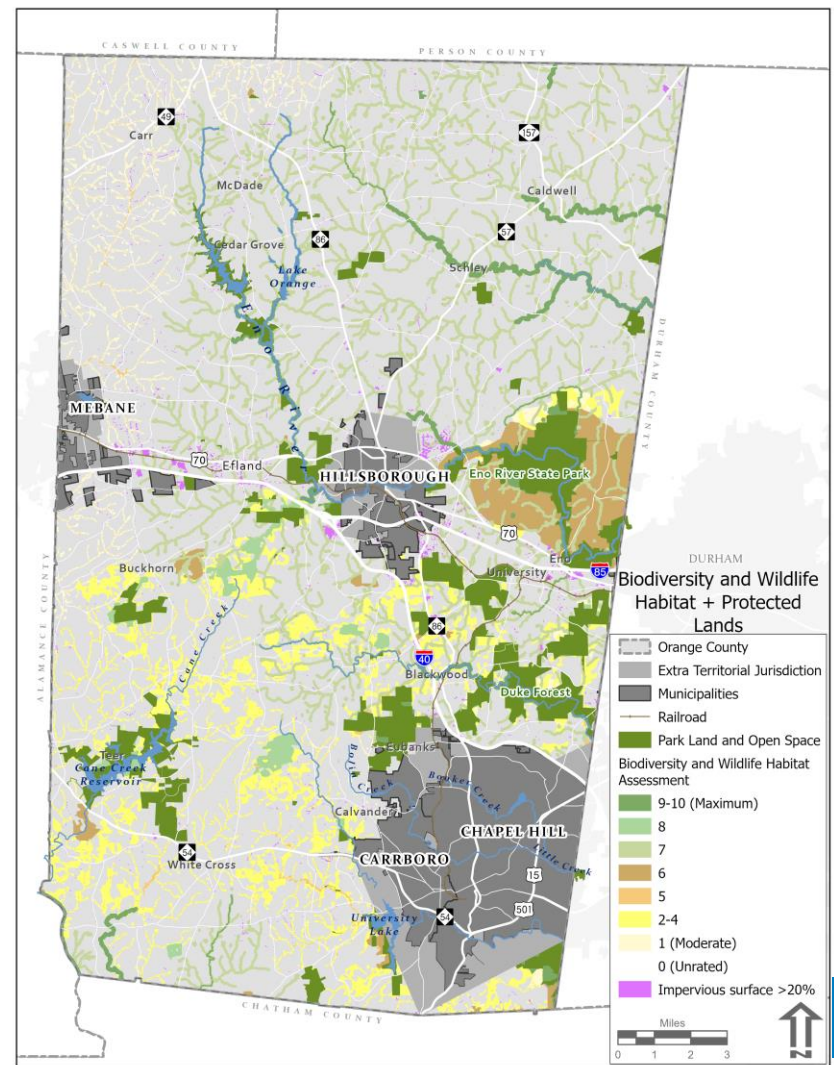
Map Source: Landscape Plan for Wildlife Habitat Connectivity in the Eno River and New Hope Creek Watersheds, North Carolina, 2019.

# Land Resources

## Natural Heritage

- Orange County's natural heritage resources are an economic asset and are critical to preserving healthy communities.
- One way to map these resources is the existing NC **Biodiversity & Wildlife Habitat Assessment**, shown in this map, which shows a ranking based on biodiversity and wildlife habitat connectivity.

Data Source: North Carolina Natural Heritage Program



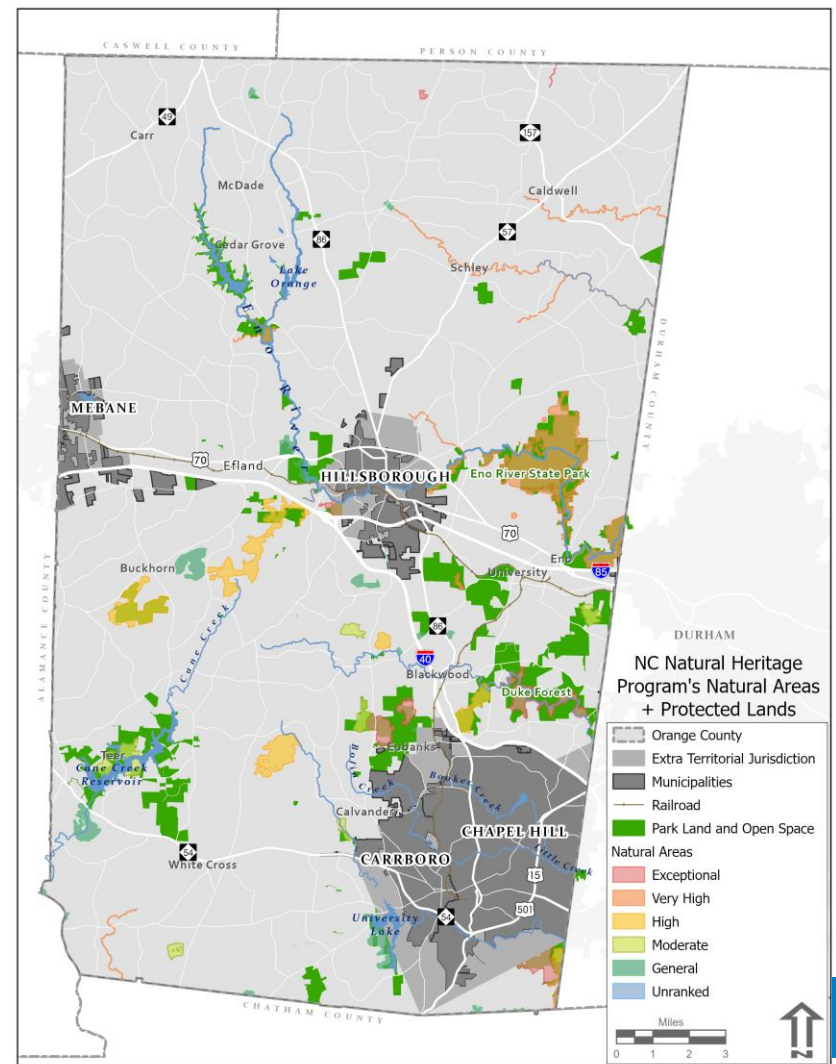


# Land Resources

## Natural Areas + Protected Lands

- Within Orange County, **10,589 acres** of land are designated as State-identified “Natural Areas” - areas of special biodiversity significance.
  - Many of these Natural Areas are ranked within the **highest 3 classifications in the state.**
  - Much of this land is permanently protected or within the Rural Buffer, but the locations of remaining unprotected Natural Areas help provide future conservation priorities.

Data Source: North Carolina Natural Heritage Program

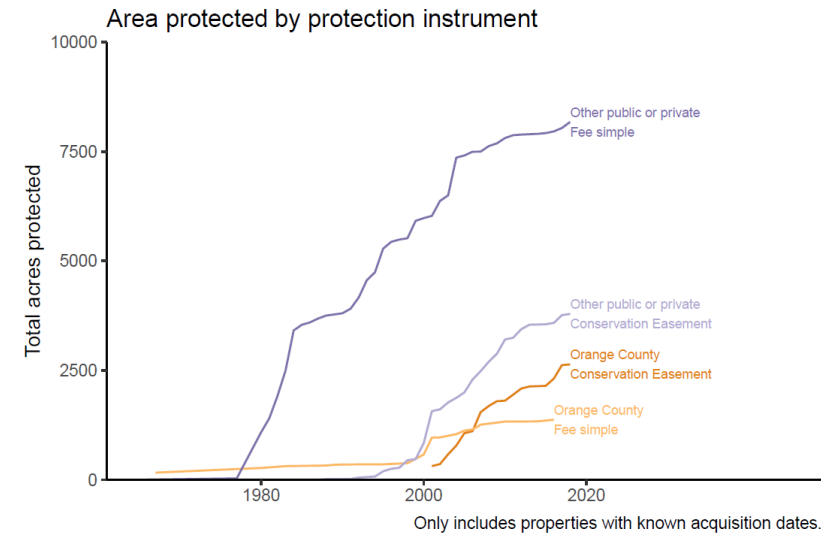
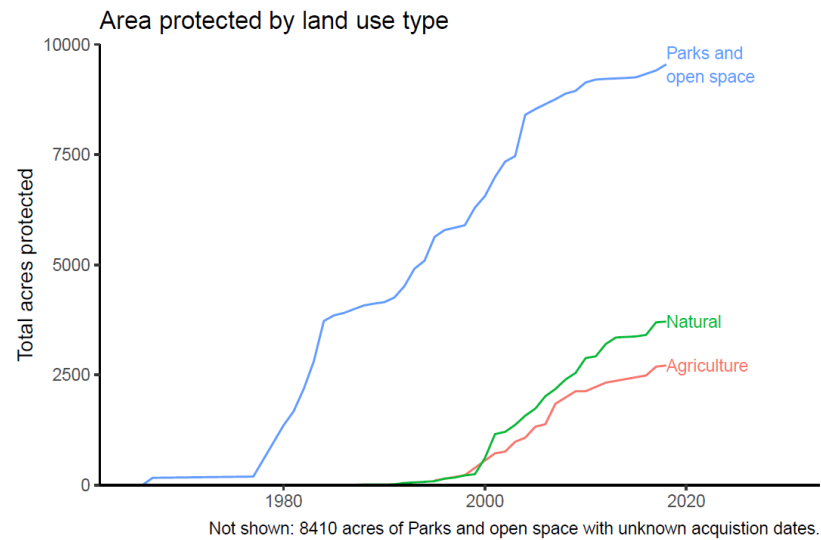


# Land Resources

## Land Protection

- The County's **State of the Environment** report establishes land protection goals, some of which are being achieved, but many important natural heritage areas remain unprotected.
- The 2019 report expands the County's land protection goals with an emphasis on **natural heritage sites, wildlife corridors, and stream buffer protection.**

Data Source: Orange County 2019 State of the Environment



# Land Resources

## Land Protection

- A major driver in Orange County's land protection efforts is the **Lands Legacy Program**. Its main tool is a conservation easement, which landowners voluntarily agree to have placed on their land.
  - The Program has five standing priority areas for land protection:
    - Future Parklands
    - Lands of Historic, Cultural, or Archaeological Significance
    - Natural Areas and Wildlife Habitat (NC Natural Heritage sites)
    - Prime and Threatened Farmlands
    - Watershed Riparian Buffer lands
  - The Program is administered by the **Department of Environment, Agriculture, Parks, and Recreation (DEAPR)** and guided by a three-year Action Plan.

# Working Lands

## Prime Soils and Farmland Conversion

- Working lands refer to lands used for either farming or forestry. They play a vital role in Orange County's environment, food security, economy, community heritage, and overall livelihood of its residents.
- Although farming and forestry are not the same and have different impacts on the environment, they rely on some of the same types of prime soil types.
- Nearly **3/4 (140,630 acres)** of Orange County consists of prime farmland soil.
- However, **farmland conversion** (conversion of farmland to non-agricultural uses) is a great threat to the county's working lands.
  - North Carolina is 2nd only to Texas in farmland conversion – 2/3 of which, due to a combination of circumstances, is lost to low density residential development (per the American Farmland Trust).

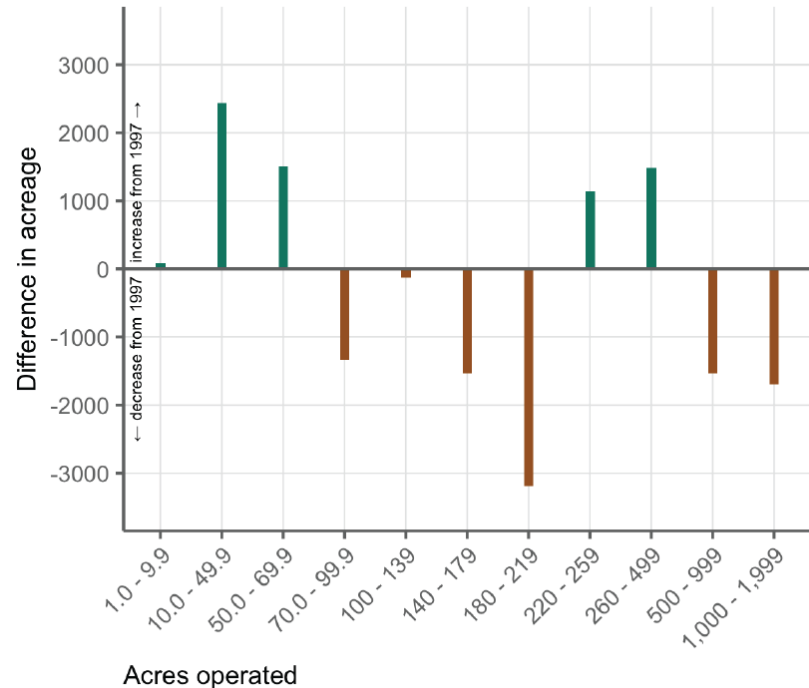
# Working Lands

## Changes in Land Use

- **27.4% (69,908 acres)** of Orange County is part of a farm operation for crops, timber, or pasture.
- The **number of farms increased** from 1997 to 2017, while the total **area of farm operations decreased** (-4%). The graph to the right displays the increase and decrease in farm size ranges.
- The total **area owned by Black & African American farmers increased** based on the USDA's Census of Agriculture.\*

\*Data Source: Orange County 16<sup>th</sup> Annual State of the Community Report.

Change in Orange County farm acres operated by size of operation (1997-2017)\*\*



data from 2017 USDA Census of Agriculture

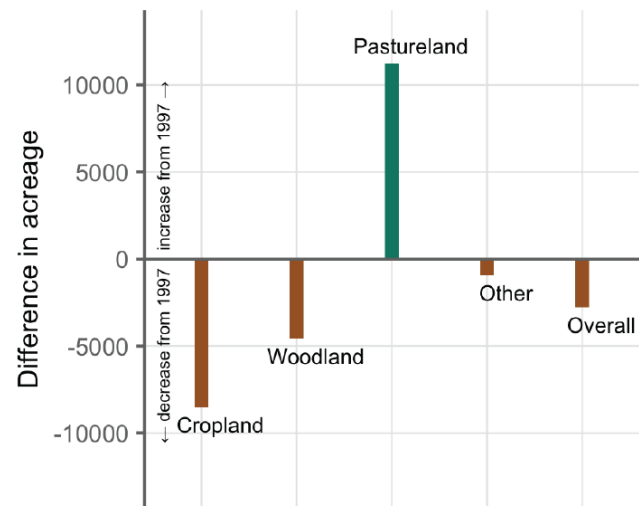
\*\*Data Source: Orange County 2019 State of the Environment.

# Working Lands

## Changes in Land Use

- From 1997 to 2017, there has been a dramatic **increase in pastureland** as farmers shift cropland out of production.
- This land use shift tends to improve water quality and plant biodiversity, though the economic implications of this shift are unclear.

Change in Orange County agricultural land use (1997-2017)



data from 2017 USDA Census of Agriculture

# Working Lands

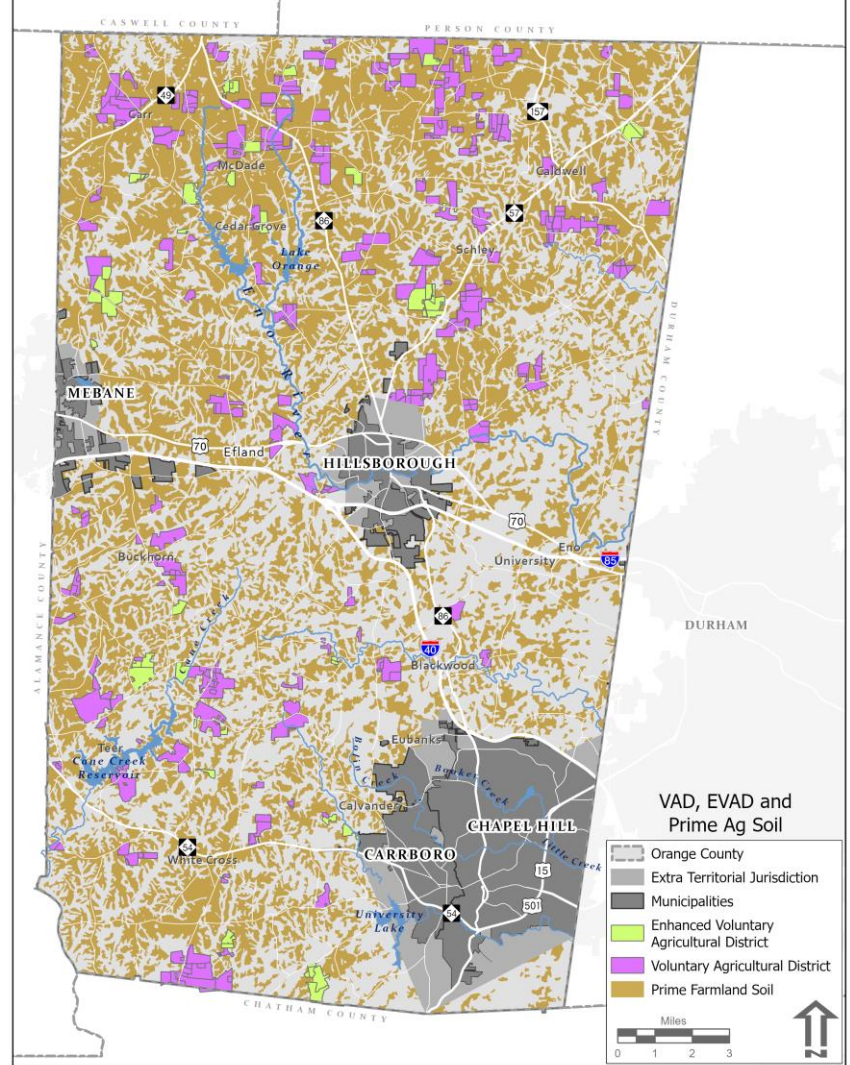
## Farmland Preservation

- Farmland preservation is **strongly supported** by the County.
  - The 2030 Comprehensive Plan established an objective of “long-term productivity of farms and timberlands through best land-use management practice.”
  - The County offers or supports several agricultural programs to assist farmers in their business and preserving their land from non-agricultural development.
- The **Agricultural Development and Farmland Protection Plan** guides County strategy for local agriculture and forestry.
- The following County boards play a role in farmland preservation:
  - **Agricultural Preservation Board (APB)** – administers the Voluntary Agricultural District (VAD) and Enhanced Voluntary Agricultural District (EVAD) programs.
  - **Soil and Water Board of Supervisors** – directs the **Soil and Water Conservation District**.

# Working Lands

## Voluntary Agricultural Districts

- The County's **Voluntary Agricultural District (VAD)** and **Enhanced Voluntary Agricultural District (EVAD)** programs encourage the preservation and protection of farmland from conversion.



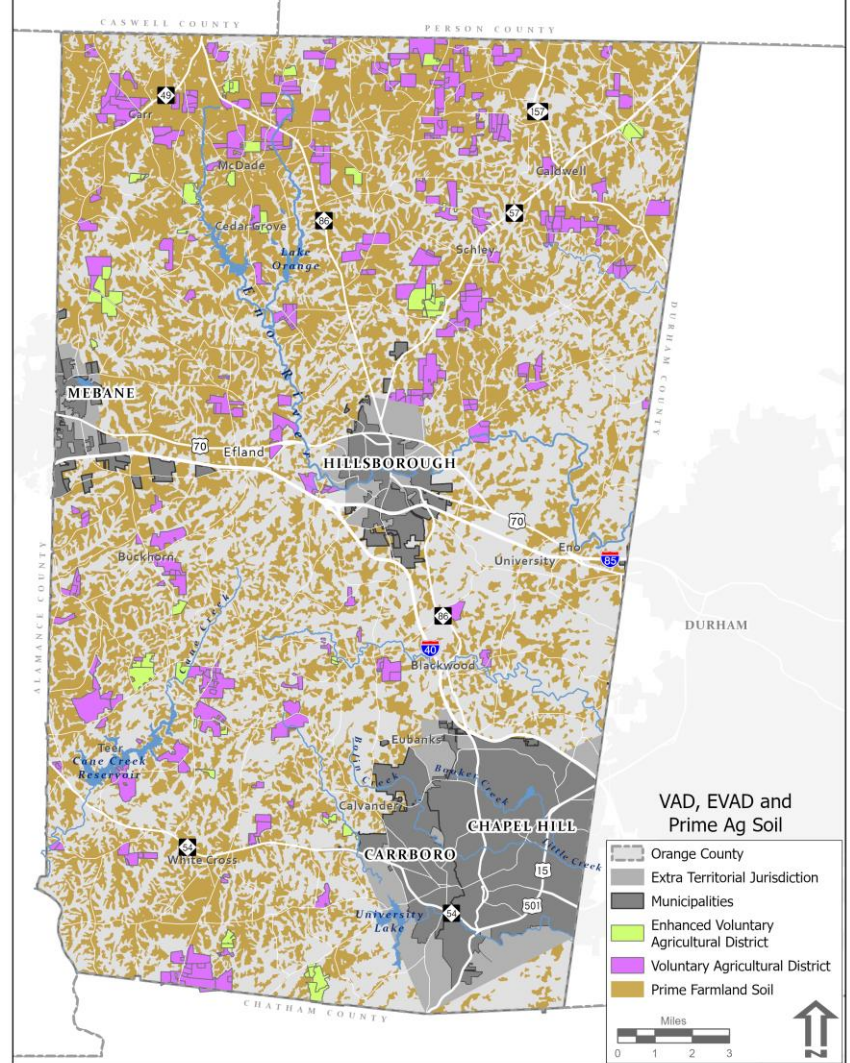


# Working Lands

## Voluntary Agricultural Districts

- Currently in Orange County there are:
  - **406 VAD** properties totaling **14,972 acres\***
  - **59 EVAD** properties totaling **2,705 acres\***
  - **465 total** properties in both programs, totaling **17,677 acres\***

\*Note: these acreages do not represent permanent protection of these farms.



# Working Lands

## Soil and Water Conservation District

- The Orange County **Soil and Water Conservation District (SWCD)** offers technical, financial, and educational advice, as well as agricultural and non-agricultural services, to landowners and operators.
- It also administers a variety of cost share programs, including:
  - NC Agricultural Cost Share Program (ACSP)
  - NC Agricultural Water Resources Assistance Program (AgWRAP)
- The SWCD works closely with the **NC Cooperative Extension** to provide services and programs to Orange County farmers and students, including environmental education.

# Parks and Recreation

## Operations

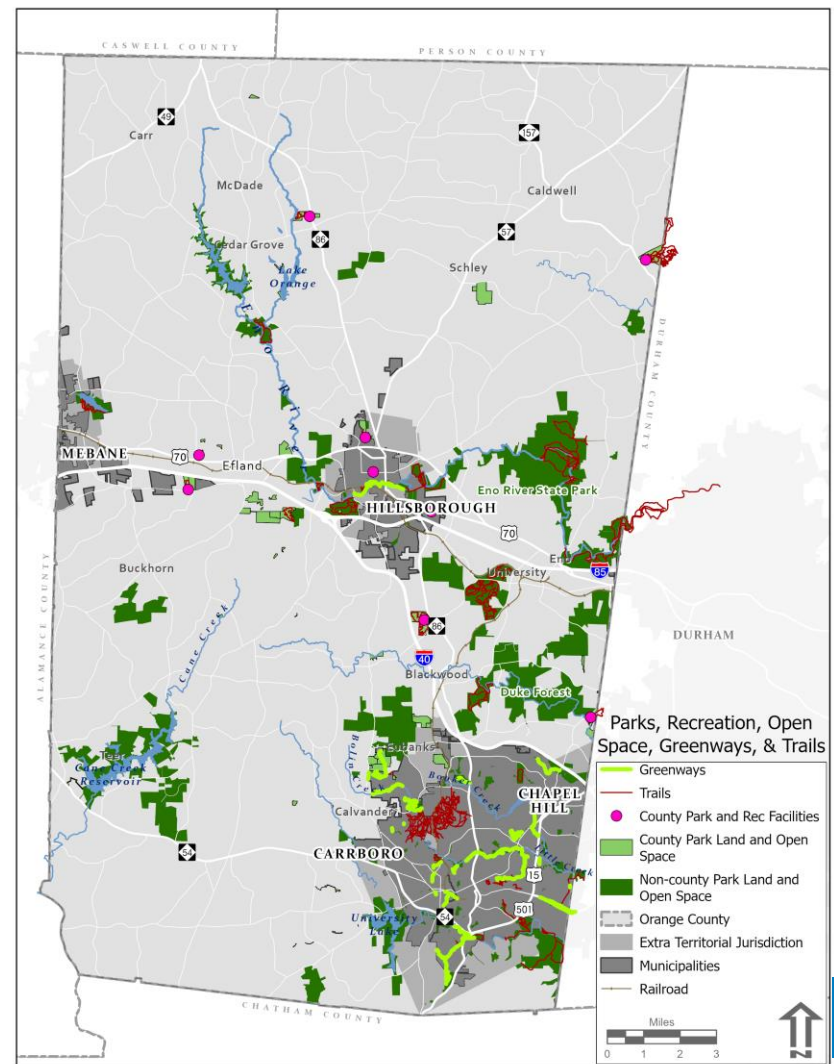
- Orange County maintains a **Comprehensive Parks and Recreation Master Plan**, which guides park and recreational facility operations, maintenance, and planning.
- Parks and recreation facilities are managed and maintained by the **Department of Environment, Agriculture, Parks, and Recreation (DEAPR)**.
- The County partners with the Mebane, Hillsborough, Carrboro, and Chapel Hill **municipalities**, **NC State Parks**, various **universities and school districts**, and **nonprofit partners** such as the Triangle Land Conservancy and Eno River Association to provide diverse recreation options, in addition to those operated by the County.

# Parks and Recreation

## Park Land and Open Space

- More than **1,500 acres** of publicly held and protected open space is included within the County park and preserve inventory.
- Non-County-maintained major recreational destinations in the unincorporated county include:
  - Eno River State Park
  - Brumley Forest Nature Preserve
  - Historic Occoneechee Speedway Trail
  - Duke Forest (Duke University)\*

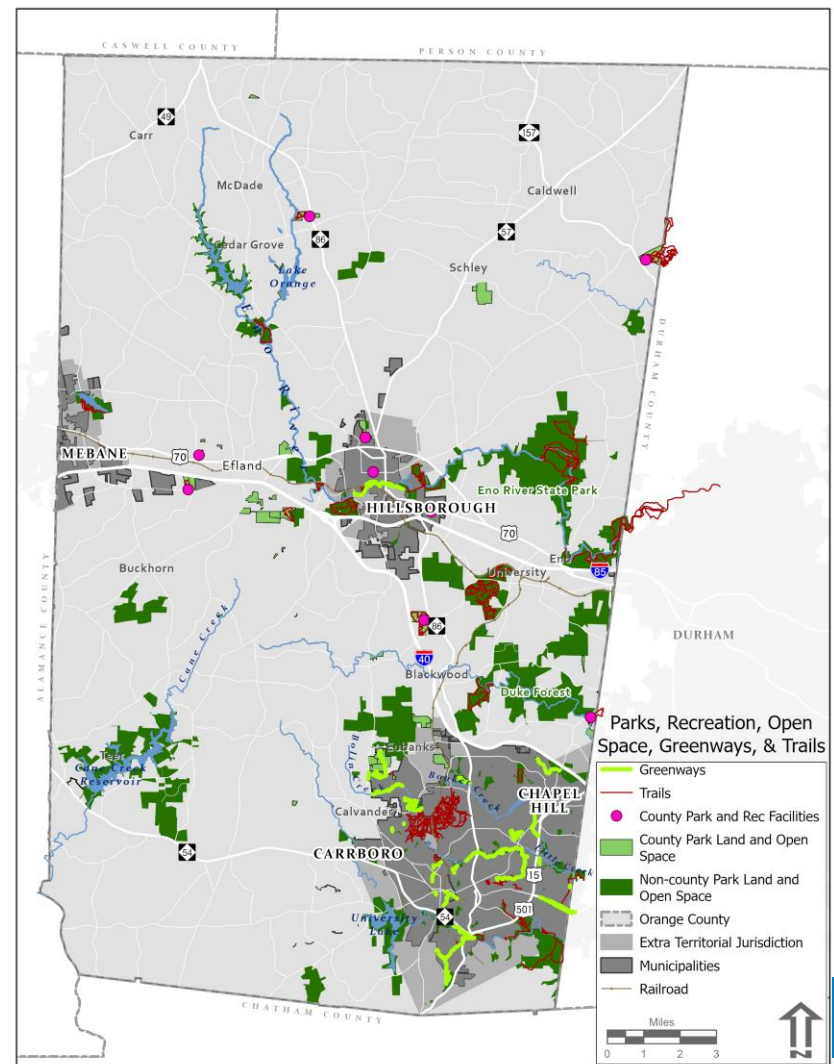
\*Duke Forest is neither publicly held nor protected.



# Parks and Recreation

## Park Land and Open Space

- Throughout the county, public indoor recreational facilities are in greater number in areas closer to municipal centers, and larger recreational open spaces are dispersed into rural areas.
- The CDC Social Vulnerability Index reveals that there is a **lack of recreational offerings in some of the most socially vulnerable unincorporated communities.**



# Parks and Recreation

## Existing Inventory

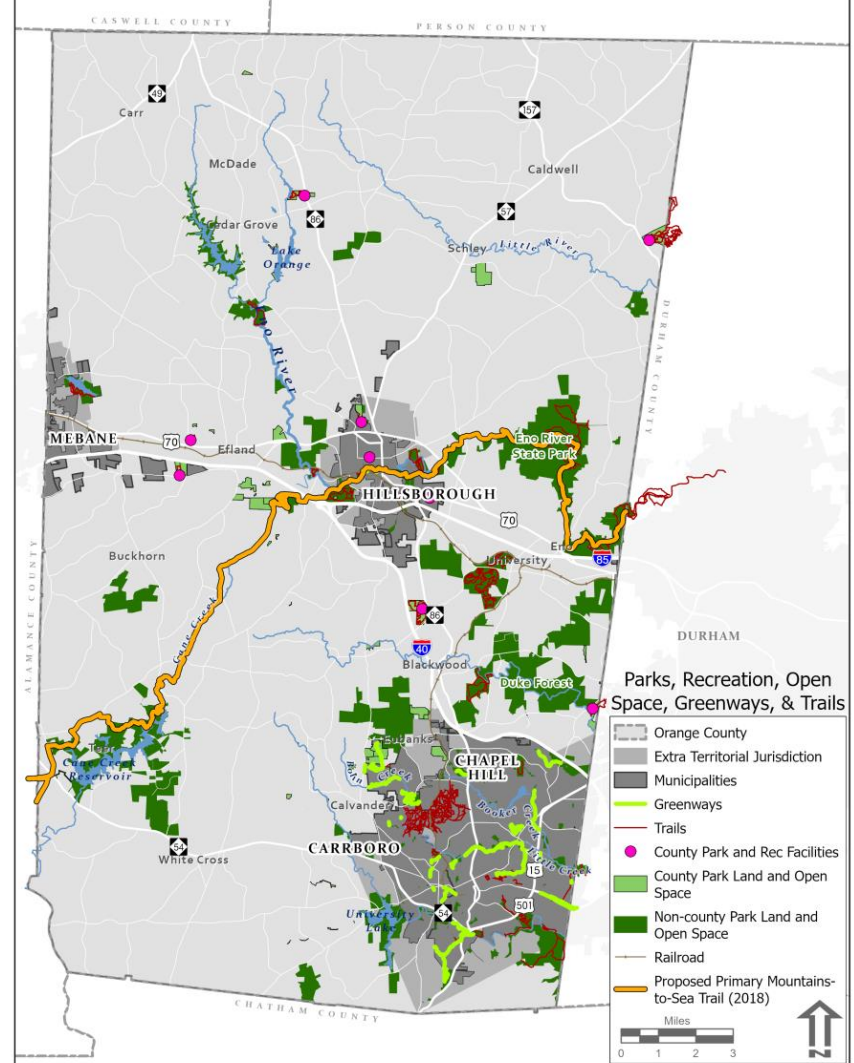
- This table displays all currently existing parks and recreation facilities owned and/or operated by Orange County, all with various amenities.
- Generally, **Active** refers to athletic or sports-based recreation, and **Low-Impact** refers to nature-based recreation the requires less development.
- The County owns additional land planned for future parks and recreation.

Existing County Park/ Facility Name	Area (acres)	Type
Blackwood Farm Park	152.0	Low-Impact
Cedar Grove Park	48.0	Active/Low-Impact
Central Recreation Center & Park	6.75	Active
Efland-Cheeks Community/School Park	27.0	Active/Low-Impact
Fairview Park	14.0	Active/Low-Impact
Hollow Rock Nature Area	75.0	Low-Impact
Little River Regional Park & Natural Area	391.0	Low-Impact
Orange County SportsPlex	18.3	Active
River Park	16.3	Low-Impact
Seven Mile Creek Nature Area	306.0	Low-Impact
Soccer.com Center	34.0	Active

# Parks and Recreation

## Existing Greenways & Trails

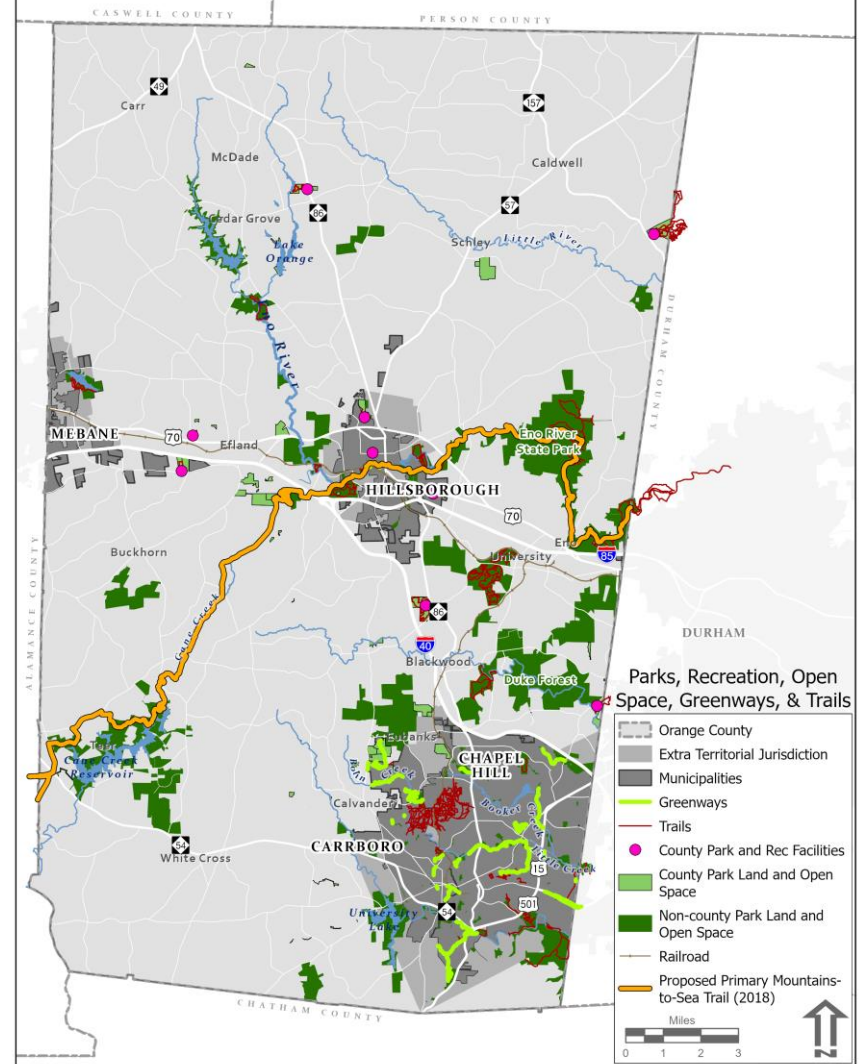
- Most existing paved and unpaved trail facilities and greenways are recreation-focused, not transportation-focused.
  - Paved trails are all located in the municipalities, while unpaved trails are in both the rural areas and municipalities.
- The towns are actively planning additional safe bike/pedestrian infrastructure for recreation and transportation.
- The DCHC MPO is funding the **Orange County Bicycle & Pedestrian Plan** for the rural parts of the county through the 2025 Unified Planning Work Program.



# Parks and Recreation

## Mountains-to-Sea Trail (MST)

- The MST is a statewide trail and part of the **State Trails Program**.
- The approved, yet mostly not yet constructed, county route runs:
  - East along the Haw River from Alamance County to connect to the Seven Mile Creek Natural Area and Hillsborough Riverwalk greenway, continuing east along the Eno River into Eno River State Park and into Durham County.
- The County is playing an active role in its planning, working with several partners.

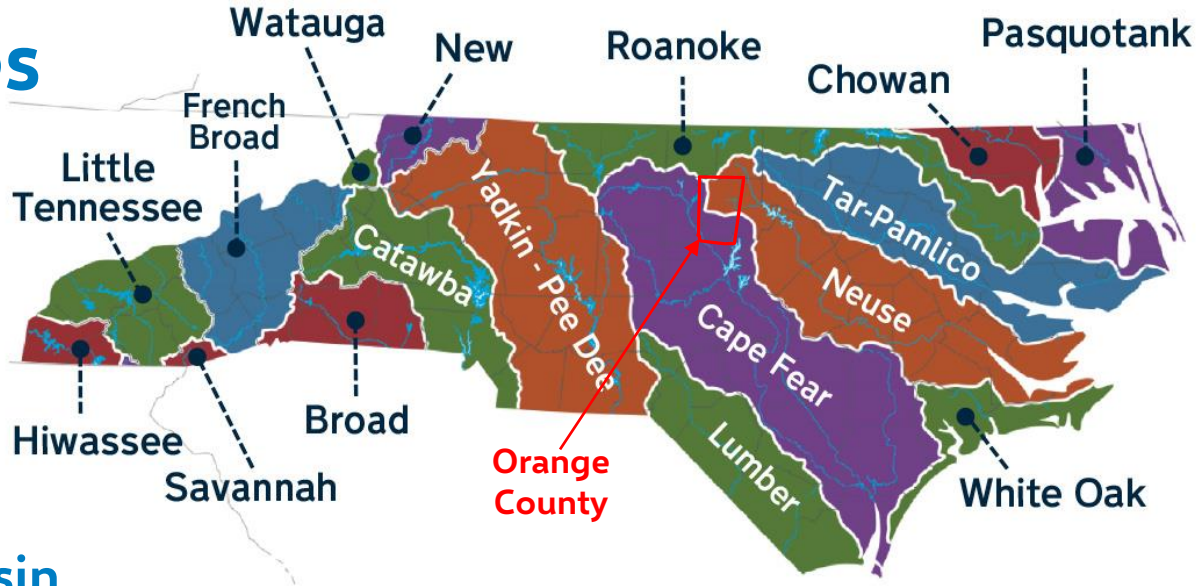




# Water Resources

## Watersheds

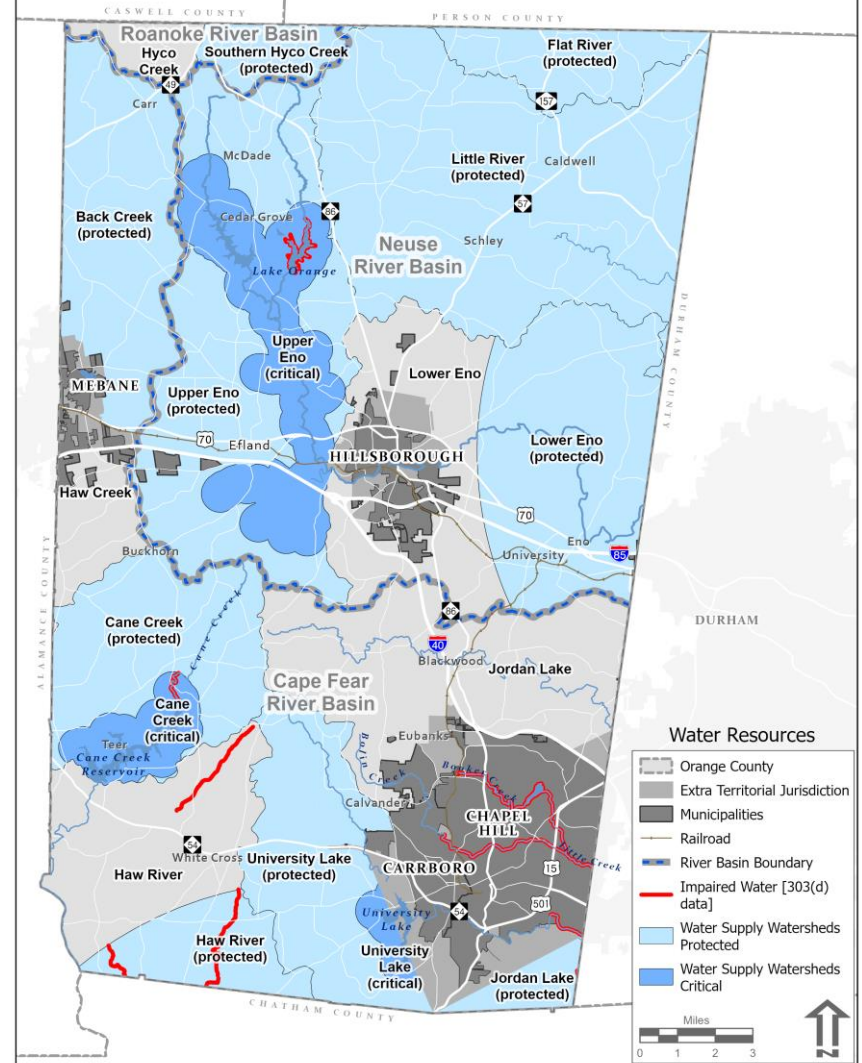
- The northeastern portion of Orange County lies in the **Upper Neuse River Basin**.
- The southern and western portion of the county lies in the **Cape Fear River Basin**.
- The far northwestern portion of the county lies in the **Roanoke River Basin**.



# Water Resources

## Watersheds

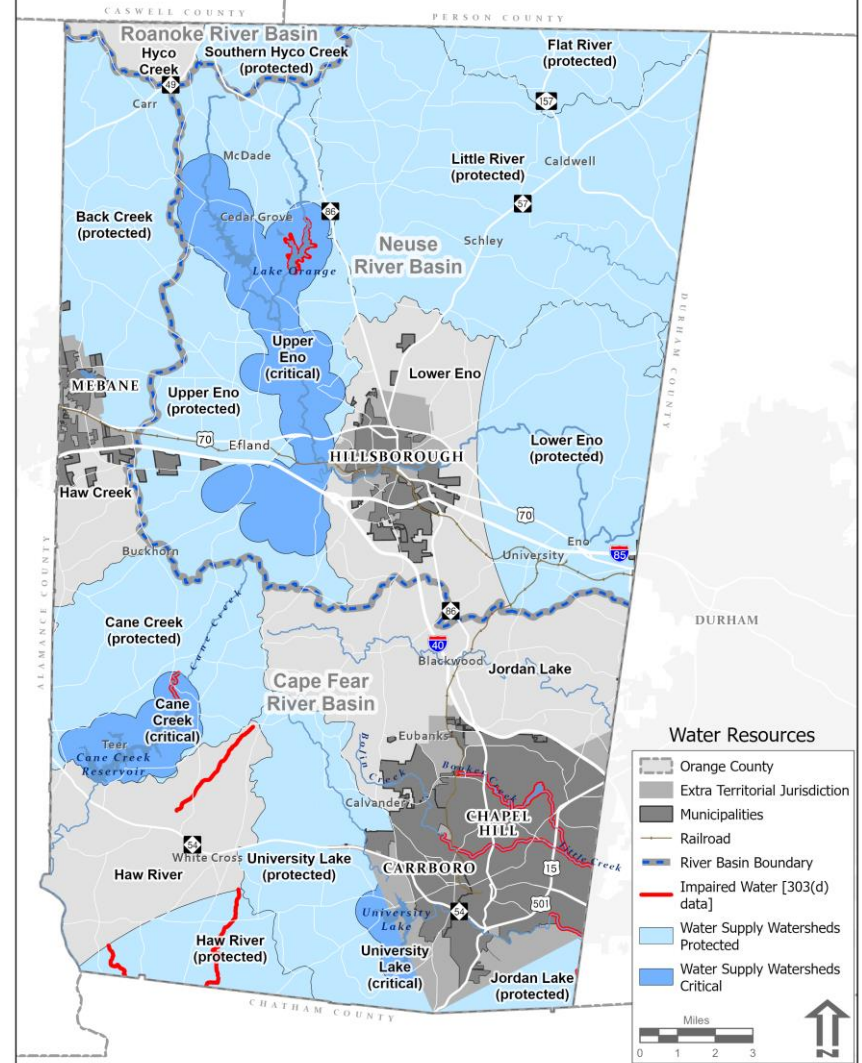
- Orange County is a **headwaters** area of the **Neuse, Roanoke** and **Cape Fear Rivers**.
- Headwater streams are like the capillary system of a blood supply network – just as the health of the whole organism depends on a functioning capillary system, the health of larger streams and rivers depend upon an intact primary headwater stream network.



# Water Resources

## Water Quality

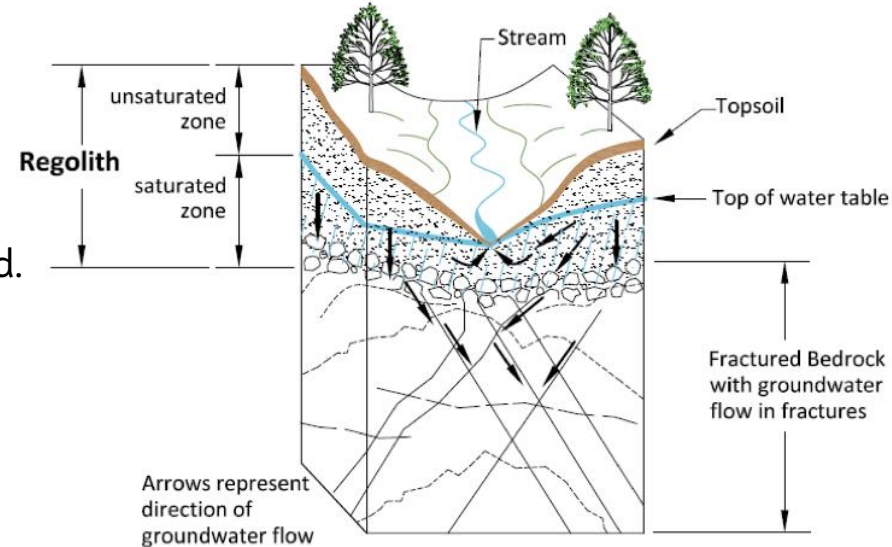
- Portions of **7 county waterbodies** are listed as impaired by NC Division of Water Resources and U.S. EPA:
  - East Fork Eno River (Lake Orange)
  - Cane Creek (above Cane Creek Reservoir)
  - Collins Creek
  - Terrells Creek
  - Morgan Creek
  - Bolin Creek
  - Booker Creek



# Water Resources

## Water Quality

- **Groundwater and Surface Water:** a single resource.
  - Groundwater and surface water are thoroughly interrelated and interconnected.
  - If contaminated, aquifers (groundwater-bearing rock and/or sediment) that discharge to streams can result in long-term contamination of surface water; conversely, streams can be a major source of contamination to aquifers.
  - However, Orange County maintains robust groundwater protection regulations.



(Modified from Harned and Daniel, 1992)

# Water Resources

## Water Quality

- Healthy groundwater and surface water quantity and quality depends on reducing, slowing, and retaining stormwater runoff.
- Current regulations by Orange County reduce stormwater runoff, promote groundwater recharge, and attenuate storm flows, including:
  - Reduction of impervious surface
  - Installation of green stormwater infrastructure
  - Establishing healthy riparian buffers

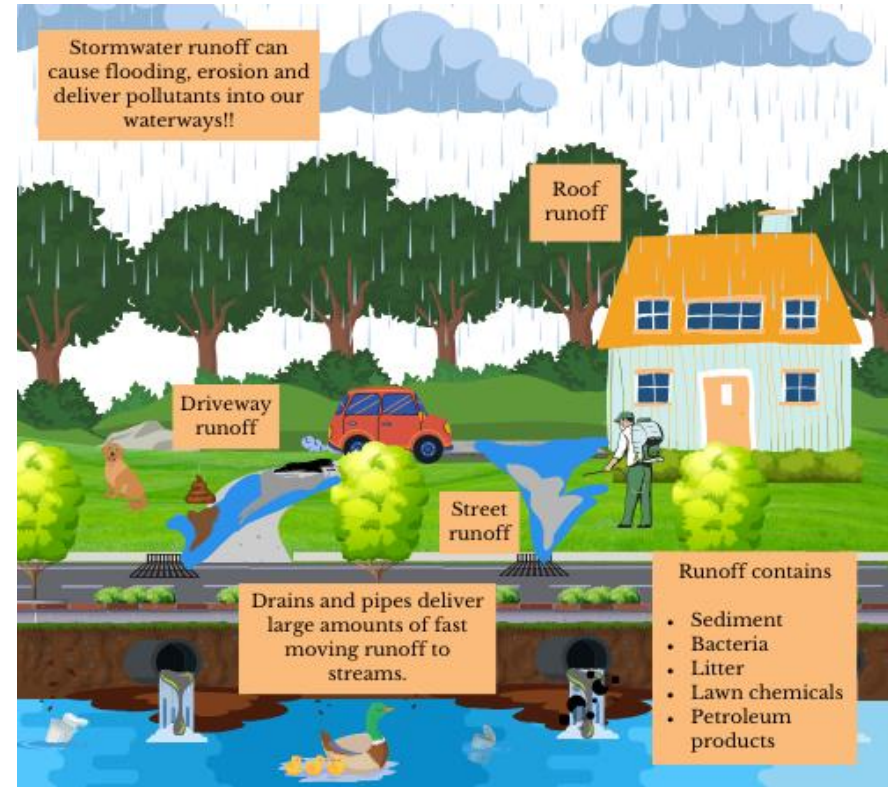
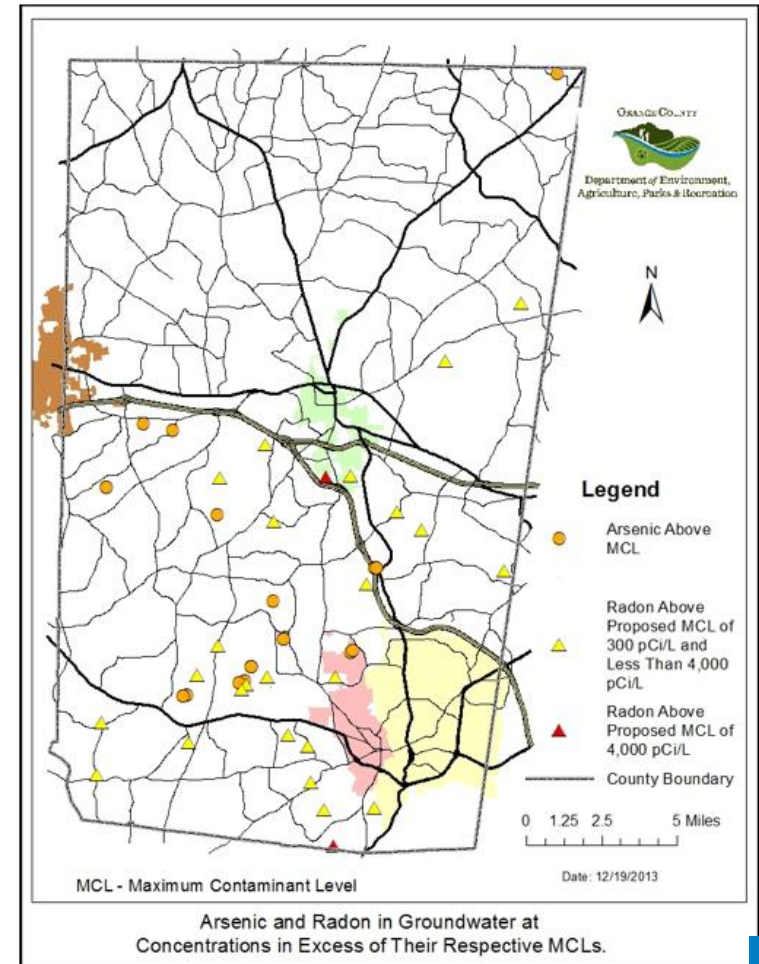


Image Source: RiverLink, "Reduce Rain Runoff" educational campaign.

# Water Resources

## Water Quality

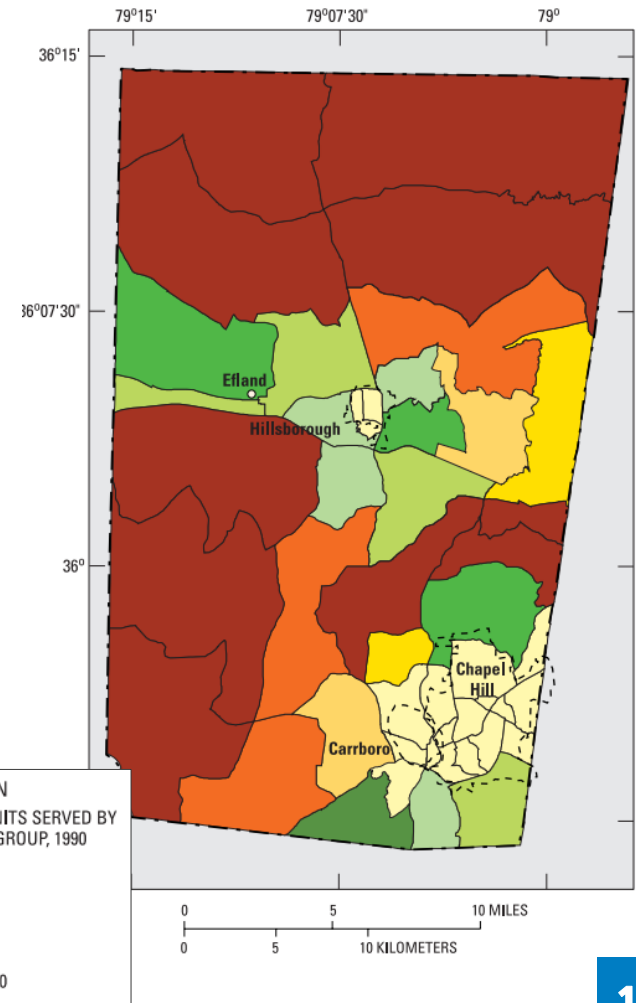
- Groundwater can naturally contain elevated concentrations of some dissolved minerals simply from being in contact with bedrock. In Orange County, these typically include iron and manganese and may also contain elevated arsenic and radon.
- Emerging contaminants in discharged wastewater such as PFAS (Per- and polyfluoroalkyl substances) are potential threats to water supply and animal health.
- However, **overall groundwater quality data in the county indicate few drinking water concerns.**



# Water Resources

## Water Quantity

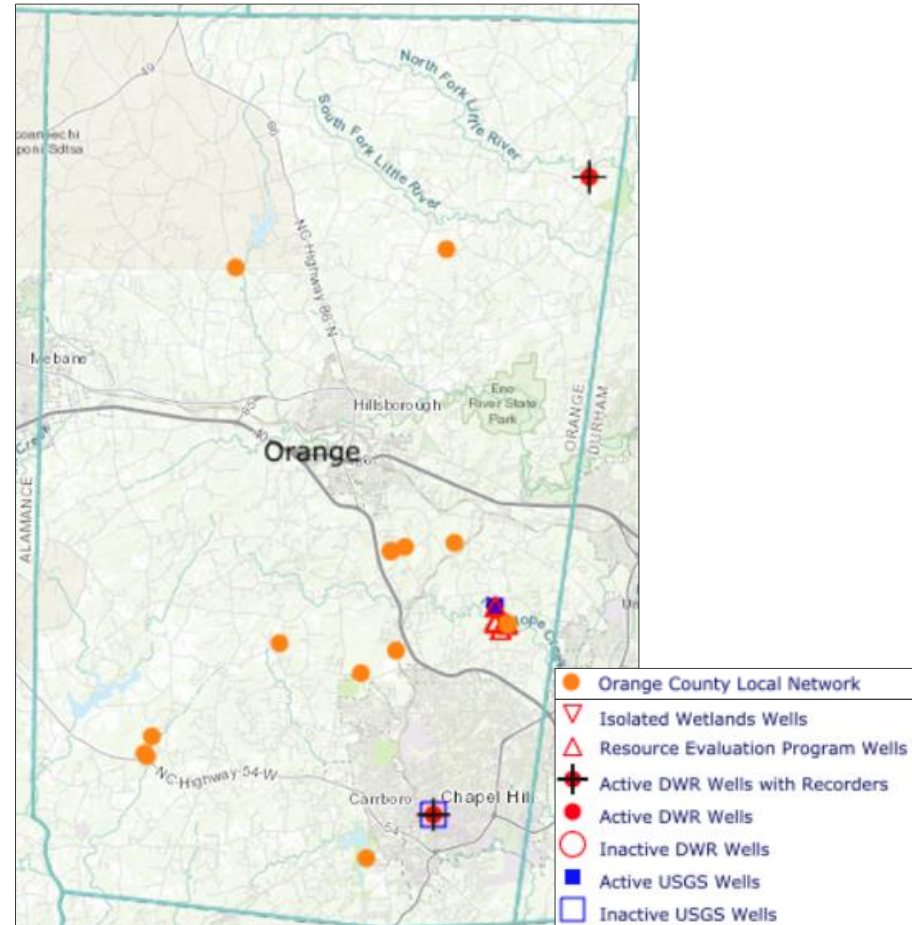
- Many residents of Orange County are served by one of the five drinking water utilities that serve the county, while **nearly 40% of the total county population are served by their own domestic well**, using groundwater for their water supply.
- When you view the county populations by census block, it shows **90% or more of the residents within many of the rural and unincorporated communities are served by private wells/groundwater.**



# Water Resources

## Water Quantity

- Periods of drought and an increasing population can put pressure on water resources
- Orange County has a network of groundwater observation wells to monitor and publicize how groundwater levels are affected by drought or other climatic events

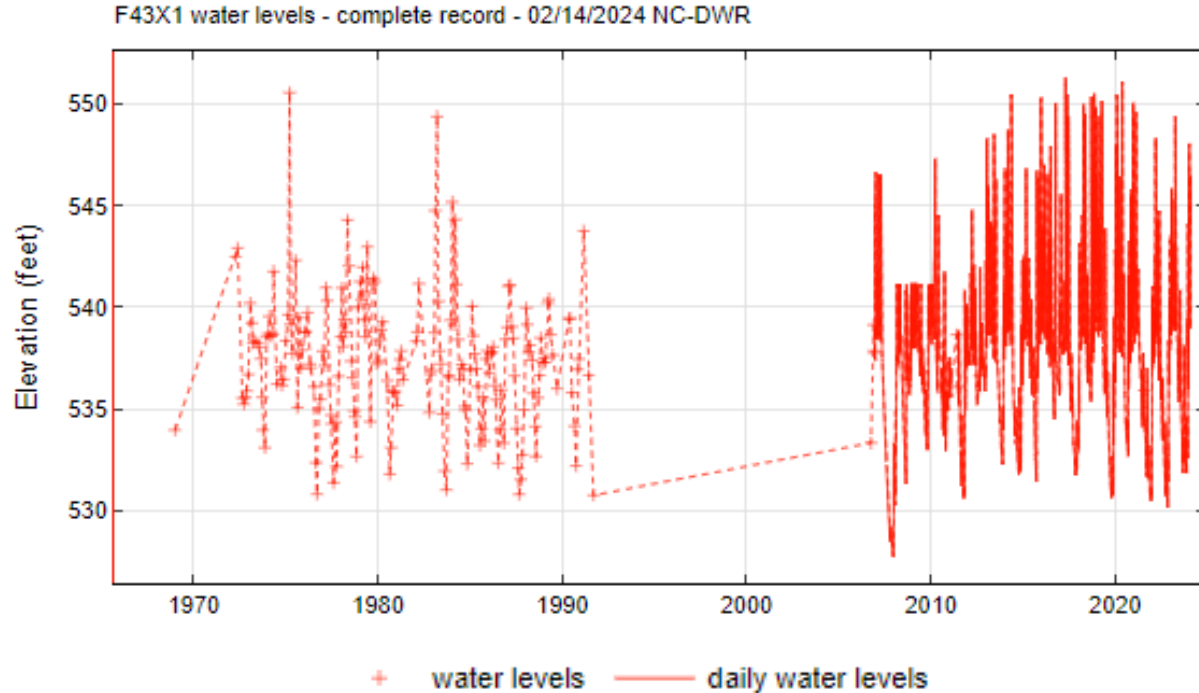




# Water Resources

## Water Quantity

- It is important to monitor the status of this resource due to the number of residents who rely on groundwater.



# Sustainability and Climate Change

## 2023 Climate Action Plan

- On November 2, 2023, the Orange County Board of County Commissioners adopted the County's first Climate Action Plan.
- This plan is the result of numerous engagement efforts through surveys, focus group sessions and direct outreach with individuals and community organizations, nonprofits, businesses, and our farm community. Their valuable input helped develop the 70 strategies of the plan in the areas of:
  - Transportation
  - Built Environment and Energy
  - Resource Conservation
  - Green Community
  - Resilient Community

# Sustainability and Climate Change

## 2023 Climate Action Plan

- Greenhouse gases (GHG) emitted from the cars we drive, the energy we consume, the way we develop the built environment, and the products we buy are having a harmful effect on our environment and are increasing temperatures to dangerous levels which will threaten our way of life, our food systems, and our safety.
- Orange County is already facing periods of severe drought, intense storms, heat waves, and poor air quality with increasing frequency.



# Sustainability and Climate Change

## Equity

- The impacts of climate change cannot be separated from the broader social, economic, and political systems that shape our world. Equity refers to fairness and justice in the distribution of resources, opportunities, and benefits.
- Orange County's 2023 Climate Action Plan states "**Identify and prioritize actions targeted to vulnerable populations within the County**" as the #3 most important climate action to carry out.

### TOP 10 THINGS THE COUNTY SHOULD DO

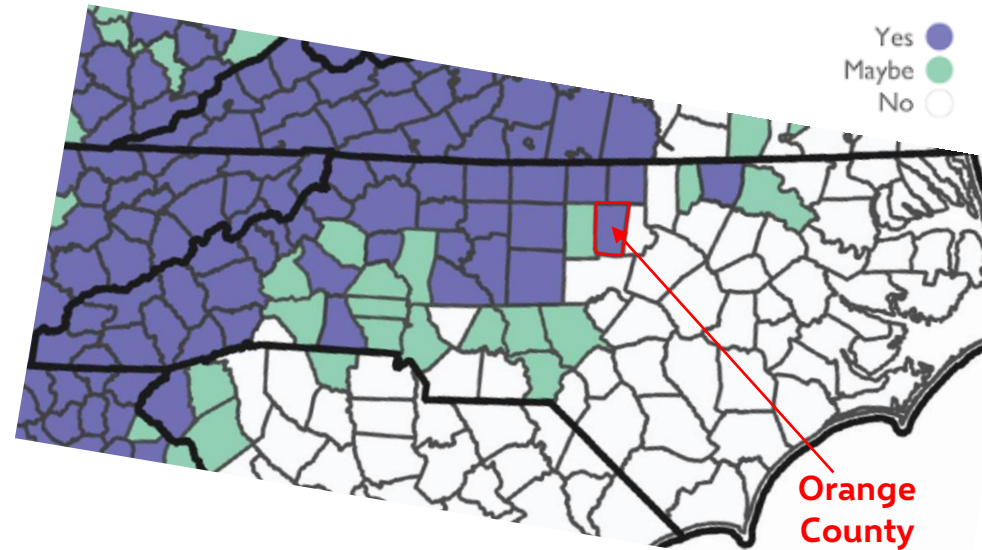


# Sustainability and Climate Change

## Climate Receiver Places

- Orange County has been identified as a “climate-receiving place,” a place with relatively lower climate risks and well situated to receive migrants for climate-related reasons.
- Climate impacts vary by location; many places will become less hospitable and less safe. People will be forced to move. Factors in determining which places are climate-receiving places are:
  - Will places welcome newcomers?
  - Will they be able to manage growth?
  - Will they be able to provide jobs and services for a growing population?

Is the county anticipated to be a climate-receiving place?



PLACE INITIATIVE  
PROACTIVE LEADERSHIP ADVOCATING FOR CLIMATE & EQUITY

# Natural Hazard Risk in Orange County

Natural hazard risks, provided by the Eno-Haw Regional Hazard Mitigation Plan, are shared on the following slides by Probability of Future Occurrence (PFO) and Impact.

<b>Probability of Future Occurrence (PFO)</b>	<p><b>Highly Likely:</b> Near or more than 100 percent chance of occurrence within the next year</p> <p><b>Likely:</b> Between 10 and 100 percent chance of occurrence within the next year (recurrence interval of 10 years or less)</p> <p><b>Possible:</b> Between 1 and 10 percent chance of occurrence within the next year (recurrence interval of 11 to 100 years)</p> <p><b>Unlikely:</b> Less than 1 percent chance or occurrence within the next 100 years (recurrence interval of greater than every 100 years)</p>
<b>Impact</b>	<p><b>Minor:</b> Very few injuries, if any. Only minor property damage &amp; minimal disruption on quality of life. Temporary shutdown of critical facilities.</p> <p><b>Limited:</b> Minor injuries only. More than 10% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for &gt; 1 day.</p> <p><b>Critical:</b> Multiple deaths/injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for &gt; 1 week.</p> <p><b>Catastrophic:</b> High number of deaths/injuries possible. More than 50% of property in affected area damaged or destroyed. Complete shutdown of critical facilities &gt; 30 days.</p>

# Natural Hazard Risk in Orange County

## Drought

- In drought 46.9% of time from 2000-2018.
  - Probability of Future Occurrence (PFO): 3-Likely
  - Impact: 1-Minor

## Extreme Heat

- Days per year with temperature  $>95^{\circ}\text{F}$  is expected to increase by 20-30 days from 2041-2070.
  - PFO: 3-Likely
  - Impact: 2-Limited



Image source: National Oceanic and Atmospheric Administration.

# Natural Hazard Risk in Orange County

## Severe Weather

- **Thunderstorm Winds:**
  - PFO: 4-Highly Likely
  - Impact: 1-Minor
- **Lightning:**
  - PFO: 4-Highly Likely
  - Impact: 1-Minor
- **Hail:**
  - PFO: 4-Highly Likely
  - Impact: 2-Limited

## Severe Winter Storm Event

- PFO: 4-Highly Likely
- Impact: 3-Critical



Event Type	# of Recorded Incidents	Total Fatalities	Total Injuries	Total Property Damage	Total Crop Damage
Orange County, NC					
Winter Storm	30	0	0	\$1,000,000	\$0
Winter Weather	28	0	0	\$30,000	\$0
Ice Storm	1	0	0	\$2,700,000	\$0
Heavy Snow	1	0	0	\$0	\$0



# Natural Hazard Risk in Orange County

## Flood

- Eno River, North and South Forks Little River, New Hope Creek, Morgan Creek, Bolin Creek, and other streams
  - PFO: 3-Likely
  - Impact: 2-Limited

## Tornado

- April 19, 2019: A deepening upper-level trough brought severe thunderstorms that produced 7 tornadoes across central NC. The strongest tornado formed in southwestern Orange County and reached EF-2 strength as it neared Hillsborough.
  - PFO: 3-Likely
  - Impact: 3-Critical



Image source: Rebuild NC, North Carolina Department of Public Safety.

